

Typical Performance Curves

1.0 TYPICAL PERFORMANCE CURVES

Note: The following performance graphs are for the devices that are documented in the MCP41HVX1 data sheet (DS20005207). This document allows the MCP41HVX1 data sheet's functional description to be in PDF format with a file size smaller than the 10 MB limit of many email file servers.

The graphs and tables provided following this note are a statistical summary based on a limited number of samples and are provided for informational purposes only. The performance characteristics listed herein are not tested or guaranteed. In some graphs or tables, the data presented may be outside the specified operating range (e.g., outside specified power supply range) and therefore outside the warranted range.

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_L = 5.5\text{V}$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$.

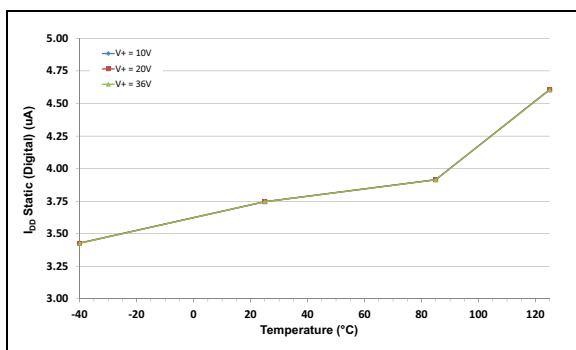


FIGURE 1-1: Device Digital Supply Static Current (I_{DD}) vs. Temperature and V_+ Voltage ($V_L = 5.5\text{V}$, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 10\text{V}$, 20V , and 36V).

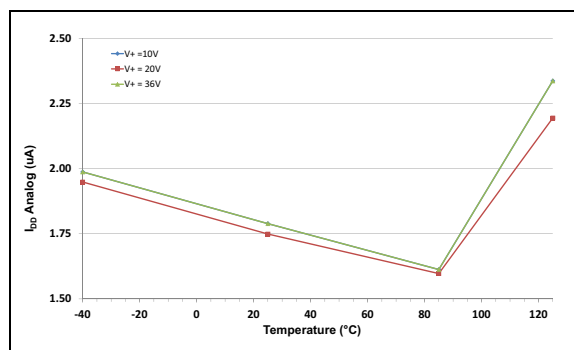


FIGURE 1-3: Device Analog Supply Static Current (I_{DD}) vs. Temperature and V_+ Voltage ($V_L = 5.5\text{V}$, $A = B = V_-$, $\text{DGND} = V_-$, $V_+ = 10\text{V}$, 20V , and 36V).

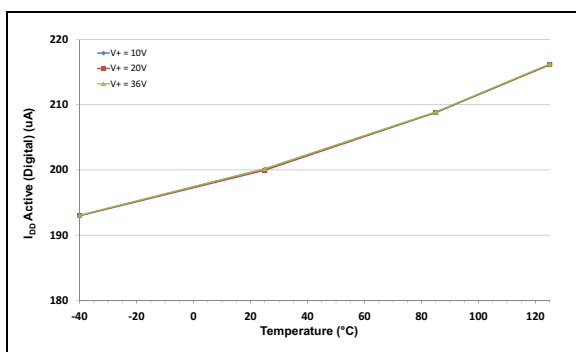


FIGURE 1-2: Device Digital Supply Active Current (I_{DD}) vs. Temperature and V_+ Voltage ($V_L = 5.5\text{V}$, $F_{\text{SCK}} = 5\text{ MHz}$, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 10\text{V}$, 20V , and 36V).

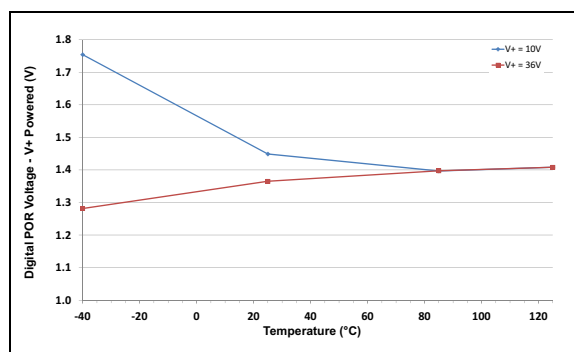


FIGURE 1-4: Digital Supply POR Voltage (V_{DPOR}) vs. Temperature and V_+ Voltage ($V_+ = 10\text{V}$ and 36V).

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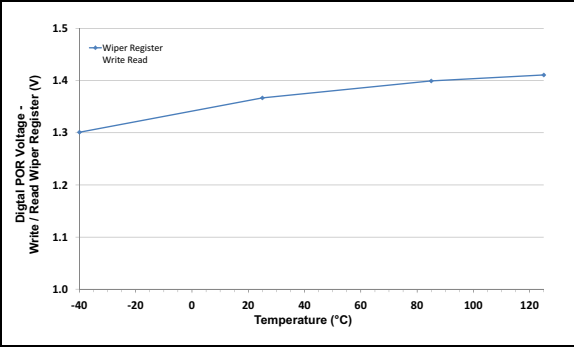


FIGURE 1-5: Digital Supply POR Voltage (V_{DPOR}) vs. Temperature (Analog Supply (V₊/V₋) Not Powered).

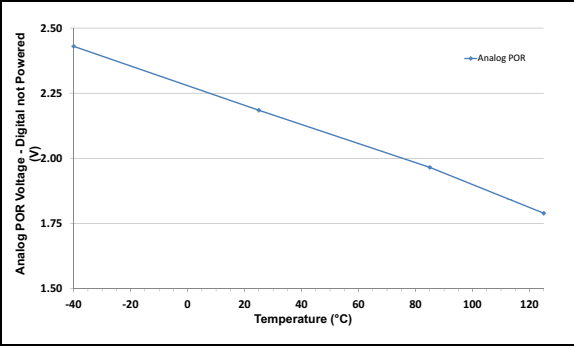


FIGURE 1-6: Analog Supply POR Voltage (V_{APOR}) vs. Temperature (Digital Supply (V_L / DGND) Not Powered).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_L = 5.0\text{V}$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$.

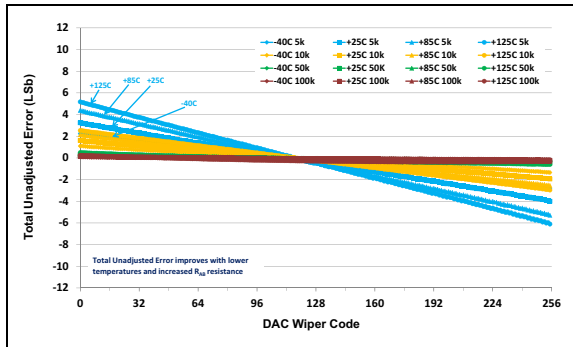


FIGURE 1-7: Total Unadjusted Error (Pot. Mode) (V_W) vs. Wiper Setting, R_{AB} Resistance, and Temperature (8-bit: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$).

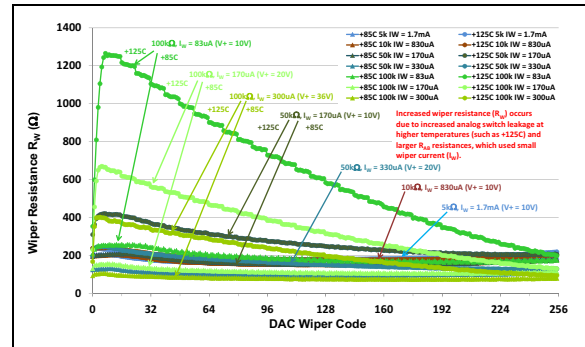


FIGURE 1-10: Wiper Resistance (R_W) vs. Wiper Setting, R_{AB} Resistance, I_W Current, and Temperature (8-bit: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$).

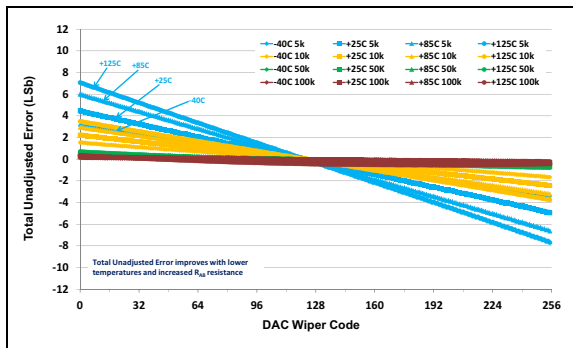


FIGURE 1-8: Total Unadjusted Error (Pot. Mode) (V_W) vs. Wiper Setting, R_{AB} Resistance, and Temperature (8-bit: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 20\text{V}$).

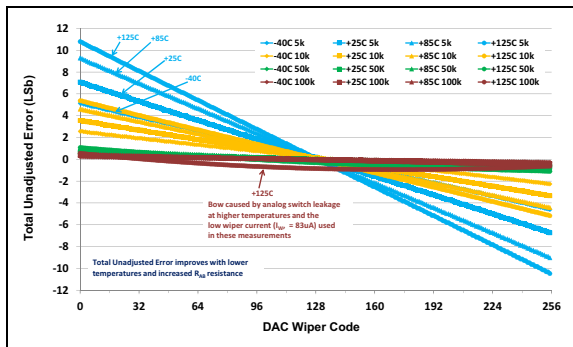


FIGURE 1-9: Total Unadjusted Error (Pot. Mode) (V_W) vs. Wiper Setting, R_{AB} Resistance, and Temperature (8-bit: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 10\text{V}$).

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Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_L = 5.0\text{V}$, $\text{DGND} = V^-$, $V^+ = 36\text{V}$

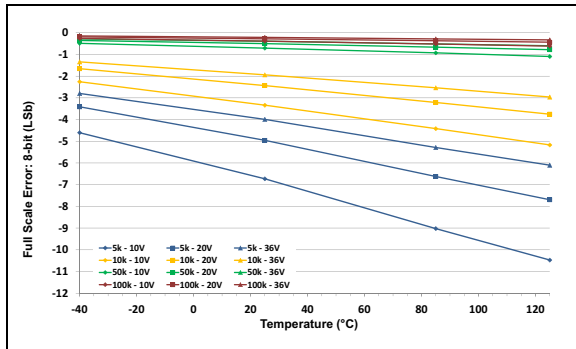


FIGURE 1-11: Full Scale Error (Pot. Mode) (FSE) vs. Temperature, R_{AB} Resistance, and V^+ Voltage (8-bit: $V_L = 1.8\text{V}, 2.7\text{V}, 5.5\text{V}$, $A = V^+$, $B = V^-$, $\text{DGND} = V^-$, $V^+ = 36\text{V}, 20\text{V}, 10\text{V}$).

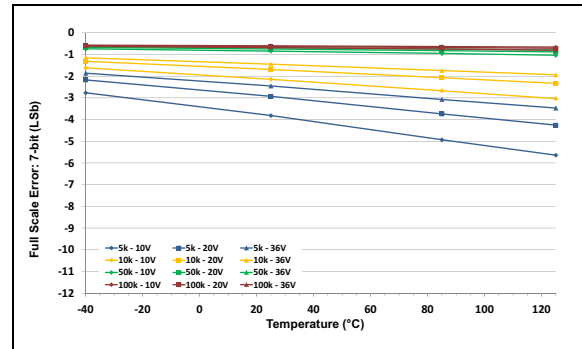


FIGURE 1-14: Full Scale Error (Pot. Mode) (FSE) vs. Temperature, R_{AB} Resistance, and V^+ Voltage (7-bit: $V_L = 1.8\text{V}, 2.7\text{V}, 5.5\text{V}$, $A = V^+$, $B = V^-$, $\text{DGND} = V^-$, $V^+ = 36\text{V}, 20\text{V}, 10\text{V}$).

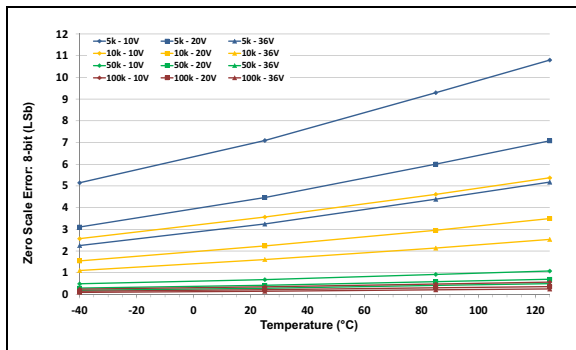


FIGURE 1-12: Zero Scale Error (Pot. Mode) (FSE) vs. Temperature, R_{AB} Resistance, and V^+ Voltage (8-bit: $V_L = 1.8\text{V}, 2.7\text{V}, 5.5\text{V}$, $A = V^+$, $B = V^-$, $\text{DGND} = V^-$, $V^+ = 36\text{V}, 20\text{V}, 10\text{V}$).

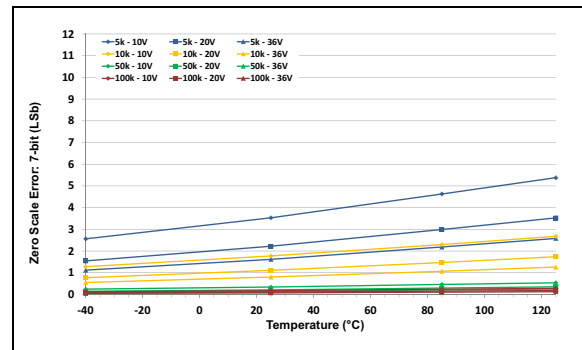


FIGURE 1-15: Zero Scale Error (Pot. Mode) (FSE) vs. Temperature, R_{AB} Resistance, and V^+ Voltage (7-bit: $V_L = 1.8\text{V}, 2.7\text{V}, 5.5\text{V}$, $A = V^+$, $B = V^-$, $\text{DGND} = V^-$, $V^+ = 36\text{V}, 20\text{V}, 10\text{V}$).

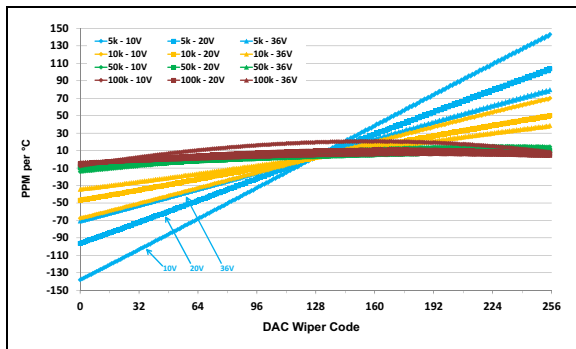


FIGURE 1-13: V_W PPM / °C (Pot. Mode) vs. Temperature, R_{AB} Resistance, and V^+ Voltage

$$\left(\frac{(V_{W(\text{code}=n, 125^\circ\text{C})} - V_{W(\text{code}=n, -40^\circ\text{C})})}{V_{W(\text{code}=255, 25^\circ\text{C})}} \right) * 1,000,000 / 165^\circ\text{C}$$
 (8-bit: $V_L = 1.8\text{V}, 2.7\text{V}, 5.5\text{V}$, $A = V^+$, $B = V^-$, $\text{DGND} = V^-$, $V^+ = 36\text{V}, 20\text{V}, 10\text{V}$).

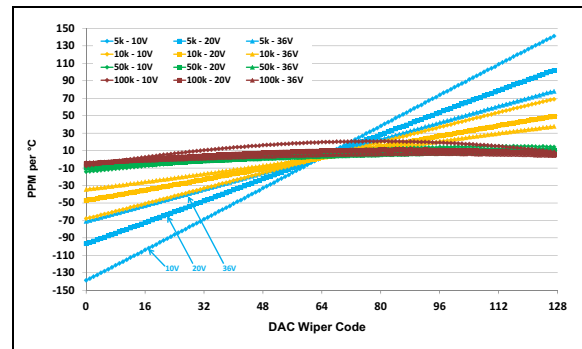


FIGURE 1-16: V_W PPM / °C (Pot. Mode) vs. Temperature, R_{AB} Resistance, and V^+ Voltage

$$\left(\frac{(V_{W(\text{code}=n, 125^\circ\text{C})} - V_{W(\text{code}=n, -40^\circ\text{C})})}{V_{W(\text{code}=127, 25^\circ\text{C})}} \right) * 1,000,000 / 165^\circ\text{C}$$
 (7-bit: $V_L = 1.8\text{V}, 2.7\text{V}, 5.5\text{V}$, $A = V^+$, $B = V^-$, $\text{DGND} = V^-$, $V^+ = 36\text{V}, 20\text{V}, 10\text{V}$).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_L = 5.0\text{V}$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$.

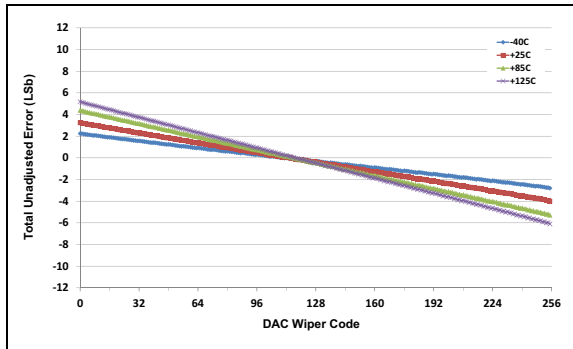


FIGURE 1-17: Total Unadjusted Error (Pot. Mode) (V_W) vs. Wiper Setting and Temperature (**5.0 k Ω , 8-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 36\text{V}$**).

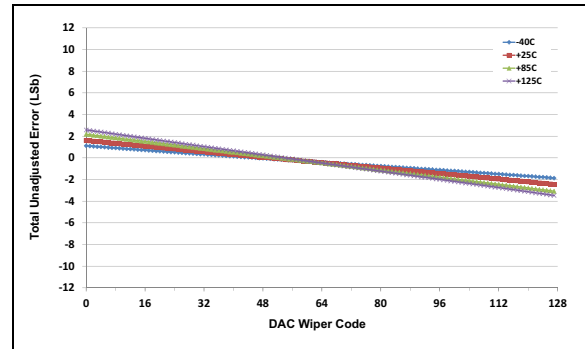


FIGURE 1-20: Total Unadjusted Error (Pot. Mode) (V_W) vs. Wiper Setting and Temperature (**5.0 k Ω , 7-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 36\text{V}$**).

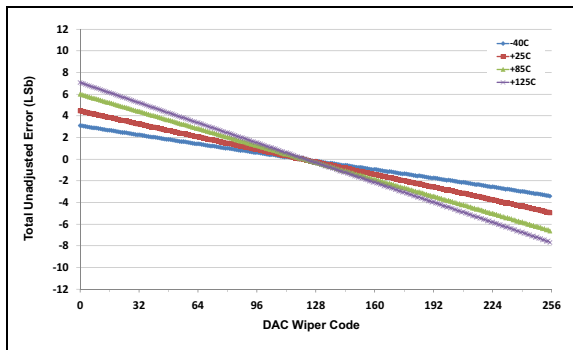


FIGURE 1-18: Total Unadjusted Error (Pot. Mode) (V_W) vs. Wiper Setting and Temperature (**5.0 k Ω , 8-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 20\text{V}$**).

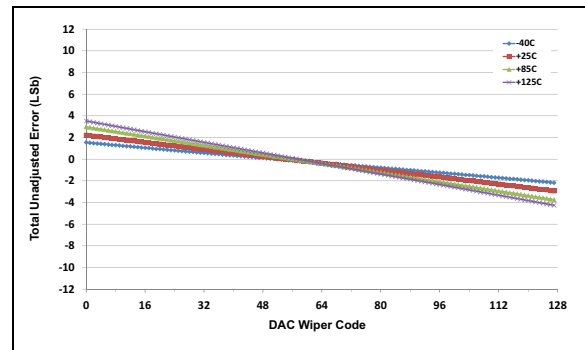


FIGURE 1-21: Total Unadjusted Error (Pot. Mode) (V_W) vs. Wiper Setting and Temperature (**5.0 k Ω , 7-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 20\text{V}$**).

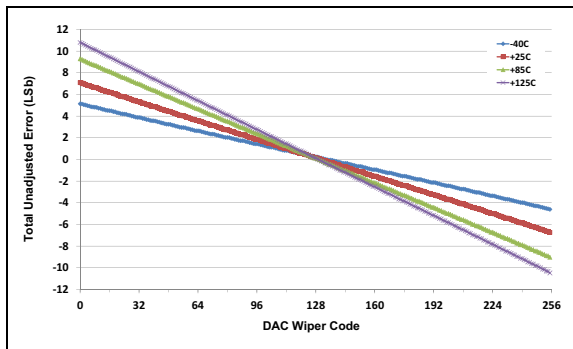


FIGURE 1-19: Total Unadjusted Error (Pot. Mode) (V_W) vs. Wiper Setting and Temperature (**5.0 k Ω , 8-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 10\text{V}$**).

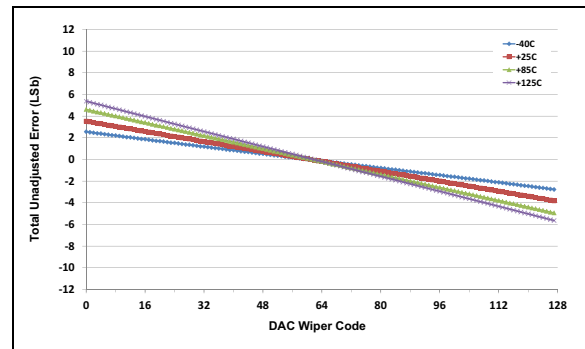


FIGURE 1-22: Total Unadjusted Error (Pot. Mode) (V_W) vs. Wiper Setting and Temperature (**5.0 k Ω , 7-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 10\text{V}$**).

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Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_L = 5.0\text{V}$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$.

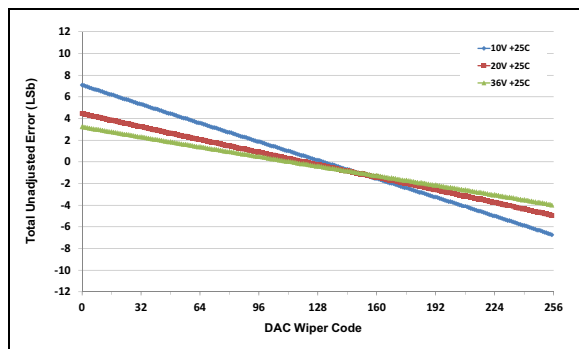


FIGURE 1-23: Total Unadjusted Error (Pot. Mode) (V_W) vs. Wiper Setting (@ 25°C) ($5.0\text{ k}\Omega$, 8-bit: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$, 20V , 10V).

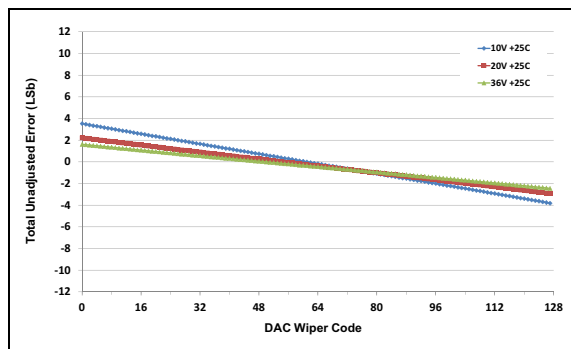


FIGURE 1-26: Total Unadjusted Error (Pot. Mode) (V_W) vs. Wiper Setting (@ 25°C) ($5.0\text{ k}\Omega$, 7-bit: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$, 20V , 10V).

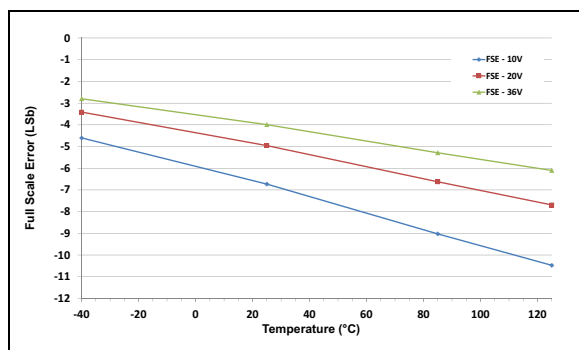


FIGURE 1-24: Full Scale Error (Pot. Mode) (FSE) vs. Temperature and V_+ Voltage ($5.0\text{ k}\Omega$, 8-bit: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$, 20V , 10V).

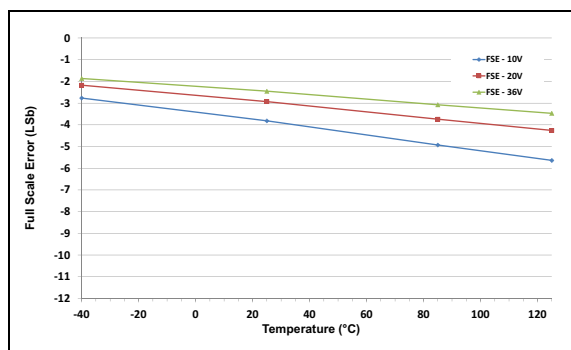


FIGURE 1-27: Full Scale Error (Pot. Mode) (FSE) vs. Temperature and V_+ Voltage ($5.0\text{ k}\Omega$, 7-bit: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$, 20V , 10V).

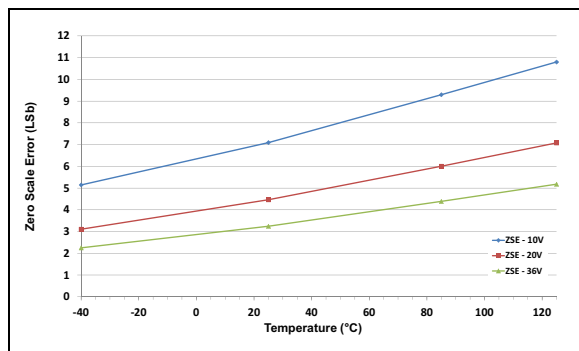


FIGURE 1-25: Zero Scale Error (Pot. Mode) (ZSE) vs. Temperature and V_+ Voltage ($5.0\text{ k}\Omega$, 8-bit: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$, 20V , 10V).

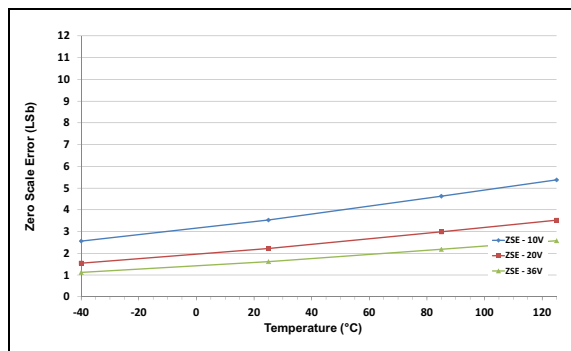


FIGURE 1-28: Zero Scale Error (Pot. Mode) (ZSE) vs. Temperature and V_+ Voltage ($5.0\text{ k}\Omega$, 7-bit: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$, 20V , 10V).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_L = 5.0\text{V}$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$.

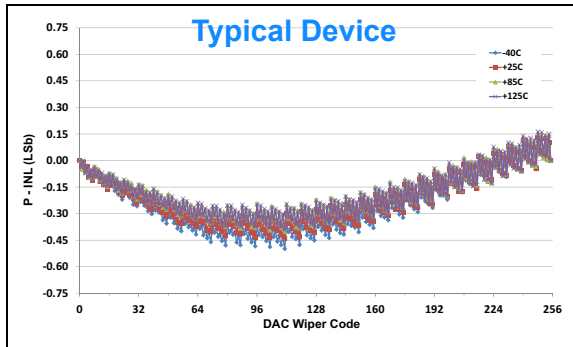


FIGURE 1-29: INL Error - Pot. Mode (P-INL) vs. Wiper Setting and Temperature
(**5.0 k Ω** , **8-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V ,
 $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 36\text{V}$**).

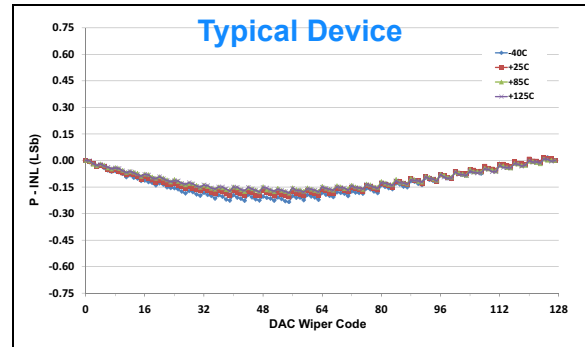


FIGURE 1-32: INL Error - Pot. Mode (P-INL) vs. Wiper Setting and Temperature
(**5.0 k Ω** , **7-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V ,
 $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 36\text{V}$**).

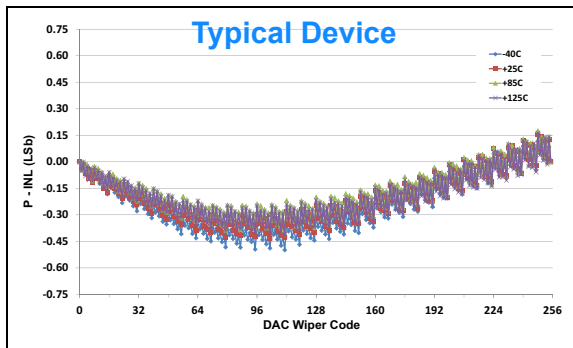


FIGURE 1-30: INL Error - Pot. Mode (P-INL) vs. Wiper Setting and Temperature
(**5.0 k Ω** , **8-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V ,
 $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 20\text{V}$**).

