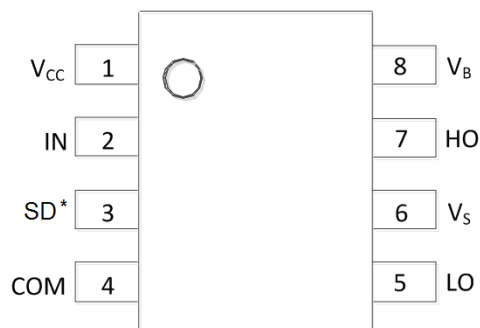


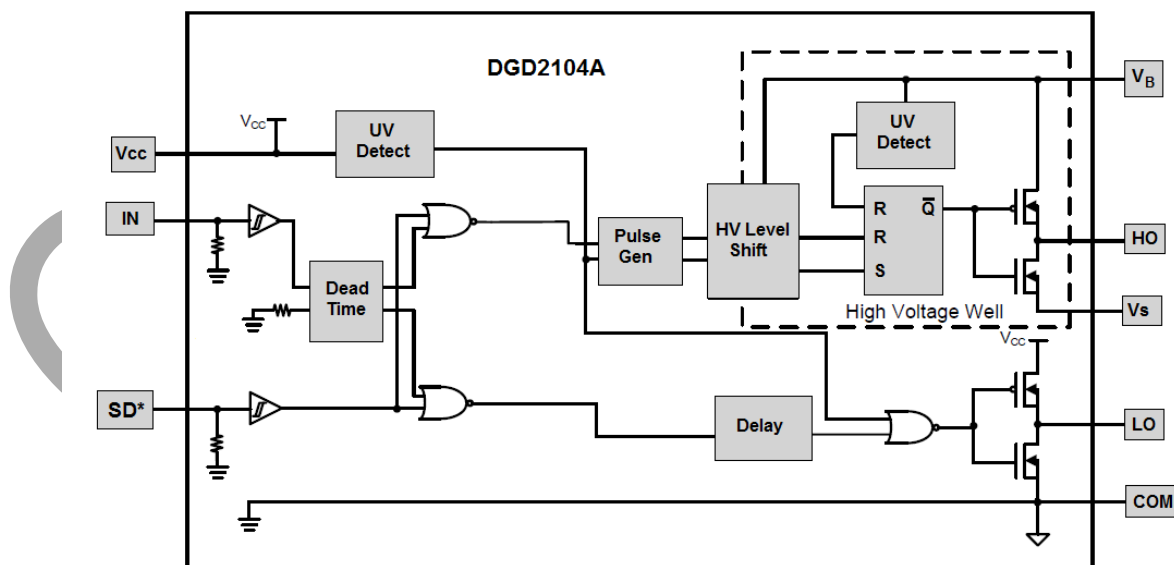
Pin Diagrams



Pin Descriptions

Pin Number	Pin Name	Function
1	V _{CC}	Logic and Low Side Supply
2	IN	Logic Input for High-Side and Low-Side Gate Driver Outputs (HO and LO), in Phase with HO
3	SD*	Logic Input for Shutdown, Enabled Low
4	COM	Low-Side and Logic Return
5	LO	Low-Side Gate Drive Output
6	V _S	High-Side Floating Supply Return
7	HO	High-Side Gate Drive Output
8	V _B	High-Side Floating Supply

Functional Block Diagram



Absolute Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
High-Side Floating Supply Voltage	V _B	-0.3 to +624	V
High-Side Floating Supply Offset Voltage	V _S	V _B -24 to V _B +0.3	V
High-Side Floating Output Voltage	V _{HO}	V _S -0.3 to V _B +0.3	V
Offset Supply Voltage Transient	dV _S / dt	50	V/ns
Low-Side Fixed Supply Voltage	V _{CC}	-0.3 to +24	V
Low-Side Output Voltage	V _{LO}	-0.3 to V _{CC} +0.3	V
Logic Input Voltage (IN and SD*)	V _{IN}	-0.3 to V _{CC} +0.3	V

Thermal Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Power Dissipation Linear Derating Factor (Note 5)	P _D	0.625	W
Thermal Resistance, Junction to Ambient (Note 5)	R _{θJA}	200	°C/W
Operating Temperature	T _J	+150	°C
Lead Temperature (Soldering, 10s)	T _L	+300	
Storage Temperature Range	T _{STG}	-55 to +150	

Note: 5. When mounted on a standard JEDEC 2-layer FR-4 board.

Recommended Operating Conditions

Parameter	Symbol	Min	Max	Unit
High Side Floating Supply Absolute Voltage	V _B	V _S + 10	V _S + 20	V
High Side Floating Supply Offset Voltage	V _S	(Note 6)	600	V
High Side Floating Output Voltage	V _{HO}	V _S	V _B	V
Low Side Fixed Supply Voltage	V _{CC}	10	20	V
Low Side Output Voltage	V _{LO}	0	V _{CC}	V
Logic Input Voltage (IN and SD*)	V _{IN}	0	5	V
Ambient Temperature	T _A	-40	+125	°C

 Note: 6. Logic operation for V_S of -5V to +600V.

