ELECTRICAL CHARACTERISTICS

The ● denotes the specifications which apply over the full operating temperature range, otherwise specifications are at T_A = 25°C. For all tests, V1 = VS1, V2 = VS2, V3 = VS3. Unless otherwise noted, V1 = V2 = V3 = V_{OUT} = 12V, HYS = GND.

SYMBOL	PARAMETER	CONDITIONS		MIN	TYP	MAX	UNITS
Start-Up							
$V1\text{-}V3,V_{OUT}$	V1 to V3,V_{OUT} Operating Supply Range		●	2.5		36	V
$I_{V1\text{-}V3,VOUT(EN)}$	Total Supply Current with Channels Enabled	V1 = 5V, V2 = 12V, V3 = 2.5V, V_{OUT} = 4V, (Notes 3, 4)	●		28	78	µA
$I_{V1\text{-}V3(\overline{EN})}$	Total Supply Current with Channels Disabled	V1 = 5V, V2 = 12V, V3 = 2.5V, V_{OUT} = EN = 0V, (Notes 3, 4)	●		26 ~~31~~	93	µA
$I_{V1\text{-}V3(\overline{SHDN})}$	Total Supply Current When Shutdown	V1 = 5V, V2 = 12V, V3 = 2.5V, V_{OUT} = $\overline{SHDN}$ = 0V, (Notes 3, 4)	●		15.4	84	µA
I_{VOUT}	V_{OUT} Supply Current	V1 = 5V, V2 = 12V, V3 = 2.5V, V_{OUT} = 4V	●		14	30	µA
$I_{PRIORITY}$	Current from Highest V1 to V3 Priority Input Source (V1)	V1 = 5V, V2 = 12V, V3 = 2.5V, V_{OUT} = 4V V1 = 5V, V2 = 12V, V3 = 2.5V, V_{OUT} = EN = 0V	● ●		2.6 20	6 45	µA µA
$I_{HIGHEST}$	Current from Highest V1 to V3 Voltage Input Source	V1 = 5V, V2 = 12V, V3 = 2.5V, V_{OUT} = 4V, (Note 3, 4)	●		11	72	µA
		V1 = 5V, V2 = 12V, V3 = 2.5V, V_{OUT} = EN = 0V, $\overline{SHDN}$ = 0V, (Note 3, 4)	●		15	80	µA
I_{LOWER}	Current from V1 to V3 Input Voltage Sources Lower than V_{OUT}	V1 = 5V, V2 = 12V, V3 = 2.5V, V_{OUT} = 4V Not Highest Valid Priority		–5	0.2	1	µA
Gate Control							
ΔV_G	Open (VS – VG) Clamp Voltage	V_{OUT} = 11V, G1 to G3 = Open	●	5.2 ~~5.4~~	6.2	6.7	V
$\Delta V_{G(SOURCE)}$	Sourcing (VS – VG) Clamp Voltage	V_{OUT} = 11V, I = –10µA	●	5.8	6.6	7	V
$\Delta V_{G(SINK)}$	Sinking (VS – VG) Clamp Voltage	V_{OUT} = 11V, I = 10µA	●	4.5	5.2	6	V
$\Delta V_{G(OFF)}$	G1 to G3 Off (VS – VG) Threshold	V1 = V2 = V3 = 2.8V, V_{OUT} = 2.6V, G1 to G3 Rising Edge	●	0.12	0.35	0.6	V
$\Delta V_{G(SLEW,ON)}$	G1 to G3 Pull-Down Slew Rate	V_{OUT} = 11V, C_{GATE} = 10nF (Note 5)	●	4	9	20	V/µs
$\Delta V_{G(SLEW,OFF)}$	G1 to G3 Pull-Up Slew Rate	V_{OUT} = 11V, C_{GATE} = 10nF (Note 6)	●	5.5 ~~7.5~~	10 ~~13~~	22	V/µs
$I_{G(DN)}$	G1 to G3 Low Pull-Down Current	V_{OUT} = 2.6V, V1 to V3 = 2.8V, (G1 to G3) = ΔV_G + 300mV		0.8	2	7	µA
$R_{G(OFF)}$	G1 to G3 OFF Resistance	V_{OUT} = 4V, V1 to V3 = 5V, I_G = –10mA	●	9	22 ~~16~~	40 ~~26~~	Ω
V_{REV}	Reverse Voltage Threshold	Measure (V1 to V3) – V_{OUT}, V_{OUT} Falling	●	30	120	200	mV
$t_{G(SWITCHOVER)}$	Pin Break-Before-Make Time	V_{OUT} = 11V, C_{GATE} = 10nF, (Note 7)	●	0.7	2	3.2 ~~3~~	µs
$t_{pG(\overline{SHDN})}$	G1 to G3 Turn-Off Delay From $\overline{SHDN}$	V_{OUT} = 11V, Falling Edge $\overline{SHDN}$ to (G1 to G3) = (VS1 to VS3) – 3V, C_{GATE} = 10nF	●	20	50	100	µs
$t_{pG(EN,OFF)}$	G1 to G3 Turn-Off Delay From EN	V_{OUT} = 11V, Falling EN Edge to (G1 to G3) = (VS1 to VS3) – 3V, C_{GATE} = 10nF	●	0.3	0.7	1.4	µs
$t_{pG(EN,ON)}$	G1 to G3 Turn-On Delay From EN	V_{OUT} = 11V, Rising EN Edge to (G1 to G3) = (VS1 to VS3) – 3V, C_{GATE} = 10nF	●	0.9 ~~1~~	1.3 ~~1.4~~	2	µs

ELECTRICAL CHARACTERISTICS

The ● denotes the specifications which apply over the full operating temperature range, otherwise specifications are at T_A = 25°C. For all tests, V1 = VS1, V2 = VS2, V3 = VS3. Unless otherwise noted, V1 = V2 = V3 = V_{OUT} = 12V, HYS = GND.