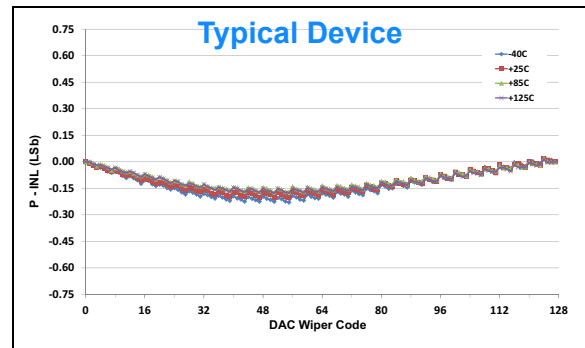


FIGURE 1-33: INL Error - Pot. Mode (P-INL) vs. Wiper Setting and Temperature
(**5.0 k Ω** , **7-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V ,
 $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 20\text{V}$**).

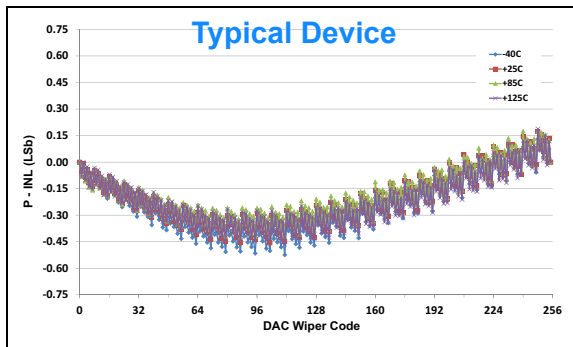


FIGURE 1-31: INL Error - Pot. Mode (P-INL) vs. Wiper Setting and Temperature
(**5.0 k Ω** , **8-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V ,
 $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 10\text{V}$**).

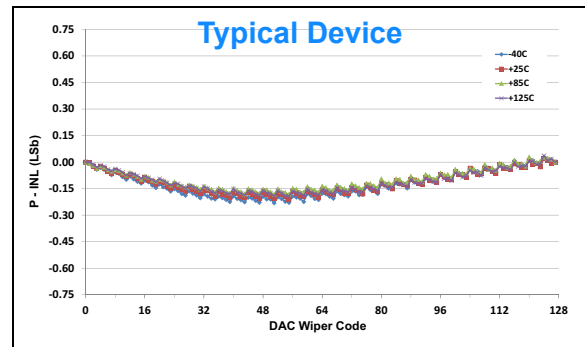


FIGURE 1-34: INL Error - Pot. Mode (P-INL) vs. Wiper Setting and Temperature
(**5.0 k Ω** , **7-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V ,
 $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 10\text{V}$**).

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Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_L = 5.0\text{V}$, $\text{DGND} = V^-$, $V^+ = 36\text{V}$.

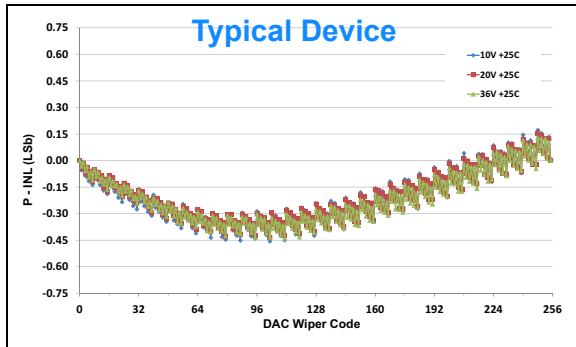


FIGURE 1-35: INL Error - Pot. Mode (P-INL) vs. Wiper Setting (@ 25°C)
(**5.0 k Ω** , **8-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V ,
 $A = V^+$, $B = V^-$, $\text{DGND} = V^-$, **$V^+ = 36\text{V}$, 20V , 10V**).

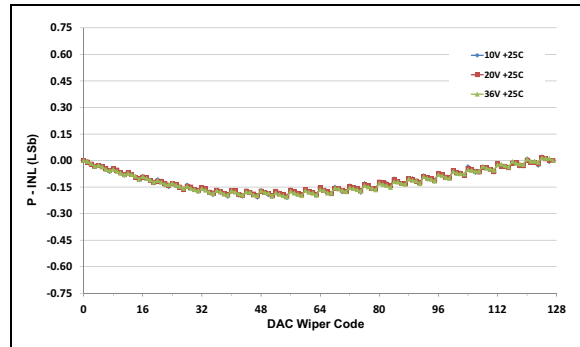


FIGURE 1-36: INL Error - Pot. Mode (P-INL) vs. Wiper Setting (@ 25°C)
(**5.0 k Ω** , **7-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V ,
 $A = V^+$, $B = V^-$, $\text{DGND} = V^-$, **$V^+ = 36\text{V}$, 20V , 10V**).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_L = 5.0\text{V}$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$.

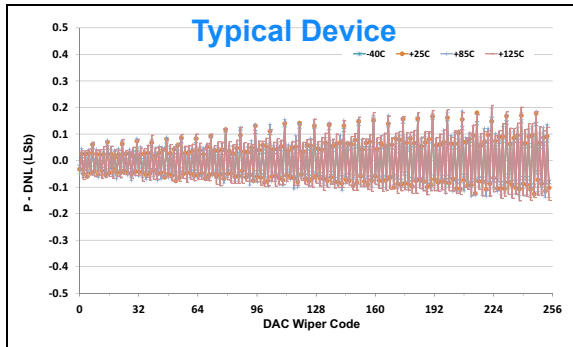


FIGURE 1-37: DNL Error - Pot. Mode (P-DNL) vs. Wiper Setting and Temperature (**5.0 k Ω** , **8-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 36\text{V}$**).

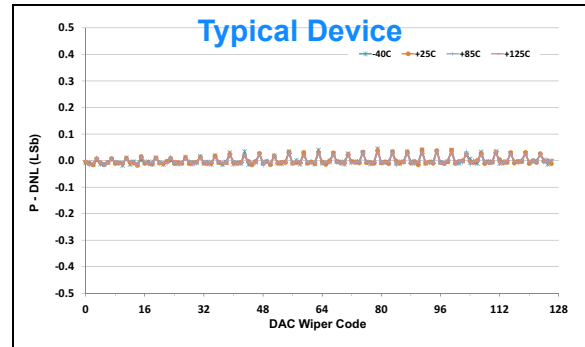


FIGURE 1-40: DNL Error - Pot. Mode (P-DNL) vs. Wiper Setting and Temperature (**5.0 k Ω** , **7-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 36\text{V}$**).

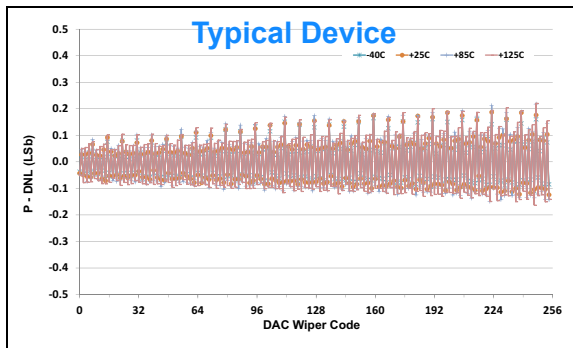


FIGURE 1-38: DNL Error - Pot. Mode (P-DNL) vs. Wiper Setting and Temperature (**5.0 k Ω** , **8-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 20\text{V}$**).

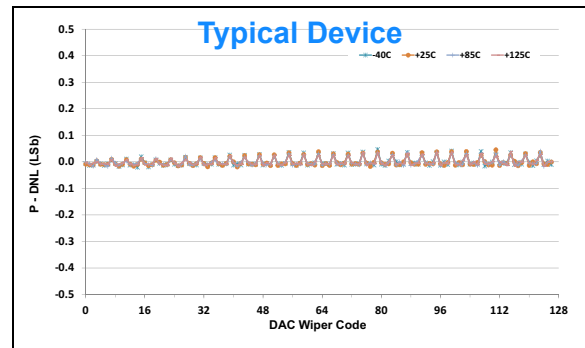


FIGURE 1-41: DNL Error - Pot. Mode (P-DNL) vs. Wiper Setting and Temperature (**5.0 k Ω** , **7-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 20\text{V}$**).

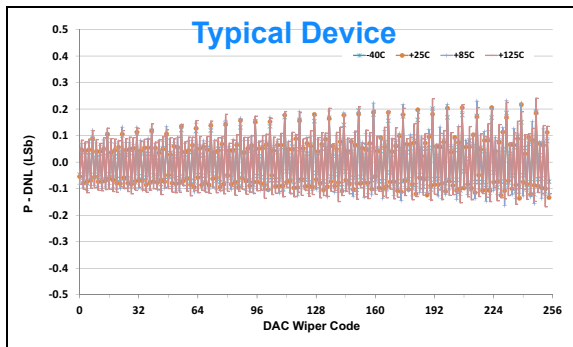


FIGURE 1-39: DNL Error - Pot. Mode (P-DNL) vs. Wiper Setting and Temperature (**5.0 k Ω** , **8-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 10\text{V}$**).

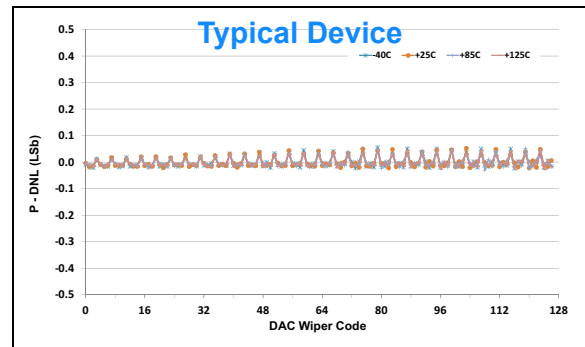


FIGURE 1-42: DNL Error - Pot. Mode (P-DNL) vs. Wiper Setting and Temperature (**5.0 k Ω** , **7-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 10\text{V}$**).

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Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_L = 5.0\text{V}$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$.

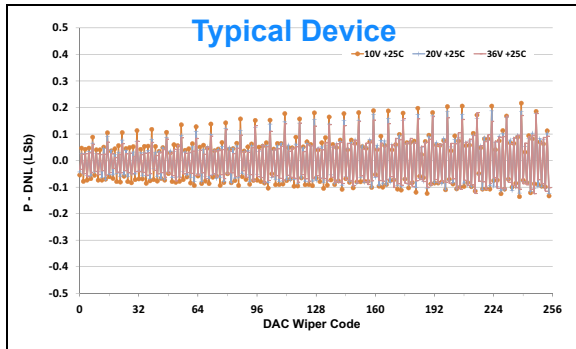


FIGURE 1-43: DNL Error - Pot. Mode (P-DNL) vs. Wiper Setting (@ 25°C)
(**5.0 k Ω** , **8-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V ,
 $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 36\text{V}$** , **20V**, **10V**).

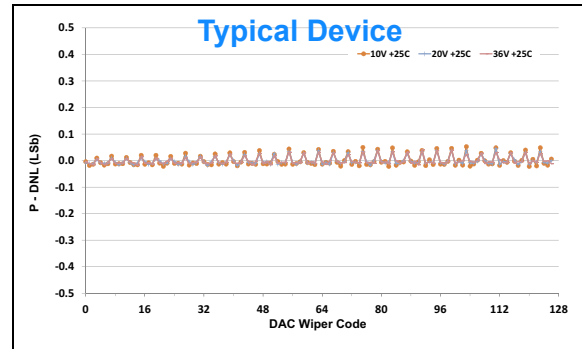


FIGURE 1-44: DNL Error - Pot. Mode (P-DNL) vs. Wiper Setting (@ 25°C)
(**5.0 k Ω** , **7-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V ,
 $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 36\text{V}$** , **20V**, **10V**).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_L = 5.0\text{V}$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$.

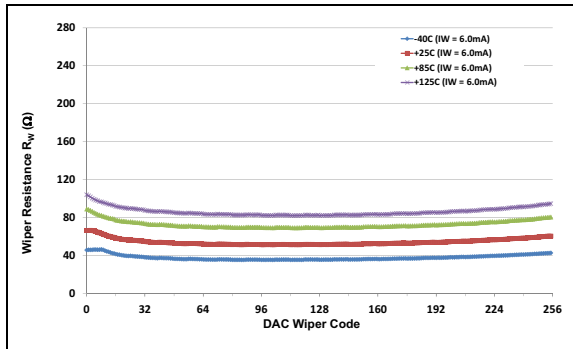


FIGURE 1-45: Wiper Resistance (R_W) vs. Wiper Setting and Temperature (5.0 kΩ, 8-bit: $V_L = 1.8\text{V}$, 2.7V, 5.5V, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$, $I_W = 6.0\text{mA}$).

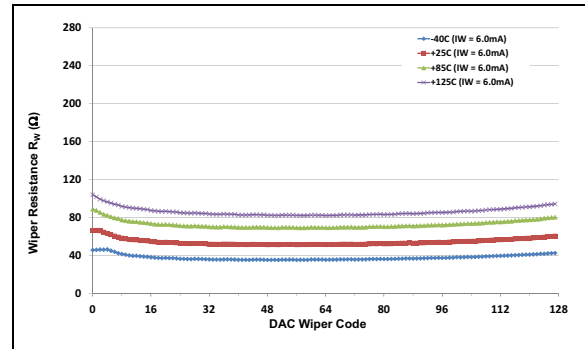


FIGURE 1-48: Wiper Resistance (R_W) vs. Wiper Setting and Temperature (5.0 kΩ, 7-bit: $V_L = 1.8\text{V}$, 2.7V, 5.5V, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$, $I_W = 6.0\text{mA}$).

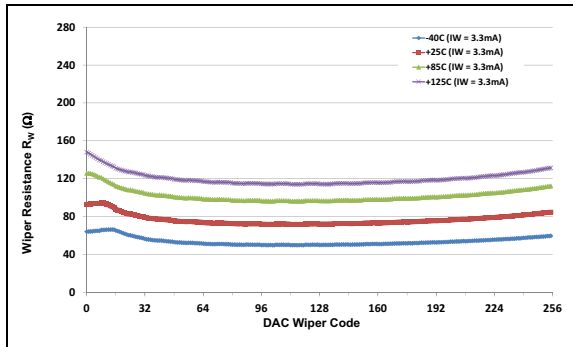


FIGURE 1-46: Wiper Resistance (R_W) vs. Wiper Setting and Temperature (5.0 kΩ, 8-bit: $V_L = 1.8\text{V}$, 2.7V, 5.5V, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 20\text{V}$, $I_W = 3.3\text{mA}$).

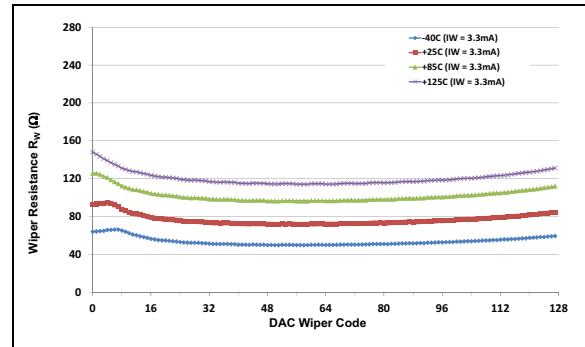


FIGURE 1-49: Wiper Resistance (R_W) vs. Wiper Setting and Temperature (5.0 kΩ, 7-bit: $V_L = 1.8\text{V}$, 2.7V, 5.5V, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 20\text{V}$, $I_W = 3.3\text{mA}$).

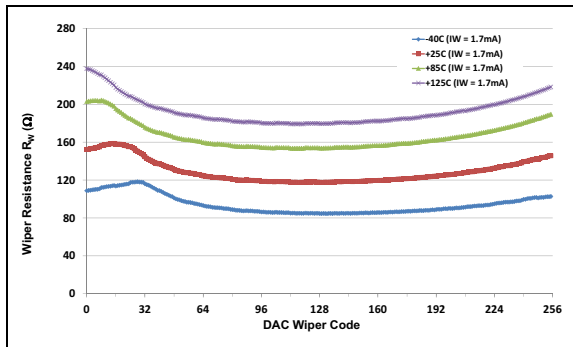


FIGURE 1-47: Wiper Resistance (R_W) vs. Wiper Setting and Temperature (5.0 kΩ, 8-bit: $V_L = 1.8\text{V}$, 2.7V, 5.5V, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 10\text{V}$, $I_W = 1.7\text{mA}$).

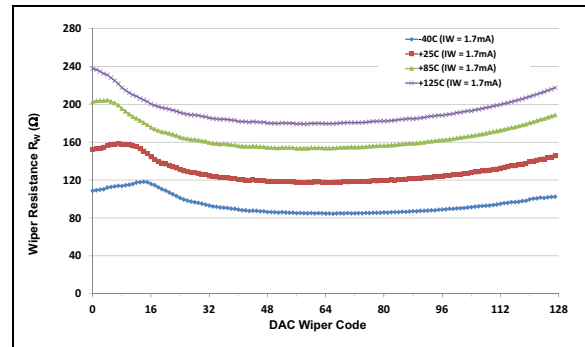


FIGURE 1-50: Wiper Resistance (R_W) vs. Wiper Setting and Temperature (5.0 kΩ, 7-bit: $V_L = 1.8\text{V}$, 2.7V, 5.5V, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 10\text{V}$, $I_W = 1.7\text{mA}$).

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Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_L = 5.0\text{V}$, $\text{DGND} = V_-$, $V+ = 36\text{V}$

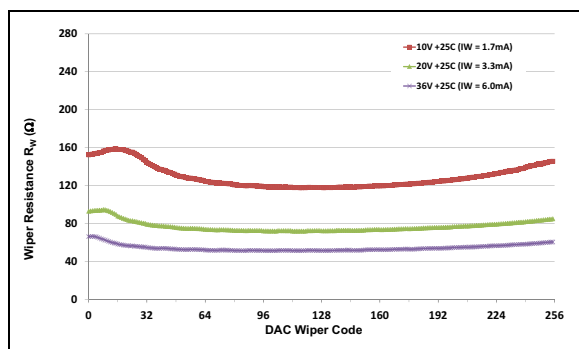


FIGURE 1-51: Wiper Resistance (R_W) vs. Wiper Setting @ 29°C
(5.0 k Ω , 8-bit: $V_L = 1.8\text{V}$, 2.7V , 5.5V ,
 $A = V+$, $B = V_-$, $\text{DGND} = V_-$,
 $V+ = 36\text{V}$ and $I_W = 6.0\text{mA}$, $V+ = 20\text{V}$ and
 $I_W = 3.3\text{mA}$, $V+ = 10\text{V}$ and $I_W = 1.7\text{mA}$).

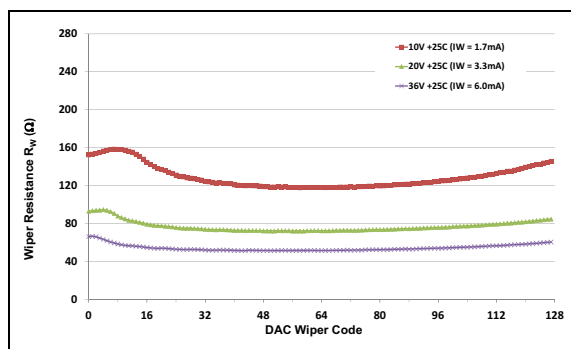


FIGURE 1-52: Wiper Resistance (R_W) vs. Wiper Setting @ 29°C
(5.0 k Ω , 7-bit: $V_L = 1.8\text{V}$, 2.7V , 5.5V ,
 $V+ = 36\text{V}$ and $I_W = 6.0\text{mA}$, $V+ = 20\text{V}$ and
 $I_W = 3.3\text{mA}$, $V+ = 10\text{V}$ and $I_W = 1.7\text{mA}$).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_L = 5.0\text{V}$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$.

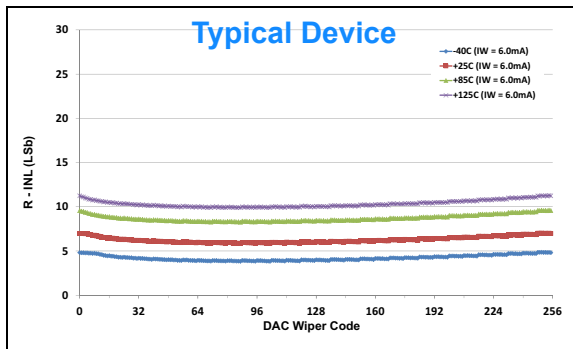


FIGURE 1-53: INL Error - Rheo. Mode (R-INL) vs. Wiper Setting and Temperature (5.0 kΩ, 8-bit: $V_L = 1.8\text{V}$, 2.7V, 5.5V, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$, $I_W = 6.0\text{mA}$).

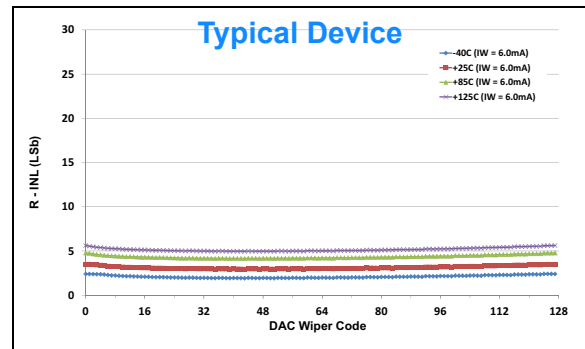


FIGURE 1-56: INL Error - Rheo. Mode (R-INL) vs. Wiper Setting and Temperature (5.0 kΩ, 7-bit: $V_L = 1.8\text{V}$, 2.7V, 5.5V, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$, $I_W = 6.0\text{mA}$).

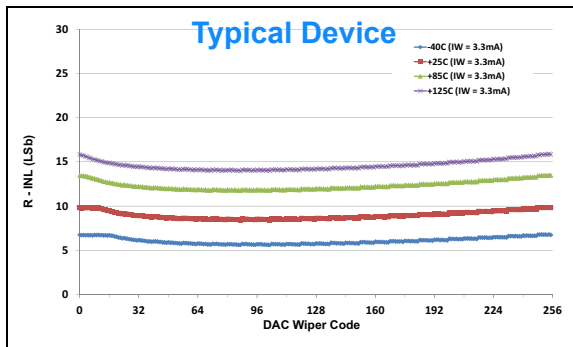


FIGURE 1-54: INL Error - Rheo. Mode (R-INL) vs. Wiper Setting and Temperature (5.0 kΩ, 8-bit: $V_L = 1.8\text{V}$, 2.7V, 5.5V, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 20\text{V}$, $I_W = 3.3\text{mA}$).

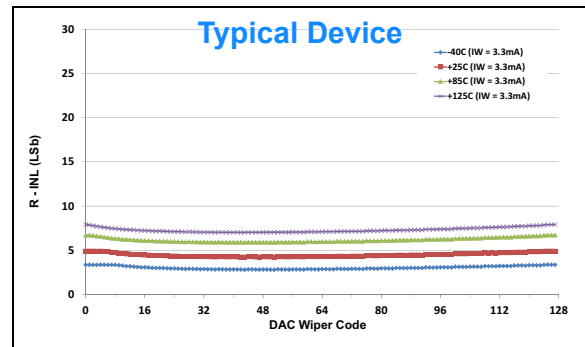


FIGURE 1-57: INL Error - Rheo. Mode (R-INL) vs. Wiper Setting and Temperature (5.0 kΩ, 7-bit: $V_L = 1.8\text{V}$, 2.7V, 5.5V, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 20\text{V}$, $I_W = 3.3\text{mA}$).

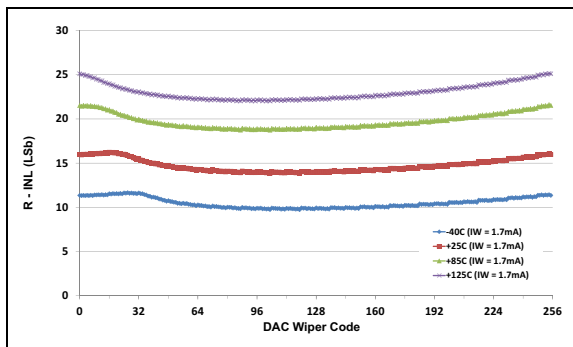


FIGURE 1-55: INL Error - Rheo. Mode (R-INL) vs. Wiper Setting and Temperature (5.0 kΩ, 8-bit: $V_L = 1.8\text{V}$, 2.7V, 5.5V, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 10\text{V}$, $I_W = 1.7\text{mA}$).

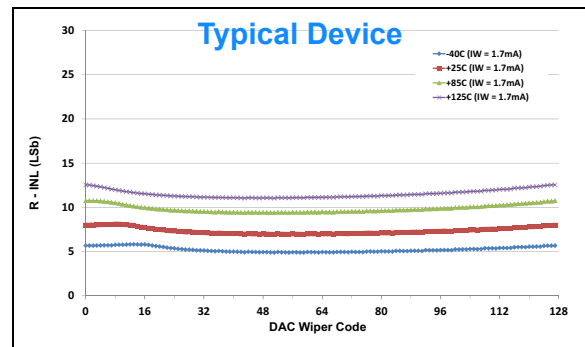


FIGURE 1-58: INL Error - Rheo. Mode (R-INL) vs. Wiper Setting and Temperature (5.0 kΩ, 7-bit: $V_L = 1.8\text{V}$, 2.7V, 5.5V, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 10\text{V}$, $I_W = 1.7\text{mA}$).

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Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_L = 5.0\text{V}$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$.

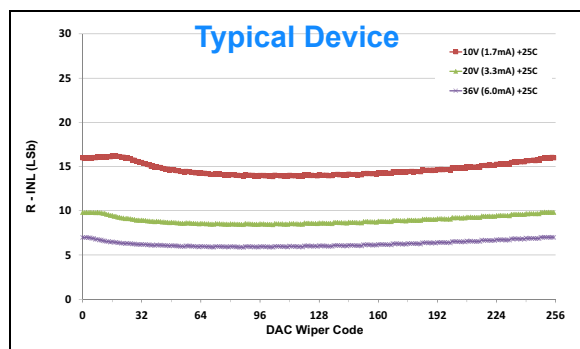


FIGURE 1-59: INL Error - Rheo. Mode (R-INL) vs. Wiper Setting (@ 25°C)
(**5.0 k Ω** , **8-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V ,
 $A = V_+$, $B = V_-$, $\text{DGND} = V_-$,
 $V_+ = 36\text{V}$ and $I_W = 6.0\text{mA}$, $V_+ = 20\text{V}$ and
 $I_W = 3.3\text{mA}$, $V_+ = 10\text{V}$ and $I_W = 1.7\text{mA}$).

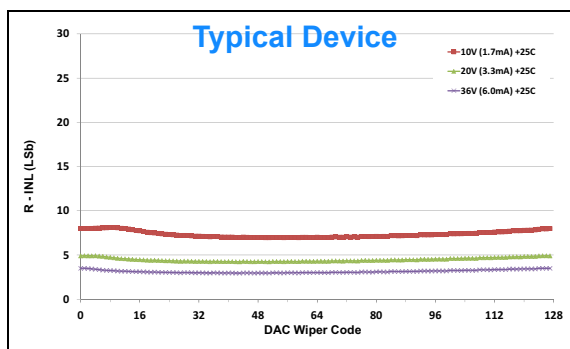


FIGURE 1-60: INL Error - Rheo. Mode (R-INL) vs. Wiper Setting (@ 25°C)
(**5.0 k Ω** , **7-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V ,
 $A = V_+$, $B = V_-$, $\text{DGND} = V_-$,
 $V_+ = 36\text{V}$ and $I_W = 6.0\text{mA}$, $V_+ = 20\text{V}$ and
 $I_W = 3.3\text{mA}$, $V_+ = 10\text{V}$ and $I_W = 1.7\text{mA}$).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_L = 5.0\text{V}$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$.

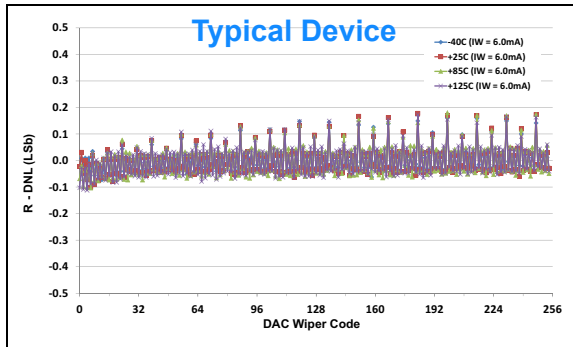


FIGURE 1-61: DNL Error - Rheo. Mode (R-DNL) vs. Wiper Setting and Temperature (**5.0 kΩ, 8-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 36\text{V}$** , **$I_W = 6.0\text{mA}$**).