DC Electrical Characteristics (V_{BIAS} (V_{CC} , V_{BS}) = 15V, @ T_A = +25°C, unless otherwise specified.) (Note 7)

Parameter	Symbol	Min	Typ	Max	Unit	Condition
Logic "1" (IN) & Logic "0" (SD*) Input Voltage	V_{IH}	2.5	–	–	V	V_{CC} = 10V to 20V
Logic "0" (IN) & Logic "1" (SD*) Input Voltage	V_{IL}	–	–	0.8	V	V_{CC} = 10V to 20V
High Level Output Voltage, $V_{BIAS} - V_O$	V_{OH}	–	0.05	0.2	V	I_O = 2mA
Low Level Output Voltage, V_O	V_{OL}	–	0.02	0.1	V	I_O = 2mA
Offset Supply Leakage Current	I_{LK}	–	–	50	μA	$V_B = V_S = 600V$
Quiescent V_{BS} Supply Current	I_{BSQ}	–	30	55	μA	$V_{IN} = 0V$ or 5V
Quiescent V_{CC} Supply Current	I_{CCQ}	–	370	500	μA	$V_{IN} = 0V$ or 5V
Logic "1" Input Bias Current	I_{IN+}	–	3	10	μA	$V_{IN} = 5V$, $SD^* = 0V$
Logic "0" Input Bias Current	I_{IN-}	–	–	5	μA	$V_{IN} = 0V$, $SD^* = 5V$
V_{CC} Supply Under-Voltage Positive Going Threshold	V_{CCUV+}	8.0	8.9	9.8	V	–
V_{CC} Supply Under-Voltage Negative Going Threshold	V_{CCUV-}	7.4	8.2	9.0	V	–
Output High Short Circuit Pulsed Current	I_{O+}	130	210	–	mA	$V_O = 0V$, $PW \leq 10\mu s$
Output Low Short Circuit Pulsed Current	I_{O-}	270	360	–	mA	$V_O = 15V$, $PW \leq 10\mu s$

Note: 7. The V_{IN} and I_{IN} parameters are applicable to the two logic input pins: IN and SD*. The V_O and I_O parameters are applicable to the respective output pins: HO and LO.

AC Electrical Characteristics (V_{BIAS} (V_{CC} , V_{BS}) = 15V, C_L = 1000pF, @ T_A = +25°C, unless otherwise specified.)

Parameter	Symbol	Min	Typ	Max	Unit	Condition
Turn-On Propagation Delay	t_{ON}	–	680	820	ns	$V_S = 0V$
Turn-Off Propagation Delay	t_{OFF}	–	150	220	ns	$V_S = 600V$
Shutdown Propagation Delay	t_{SD}	–	160	220	ns	–
Delay Matching, HO & LO Turn-On / Turn-Off	t_{DM}	–	–	60	ns	–
Turn-On Rise Time	t_R	–	100	170	ns	$V_S = 0V$
Turn-Off Fall Time	t_F	–	50	60	ns	$V_S = 0V$
Deadtime: $t_{DT\ LO-HO}$ & $t_{DT\ HO-LO}$	t_{DT}	400	520	650	ns	–