SYMBOL	PARAMETER	CONDITIONS		MIN	TYP	MAX	UNITS
Input/Output Pins							
$V_{\overline{VALID}(OL)}$	$\overline{VALID1}$ to $\overline{VALID3}$ Output Low Voltage	I = 1mA, (V1 to V3) = 2.5V, V_{OUT} = 0V	●		0.25	0.55	V
$t_{p\overline{VALID}(OFF)}$	$\overline{VALID1}$ to $\overline{VALID3}$ Delay OFF From OV/UV Fault		●	5	8	13	µs
$V_{CAS(OH)}$	CAS Output High Voltage	I = –1µA	●	1.4	2.2 ~~2~~	3	V
$V_{CAS(OL)}$	CAS Output Low Voltage	I = 1mA	●		0.08 ~~0.2~~	0.4	V
I_{CAS}	CAS Pull-Up Current	$\overline{SHDN}$ = 0V, CAS = 1V	●	–6	-30 ~~–20~~	-50 ~~–40~~	µA
$t_{pCAS(EN)}$	CAS Delay from $V_{G(OFF)}$	V_{OUT} = 11V	●	0.4	0.9 ~~0.7~~	1.4 ~~1.3~~	µs
$V_{EN(THR)}$	EN Threshold Voltage	EN Rising	●	0.6	1.1 ~~1~~	1.4	V
$V_{\overline{SHDN}(THR)}$	$\overline{SHDN}$ Threshold Voltage	$\overline{SHDN}$ Rising	●	0.4	0.8	1.2	V
$V_{\overline{SHDN}\_EN(HYS)}$	$\overline{SHDN}$, EN Threshold Hysteresis				130 ~~100~~		mV
$I_{\overline{SHDN}\_EN}$	$\overline{SHDN}$, EN Pull-Up Current	$\overline{SHDN}$ = EN = 0V	●	–0.5	-3 ~~–2~~	–5	µA
I_{LEAK}	$\overline{SHDN}$, EN, $\overline{VALID1}$ to $\overline{VALID3}$, CAS Leakage Current	$\overline{SHDN}$ = EN = ($\overline{VALID1}$ to $\overline{VALID3}$) = 36V, CAS = 5.5V	●			±1	µA
OV, UV Protection Circuitry							
$V_{OV\_UV(THR)}$	OV1 to OV3, UV1 to UV3 Comparator Threshold	V_{OUT} = 11V, OV1 to OV3 Rising, UV1 to UV3 Falling	●	0.985	1	1.015	V
$V_{OV\_UV(HYS)}$	OV1 to OV3, UV1 to UV3 Comparator Hysteresis	V_{OUT} = 11V	●	15	30	45	mV
$I_{UV\_OV(LEAK)}$	OV1 to OV3, UV1 to UV3 Leakage Current	OV1 to OV3 = 1.015V, UV1 to UV3 = 0.985V	●			±20	nA
$I_{OV\_UV(MIN)}$	Minimum External Hysteresis Current	I_{HYS} = –400nA	●	35	55 ~~50~~	75	nA
$I_{OV\_UV(MAX)}$	Maximum External Hysteresis Current	I_{HYS} = –4µA	●	420	520	620	nA
V_{HYS}	HYS Voltage	I_{HYS} = –4µA	●	470	495	520	mV
$t_{\overline{VALID}}$	V1 to V3 Validation Time			100	256	412	ms

Note 1: Stresses beyond those listed under Absolute Maximum Ratings may cause permanent damage to the device. Exposure to any Absolute Maximum Rating condition for extended periods may affect device reliability and lifetime.

Note 2: All currents into device pins are positive; all currents out of device pins are negative. All voltages are referenced to GND unless otherwise specified.

Note 3: Each V1 to V3 supply current specification includes current into the corresponding VS1 to VS3 for the channel(s) being tested.

Note 4: Specification represents the total diode-ORed current of V1 to V3 input supplies, selecting the highest voltage as the input source. If two input supplies are similar in voltage and higher than the remaining input supply voltage, the current is split evenly between the two higher voltage supplies. Current is split evenly if all supplies are equal.

Note 5: Falling edge of G1 to G3 measured from 11V to 8V.

Note 6: Rising edge of G1 to G3 measured from 7V to 11V.

Note 7: UV1 driven below $V_{OV,UV(THR)}$. Time is measured from respective rising edge G1 to G3 crossing (VS1 to VS3) – 3V to next valid priority falling edge G1 to G3 crossing (VS1 to VS3) – 3V.