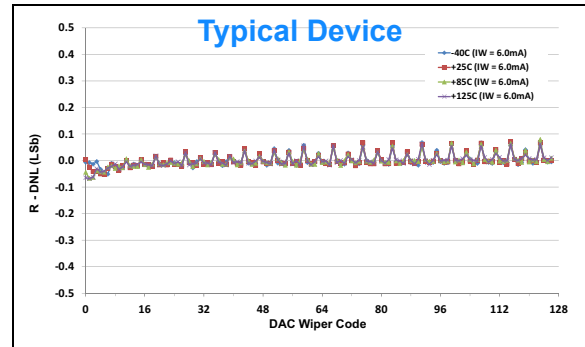


FIGURE 1-64: DNL Error - Rheo. Mode (R-DNL) vs. Wiper Setting and Temperature (**5.0 kΩ, 7-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 36\text{V}$** , **$I_W = 6.0\text{mA}$**).

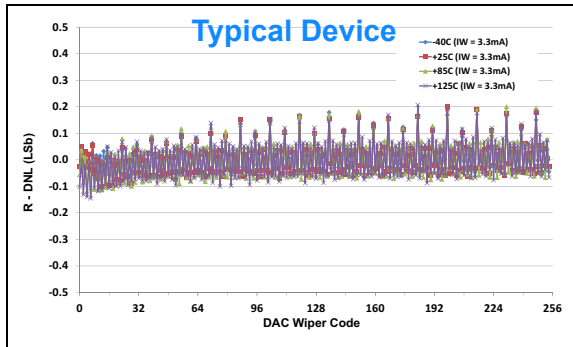


FIGURE 1-62: DNL Error - Rheo. Mode (R-DNL) vs. Wiper Setting and Temperature (**5.0 kΩ, 8-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 20\text{V}$** , **$I_W = 3.3\text{mA}$**).

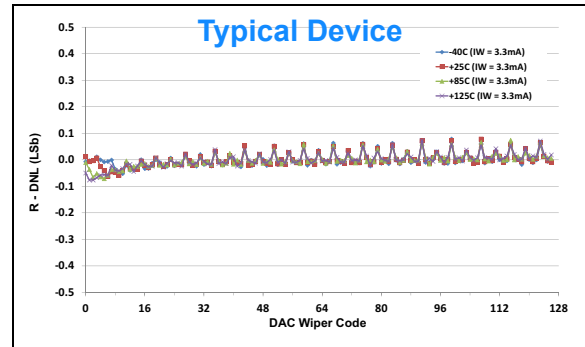


FIGURE 1-65: DNL Error - Rheo. Mode (R-DNL) vs. Wiper Setting and Temperature (**5.0 kΩ, 7-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 20\text{V}$** , **$I_W = 3.3\text{mA}$**).

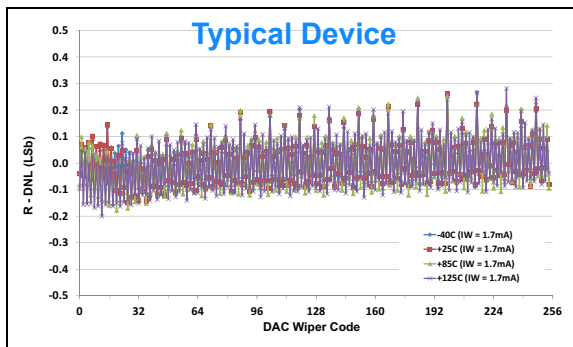


FIGURE 1-63: DNL Error - Rheo. Mode (R-DNL) vs. Wiper Setting and Temperature (**5.0 kΩ, 8-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 10\text{V}$** , **$I_W = 1.7\text{mA}$**).

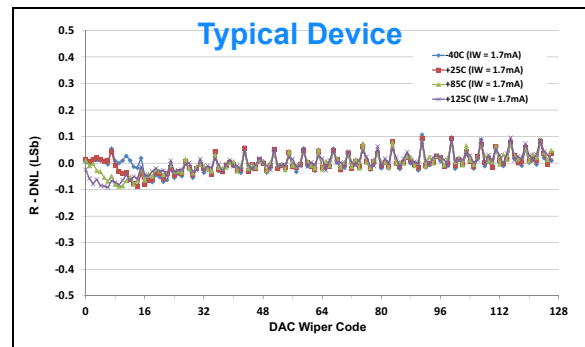


FIGURE 1-66: DNL Error - Rheo. Mode (R-DNL) vs. Wiper Setting and Temperature (**5.0 kΩ, 7-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 10\text{V}$** , **$I_W = 1.7\text{mA}$**).

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Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_L = 5.0\text{V}$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$.

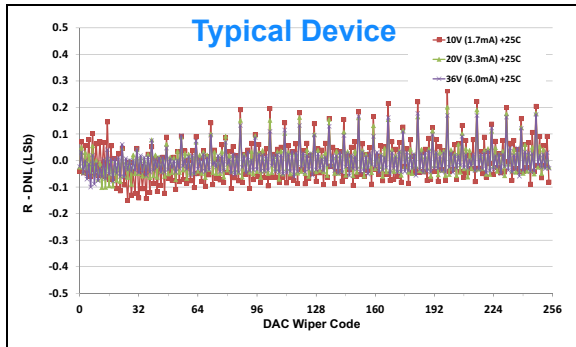


FIGURE 1-67: DNL Error - Rheo. Mode (R-DNL) vs. Wiper Setting (@ 25°C)
(**5.0 k Ω** , **8-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V ,
 $A = V_+$, $B = V_-$, $\text{DGND} = V_-$,
 $V_+ = 36\text{V}$ and $I_W = 6.0\text{mA}$, $V_+ = 20\text{V}$ and
 $I_W = 3.3\text{mA}$, $V_+ = 10\text{V}$ and $I_W = 1.7\text{mA}$).

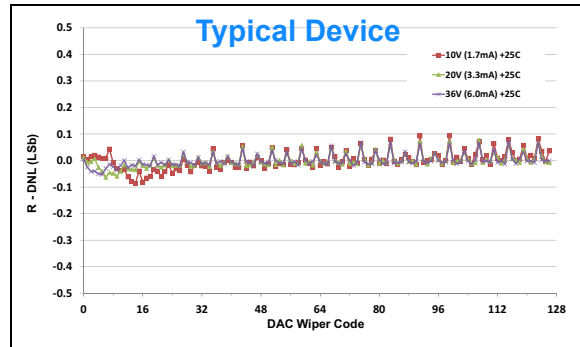


FIGURE 1-68: DNL Error - Rheo. Mode (R-DNL) vs. Wiper Setting (@ 25°C)
(**5.0 k Ω** , **7-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V ,
 $A = V_+$, $B = V_-$, $\text{DGND} = V_-$,
 $V_+ = 36\text{V}$ and $I_W = 6.0\text{mA}$, $V_+ = 20\text{V}$ and
 $I_W = 3.3\text{mA}$, $V_+ = 10\text{V}$ and $I_W = 1.7\text{mA}$).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_L = 5.0\text{V}$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$.

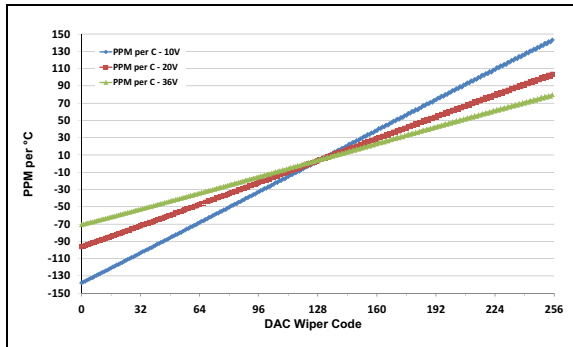


FIGURE 1-69: $V_W \text{ PPM}/^\circ\text{C}$ (Pot. Mode) vs. Temperature, and V_+ Voltage

$$\left(\frac{(V_{W(\text{code}=n, 125^\circ\text{C})} - V_{W(\text{code}=n, -40^\circ\text{C})})}{V_{W(\text{code}=255, 25^\circ\text{C})}} \right) * 1,000,000 / 165^\circ\text{C}$$

 (5.0 k Ω , 8-bit: $V_L = 1.8\text{V}, 2.7\text{V}, 5.5\text{V}$,
 $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 36\text{V}, 20\text{V}, 10\text{V}$).

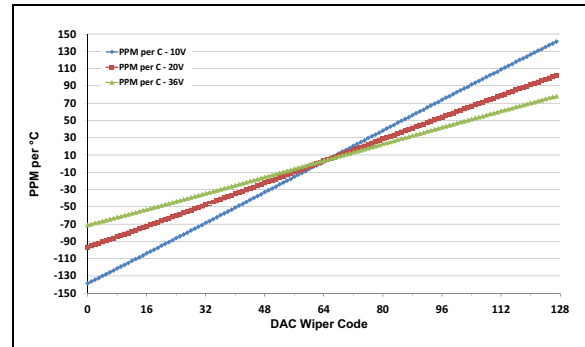


FIGURE 1-70: $V_W \text{ PPM}/^\circ\text{C}$ (Pot. Mode) vs. Temperature, and V_+ Voltage

$$\left(\frac{(V_{W(\text{code}=n, 125^\circ\text{C})} - V_{W(\text{code}=n, -40^\circ\text{C})})}{V_{W(\text{code}=127, 25^\circ\text{C})}} \right) * 1,000,000 / 165^\circ\text{C}$$

 (5.0 k Ω , 7-bit: $V_L = 1.8\text{V}, 2.7\text{V}, 5.5\text{V}$,
 $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 36\text{V}, 20\text{V}, 10\text{V}$).

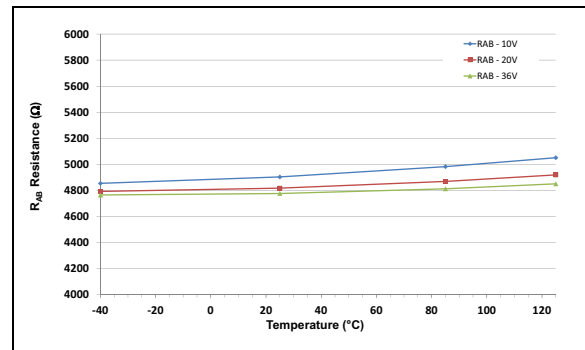


FIGURE 1-71: R_{AB} Resistance vs. Temperature and V_+ Voltage
 (5.0 k Ω : $V_L = 1.8\text{V}, 2.7\text{V}, 5.5\text{V}$,
 $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 36\text{V}, 20\text{V}, 10\text{V}$).

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Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_L = 5.0\text{V}$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$.

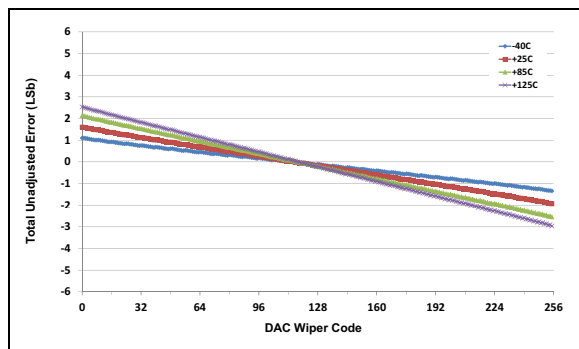


FIGURE 1-72: Total Unadjusted Error (Pot. Mode) (V_W) vs. Wiper Setting and Temperature (**10.0 k Ω , 8-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 36\text{V}$**).

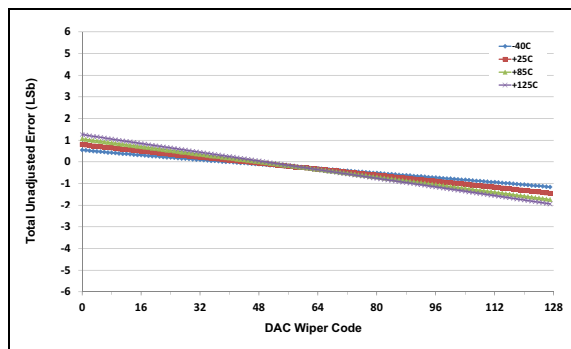


FIGURE 1-75: Total Unadjusted Error (Pot. Mode) (V_W) vs. Wiper Setting and Temperature (**10.0 k Ω , 7-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 36\text{V}$**).

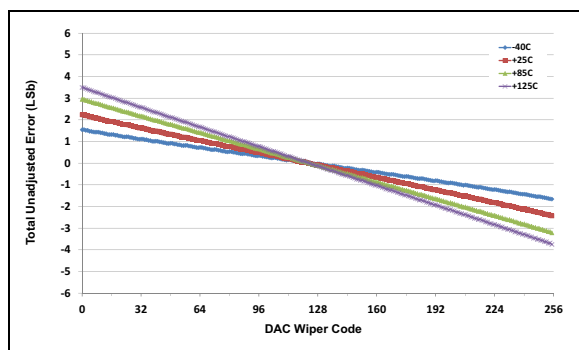


FIGURE 1-73: Total Unadjusted Error (Pot. Mode) (V_W) vs. Wiper Setting and Temperature (**10.0 k Ω , 8-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 20\text{V}$**).

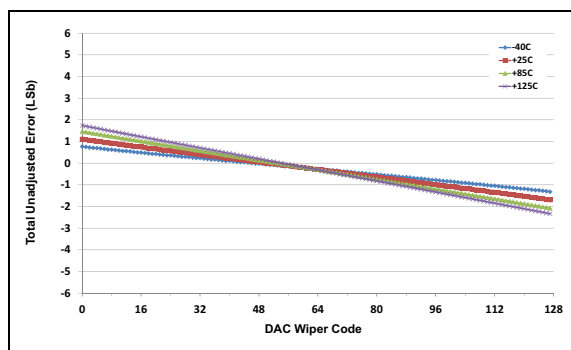


FIGURE 1-76: Total Unadjusted Error (Pot. Mode) (V_W) vs. Wiper Setting and Temperature (**10.0 k Ω , 7-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 20\text{V}$**).

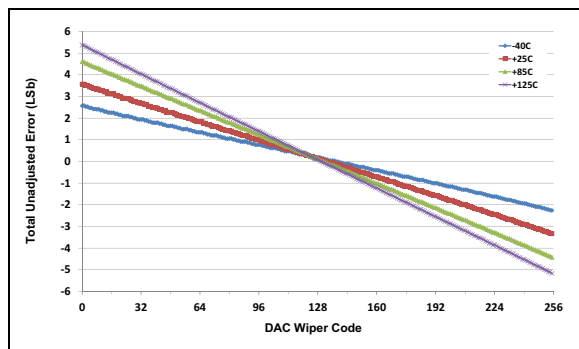


FIGURE 1-74: Total Unadjusted Error (Pot. Mode) (V_W) vs. Wiper Setting and Temperature (**10.0 k Ω , 8-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 10\text{V}$**).

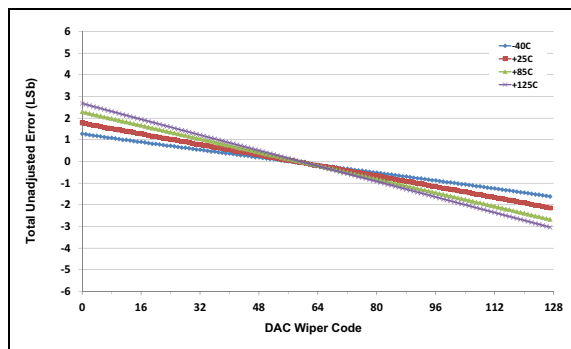


FIGURE 1-77: Total Unadjusted Error (Pot. Mode) (V_W) vs. Wiper Setting and Temperature (**10.0 k Ω , 7-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 10\text{V}$**).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_L = 5.0\text{V}$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$.

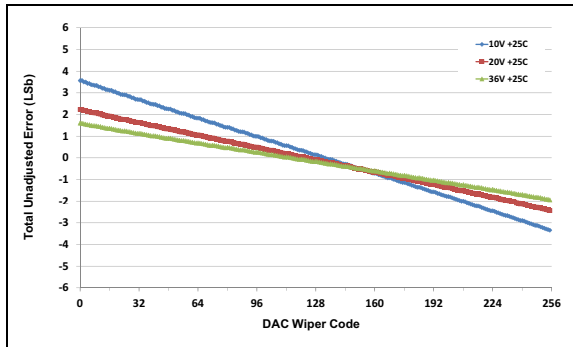


FIGURE 1-78: Total Unadjusted Error (Pot. Mode) (V_W) vs. Wiper Setting (@ 25°C) ($10.0\text{ k}\Omega$, 8-bit: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$, 20V , 10V).

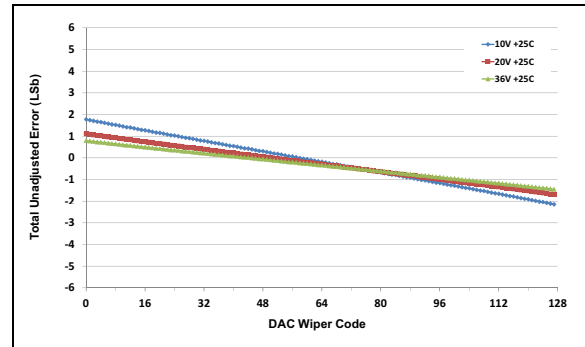


FIGURE 1-81: Total Unadjusted Error (Pot. Mode) (V_W) vs. Wiper Setting (@ 25°C) ($10.0\text{ k}\Omega$, 7-bit: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$, 20V , 10V).

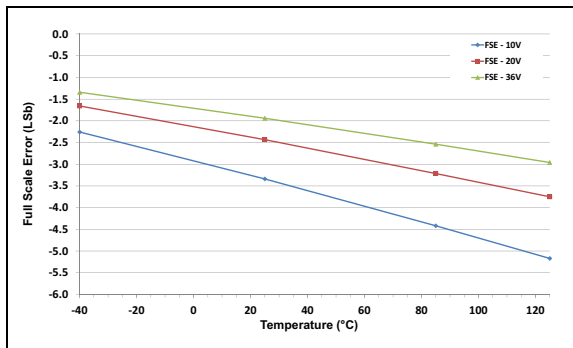


FIGURE 1-79: Full Scale Error (Pot. Mode) (FSE) vs. Temperature and V_+ Voltage ($10.0\text{ k}\Omega$, 8-bit: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$, 20V , 10V).

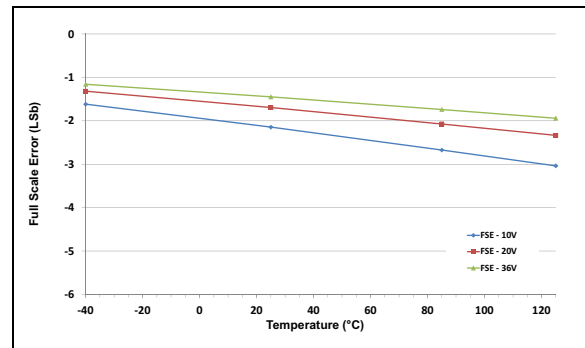


FIGURE 1-82: Full Scale Error (Pot. Mode) (FSE) vs. Temperature and V_+ Voltage ($10.0\text{ k}\Omega$, 7-bit: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$, 20V , 10V).

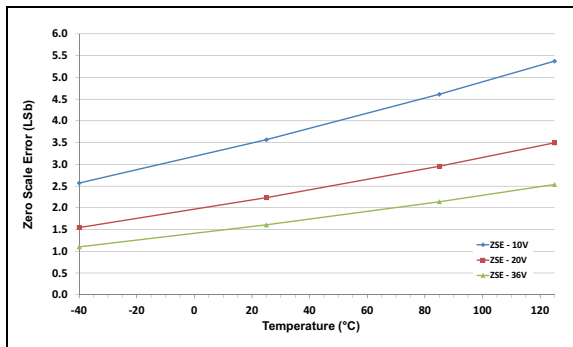


FIGURE 1-80: Zero Scale Error (Pot. Mode) (ZSE) vs. Temperature and V_+ Voltage ($10.0\text{ k}\Omega$, 8-bit: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$, 20V , 10V).

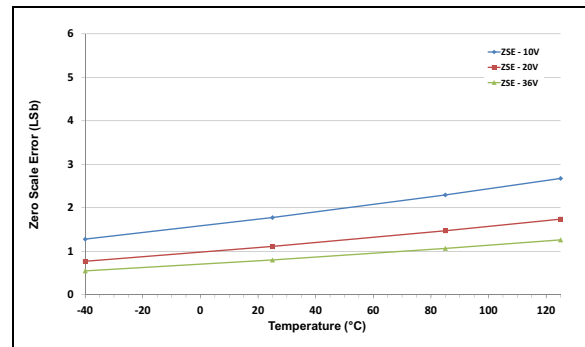


FIGURE 1-83: Zero Scale Error (Pot. Mode) (ZSE) vs. Temperature and V_+ Voltage ($10.0\text{ k}\Omega$, 7-bit: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$, 20V , 10V).

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Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_L = 5.0\text{V}$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$.

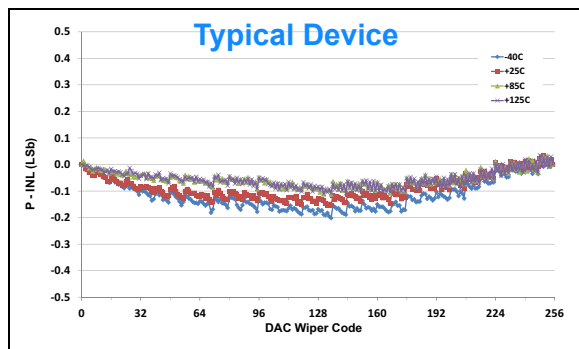


FIGURE 1-84: INL Error - Pot. Mode (P-INL) vs. Wiper Setting and Temperature
(10.0 k Ω , 8-bit: $V_L = 1.8\text{V}$, 2.7V, 5.5V, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$).

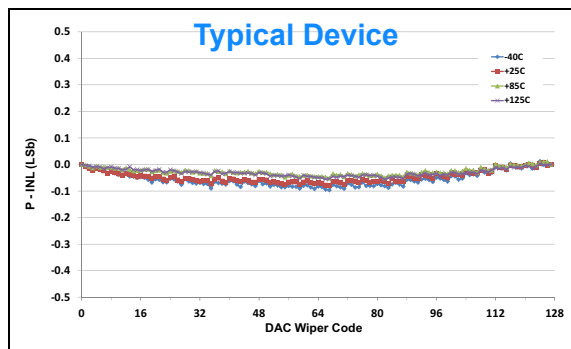


FIGURE 1-87: INL Error - Pot. Mode (P-INL) vs. Wiper Setting and Temperature
(10.0 k Ω , 7-bit: $V_L = 1.8\text{V}$, 2.7V, 5.5V, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$).

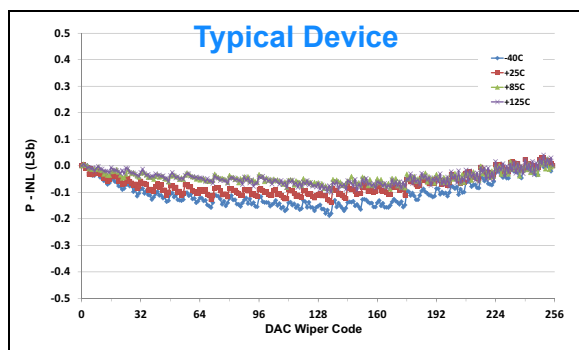


FIGURE 1-85: INL Error - Pot. Mode (P-INL) vs. Wiper Setting and Temperature
(10.0 k Ω , 8-bit: $V_L = 1.8\text{V}$, 2.7V, 5.5V, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 20\text{V}$).

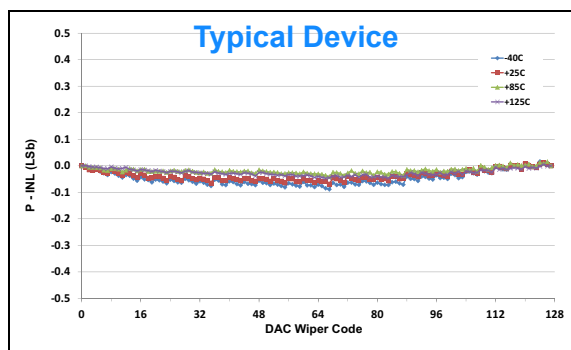


FIGURE 1-88: INL Error - Pot. Mode (P-INL) vs. Wiper Setting and Temperature
(10.0 k Ω , 7-bit: $V_L = 1.8\text{V}$, 2.7V, 5.5V, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 20\text{V}$).

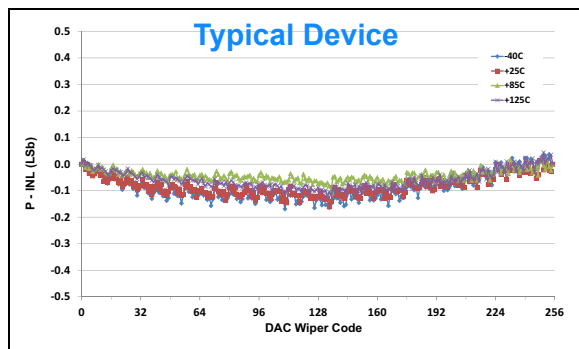


FIGURE 1-86: INL Error - Pot. Mode (P-INL) vs. Wiper Setting and Temperature
(10.0 k Ω , 8-bit: $V_L = 1.8\text{V}$, 2.7V, 5.5V, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 10\text{V}$).

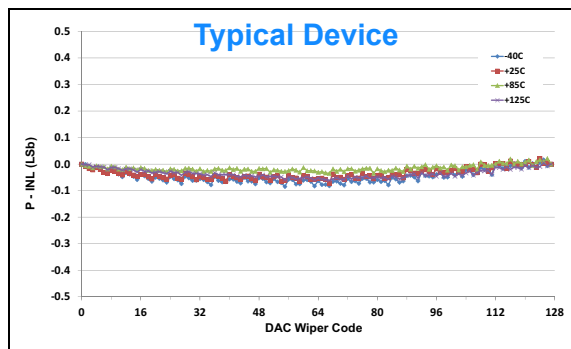


FIGURE 1-89: INL Error - Pot. Mode (P-INL) vs. Wiper Setting and Temperature
(10.0 k Ω , 7-bit: $V_L = 1.8\text{V}$, 2.7V, 5.5V, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 10\text{V}$).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_L = 5.0\text{V}$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$.

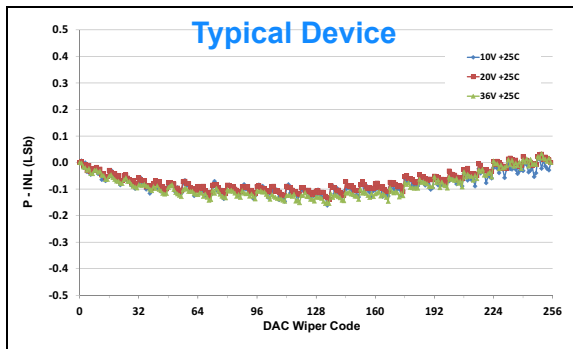


FIGURE 1-90: INL Error - Pot. Mode (P-INL) vs. Wiper Setting (@ 25°C)
(**10.0 k Ω** , **8-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V ,
 $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 36\text{V}$** , **20V**, **10V**).

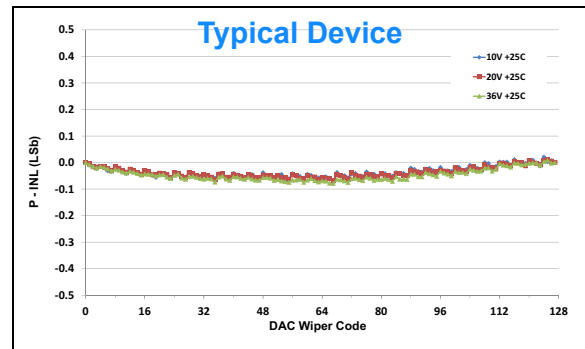


FIGURE 1-91: INL Error - Pot. Mode (P-INL) vs. Wiper Setting (@ 25°C)
(**10.0 k Ω** , **7-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V ,
 $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 36\text{V}$** , **20V**, **10V**).

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Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_L = 5.0\text{V}$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$.

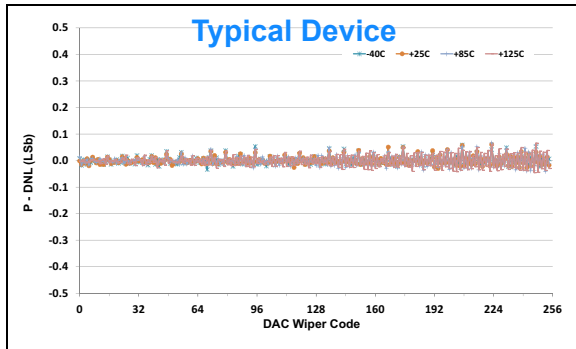


FIGURE 1-92: DNL Error - Pot. Mode (P-DNL) vs. Wiper Setting and Temperature (10.0 k Ω , 8-bit: $V_L = 1.8\text{V}$, 2.7V, 5.5V, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$).