Timing Waveforms

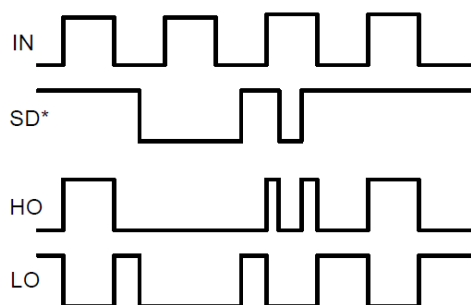


Figure 1. Input / Output Timing Diagram

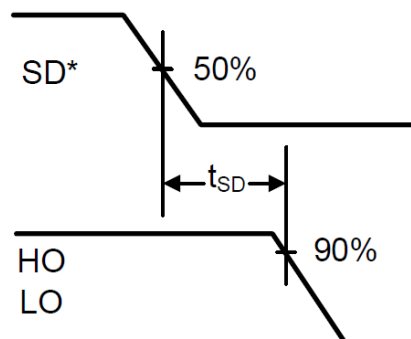


Figure 2. Shutdown Waveform Definition

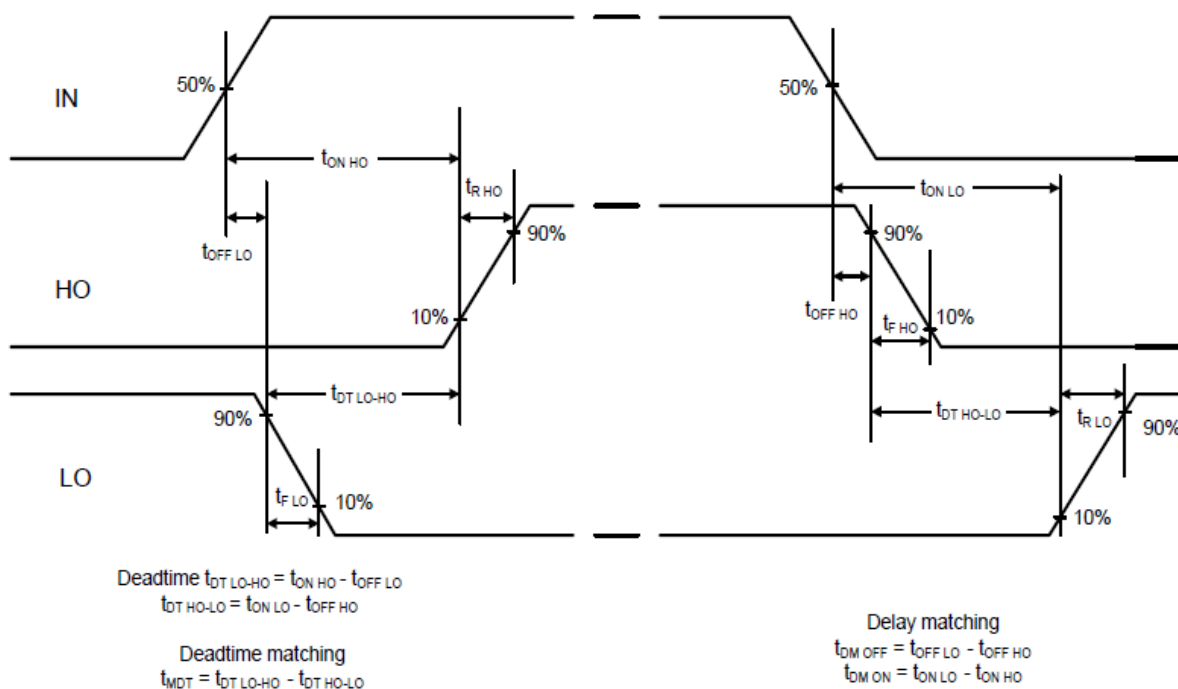


Figure 3. Switching Time Waveform Definitions

Typical Performance Characteristics (@T_A = +25°C, unless otherwise specified.)