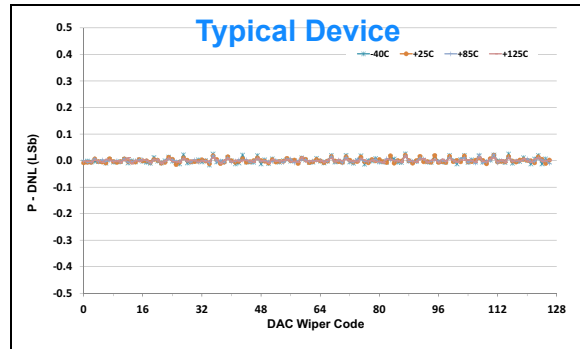


FIGURE 1-95: DNL Error - Pot. Mode (P-DNL) vs. Wiper Setting and Temperature (10.0 k Ω , 7-bit: $V_L = 1.8\text{V}$, 2.7V, 5.5V, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$).

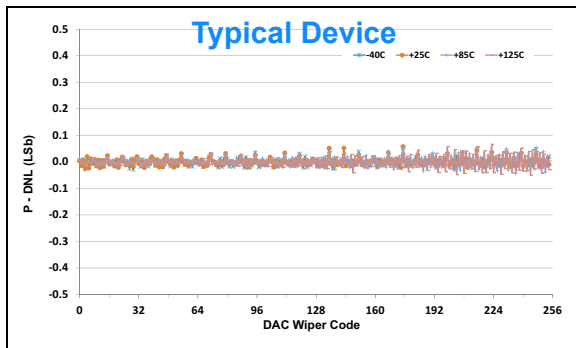


FIGURE 1-93: DNL Error - Pot. Mode (P-DNL) vs. Wiper Setting and Temperature (10.0 k Ω , 8-bit: $V_L = 1.8\text{V}$, 2.7V, 5.5V, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 20\text{V}$).

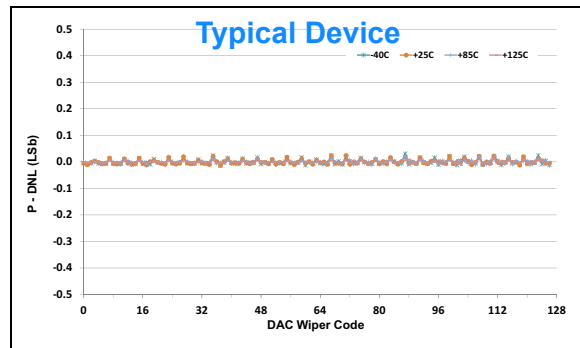


FIGURE 1-96: DNL Error - Pot. Mode (P-DNL) vs. Wiper Setting and Temperature (10.0 k Ω , 7-bit: $V_L = 1.8\text{V}$, 2.7V, 5.5V, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 20\text{V}$).

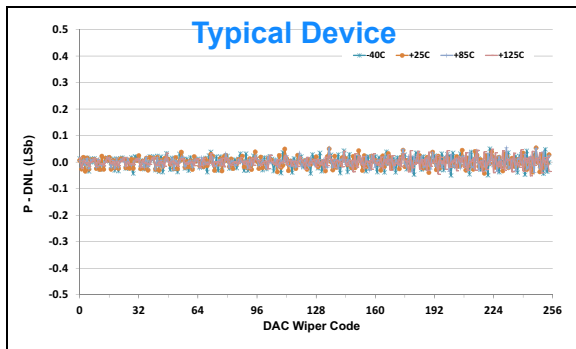


FIGURE 1-94: DNL Error - Pot. Mode (P-DNL) vs. Wiper Setting and Temperature (10.0 k Ω , 8-bit: $V_L = 1.8\text{V}$, 2.7V, 5.5V, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 10\text{V}$).

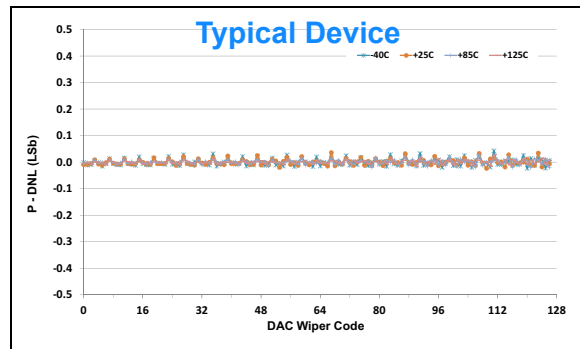


FIGURE 1-97: DNL Error - Pot. Mode (P-DNL) vs. Wiper Setting and Temperature (10.0 k Ω , 7-bit: $V_L = 1.8\text{V}$, 2.7V, 5.5V, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 10\text{V}$).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_L = 5.0\text{V}$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$.

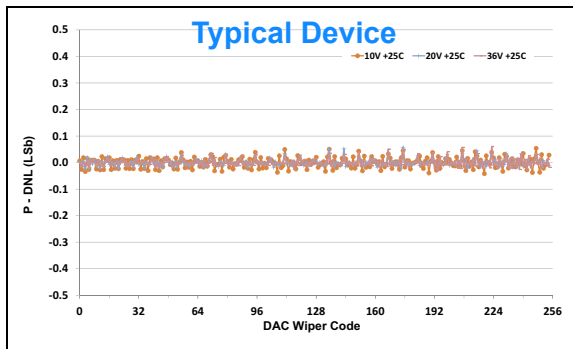


FIGURE 1-98: DNL Error - Pot. Mode (P-DNL) vs. Wiper Setting (@ 25°C)
(10.0 k Ω , 8-bit: $V_L = 1.8\text{V}$, 2.7V, 5.5V,
 $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$, 20V, 10V).

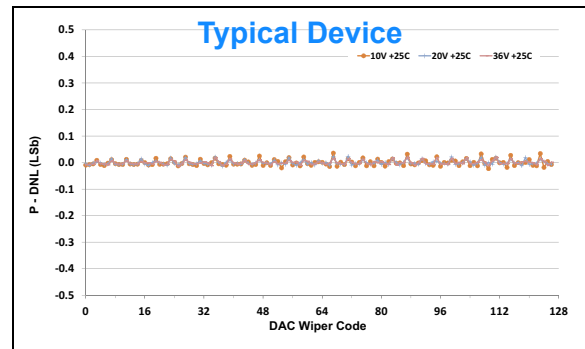


FIGURE 1-99: DNL Error - Pot. Mode (P-DNL) vs. Wiper Setting (@ 25°C)
(10.0 k Ω , 7-bit: $V_L = 1.8\text{V}$, 2.7V, 5.5V,
 $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$, 20V, 10V).

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Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_L = 5.0\text{V}$, $\text{DGND} = V^-$, $V^+ = 36\text{V}$.

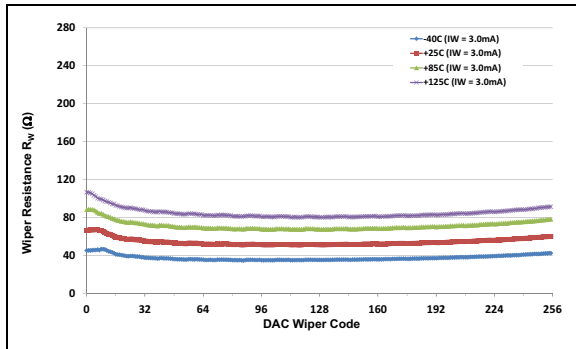


FIGURE 1-100: Wiper Resistance (R_W) vs. Wiper Setting and Temperature
(**10.0 kΩ**, **8-bit**: $V_L = 1.8\text{V}, 2.7\text{V}, 5.5\text{V}$,
 $A = V^+$, $B = V^-$, $\text{DGND} = V^-$, **$V^+ = 36\text{V}$** ,
 $I_W = 3.0\text{mA}$).

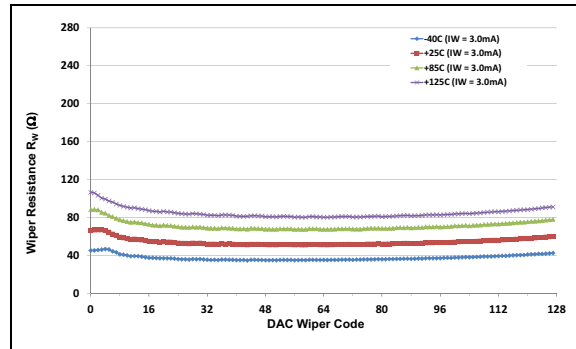


FIGURE 1-103: Wiper Resistance (R_W) vs. Wiper Setting and Temperature
(**10.0 kΩ**, **7-bit**: $V_L = 1.8\text{V}, 2.7\text{V}, 5.5\text{V}$,
 $A = V^+$, $B = V^-$, $\text{DGND} = V^-$, **$V^+ = 36\text{V}$** ,
 $I_W = 3.0\text{mA}$).

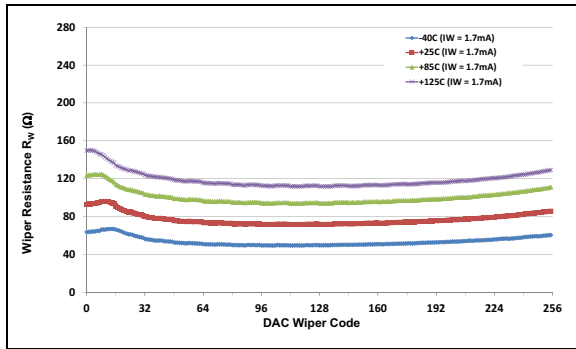


FIGURE 1-101: Wiper Resistance (R_W) vs. Wiper Setting and Temperature
(**10.0 kΩ**, **8-bit**: $V_L = 1.8\text{V}, 2.7\text{V}, 5.5\text{V}$,
 $A = V^+$, $B = V^-$, $\text{DGND} = V^-$, **$V^+ = 20\text{V}$** ,
 $I_W = 1.7\text{mA}$).

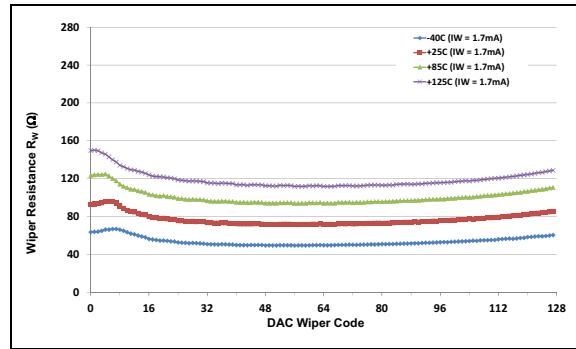


FIGURE 1-104: Wiper Resistance (R_W) vs. Wiper Setting and Temperature
(**10.0 kΩ**, **7-bit**: $V_L = 1.8\text{V}, 2.7\text{V}, 5.5\text{V}$,
 $A = V^+$, $B = V^-$, $\text{DGND} = V^-$, **$V^+ = 20\text{V}$** ,
 $I_W = 1.7\text{mA}$).

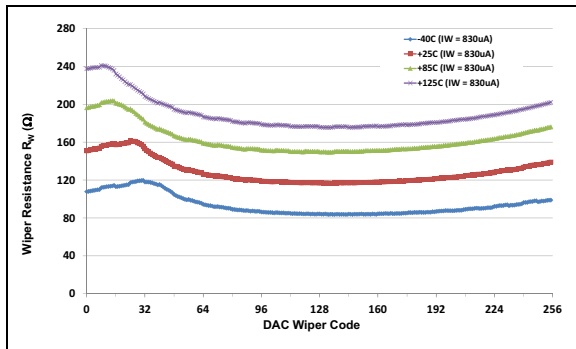


FIGURE 1-102: Wiper Resistance (R_W) vs. Wiper Setting and Temperature
(**10.0 kΩ**, **8-bit**: $V_L = 1.8\text{V}, 2.7\text{V}, 5.5\text{V}$,
 $A = V^+$, $B = V^-$, $\text{DGND} = V^-$, **$V^+ = 10\text{V}$** ,
 $I_W = 830\mu\text{A}$).

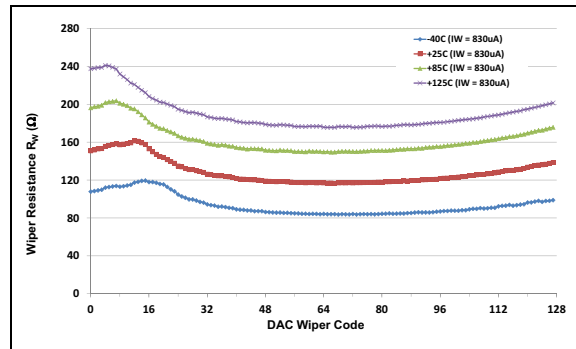


FIGURE 1-105: Wiper Resistance (R_W) vs. Wiper Setting and Temperature
(**10.0 kΩ**, **7-bit**: $V_L = 1.8\text{V}, 2.7\text{V}, 5.5\text{V}$,
 $A = V^+$, $B = V^-$, $\text{DGND} = V^-$, **$V^+ = 10\text{V}$** ,
 $I_W = 830\mu\text{A}$).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_L = 5.0\text{V}$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$.

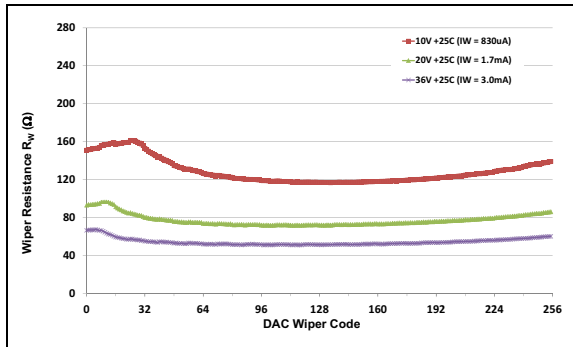


FIGURE 1-106: Wiper Resistance (R_W) vs. Wiper Setting @ 29°C
(10.0 k Ω , 8-bit: $V_L = 1.8\text{V}$, 2.7V , 5.5V ,
 $A = V_+$, $B = V_-$, $\text{DGND} = V_-$,
 $V_+ = 36\text{V}$ and $I_W = 3.0\text{mA}$, $V_+ = 20\text{V}$ and
 $I_W = 1.7\text{mA}$, $V_+ = 10\text{V}$ and $I_W = 830\text{ }\mu\text{A}$).

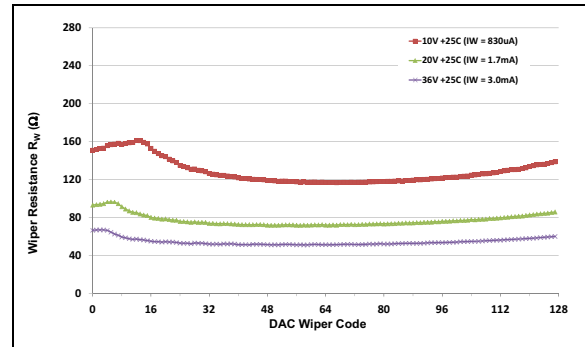


FIGURE 1-107: Wiper Resistance (R_W) vs. Wiper Setting @ 29°C
(10.0 k Ω , 7-bit: $V_L = 1.8\text{V}$, 2.7V , 5.5V ,
 $A = V_+$, $B = V_-$, $\text{DGND} = V_-$,
 $V_+ = 36\text{V}$ and $I_W = 3.0\text{mA}$, $V_+ = 20\text{V}$ and
 $I_W = 1.7\text{mA}$, $V_+ = 10\text{V}$ and $I_W = 830\text{ }\mu\text{A}$).

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Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_L = 5.0\text{V}$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$.

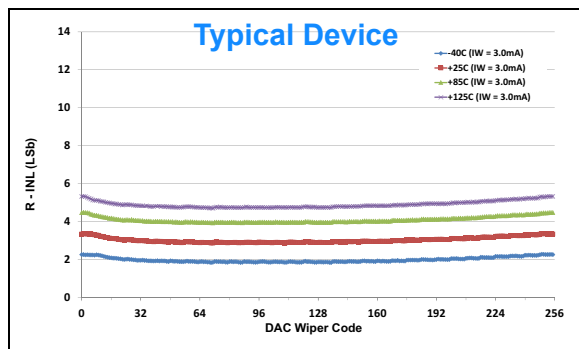


FIGURE 1-108: INL Error - Rheo. Mode (R-INL) vs. Wiper Setting and Temperature (10.0 k Ω , 8-bit: $V_L = 1.8\text{V}$, 2.7V, 5.5V, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$, $I_W = 3.0\text{mA}$).

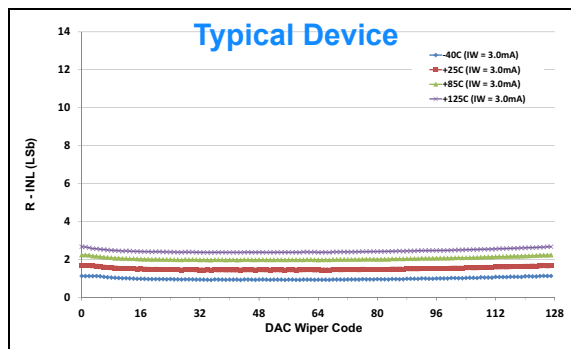


FIGURE 1-111: INL Error - Rheo. Mode (R-INL) vs. Wiper Setting and Temperature (10.0 k Ω , 7-bit: $V_L = 1.8\text{V}$, 2.7V, 5.5V, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$, $I_W = 3.0\text{mA}$).

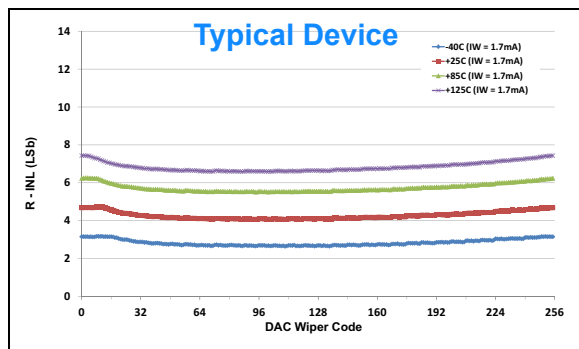


FIGURE 1-109: INL Error - Rheo. Mode (R-INL) vs. Wiper Setting and Temperature (10.0 k Ω , 8-bit: $V_L = 1.8\text{V}$, 2.7V, 5.5V, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 20\text{V}$, $I_W = 1.7\text{mA}$).

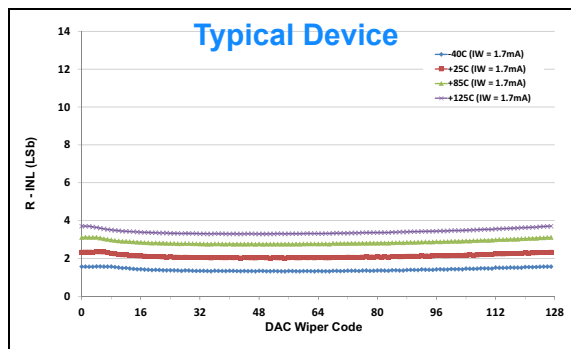


FIGURE 1-112: INL Error - Rheo. Mode (R-INL) vs. Wiper Setting and Temperature (10.0 k Ω , 7-bit: $V_L = 1.8\text{V}$, 2.7V, 5.5V, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 20\text{V}$, $I_W = 1.7\text{mA}$).

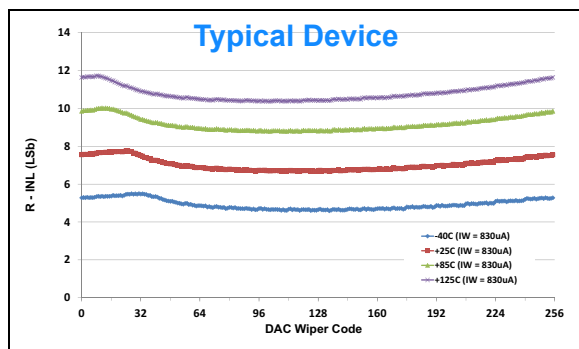


FIGURE 1-110: INL Error - Rheo. Mode (R-INL) vs. Wiper Setting and Temperature (10.0 k Ω , 8-bit: $V_L = 1.8\text{V}$, 2.7V, 5.5V, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 10\text{V}$, $I_W = 830\mu\text{A}$).

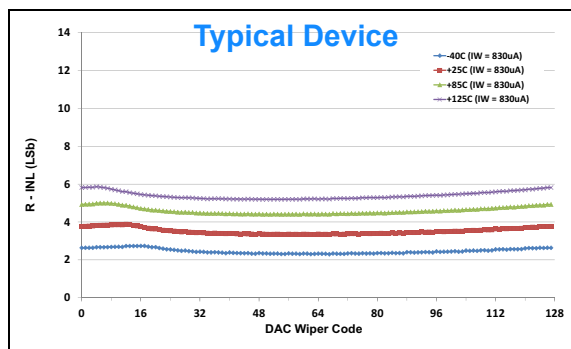


FIGURE 1-113: INL Error - Rheo. Mode (R-INL) vs. Wiper Setting and Temperature (10.0 k Ω , 7-bit: $V_L = 1.8\text{V}$, 2.7V, 5.5V, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 10\text{V}$, $I_W = 830\mu\text{A}$).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_L = 5.0\text{V}$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$

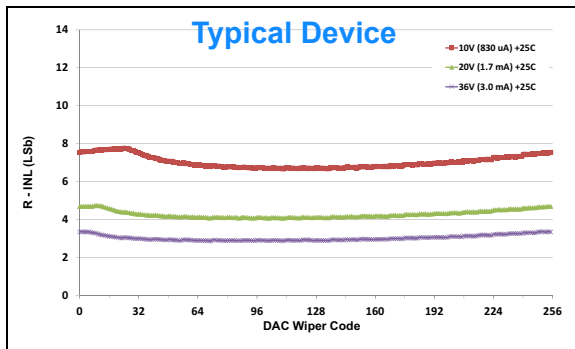


FIGURE 1-114: INL Error - Rheo. Mode (R-INL) vs. Wiper Setting (@ 25°C)
(**10.0 k Ω** , **8-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V ,
 $A = V_+$, $B = V_-$, $\text{DGND} = V_-$,
 $V_+ = 36\text{V}$ and $I_W = 3.0\text{ mA}$, $V_+ = 20\text{V}$ and
 $I_W = 1.7\text{ mA}$, $V_+ = 10\text{V}$ and $I_W = 830\text{ }\mu\text{A}$).

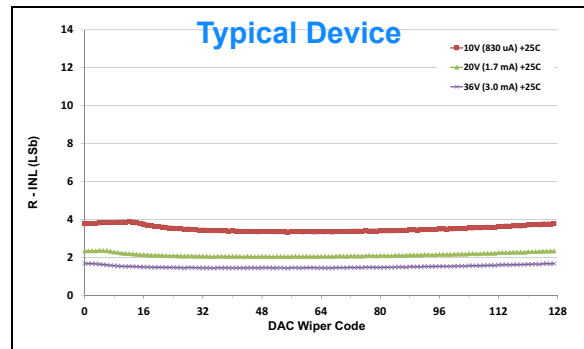


FIGURE 1-115: INL Error - Rheo. Mode (R-INL) vs. Wiper Setting (@ 25°C)
(**10.0 k Ω** , **7-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V ,
 $A = V_+$, $B = V_-$, $\text{DGND} = V_-$,
 $V_+ = 36\text{V}$ and $I_W = 3.0\text{ mA}$, $V_+ = 20\text{V}$ and
 $I_W = 1.7\text{ mA}$, $V_+ = 10\text{V}$ and $I_W = 830\text{ }\mu\text{A}$).

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Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_L = 5.0\text{V}$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$.

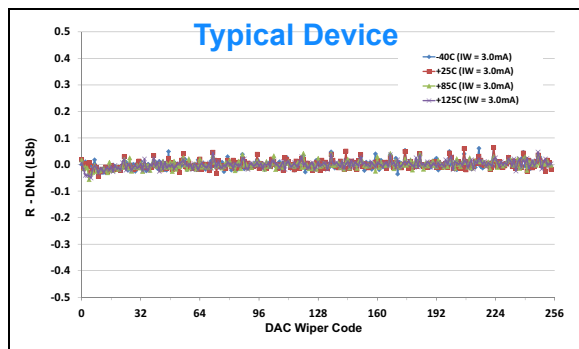


FIGURE 1-116: DNL Error - Rheo. Mode (R-DNL) vs. Wiper Setting and Temperature (10.0 k Ω , 8-bit: $V_L = 1.8\text{V}$, 2.7V, 5.5V, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$, $I_W = 3.0\text{mA}$).

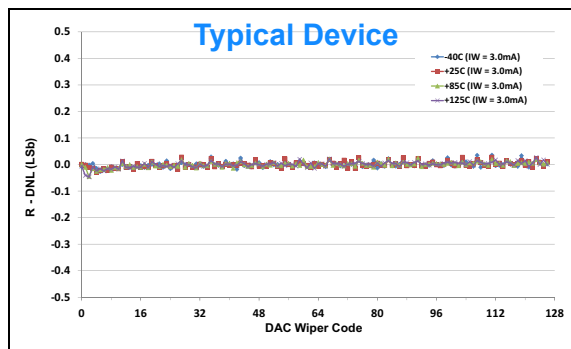


FIGURE 1-119: DNL Error - Rheo. Mode (R-DNL) vs. Wiper Setting and Temperature (10.0 k Ω , 7-bit: $V_L = 1.8\text{V}$, 2.7V, 5.5V, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$, $I_W = 3.0\text{mA}$).

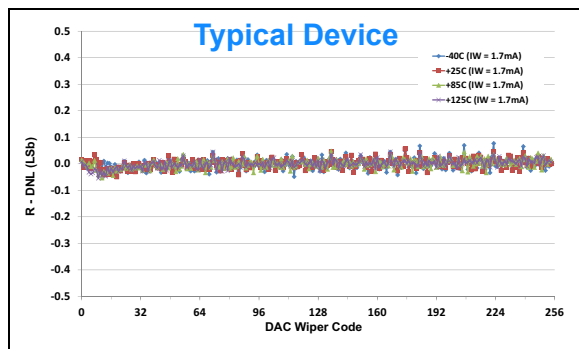


FIGURE 1-117: DNL Error - Rheo. Mode (R-DNL) vs. Wiper Setting and Temperature (10.0 k Ω , 8-bit: $V_L = 1.8\text{V}$, 2.7V, 5.5V, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 20\text{V}$, $I_W = 1.7\text{mA}$).

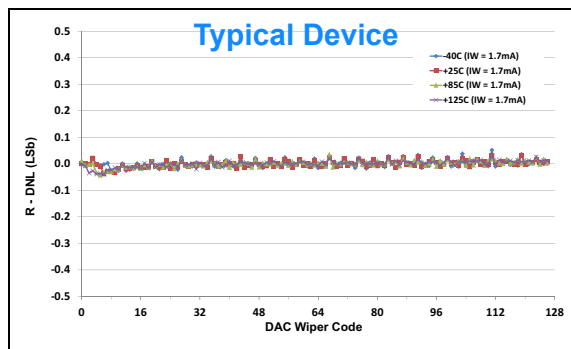


FIGURE 1-120: DNL Error - Rheo. Mode (R-DNL) vs. Wiper Setting and Temperature (10.0 k Ω , 7-bit: $V_L = 1.8\text{V}$, 2.7V, 5.5V, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 20\text{V}$, $I_W = 1.7\text{mA}$).

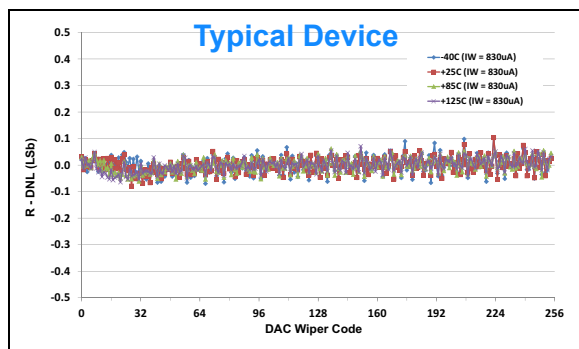


FIGURE 1-118: DNL Error - Rheo. Mode (R-DNL) vs. Wiper Setting and Temperature (10.0 k Ω , 8-bit: $V_L = 1.8\text{V}$, 2.7V, 5.5V, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 10\text{V}$, $I_W = 830\mu\text{A}$).

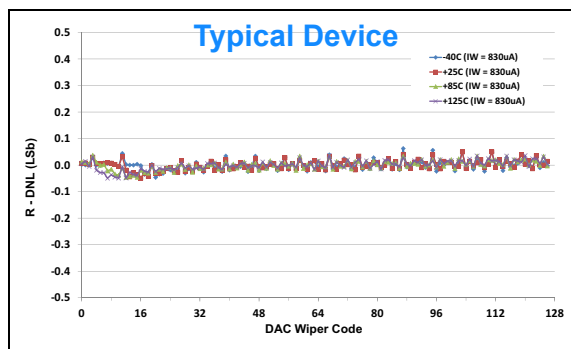


FIGURE 1-121: DNL Error - Rheo. Mode (R-DNL) vs. Wiper Setting and Temperature (10.0 k Ω , 7-bit: $V_L = 1.8\text{V}$, 2.7V, 5.5V, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 10\text{V}$, $I_W = 830\mu\text{A}$).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_L = 5.0\text{V}$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$.

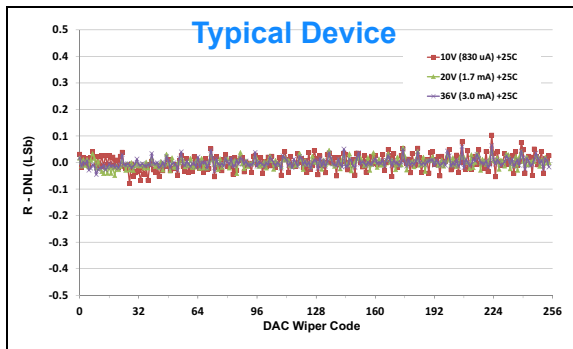


FIGURE 1-122: DNL Error - Rheo. Mode (R-DNL) vs. Wiper Setting (@ 25°C)
(**10.0 k Ω** , **8-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V ,
 $A = V_+$, $B = V_-$, $\text{DGND} = V_-$,
 $V_+ = 36\text{V}$ and $I_W = 3.0\text{ mA}$, $V_+ = 20\text{V}$ and $I_W = 1.7\text{ mA}$, $V_+ = 10\text{V}$ and $I_W = 830\text{ }\mu\text{A}$).

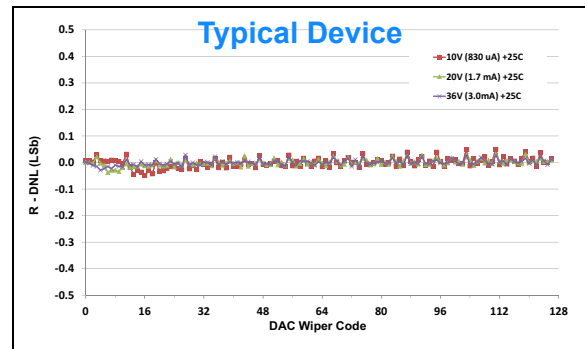


FIGURE 1-123: DNL Error - Rheo. Mode (R-DNL) vs. Wiper Setting (@ 25°C)
(**10.0 k Ω** , **7-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V ,
 $A = V_+$, $B = V_-$, $\text{DGND} = V_-$,
 $V_+ = 36\text{V}$ and $I_W = 3.0\text{ mA}$, $V_+ = 20\text{V}$ and $I_W = 1.7\text{ mA}$, $V_+ = 10\text{V}$ and $I_W = 830\text{ }\mu\text{A}$).

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Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_L = 5.0\text{V}$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$.

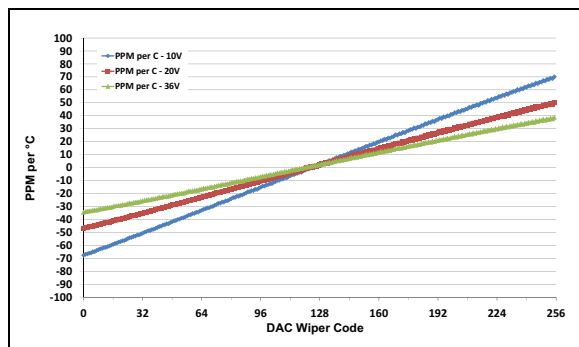


FIGURE 1-124: $V_W \text{ PPM} / ^\circ\text{C}$ (Pot. Mode) vs. Temperature, and V_+ Voltage

$\left(\left(V_{W(\text{code}=n, 125^\circ\text{C})} - V_{W(\text{code}=n, -40^\circ\text{C})} \right) / V_{W(\text{code}=255, 25^\circ\text{C})} \right) * 1,000,000 / 165^\circ\text{C}$
(10.0 k Ω , 8-bit: $V_L = 1.8\text{V}, 2.7\text{V}, 5.5\text{V}$,
 $A = V_+, B = V_-, \text{DGND} = V_-, V_+ = 36\text{V}, 20\text{V}, 10\text{V}$).

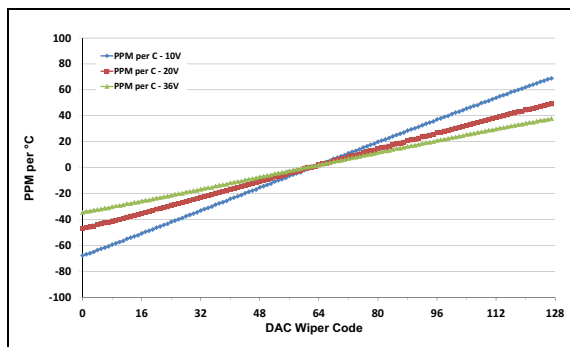


FIGURE 1-125: $V_W \text{ PPM} / ^\circ\text{C}$ (Pot. Mode) vs. Temperature, and V_+ Voltage

$\left(\left(V_{W(\text{code}=n, 125^\circ\text{C})} - V_{W(\text{code}=n, -40^\circ\text{C})} \right) / V_{W(\text{code}=127, 25^\circ\text{C})} \right) * 1,000,000 / 165^\circ\text{C}$
(10.0 k Ω , 7-bit: $V_L = 1.8\text{V}, 2.7\text{V}, 5.5\text{V}$,
 $A = V_+, B = V_-, \text{DGND} = V_-, V_+ = 36\text{V}, 20\text{V}, 10\text{V}$).

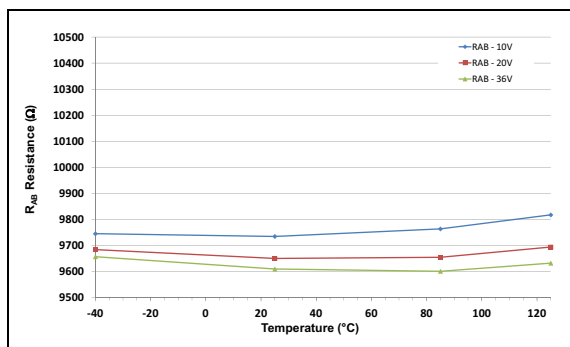


FIGURE 1-126: R_{AB} Resistance vs. Temperature and V_+ Voltage
(10.0 k Ω : $V_L = 1.8\text{V}, 2.7\text{V}, 5.5\text{V}$,
 $A = V_+, B = V_-, \text{DGND} = V_-, V_+ = 36\text{V}, 20\text{V}, 10\text{V}$).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_L = 5.0\text{V}$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$.

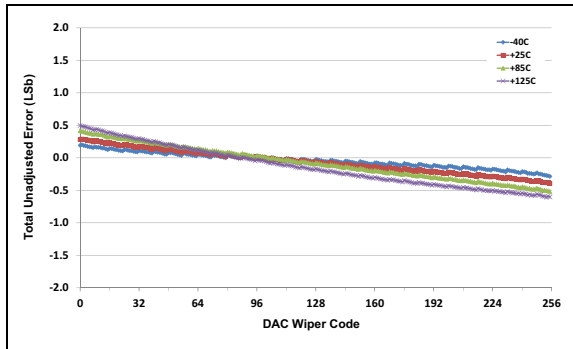


FIGURE 1-127: Total Unadjusted Error (Pot. Mode) (V_W) vs. Wiper Setting and Temperature (**50.0 k Ω , 8-bit**: $V_L = 1.8\text{V}, 2.7\text{V}, 5.5\text{V}$, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 36\text{V}$**).

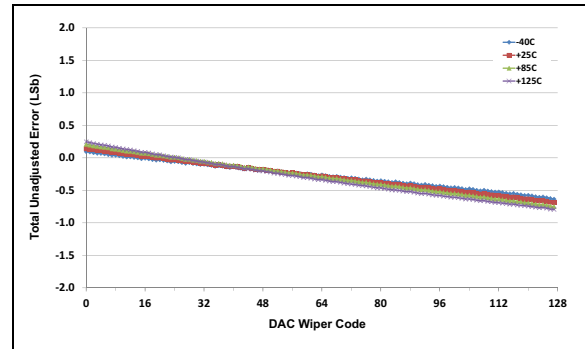


FIGURE 1-130: Total Unadjusted Error (Pot. Mode) (V_W) vs. Wiper Setting and Temperature (**50.0 k Ω , 7-bit**: $V_L = 1.8\text{V}, 2.7\text{V}, 5.5\text{V}$, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 36\text{V}$**).

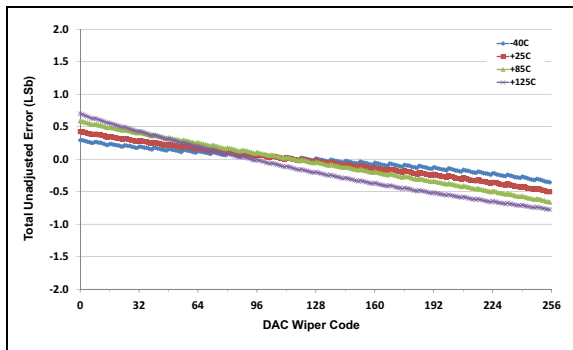


FIGURE 1-128: Total Unadjusted Error (Pot. Mode) (V_W) vs. Wiper Setting and Temperature (**50.0 k Ω , 8-bit**: $V_L = 1.8\text{V}, 2.7\text{V}, 5.5\text{V}$, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 20\text{V}$**).

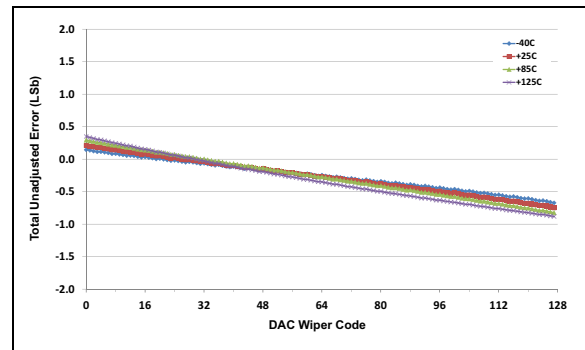


FIGURE 1-131: Total Unadjusted Error (Pot. Mode) (V_W) vs. Wiper Setting and Temperature (**50.0 k Ω , 7-bit**: $V_L = 1.8\text{V}, 2.7\text{V}, 5.5\text{V}$, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 20\text{V}$**).

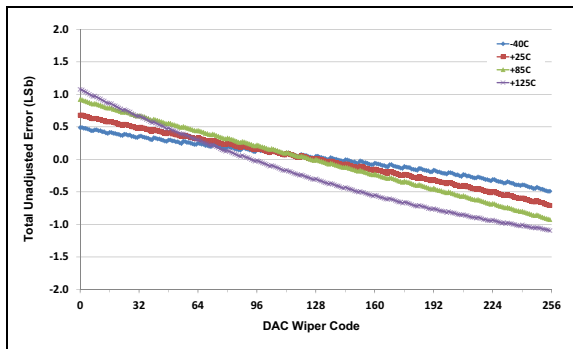


FIGURE 1-129: Total Unadjusted Error (Pot. Mode) (V_W) vs. Wiper Setting and Temperature (**50.0 k Ω , 8-bit**: $V_L = 1.8\text{V}, 2.7\text{V}, 5.5\text{V}$, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 10\text{V}$**).

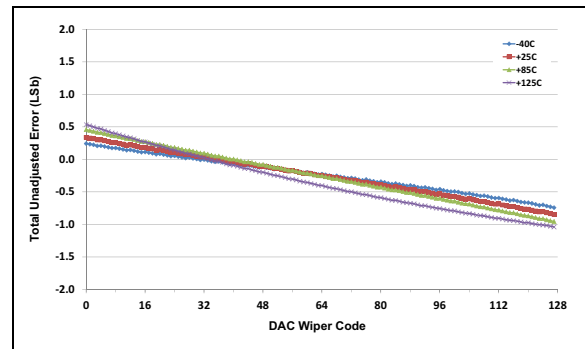


FIGURE 1-132: Total Unadjusted Error (Pot. Mode) (V_W) vs. Wiper Setting and Temperature (**50.0 k Ω , 7-bit**: $V_L = 1.8\text{V}, 2.7\text{V}, 5.5\text{V}$, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 10\text{V}$**).

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Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_L = 5.0\text{V}$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$.

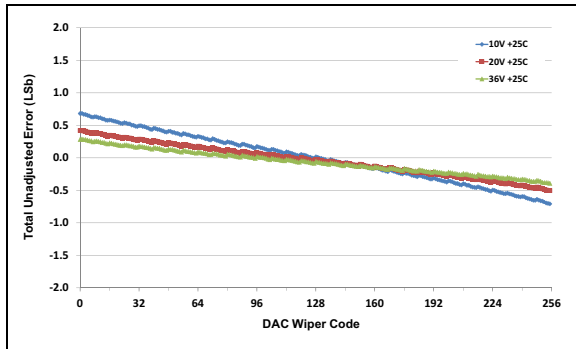


FIGURE 1-133: Total Unadjusted Error (Pot. Mode) (V_W) vs. Wiper Setting (@ 25°C) ($50.0\text{ k}\Omega$, **8-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$, 20V , 10V).

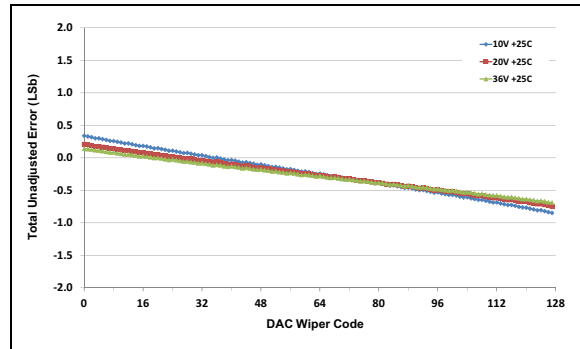


FIGURE 1-136: Total Unadjusted Error (Pot. Mode) (V_W) vs. Wiper Setting (@ 25°C) ($50.0\text{ k}\Omega$, **7-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$, 20V , 10V).

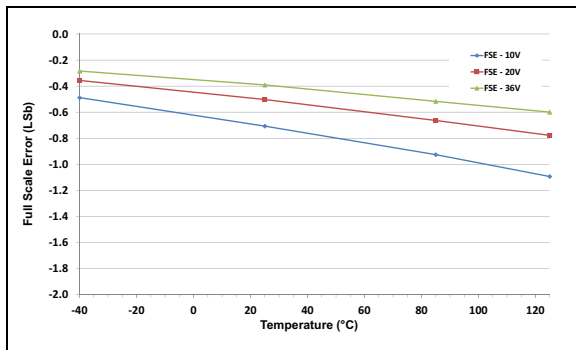


FIGURE 1-134: Full Scale Error (Pot. Mode) (FSE) vs. Temperature and V_+ Voltage ($50.0\text{ k}\Omega$, **8-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$, 20V , 10V).

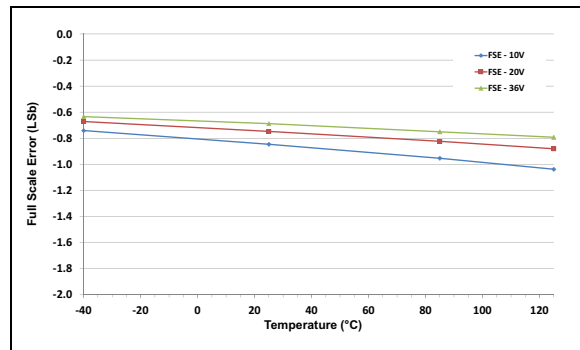


FIGURE 1-137: Full Scale Error (Pot. Mode) (FSE) vs. Temperature and V_+ Voltage ($50.0\text{ k}\Omega$, **7-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$, 20V , 10V).

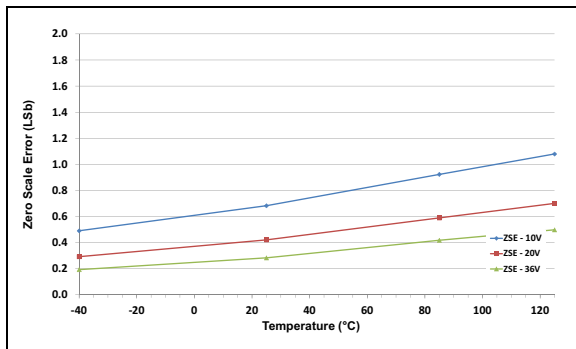


FIGURE 1-135: Zero Scale Error (Pot. Mode) (ZSE) vs. Temperature and V_+ Voltage ($50.0\text{ k}\Omega$, **8-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$, 20V , 10V).

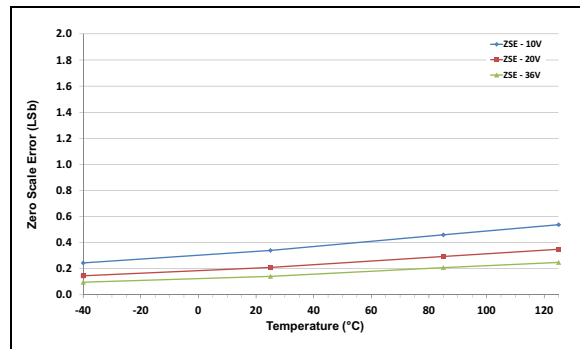


FIGURE 1-138: Zero Scale Error (Pot. Mode) (ZSE) vs. Temperature and V_+ Voltage ($50.0\text{ k}\Omega$, **7-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$, 20V , 10V).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_L = 5.0\text{V}$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$.

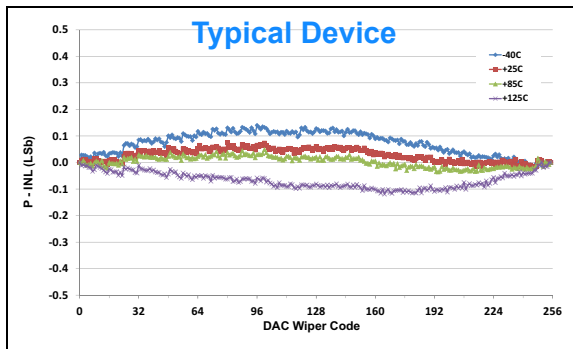


FIGURE 1-139: INL Error - Pot. Mode (P-INL) vs. Wiper Setting and Temperature (50.0 k Ω , 8-bit: $V_L = 1.8\text{V}$, 2.7V, 5.5V, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$).

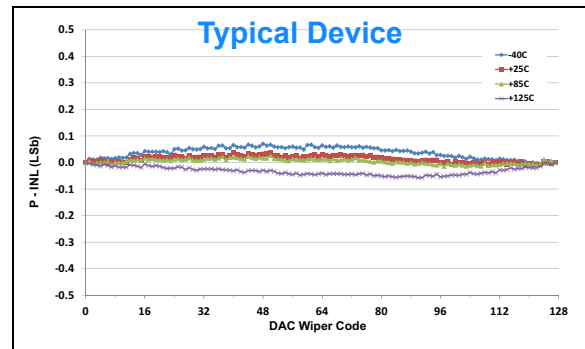


FIGURE 1-142: INL Error - Pot. Mode (P-INL) vs. Wiper Setting and Temperature (50.0 k Ω , 7-bit: $V_L = 1.8\text{V}$, 2.7V, 5.5V, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$).

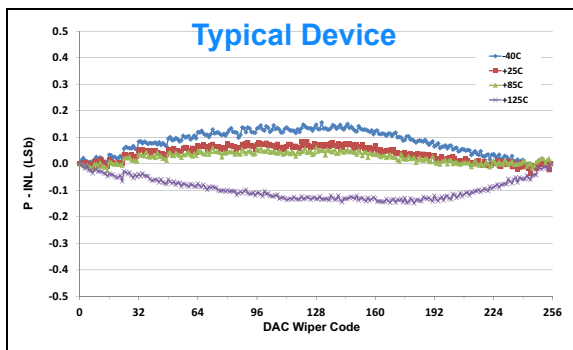


FIGURE 1-140: INL Error - Pot. Mode (P-INL) vs. Wiper Setting and Temperature (50.0 k Ω , 8-bit: $V_L = 1.8\text{V}$, 2.7V, 5.5V, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 20\text{V}$).

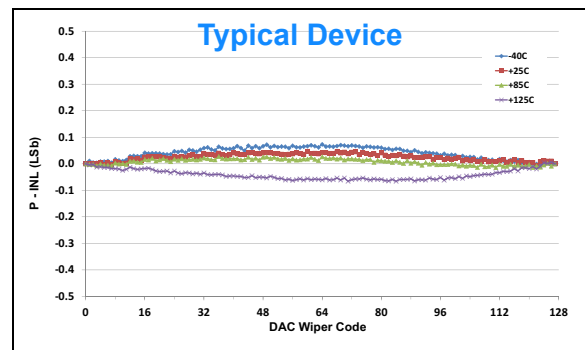


FIGURE 1-143: INL Error - Pot. Mode (P-INL) vs. Wiper Setting and Temperature (50.0 k Ω , 7-bit: $V_L = 1.8\text{V}$, 2.7V, 5.5V, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 20\text{V}$).

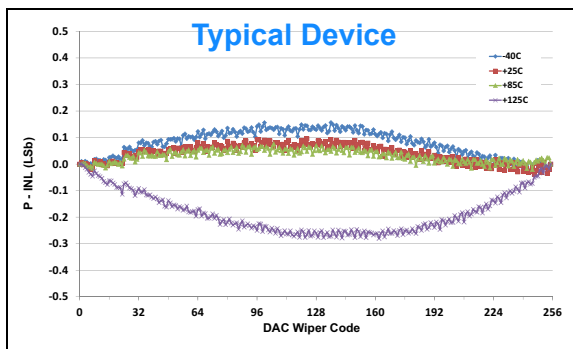


FIGURE 1-141: INL Error - Pot. Mode (P-INL) vs. Wiper Setting and Temperature (50.0 k Ω , 8-bit: $V_L = 1.8\text{V}$, 2.7V, 5.5V, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 10\text{V}$).

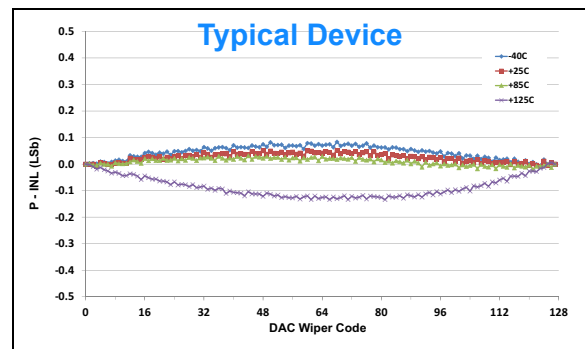


FIGURE 1-144: INL Error - Pot. Mode (P-INL) vs. Wiper Setting and Temperature (50.0 k Ω , 7-bit: $V_L = 1.8\text{V}$, 2.7V, 5.5V, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 10\text{V}$).

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Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_L = 5.0\text{V}$, $\text{DGND} = V^-$, $V^+ = 36\text{V}$.

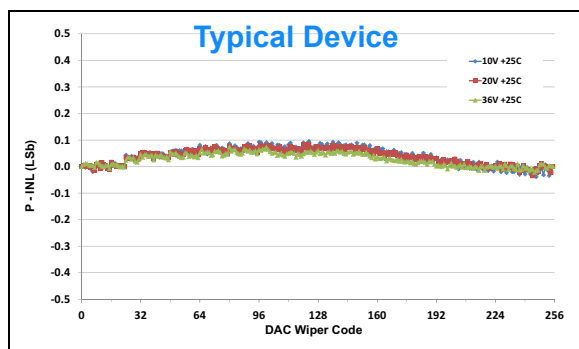


FIGURE 1-145: INL Error - Pot. Mode (P-INL) vs. Wiper Setting (@ 25°C)
(**50.0 k Ω** , **8-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V ,
 $A = V^+$, $B = V^-$, $\text{DGND} = V^-$, **$V^+ = 36\text{V}$, 20V , 10V**).

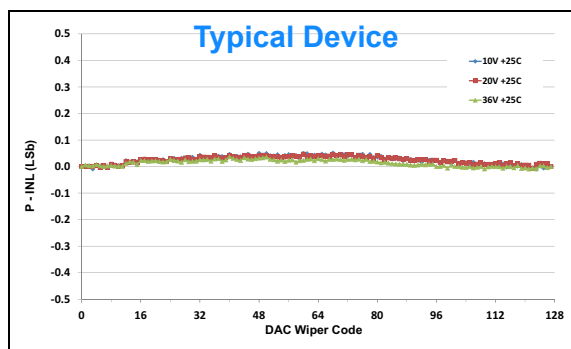


FIGURE 1-146: INL Error - Pot. Mode (P-INL) vs. Wiper Setting (@ 25°C)
(**50.0 k Ω** , **7-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V ,
 $A = V^+$, $B = V^-$, $\text{DGND} = V^-$, **$V^+ = 36\text{V}$, 20V , 10V**).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_L = 5.0\text{V}$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$.

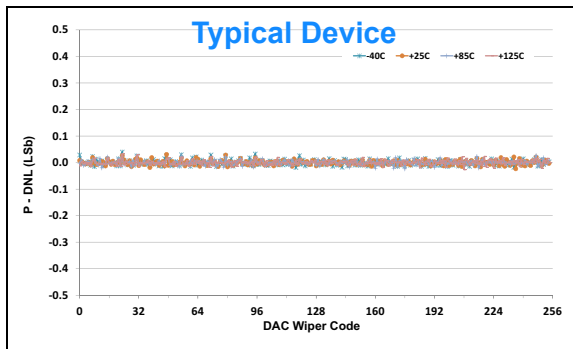


FIGURE 1-147: DNL Error - Pot. Mode (P-DNL) vs. Wiper Setting and Temperature (50.0 k Ω , 8-bit: $V_L = 1.8\text{V}$, 2.7V, 5.5V, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$).

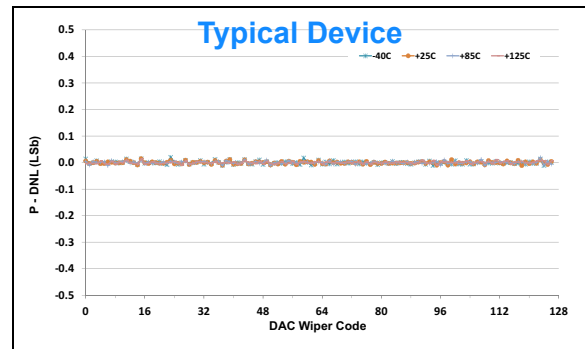


FIGURE 1-150: DNL Error - Pot. Mode (P-DNL) vs. Wiper Setting and Temperature (50.0 k Ω , 7-bit: $V_L = 1.8\text{V}$, 2.7V, 5.5V, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$).

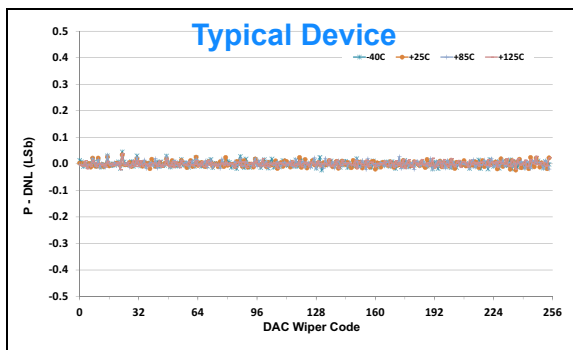


FIGURE 1-148: DNL Error - Pot. Mode (P-DNL) vs. Wiper Setting and Temperature (50.0 k Ω , 8-bit: $V_L = 1.8\text{V}$, 2.7V, 5.5V, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 20\text{V}$).

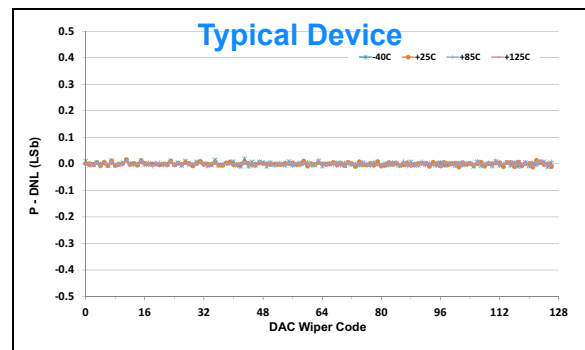


FIGURE 1-151: DNL Error - Pot. Mode (P-DNL) vs. Wiper Setting and Temperature (50.0 k Ω , 7-bit: $V_L = 1.8\text{V}$, 2.7V, 5.5V, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 20\text{V}$).

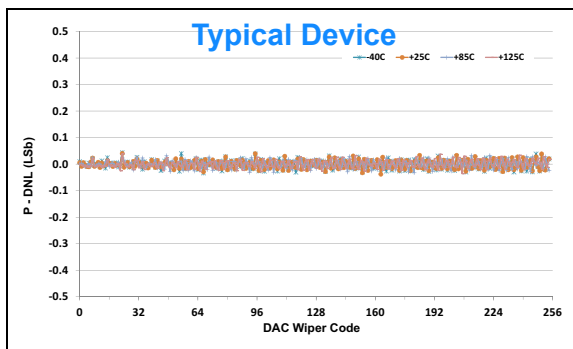


FIGURE 1-149: DNL Error - Pot. Mode (P-DNL) vs. Wiper Setting and Temperature (50.0 k Ω , 8-bit: $V_L = 1.8\text{V}$, 2.7V, 5.5V, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 10\text{V}$).