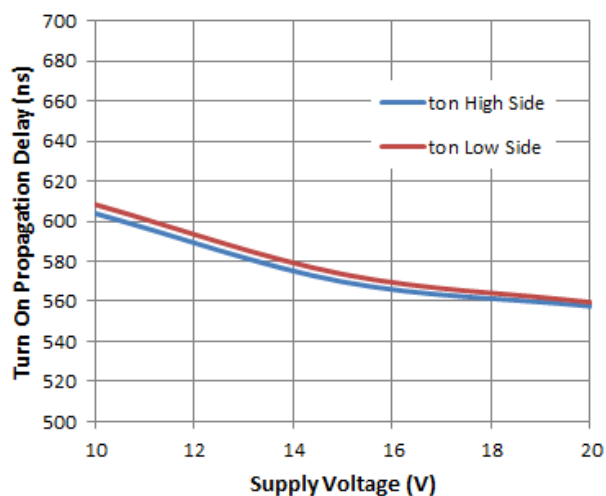


Figure 4. Turn-on Propagation Delay vs. Supply Voltage

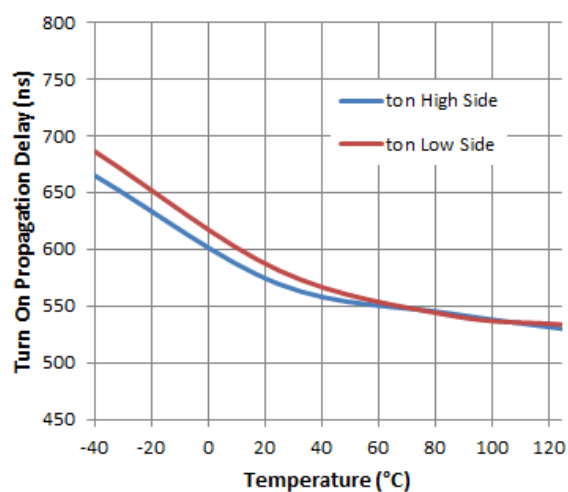


Figure 5. Turn-on Propagation Delay vs. Temperature

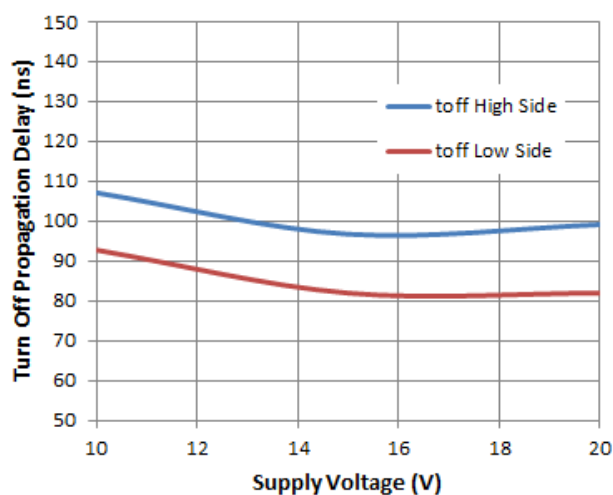


Figure 6. Turn-off Propagation Delay vs. Supply Voltage

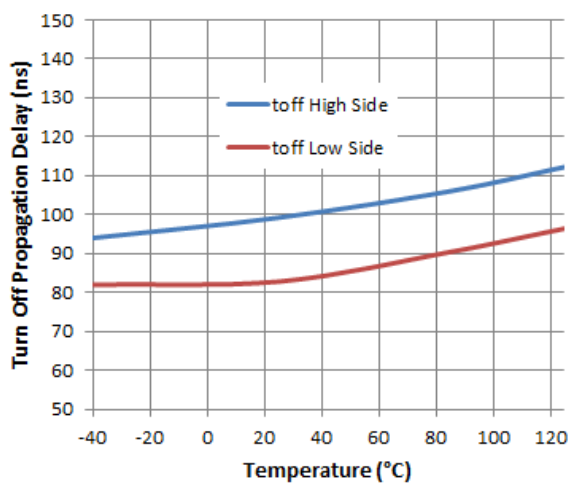


Figure 7. Turn-off Propagation Delay vs. Temperature

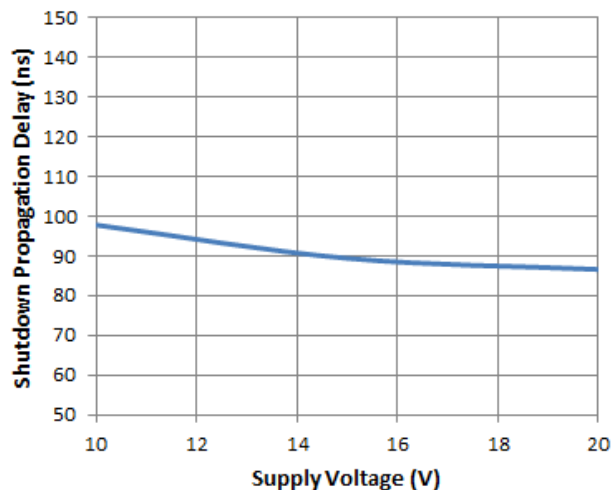


Figure 8. Shutdown Propagation Delay vs. Supply Voltage

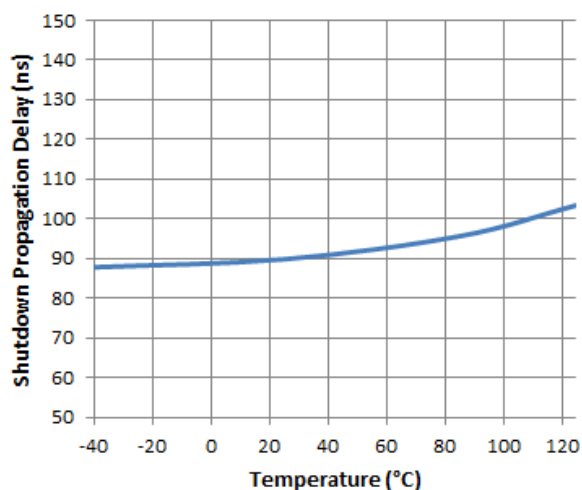


Figure 9. Shutdown Propagation Delay vs. Temperature

Typical Performance Characteristics (Cont.)