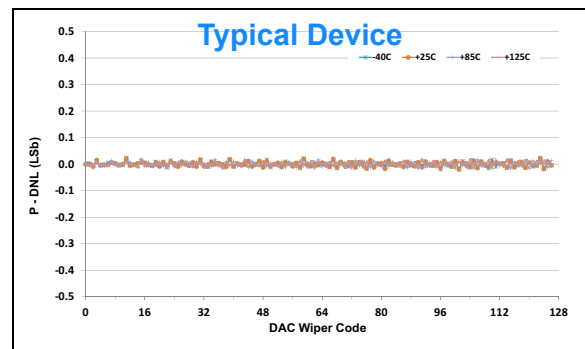


FIGURE 1-152: DNL Error - Pot. Mode (P-DNL) vs. Wiper Setting and Temperature (50.0 k Ω , 7-bit: $V_L = 1.8\text{V}$, 2.7V, 5.5V, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 10\text{V}$).

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Note: Unless otherwise indicated, $T_A = +25^{\circ}\text{C}$, $V_L = 5.0\text{V}$, $\text{DGND} = V^-$, $V^+ = 36\text{V}$.

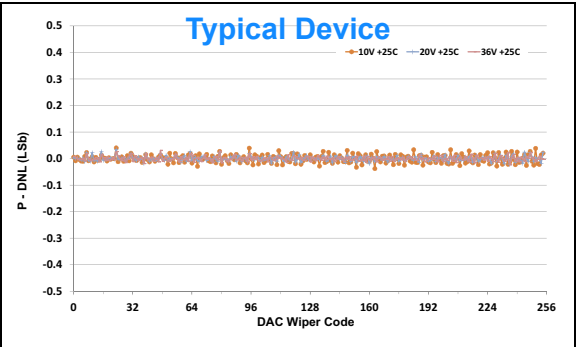


FIGURE 1-153: DNL Error - Pot. Mode (P-DNL) vs. Wiper Setting (@ 25°C) (**50.0 k Ω** , **8-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V^+$, $B = V^-$, $\text{DGND} = V^-$, **$V^+ = 36\text{V}$, 20V , 10V**).

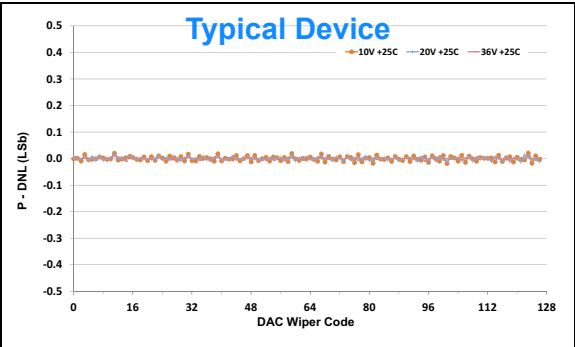


FIGURE 1-154: DNL Error - Pot. Mode (P-DNL) vs. Wiper Setting (@ 25°C) (**50.0 k Ω** , **7-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V^+$, $B = V^-$, $\text{DGND} = V^-$, **$V^+ = 36\text{V}$, 20V , 10V**).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_L = 5.0\text{V}$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$.

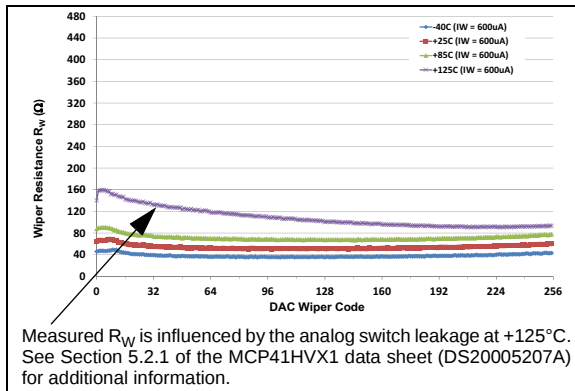


FIGURE 1-155: Wiper Resistance (R_W) vs. Wiper Setting and Temperature
(**50.0 kΩ, 8-bit:** $V_L = 1.8\text{V}, 2.7\text{V}, 5.5\text{V}$, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 36\text{V}$** , **$I_W = 600\text{ μA}$**).

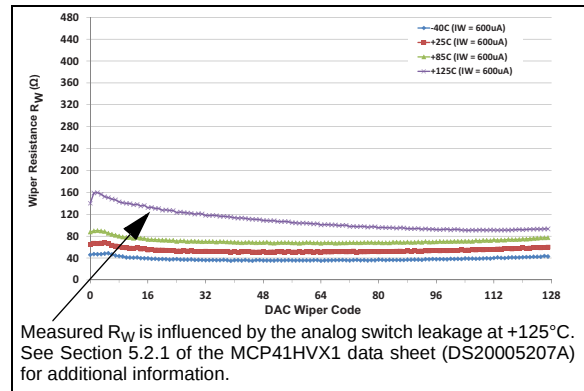


FIGURE 1-158: Wiper Resistance (R_W) vs. Wiper Setting and Temperature
(**50.0 kΩ, 7-bit:** $V_L = 1.8\text{V}, 2.7\text{V}, 5.5\text{V}$, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 36\text{V}$** , **$I_W = 600\text{ μA}$**).

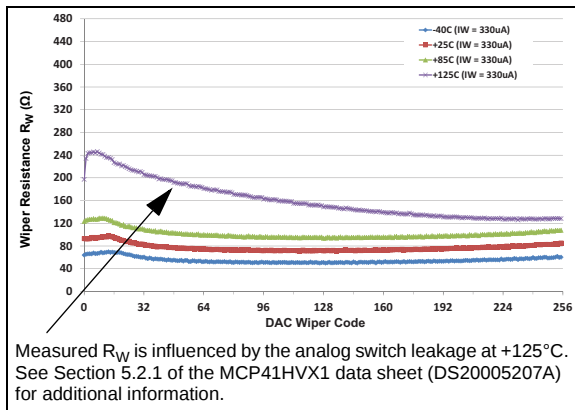


FIGURE 1-156: Wiper Resistance (R_W) vs. Wiper Setting and Temperature
(**50.0 kΩ, 8-bit:** $V_L = 1.8\text{V}, 2.7\text{V}, 5.5\text{V}$, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 20\text{V}$** , **$I_W = 330\text{ μA}$**).

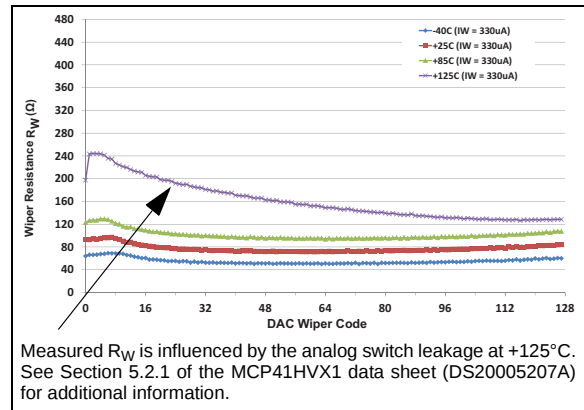


FIGURE 1-159: Wiper Resistance (R_W) vs. Wiper Setting and Temperature
(**50.0 kΩ, 7-bit:** $V_L = 1.8\text{V}, 2.7\text{V}, 5.5\text{V}$, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 20\text{V}$** , **$I_W = 330\text{ μA}$**).

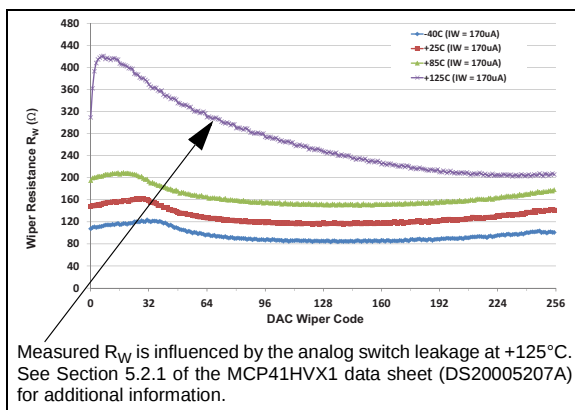


FIGURE 1-157: Wiper Resistance (R_W) vs. Wiper Setting and Temperature
(**50.0 kΩ, 8-bit:** $V_L = 1.8\text{V}, 2.7\text{V}, 5.5\text{V}$, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 10\text{V}$** , **$I_W = 170\text{ μA}$**).

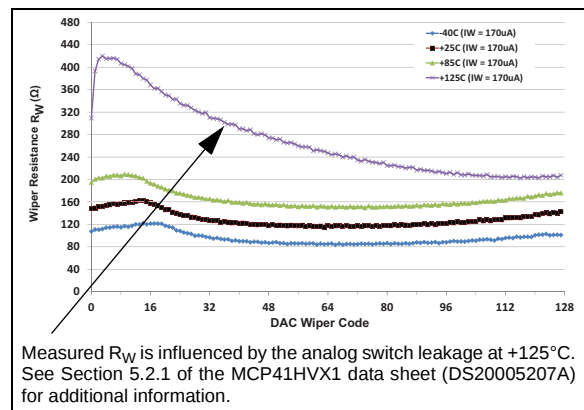


FIGURE 1-160: Wiper Resistance (R_W) vs. Wiper Setting and Temperature
(**50.0 kΩ, 7-bit:** $V_L = 1.8\text{V}, 2.7\text{V}, 5.5\text{V}$, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 10\text{V}$** , **$I_W = 170\text{ μA}$**).

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Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_L = 5.0\text{V}$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$.

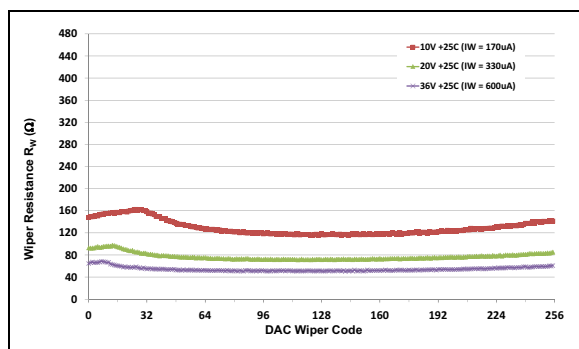


FIGURE 1-161: Wiper Resistance (R_W) vs. Wiper Setting @ 29°C

(**50.0 kΩ**, **8-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V ,

$A = V_+$, $B = V_-$, $\text{DGND} = V_-$,

$V_+ = 36\text{V}$ and $I_W = 600\text{ }\mu\text{A}$, **$V_+ = 20\text{V}$ and $I_W = 330\text{ }\mu\text{A}$** , **$V_+ = 10\text{V}$ and $I_W = 170\text{ }\mu\text{A}$**).

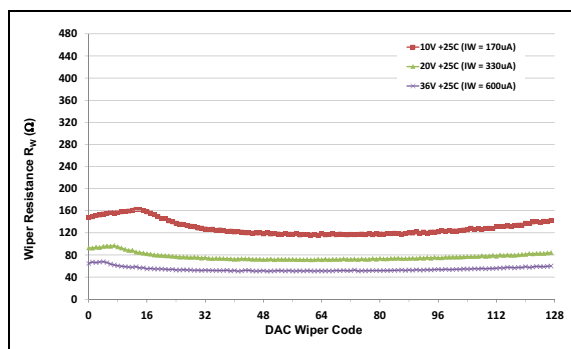


FIGURE 1-162: Wiper Resistance (R_W) vs. Wiper Setting @ 29°C

(**50.0 kΩ**, **7-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V ,

$A = V_+$, $B = V_-$, $\text{DGND} = V_-$,

$V_+ = 36\text{V}$ and $I_W = 600\text{ }\mu\text{A}$, **$V_+ = 20\text{V}$ and $I_W = 330\text{ }\mu\text{A}$** , **$V_+ = 10\text{V}$ and $I_W = 170\text{ }\mu\text{A}$**).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_L = 5.0\text{V}$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$.

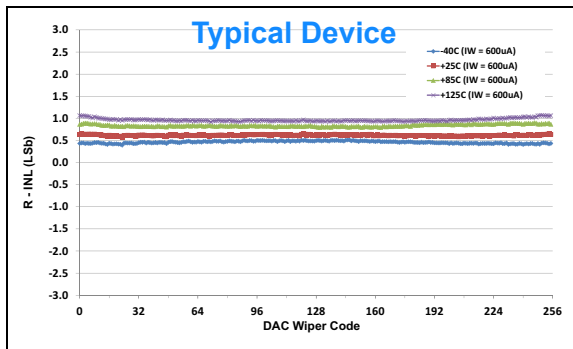


FIGURE 1-163: INL Error - Rheo. Mode (R-INL) vs. Wiper Setting and Temperature (50.0 k Ω , 8-bit: $V_L = 1.8\text{V}$, 2.7V, 5.5V, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$, $I_W = 600\text{ }\mu\text{A}$).

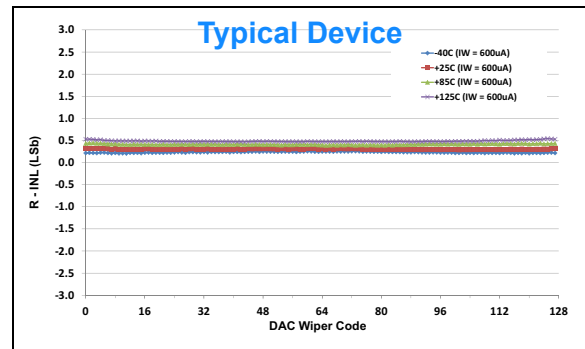


FIGURE 1-166: INL Error - Rheo. Mode (R-INL) vs. Wiper Setting and Temperature (50.0 k Ω , 7-bit: $V_L = 1.8\text{V}$, 2.7V, 5.5V, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$, $I_W = 600\text{ }\mu\text{A}$).

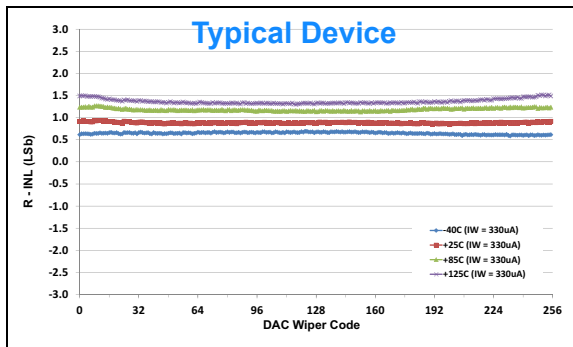


FIGURE 1-164: INL Error - Rheo. Mode (R-INL) vs. Wiper Setting and Temperature (50.0 k Ω , 8-bit: $V_L = 1.8\text{V}$, 2.7V, 5.5V, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 20\text{V}$, $I_W = 330\text{ }\mu\text{A}$).

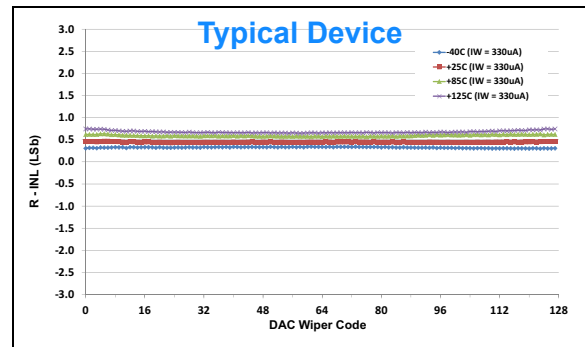


FIGURE 1-167: INL Error - Rheo. Mode (R-INL) vs. Wiper Setting and Temperature (50.0 k Ω , 7-bit: $V_L = 1.8\text{V}$, 2.7V, 5.5V, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 20\text{V}$, $I_W = 330\text{ }\mu\text{A}$).

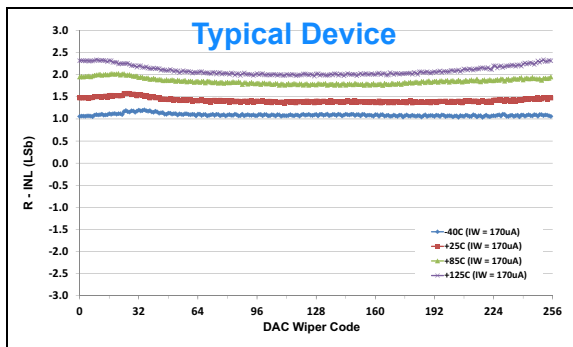


FIGURE 1-165: INL Error - Rheo. Mode (R-INL) vs. Wiper Setting and Temperature (50.0 k Ω , 8-bit: $V_L = 1.8\text{V}$, 2.7V, 5.5V, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 10\text{V}$, $I_W = 170\text{ }\mu\text{A}$).

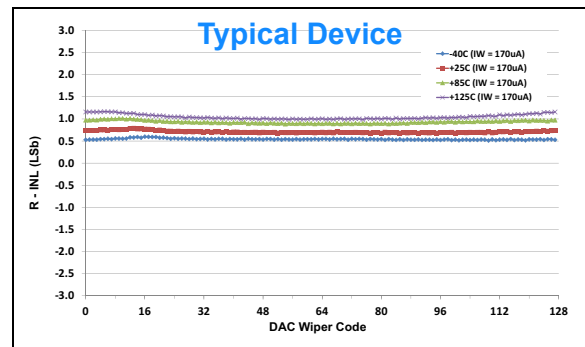


FIGURE 1-168: INL Error - Rheo. Mode (R-INL) vs. Wiper Setting and Temperature (50.0 k Ω , 7-bit: $V_L = 1.8\text{V}$, 2.7V, 5.5V, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 10\text{V}$, $I_W = 170\text{ }\mu\text{A}$).

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Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_L = 5.0\text{V}$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$

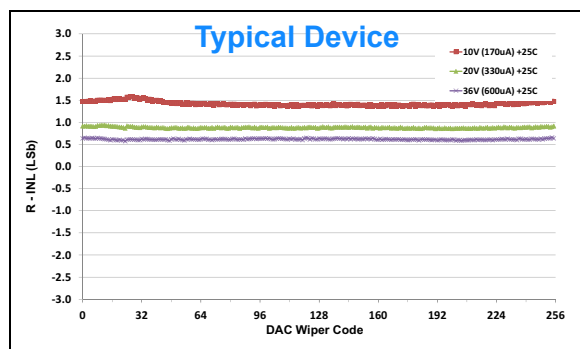


FIGURE 1-169: INL Error - Rheo. Mode (R-INL) vs. Wiper Setting (@ 25°C)
(**50.0 k Ω** , **8-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V ,
 $A = V_+$, $B = V_-$, $\text{DGND} = V_-$,
 $V_+ = 36\text{V}$ and $I_W = 600\text{ }\mu\text{A}$, $V_+ = 20\text{V}$ and
 $I_W = 330\text{ }\mu\text{A}$, $V_+ = 10\text{V}$ and $I_W = 170\text{ }\mu\text{A}$).

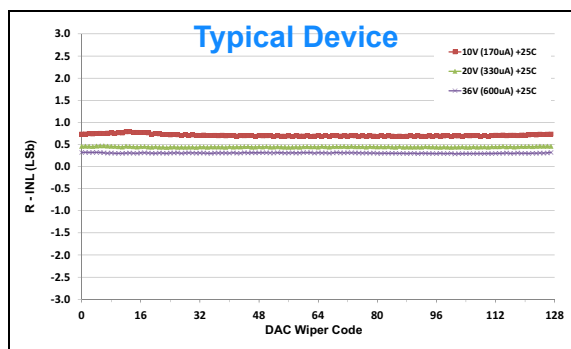


FIGURE 1-170: INL Error - Rheo. Mode (R-INL) vs. Wiper Setting (@ 25°C)
(**50.0 k Ω** , **7-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V ,
 $A = V_+$, $B = V_-$, $\text{DGND} = V_-$,
 $V_+ = 36\text{V}$ and $I_W = 600\text{ }\mu\text{A}$, $V_+ = 20\text{V}$ and
 $I_W = 330\text{ }\mu\text{A}$, $V_+ = 10\text{V}$ and $I_W = 170\text{ }\mu\text{A}$).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_L = 5.0\text{V}$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$.

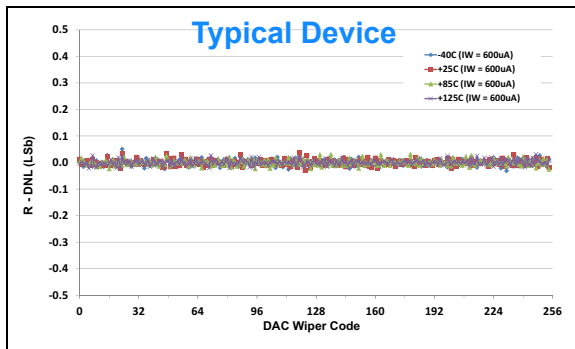


FIGURE 1-171: DNL Error - Rheo. Mode (R-DNL) vs. Wiper Setting and Temperature (50.0 kΩ, 8-bit: $V_L = 1.8\text{V}$, 2.7V, 5.5V, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$, $I_W = 600\text{ }\mu\text{A}$).

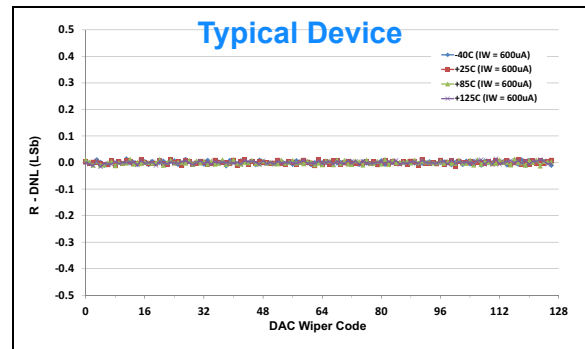


FIGURE 1-174: DNL Error - Rheo. Mode (R-DNL) vs. Wiper Setting and Temperature (50.0 kΩ, 7-bit: $V_L = 1.8\text{V}$, 2.7V, 5.5V, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$, $I_W = 600\text{ }\mu\text{A}$).

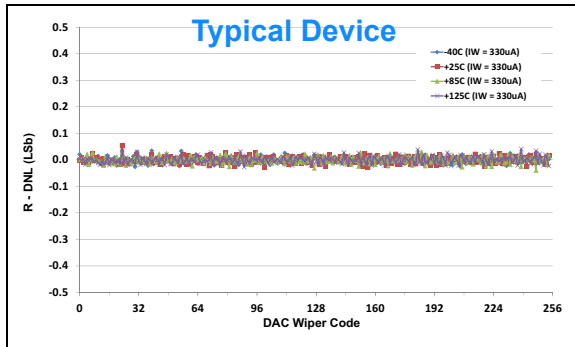


FIGURE 1-172: DNL Error - Rheo. Mode (R-DNL) vs. Wiper Setting and Temperature (50.0 kΩ, 8-bit: $V_L = 1.8\text{V}$, 2.7V, 5.5V, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 20\text{V}$, $I_W = 330\text{ }\mu\text{A}$).

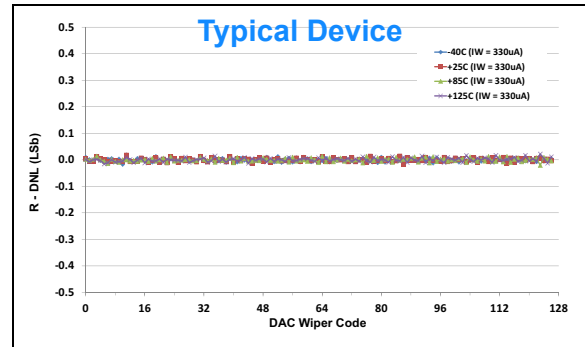


FIGURE 1-175: DNL Error - Rheo. Mode (R-DNL) vs. Wiper Setting and Temperature (50.0 kΩ, 7-bit: $V_L = 1.8\text{V}$, 2.7V, 5.5V, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 20\text{V}$, $I_W = 330\text{ }\mu\text{A}$).

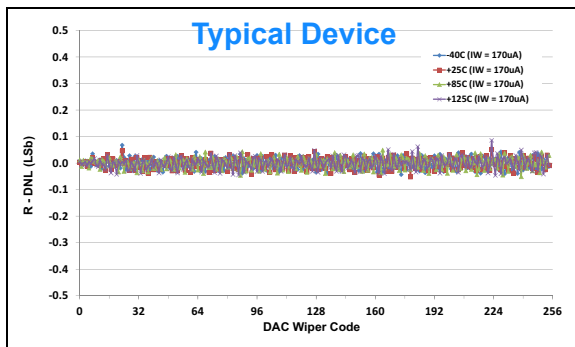


FIGURE 1-173: DNL Error - Rheo. Mode (R-DNL) vs. Wiper Setting and Temperature (50.0 kΩ, 8-bit: $V_L = 1.8\text{V}$, 2.7V, 5.5V, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 10\text{V}$, $I_W = 170\text{ }\mu\text{A}$).

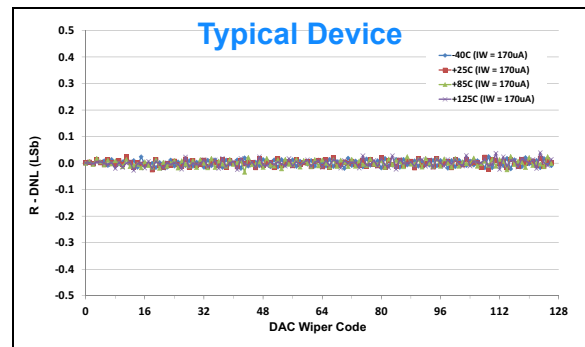


FIGURE 1-176: DNL Error - Rheo. Mode (R-DNL) vs. Wiper Setting and Temperature (50.0 kΩ, 7-bit: $V_L = 1.8\text{V}$, 2.7V, 5.5V, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 10\text{V}$, $I_W = 170\text{ }\mu\text{A}$).

MCP41HVX1

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_L = 5.0\text{V}$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$.

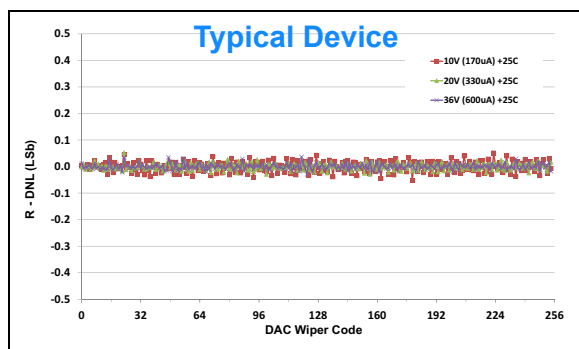


FIGURE 1-177: DNL Error - Rheo. Mode (R-DNL) vs. Wiper Setting (@ 25°C)
($50.0\text{ k}\Omega$, **8-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V ,
 $A = V_+$, $B = V_-$, $\text{DGND} = V_-$,
 $V_+ = 36\text{V}$ and $I_W = 600\text{ }\mu\text{A}$, $V_+ = 20\text{V}$ and
 $I_W = 330\text{ }\mu\text{A}$, $V_+ = 10\text{V}$ and $I_W = 170\text{ }\mu\text{A}$).

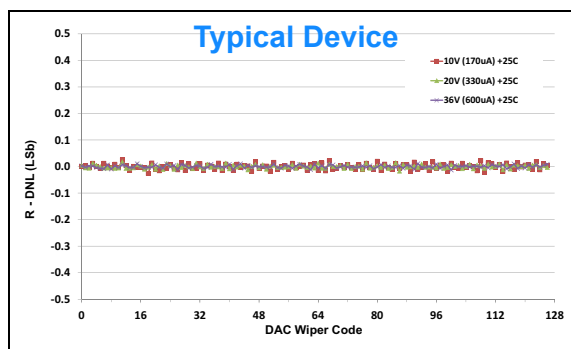


FIGURE 1-178: DNL Error - Rheo. Mode (R-DNL) vs. Wiper Setting (@ 25°C)
($50.0\text{ k}\Omega$, **7-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V ,
 $A = V_+$, $B = V_-$, $\text{DGND} = V_-$,
 $V_+ = 36\text{V}$ and $I_W = 600\text{ }\mu\text{A}$, $V_+ = 20\text{V}$ and
 $I_W = 330\text{ }\mu\text{A}$, $V_+ = 10\text{V}$ and $I_W = 170\text{ }\mu\text{A}$).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_L = 5.0\text{V}$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$.