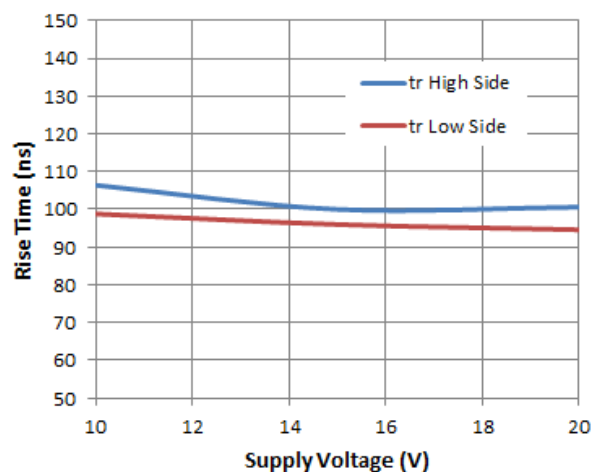


Figure 10. Rise Time vs. Supply Voltage

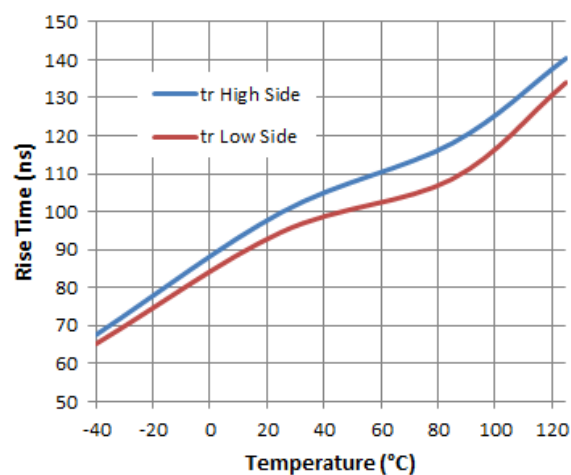


Figure 11. Rise Time vs. Temperature

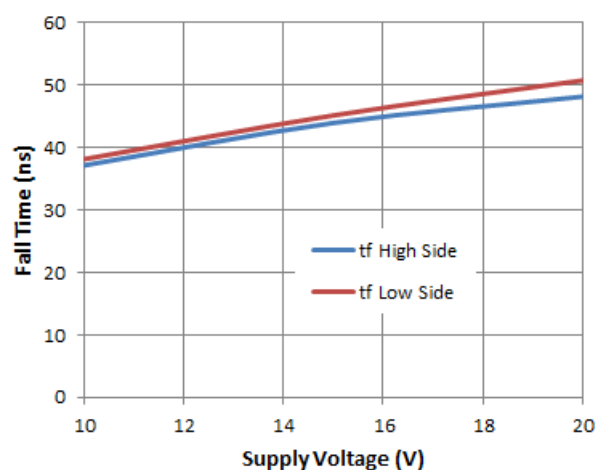


Figure 12. Fall Time vs. Supply Voltage

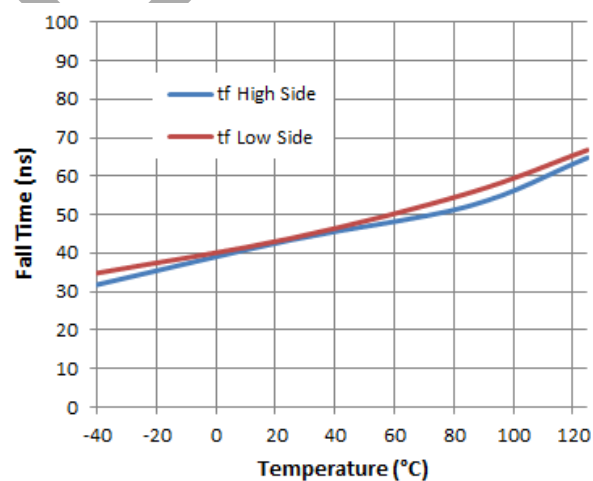


Figure 13. Fall Time vs. Temperature

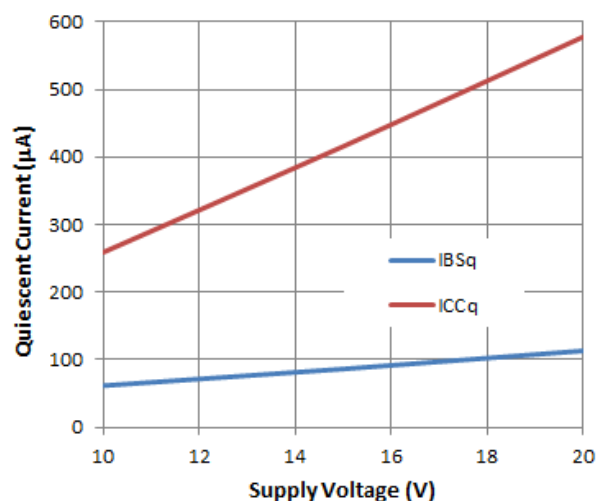


Figure 14. Quiescent Current vs. Supply Voltage

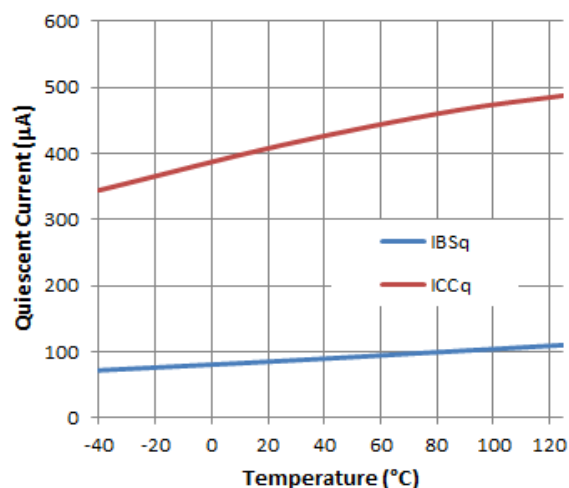


Figure 15. Quiescent Current vs. Temperature

Typical Performance Characteristics (Cont.)