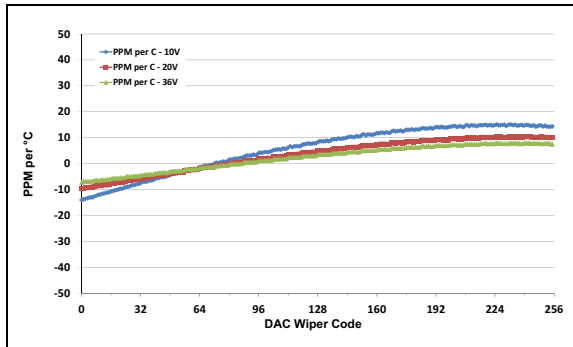


FIGURE 1-179: $V_W \text{ PPM}/^\circ\text{C}$ (Pot. Mode) vs. Temperature, and V_+ Voltage

$\left(\frac{V_{W(\text{code}=n, 125^\circ\text{C})} - V_{W(\text{code}=n, -40^\circ\text{C})}}{V_{W(\text{code}=255, 25^\circ\text{C})}} \right) * 1,000,000 / 165^\circ\text{C}$
 (50.0 k Ω , 8-bit: $V_L = 1.8\text{V}, 2.7\text{V}, 5.5\text{V}$,
 $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 36\text{V}, 20\text{V}, 10\text{V}$).

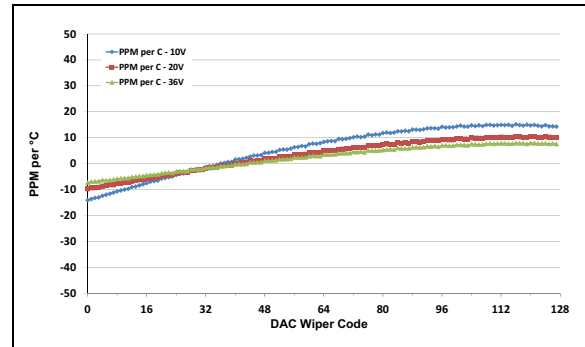


FIGURE 1-180: $V_W \text{ PPM}/^\circ\text{C}$ (Pot. Mode) vs. Temperature, and V_+ Voltage

$\left(\frac{V_{W(\text{code}=n, 125^\circ\text{C})} - V_{W(\text{code}=n, -40^\circ\text{C})}}{V_{W(\text{code}=127, 25^\circ\text{C})}} \right) * 1,000,000 / 165^\circ\text{C}$
 (50.0 k Ω , 7-bit: $V_L = 1.8\text{V}, 2.7\text{V}, 5.5\text{V}$,
 $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 36\text{V}, 20\text{V}, 10\text{V}$).

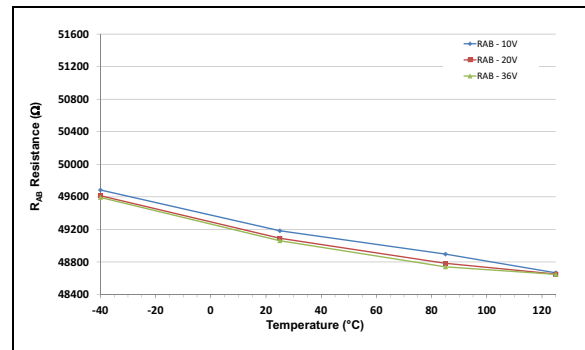


FIGURE 1-181: R_{AB} Resistance vs. Temperature and V_+ Voltage

(50.0 k Ω : $V_L = 1.8\text{V}, 2.7\text{V}, 5.5\text{V}$,
 $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 36\text{V}, 20\text{V}, 10\text{V}$).

MCP41HVX1

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_L = 5.0\text{V}$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$.

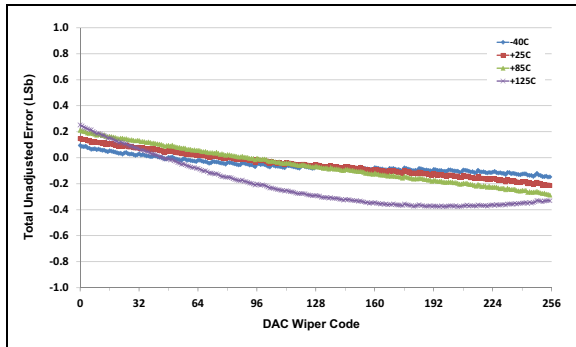


FIGURE 1-182: Total Unadjusted Error (Pot. Mode) (V_W) vs. Wiper Setting and Temperature (**100.0 k Ω , 8-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 36\text{V}$**).

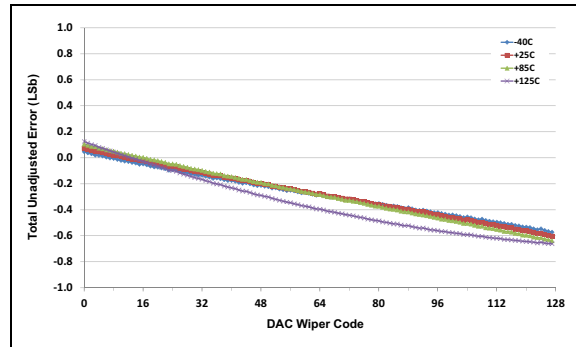


FIGURE 1-185: Total Unadjusted Error (Pot. Mode) (V_W) vs. Wiper Setting and Temperature (**100.0 k Ω , 7-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 36\text{V}$**).

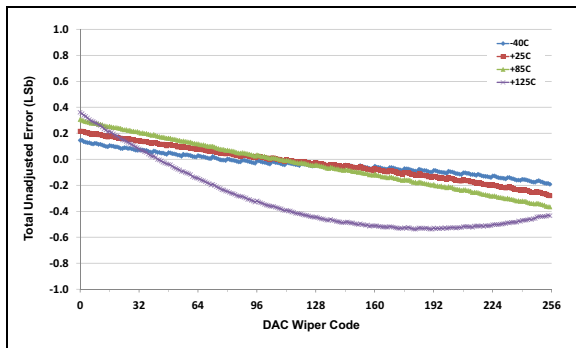


FIGURE 1-183: Total Unadjusted Error (Pot. Mode) (V_W) vs. Wiper Setting and Temperature (**100.0 k Ω , 8-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 20\text{V}$**).

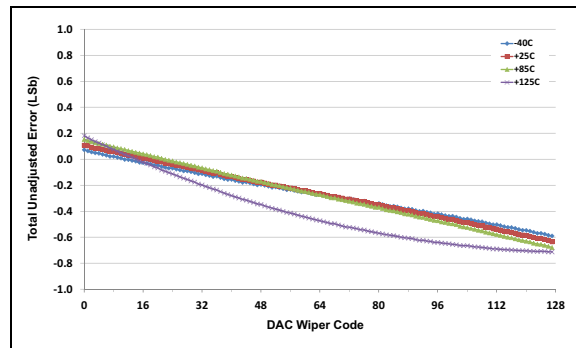


FIGURE 1-186: Total Unadjusted Error (Pot. Mode) (V_W) vs. Wiper Setting and Temperature (**100.0 k Ω , 7-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 20\text{V}$**).

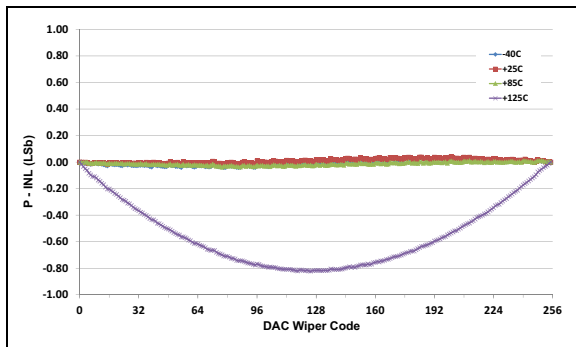


FIGURE 1-184: Total Unadjusted Error (Pot. Mode) (V_W) vs. Wiper Setting and Temperature (**100.0 k Ω , 8-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 10\text{V}$**).

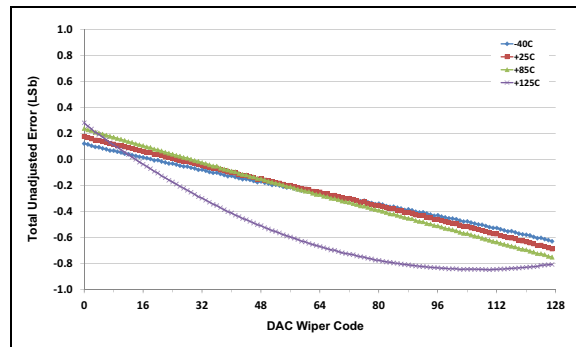


FIGURE 1-187: Total Unadjusted Error (Pot. Mode) (V_W) vs. Wiper Setting and Temperature (**100.0 k Ω , 7-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 10\text{V}$**).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_L = 5.0\text{V}$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$.

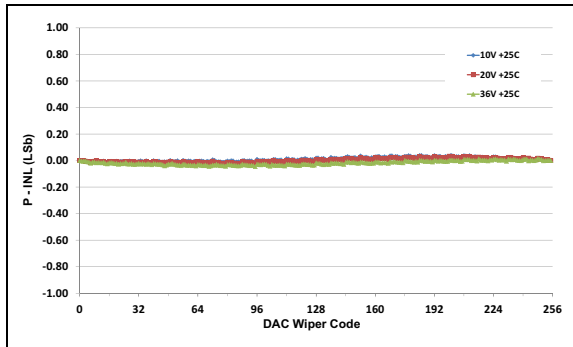


FIGURE 1-188: Total Unadjusted Error (Pot. Mode) (V_W) vs. Wiper Setting (@ 25°C) ($100.0\text{ k}\Omega$, **8-bit**: $V_L = 1.8\text{V}, 2.7\text{V}, 5.5\text{V}$, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 36\text{V}, 20\text{V}, 10\text{V}$).

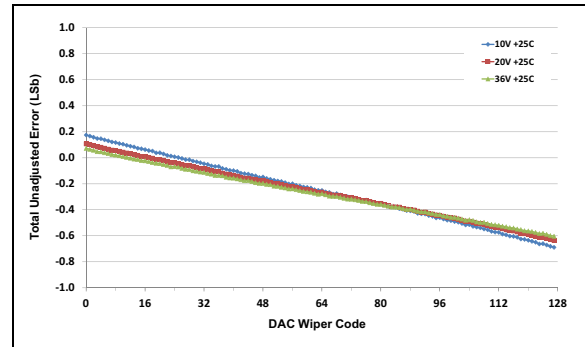


FIGURE 1-191: Total Unadjusted Error (Pot. Mode) (V_W) vs. Wiper Setting (@ 25°C) ($100.0\text{ k}\Omega$, **7-bit**: $V_L = 1.8\text{V}, 2.7\text{V}, 5.5\text{V}$, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 36\text{V}, 20\text{V}, 10\text{V}$).

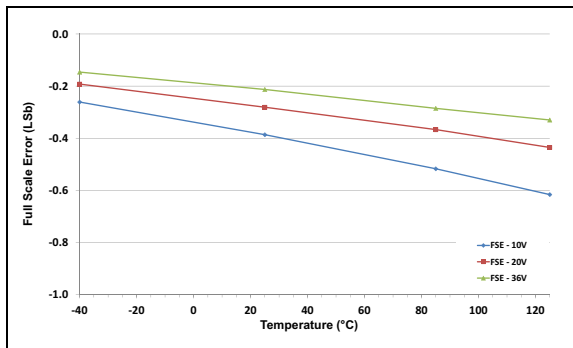


FIGURE 1-189: Full Scale Error (Pot. Mode) (FSE) vs. Temperature and V_+ Voltage ($100.0\text{ k}\Omega$, **8-bit**: $V_L = 1.8\text{V}, 2.7\text{V}, 5.5\text{V}$, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 36\text{V}, 20\text{V}, 10\text{V}$).

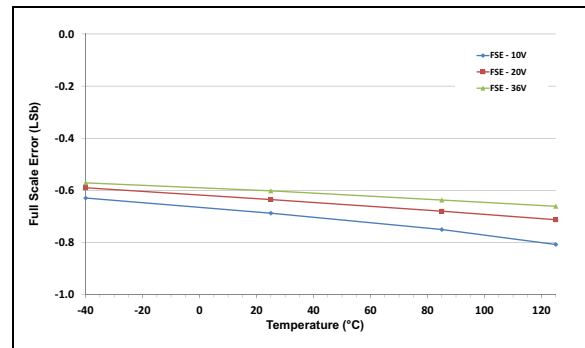


FIGURE 1-192: Full Scale Error (Pot. Mode) (FSE) vs. Temperature and V_+ Voltage ($100.0\text{ k}\Omega$, **7-bit**: $V_L = 1.8\text{V}, 2.7\text{V}, 5.5\text{V}$, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 36\text{V}, 20\text{V}, 10\text{V}$).

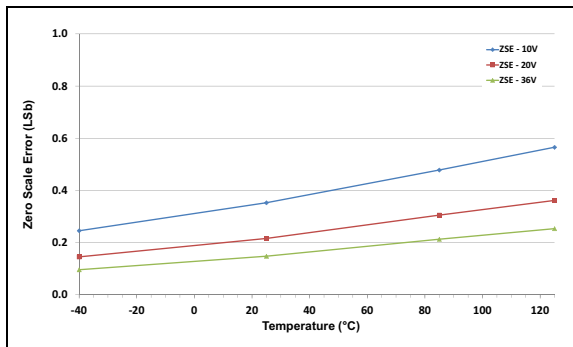


FIGURE 1-190: Zero Scale Error (Pot. Mode) (ZSE) vs. Temperature and V_+ Voltage ($100.0\text{ k}\Omega$, **8-bit**: $V_L = 1.8\text{V}, 2.7\text{V}, 5.5\text{V}$, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 36\text{V}, 20\text{V}, 10\text{V}$).

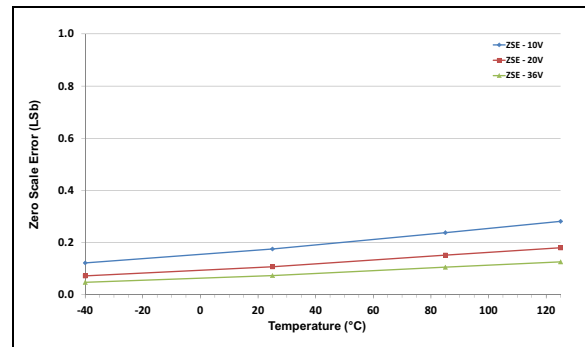


FIGURE 1-193: Zero Scale Error (Pot. Mode) (ZSE) vs. Temperature and V_+ Voltage ($100.0\text{ k}\Omega$, **7-bit**: $V_L = 1.8\text{V}, 2.7\text{V}, 5.5\text{V}$, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, $V_+ = 36\text{V}, 20\text{V}, 10\text{V}$).

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Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_L = 5.0\text{V}$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$.

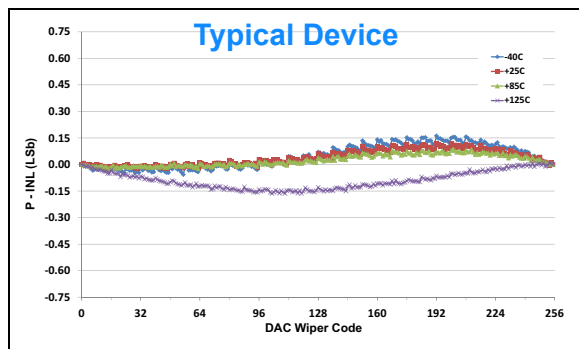


FIGURE 1-194: INL Error - Pot. Mode (P-INL) vs. Wiper Setting and Temperature
(**100.0 k Ω** , **8-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 36\text{V}$**).

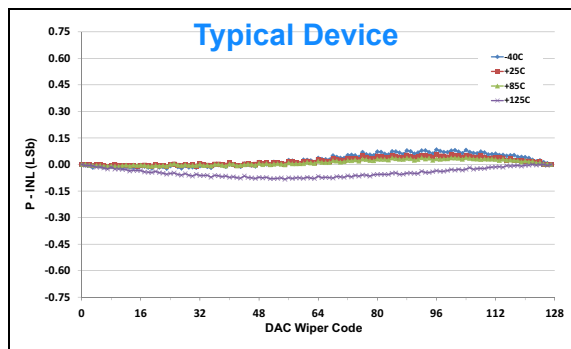


FIGURE 1-197: INL Error - Pot. Mode (P-INL) vs. Wiper Setting and Temperature
(**100.0 k Ω** , **7-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 36\text{V}$**).

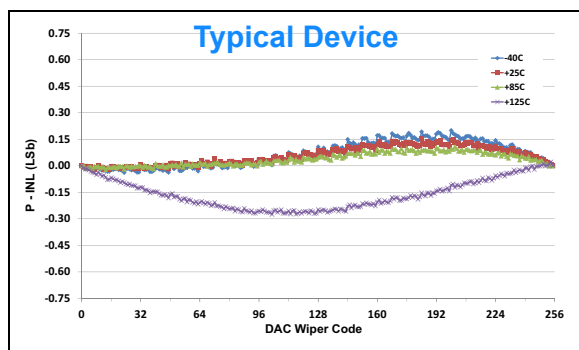


FIGURE 1-195: INL Error - Pot. Mode (P-INL) vs. Wiper Setting and Temperature
(**100.0 k Ω** , **8-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 20\text{V}$**).

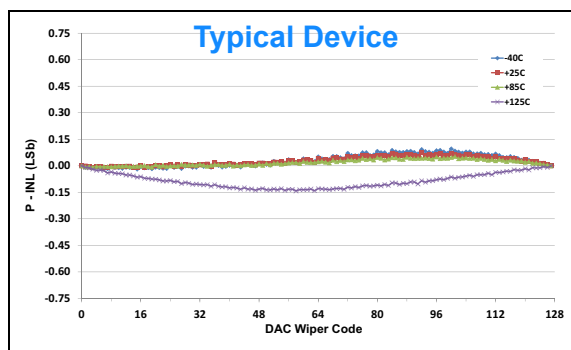


FIGURE 1-198: INL Error - Pot. Mode (P-INL) vs. Wiper Setting and Temperature
(**100.0 k Ω** , **7-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 20\text{V}$**).

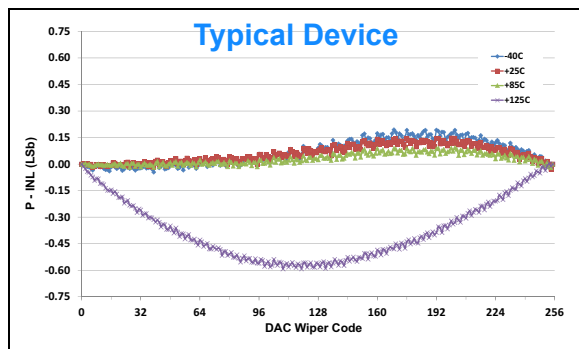


FIGURE 1-196: INL Error - Pot. Mode (P-INL) vs. Wiper Setting and Temperature
(**100.0 k Ω** , **8-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 10\text{V}$**).

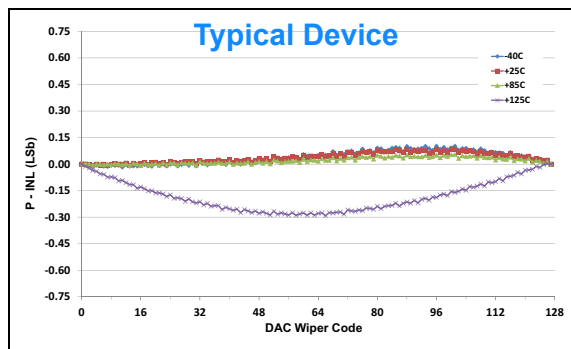


FIGURE 1-199: INL Error - Pot. Mode (P-INL) vs. Wiper Setting and Temperature
(**100.0 k Ω** , **7-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 10\text{V}$**).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_L = 5.0\text{V}$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$.

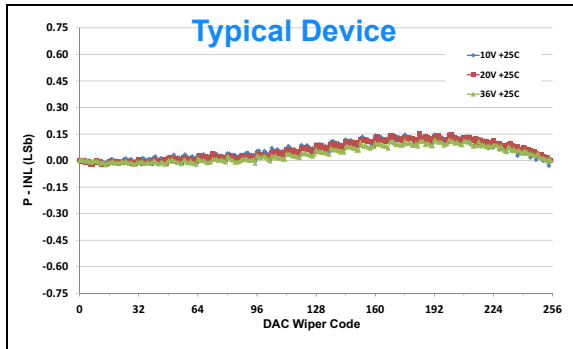


FIGURE 1-200: INL Error - Pot. Mode (P-INL) vs. Wiper Setting (@ 25°C)
(**100.0 k Ω** , **8-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V ,
 $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 36\text{V}$** , **20V**, **10V**).

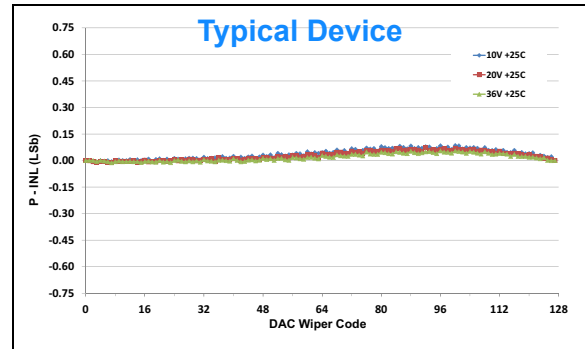


FIGURE 1-201: INL Error - Pot. Mode (P-INL) vs. Wiper Setting (@ 25°C)
(**100.0 k Ω** , **7-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V ,
 $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 36\text{V}$** , **20V**, **10V**).

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Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_L = 5.0\text{V}$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$.

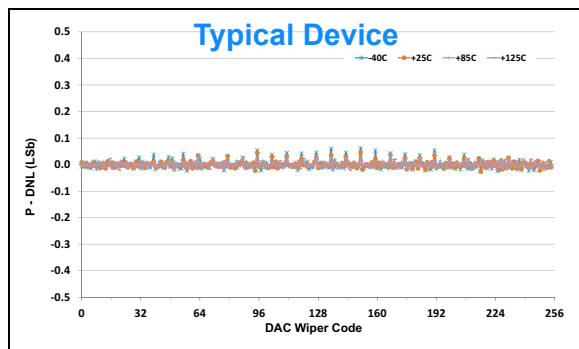


FIGURE 1-202: DNL Error - Pot. Mode (P-DNL) vs. Wiper Setting and Temperature (**100.0 k Ω** , **8-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 36\text{V}$**).

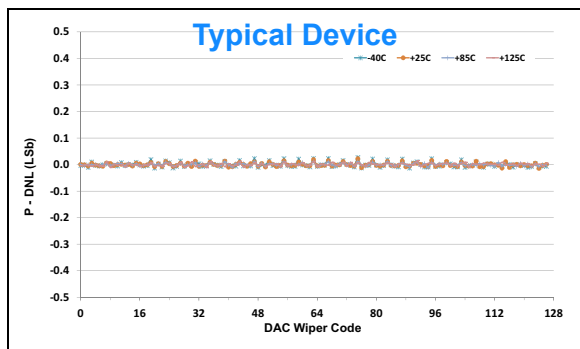


FIGURE 1-205: DNL Error - Pot. Mode (P-DNL) vs. Wiper Setting and Temperature (**100.0 k Ω** , **7-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 36\text{V}$**).

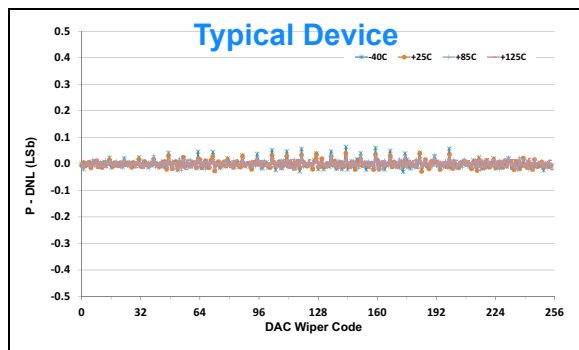


FIGURE 1-203: DNL Error - Pot. Mode (P-DNL) vs. Wiper Setting and Temperature (**100.0 k Ω** , **8-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 20\text{V}$**).

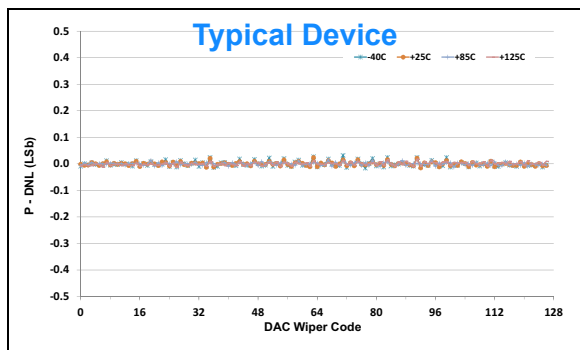


FIGURE 1-206: DNL Error - Pot. Mode (P-DNL) vs. Wiper Setting and Temperature (**100.0 k Ω** , **7-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 20\text{V}$**).

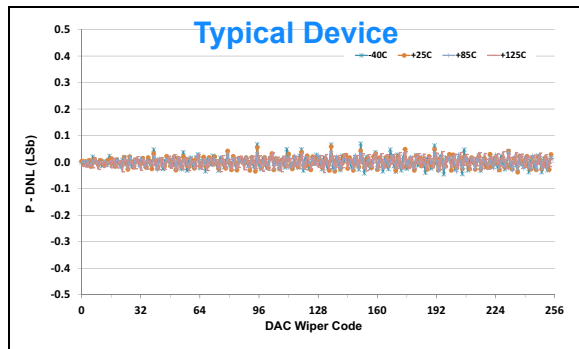


FIGURE 1-204: DNL Error - Pot. Mode (P-DNL) vs. Wiper Setting and Temperature (**100.0 k Ω** , **8-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 10\text{V}$**).

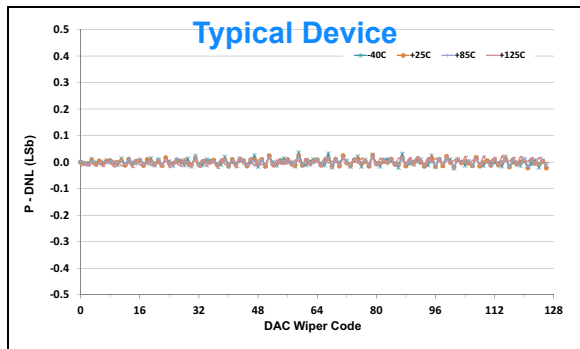


FIGURE 1-207: DNL Error - Pot. Mode (P-DNL) vs. Wiper Setting and Temperature (**100.0 k Ω** , **7-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 10\text{V}$**).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_L = 5.0\text{V}$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$.

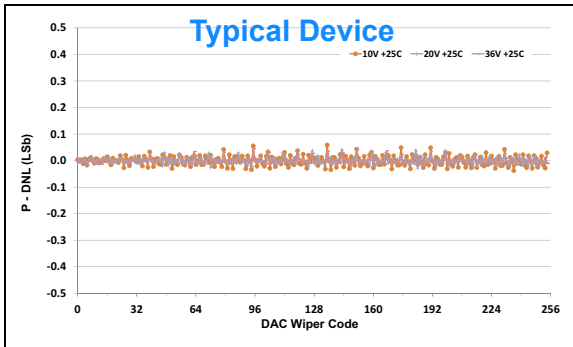


FIGURE 1-208: DNL Error - Pot. Mode (P-DNL) vs. Wiper Setting (@ 25°C) ($100.0\text{ k}\Omega$, **8-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 36\text{V}$, 20V , 10V**).

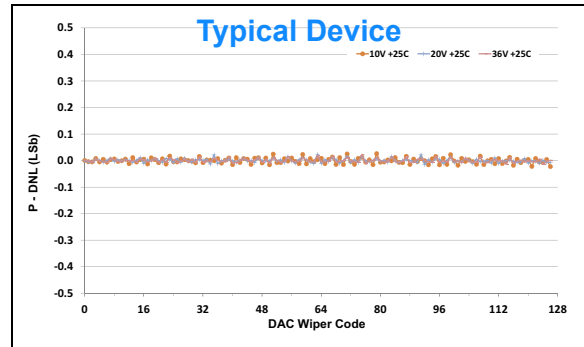
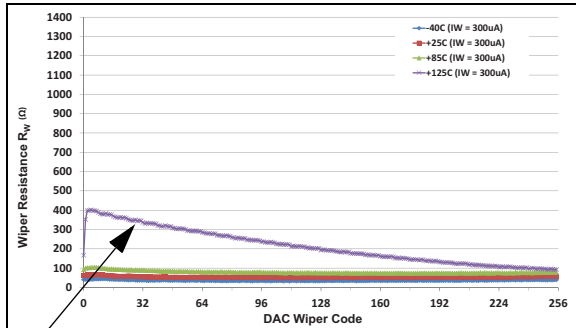


FIGURE 1-209: DNL Error - Pot. Mode (P-DNL) vs. Wiper Setting (@ 25°C) ($100.0\text{ k}\Omega$, **7-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 36\text{V}$, 20V , 10V**).

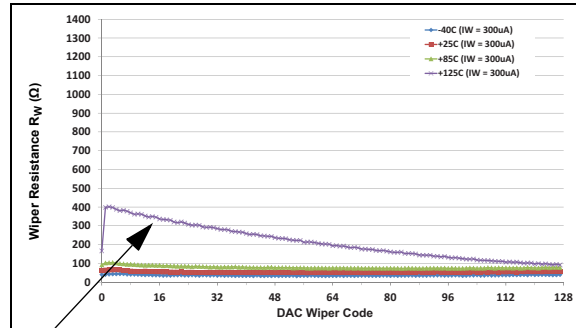
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Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_L = 5.0\text{V}$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$.



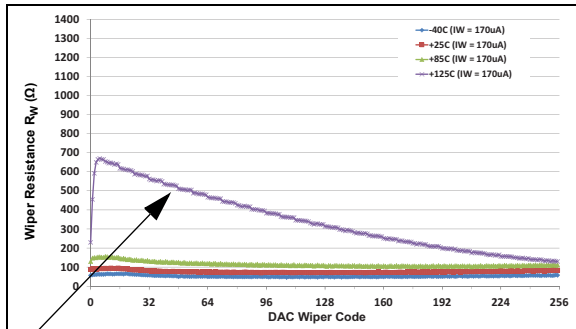
Measured R_W is influenced by the analog switch leakage at $+125^\circ\text{C}$. See Section 5.2.1 of the MCP41HVX1 data sheet (DS20005207A) for additional information.

FIGURE 1-210: Wiper Resistance (R_W) vs. Wiper Setting and Temperature
(**100.0 k Ω , 8-bit:** $V_L = 1.8\text{V}, 2.7\text{V}, 5.5\text{V}$, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 36\text{V}$** , **$I_W = 300\text{ }\mu\text{A}$**).



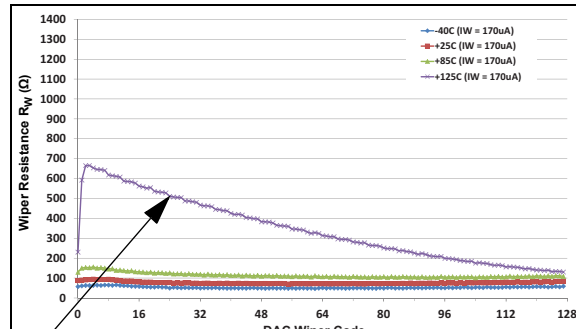
Measured R_W is influenced by the analog switch leakage at $+125^\circ\text{C}$. See Section 5.2.1 of the MCP41HVX1 data sheet (DS20005207A) for additional information.

FIGURE 1-213: Wiper Resistance (R_W) vs. Wiper Setting and Temperature
(**100.0 k Ω , 7-bit:** $V_L = 1.8\text{V}, 2.7\text{V}, 5.5\text{V}$, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 36\text{V}$** , **$I_W = 300\text{ }\mu\text{A}$**).



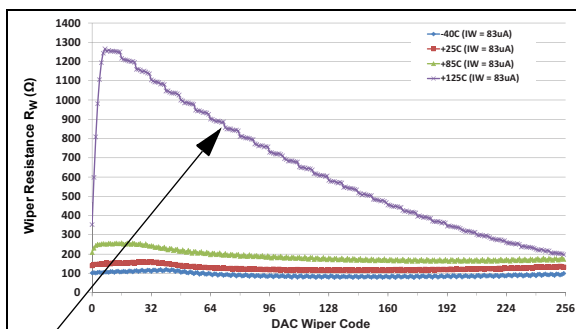
Measured R_W is influenced by the analog switch leakage at $+125^\circ\text{C}$. See Section 5.2.1 of the MCP41HVX1 data sheet (DS20005207A) for additional information.

FIGURE 1-211: Wiper Resistance (R_W) vs. Wiper Setting and Temperature
(**100.0 k Ω , 8-bit:** $V_L = 1.8\text{V}, 2.7\text{V}, 5.5\text{V}$, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 20\text{V}$** , **$I_W = 170\text{ }\mu\text{A}$**).



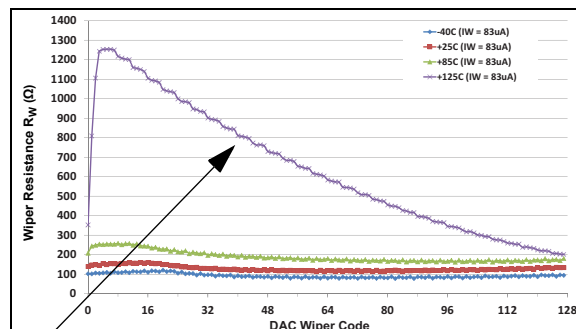
Measured R_W is influenced by the analog switch leakage at $+125^\circ\text{C}$. See Section 5.2.1 of the MCP41HVX1 data sheet (DS20005207A) for additional information.

FIGURE 1-214: Wiper Resistance (R_W) vs. Wiper Setting and Temperature
(**100.0 k Ω , 7-bit:** $V_L = 1.8\text{V}, 2.7\text{V}, 5.5\text{V}$, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 20\text{V}$** , **$I_W = 170\text{ }\mu\text{A}$**).



Measured R_W is influenced by the analog switch leakage at $+125^\circ\text{C}$. See Section 5.2.1 of the MCP41HVX1 data sheet (DS20005207A) for additional information.

FIGURE 1-212: Wiper Resistance (R_W) vs. Wiper Setting and Temperature
(**100.0 k Ω , 8-bit:** $V_L = 1.8\text{V}, 2.7\text{V}, 5.5\text{V}$, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 10\text{V}$** , **$I_W = 83\text{ }\mu\text{A}$**).



Measured R_W is influenced by the analog switch leakage at $+125^\circ\text{C}$. See Section 5.2.1 of the MCP41HVX1 data sheet (DS20005207A) for additional information.

FIGURE 1-215: Wiper Resistance (R_W) vs. Wiper Setting and Temperature
(**100.0 k Ω , 7-bit:** $V_L = 1.8\text{V}, 2.7\text{V}, 5.5\text{V}$, $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 10\text{V}$** , **$I_W = 83\text{ }\mu\text{A}$**).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_L = 5.0\text{V}$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$.

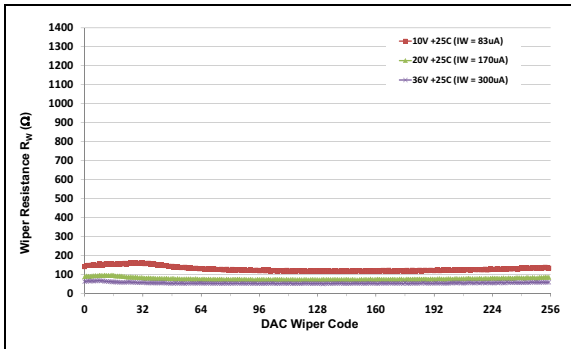


FIGURE 1-216: Wiper Resistance (R_W) vs. Wiper Setting @ 29°C
(100.0 kΩ, 8-bit: $V_L = 1.8\text{V}, 2.7\text{V}, 5.5\text{V}$,
 $A = V_+$, $B = V_-$, $\text{DGND} = V_-$,
 $V_+ = 36\text{V}$ and $I_W = 300\text{ μA}$, $V_+ = 20\text{V}$ and
 $I_W = 170\text{ μA}$, $V_+ = 10\text{V}$ and $I_W = 83\text{ μA}$).

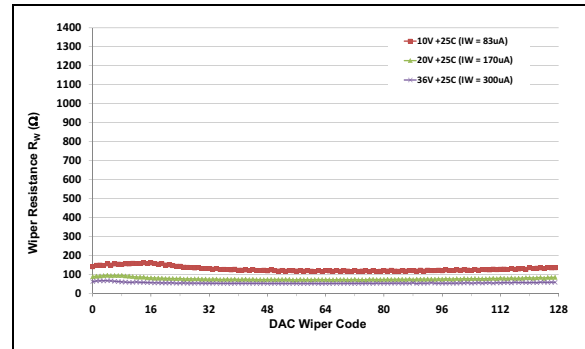


FIGURE 1-217: Wiper Resistance (R_W) vs. Wiper Setting @ 29°C
(100.0 kΩ, 7-bit: $V_L = 1.8\text{V}, 2.7\text{V}, 5.5\text{V}$,
 $A = V_+$, $B = V_-$, $\text{DGND} = V_-$,
 $V_+ = 36\text{V}$ and $I_W = 300\text{ μA}$, $V_+ = 20\text{V}$ and
 $I_W = 170\text{ μA}$, $V_+ = 10\text{V}$ and $I_W = 83\text{ μA}$).

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Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_L = 5.0\text{V}$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$.

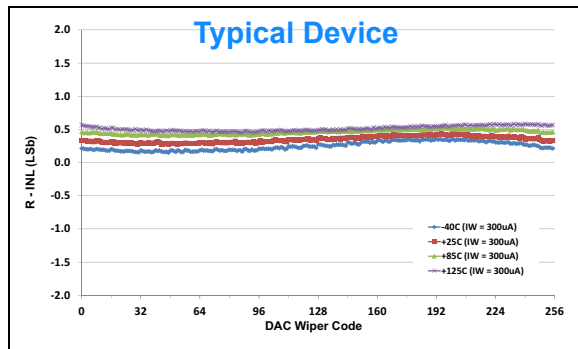


FIGURE 1-218: INL Error - Rheo. Mode (R-INL) vs. Wiper Setting and Temperature (**100.0 kΩ, 8-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 36\text{V}$** , $I_W = 300\text{ }\mu\text{A}$).

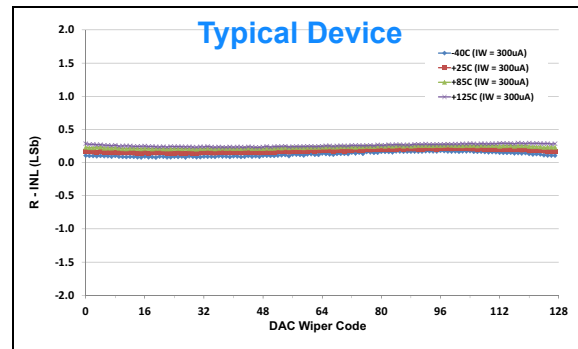


FIGURE 1-221: INL Error - Rheo. Mode (R-INL) vs. Wiper Setting and Temperature (**100.0 kΩ, 7-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 36\text{V}$** , $I_W = 300\text{ }\mu\text{A}$).

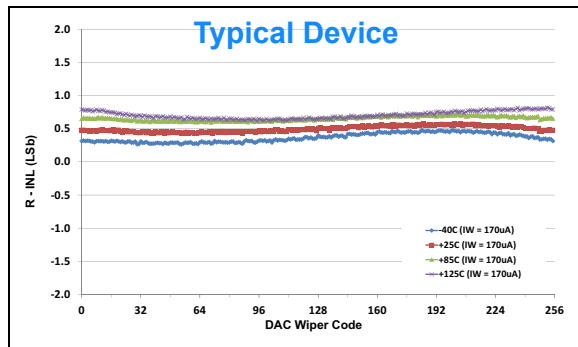


FIGURE 1-219: INL Error - Rheo. Mode (R-INL) vs. Wiper Setting and Temperature (**100.0 kΩ, 8-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 20\text{V}$** , $I_W = 170\text{ }\mu\text{A}$).

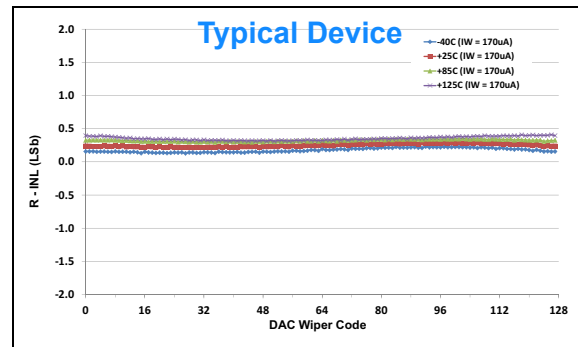


FIGURE 1-222: INL Error - Rheo. Mode (R-INL) vs. Wiper Setting and Temperature (**100.0 kΩ, 7-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 20\text{V}$** , $I_W = 170\text{ }\mu\text{A}$).

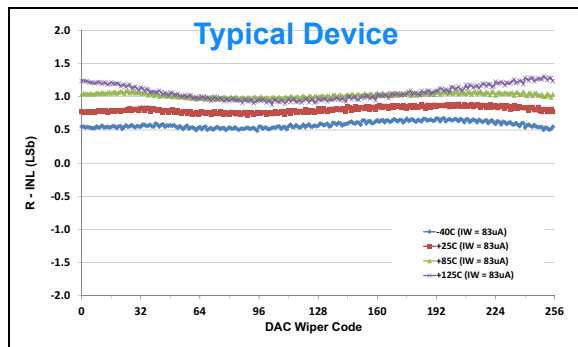


FIGURE 1-220: INL Error - Rheo. Mode (R-INL) vs. Wiper Setting and Temperature (**100.0 kΩ, 8-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 10\text{V}$** , $I_W = 83\text{ }\mu\text{A}$).

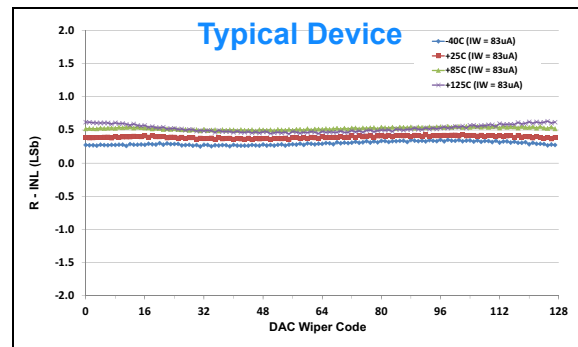


FIGURE 1-223: INL Error - Rheo. Mode (R-INL) vs. Wiper Setting and Temperature (**100.0 kΩ, 7-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 10\text{V}$** , $I_W = 83\text{ }\mu\text{A}$).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_L = 5.0\text{V}$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$

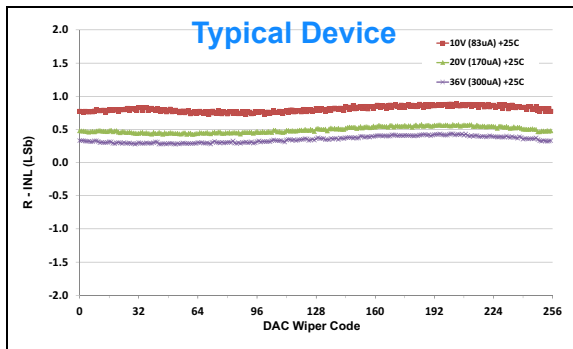


FIGURE 1-224: INL Error - Rheo. Mode (R-INL) vs. Wiper Setting (@ 25°C)
(**100.0 k Ω** , **8-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V ,
 $A = V_+$, $B = V_-$, $\text{DGND} = V_-$,
 $V_+ = 36\text{V}$ and $I_W = 300\text{ }\mu\text{A}$, $V_+ = 20\text{V}$ and
 $I_W = 170\text{ }\mu\text{A}$, $V_+ = 10\text{V}$ and $I_W = 83\text{ }\mu\text{A}$).

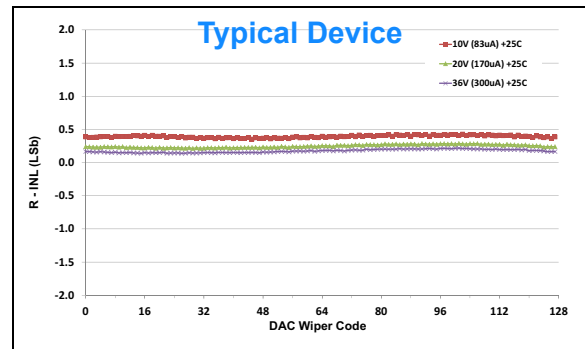


FIGURE 1-225: INL Error - Rheo. Mode (R-INL) vs. Wiper Setting (@ 25°C)
(**100.0 k Ω** , **7-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V ,
 $A = V_+$, $B = V_-$, $\text{DGND} = V_-$,
 $V_+ = 36\text{V}$ and $I_W = 300\text{ }\mu\text{A}$, $V_+ = 20\text{V}$ and
 $I_W = 170\text{ }\mu\text{A}$, $V_+ = 10\text{V}$ and $I_W = 83\text{ }\mu\text{A}$).

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Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_L = 5.0\text{V}$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$.

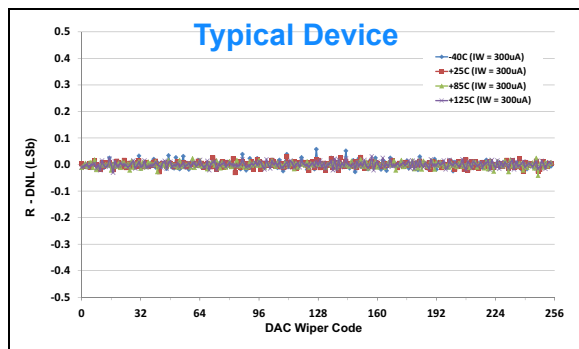


FIGURE 1-226: DNL Error - Rheo. Mode (R-DNL) vs. Wiper Setting and Temperature (**100.0 kΩ, 8-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 36\text{V}$** , **$I_W = 300\text{ }\mu\text{A}$**).

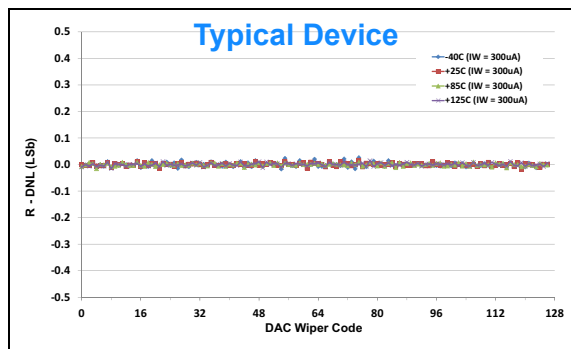


FIGURE 1-229: DNL Error - Rheo. Mode (R-DNL) vs. Wiper Setting and Temperature (**100.0 kΩ, 7-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 36\text{V}$** , **$I_W = 300\text{ }\mu\text{A}$**).

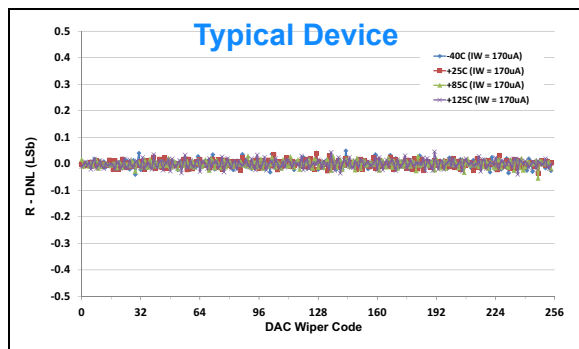


FIGURE 1-227: DNL Error - Rheo. Mode (R-DNL) vs. Wiper Setting and Temperature (**100.0 kΩ, 8-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 20\text{V}$** , **$I_W = 170\text{ }\mu\text{A}$**).

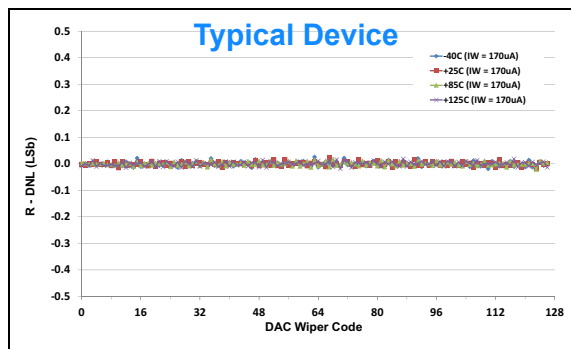


FIGURE 1-230: DNL Error - Rheo. Mode (R-DNL) vs. Wiper Setting and Temperature (**100.0 kΩ, 7-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 20\text{V}$** , **$I_W = 170\text{ }\mu\text{A}$**).

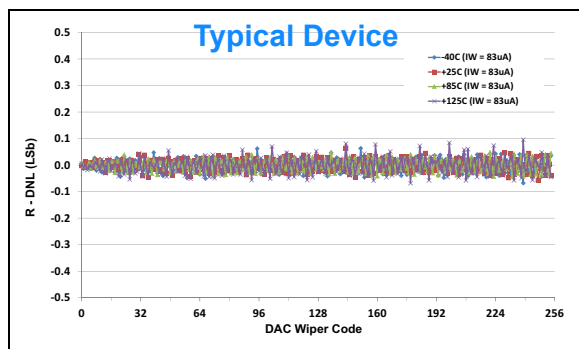


FIGURE 1-228: DNL Error - Rheo. Mode (R-DNL) vs. Wiper Setting and Temperature (**100.0 kΩ, 8-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 10\text{V}$** , **$I_W = 83\text{ }\mu\text{A}$**).

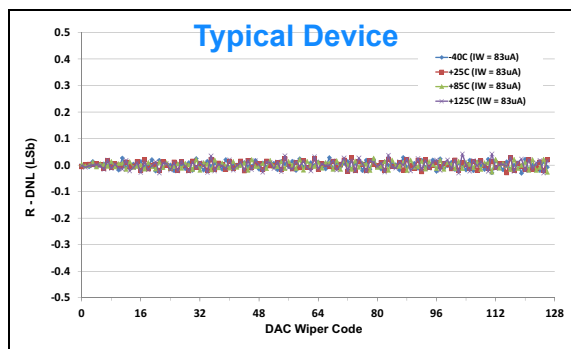


FIGURE 1-231: DNL Error - Rheo. Mode (R-DNL) vs. Wiper Setting and Temperature (**100.0 kΩ, 7-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V , $A = V_+$, $B = V_-$, $\text{DGND} = V_-$, **$V_+ = 10\text{V}$** , **$I_W = 83\text{ }\mu\text{A}$**).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_L = 5.0\text{V}$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$.

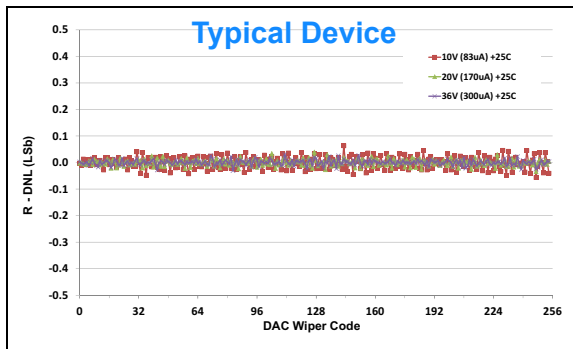


FIGURE 1-232: DNL Error - Rheo. Mode (R-DNL) vs. Wiper Setting (@ 25°C)
(**100.0 k Ω** , **8-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V ,
 $A = V_+$, $B = V_-$, $\text{DGND} = V_-$,
 $V_+ = 36\text{V}$ and $I_W = 300\text{ }\mu\text{A}$, $V_+ = 20\text{V}$ and $I_W = 170\text{ }\mu\text{A}$, $V_+ = 10\text{V}$ and $I_W = 83\text{ }\mu\text{A}$).

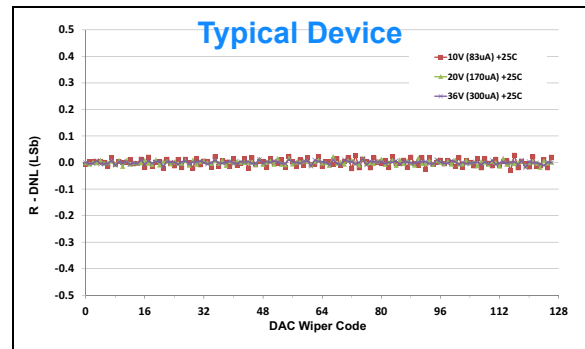


FIGURE 1-233: DNL Error - Rheo. Mode (R-DNL) vs. Wiper Setting (@ 25°C)
(**100.0 k Ω** , **7-bit**: $V_L = 1.8\text{V}$, 2.7V , 5.5V ,
 $A = V_+$, $B = V_-$, $\text{DGND} = V_-$,
 $V_+ = 36\text{V}$ and $I_W = 300\text{ }\mu\text{A}$, $V_+ = 20\text{V}$ and $I_W = 170\text{ }\mu\text{A}$, $V_+ = 10\text{V}$ and $I_W = 83\text{ }\mu\text{A}$).

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Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_L = 5.0\text{V}$, $\text{DGND} = V_-$, $V_+ = 36\text{V}$.

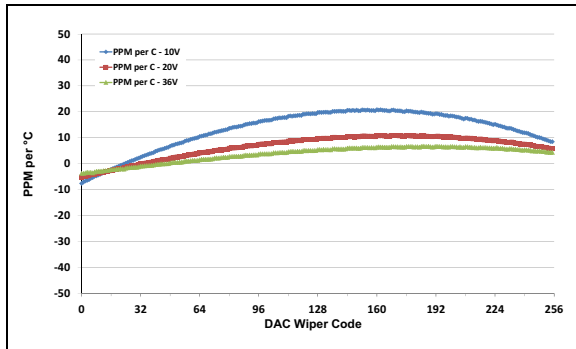


FIGURE 1-234: $V_W \text{ PPM} / ^\circ\text{C}$ (Pot. Mode) vs. Temperature, and V_+ Voltage

$\left(\left(V_{W(\text{code}=n, 125^\circ\text{C})} - V_{W(\text{code}=n, -40^\circ\text{C})} \right) / V_{W(\text{code}=255, 25^\circ\text{C})} \right) * 1,000,000 / 165^\circ\text{C}$
(100.0 kΩ, 8-bit: $V_L = 1.8\text{V}, 2.7\text{V}, 5.5\text{V}$,
 $A = V_+, B = V_-, \text{DGND} = V_-, V_+ = 36\text{V}, 20\text{V}, 10\text{V}$).

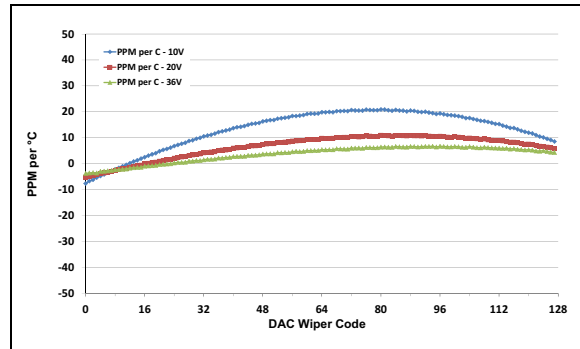


FIGURE 1-235: $V_W \text{ PPM} / ^\circ\text{C}$ (Pot. Mode) vs. Temperature, and V_+ Voltage

$\left(\left(V_{W(\text{code}=n, 125^\circ\text{C})} - V_{W(\text{code}=n, -40^\circ\text{C})} \right) / V_{W(\text{code}=127, 25^\circ\text{C})} \right) * 1,000,000 / 165^\circ\text{C}$
(100.0 kΩ, 7-bit: $V_L = 1.8\text{V}, 2.7\text{V}, 5.5\text{V}$,
 $A = V_+, B = V_-, \text{DGND} = V_-, V_+ = 36\text{V}, 20\text{V}, 10\text{V}$).

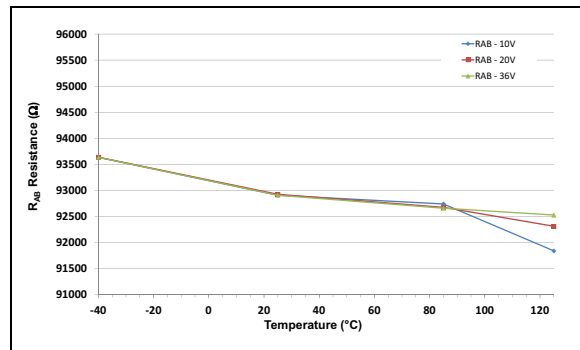


FIGURE 1-236: R_{AB} Resistance vs. Temperature and V_+ Voltage

(100.0 kΩ: $V_L = 1.8\text{V}, 2.7\text{V}, 5.5\text{V}$,
 $A = V_+, B = V_-, \text{DGND} = V_-, V_+ = 36\text{V}, 20\text{V}, 10\text{V}$).

1.1 Test Circuits

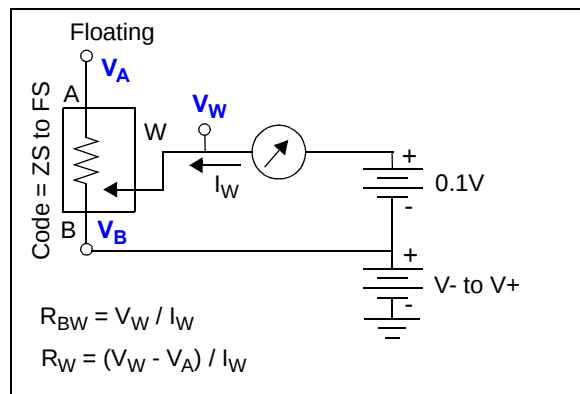


FIGURE 1-237: R_W and R_{BW} Measurement.

APPENDIX A: REVISION HISTORY

Revision A (June 2013)

- Original Release of this Document.

MCP41HVX1

NOTES:

Note the following details of the code protection feature on Microchip devices:

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