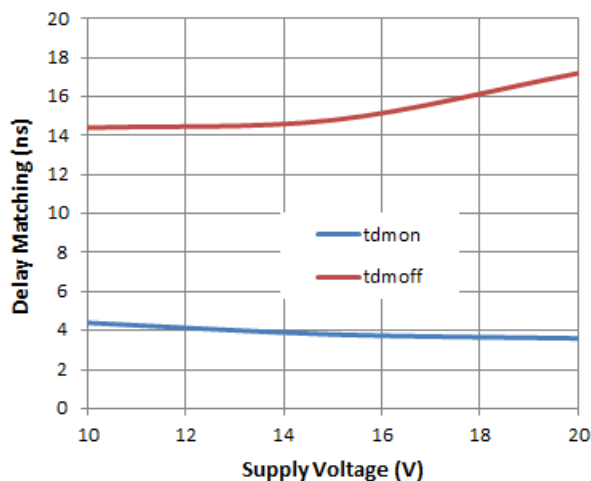


Figure 16. Delay Matching vs. Supply Voltage

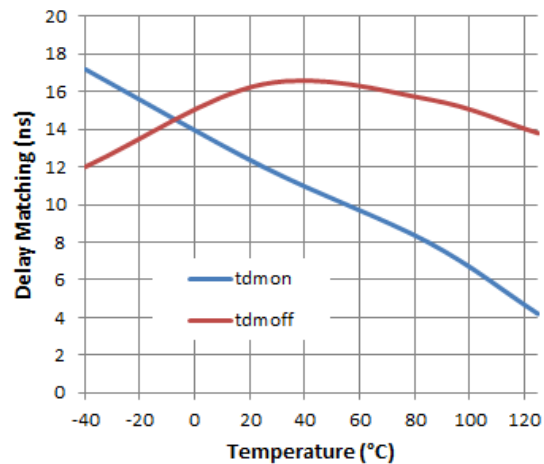


Figure 17. Delay Matching vs. Temperature

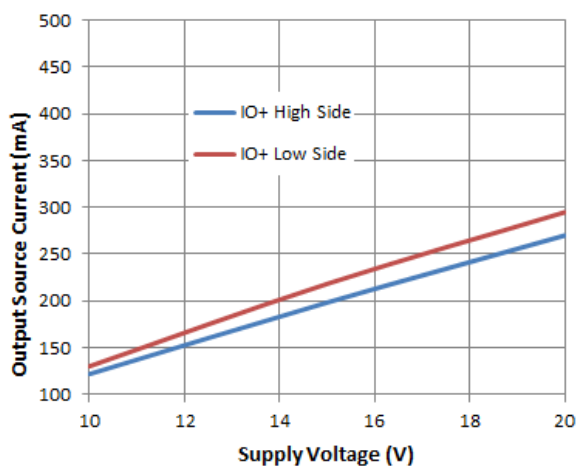


Figure 18. Output Source Current vs. Supply Voltage

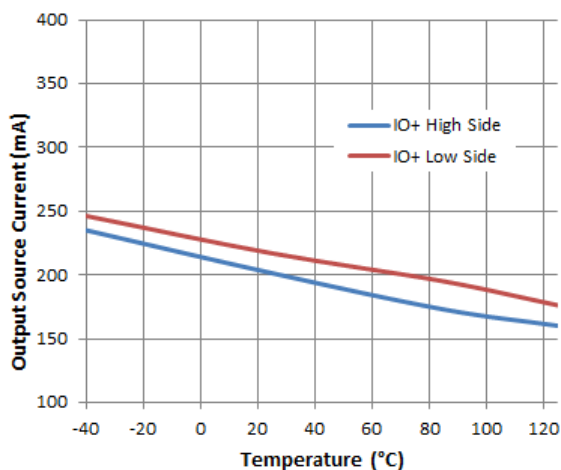


Figure 19. Output Source Current vs. Temperature

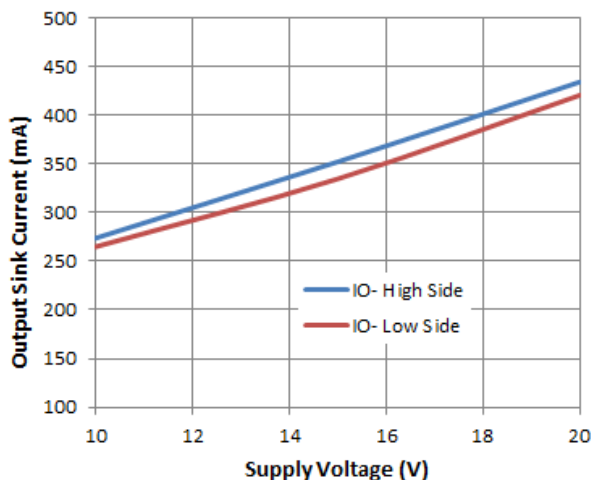


Figure 20. Output Sink Current vs. Supply Voltage

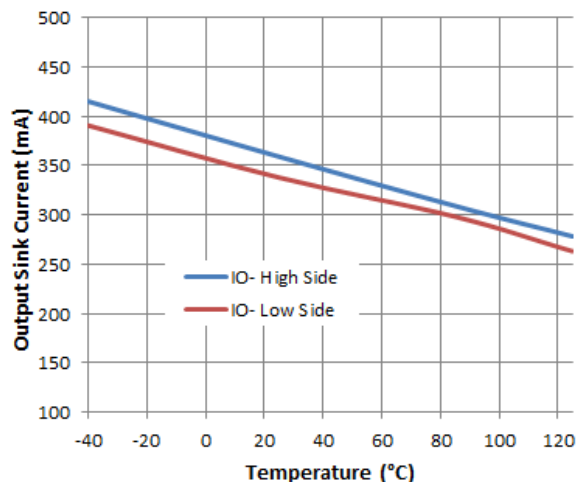


Figure 21. Output Sink Current vs. Temperature

Typical Performance Characteristics (Cont.)

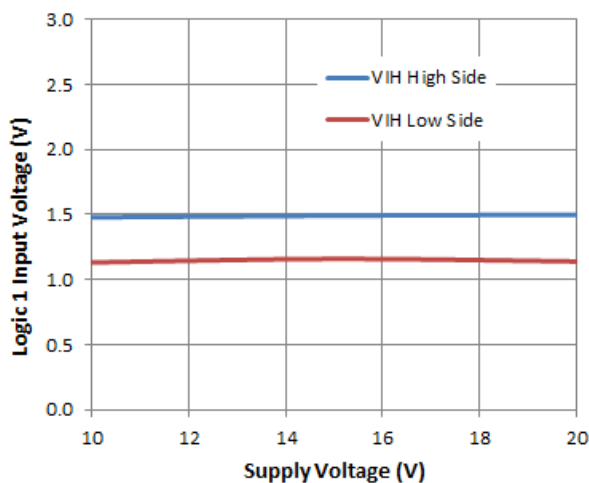


Figure 22. Logic 1 Input Voltage vs. Supply Voltage

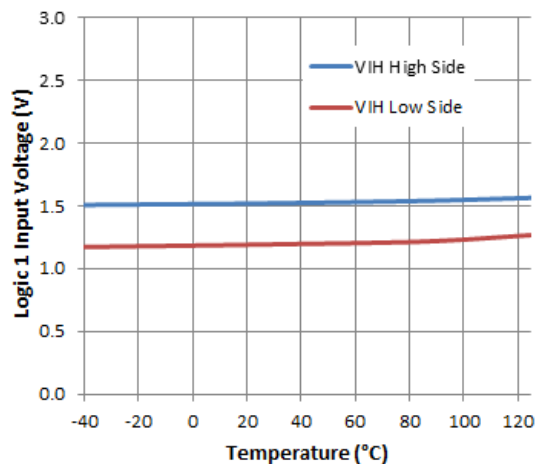


Figure 23. Logic 1 Input Voltage vs. Temperature

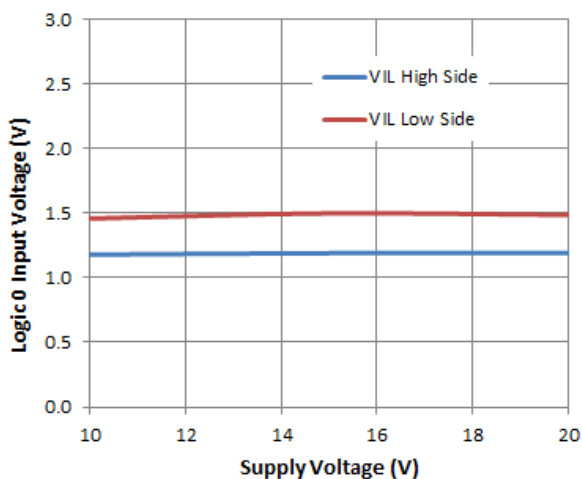


Figure 24. Logic 0 Input Voltage vs. Supply Voltage

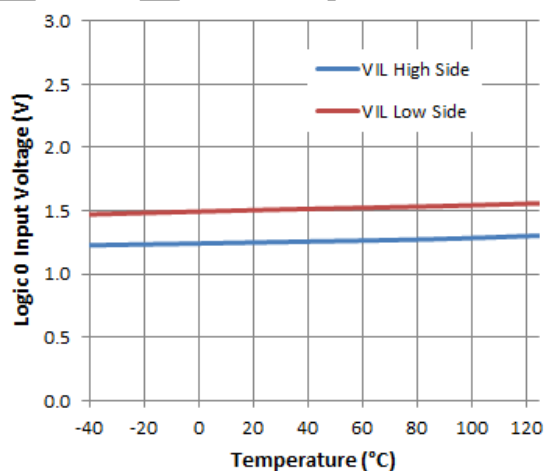


Figure 25. Logic 0 Input Voltage vs. Temperature

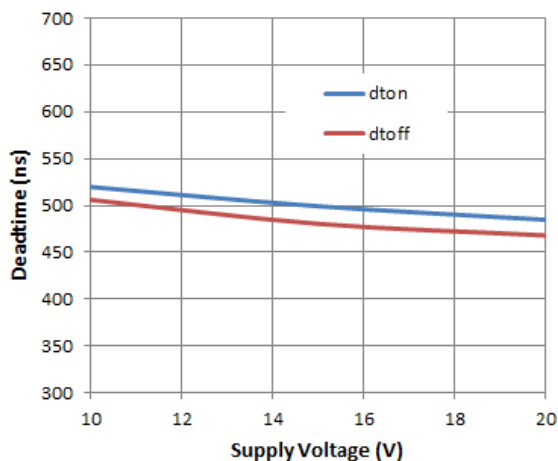


Figure 26. Deadtime vs. Supply Voltage

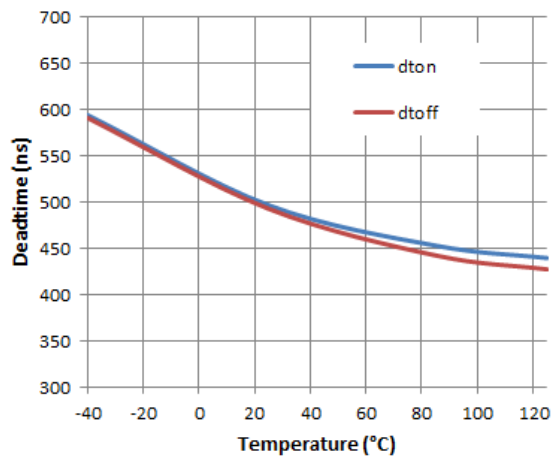


Figure 27. Deadtime vs. Temperature

Typical Performance Characteristics (Cont.)

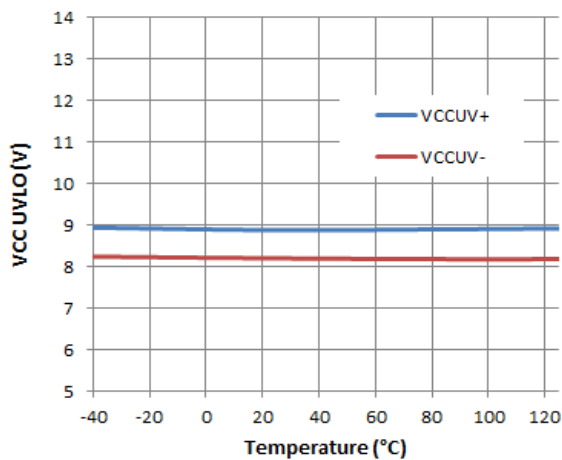


Figure 28. VCC UVLO vs. Temperature

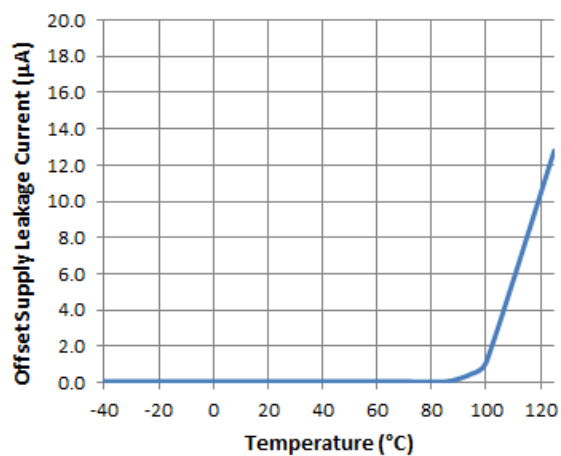


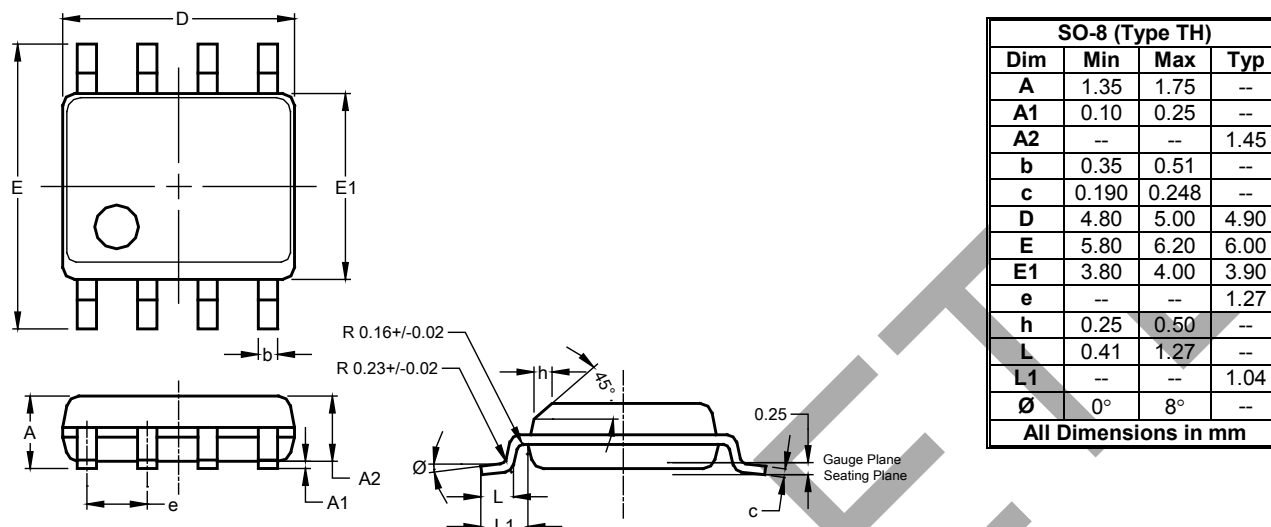
Figure 29. Offset Supply Leakage Current vs. Temperature

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