

MAX809 Series, MAX810 Series

PIN DESCRIPTION

Pin No.	Symbol	Description
1	GND	Ground
2	RESET (MAX809)	RESET output remains low while V_{CC} is below the reset voltage threshold, and for a reset timeout period after V_{CC} rises above reset threshold
2	RESET (MAX810)	RESET output remains high while V_{CC} is below the reset voltage threshold, and for a reset timeout period after V_{CC} rises above reset threshold
3	V_{CC}	Supply Voltage (Typ)

ABSOLUTE MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Power Supply Voltage (V_{CC} to GND)	V_{CC}	-0.3 to 6.0	V
RESET Output Voltage (CMOS)		-0.3 to ($V_{CC} + 0.3$)	V
Input Current, V_{CC}		20	mA

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ELECTRICAL CHARACTERISTICS $T_A = -40\text{ C to }+105\text{ C}$ unless otherwise noted. Typical values are at $T_A = +25\text{ C}$. (Note 3)

Characteristic	Symbol	Min	Typ	Max	Unit
V_{CC} Range $T_A = 0\text{ C to }+70\text{ C}$ $T_A = -40\text{ C to }+105\text{ C}$ (Note 4)		1.0 1.2	– –	5.5 5.5	V
Supply Current $V_{CC} = 3.3\text{ V}$ $T_A = -40\text{ C to }+85\text{ C}$ $T_A = 85\text{ C to }+105\text{ C}$ (Note 5) $V_{CC} = 5.5\text{ V}$ $T_A = -40\text{ C to }+85\text{ C}$ $T_A = 85\text{ C to }+105\text{ C}$ (Note 5)	I_{CC}	– – – –	0.5 – 0.8 –	1.2 2.0 1.8 2.5	μA
Reset Threshold (V_{in} Decreasing) (Note 6)	V_{TH}				V
MAX809SN490 $T_A = +25\text{ C}$ $T_A = -40\text{ C to }+85\text{ C}$ $T_A = +85\text{ C to }+105\text{ C}$ (Note 5)		4.83 4.78 4.66	4.9 – –	4.97 5.02 5.14	
MAX8xxLTR, MAX8xxSQ463 $T_A = +25\text{ C}$ $T_A = -40\text{ C to }+85\text{ C}$ $T_A = +85\text{ C to }+105\text{ C}$ (Note 5)		4.56 4.50 4.40	4.63 – –	4.70 4.75 4.86	
MAX809HTR $T_A = +25\text{ C}$ $T_A = -40\text{ C to }+85\text{ C}$ $T_A = +85\text{ C to }+105\text{ C}$ (Note 5)		4.48 4.43 4.32	4.55	4.62 4.67 4.78	
MAX8xxMTR, MAX8xxSQ438 $T_A = +25\text{ C}$ $T_A = -40\text{ C to }+85\text{ C}$ $T_A = +85\text{ C to }+105\text{ C}$ (Note 5)		4.31 4.27 4.16	4.38	4.45 4.49 4.60	
MAX809JTR, MAX8xxSQ400 $T_A = +25\text{ C}$ $T_A = -40\text{ C to }+85\text{ C}$ $T_A = +85\text{ C to }+105\text{ C}$ (Note 5)		3.94 3.90 3.80	4.00 – –	4.06 4.10 4.20	
MAX8xxTTR, MAX809SQ308 $T_A = +25\text{ C}$ $T_A = -40\text{ C to }+85\text{ C}$ $T_A = +85\text{ C to }+105\text{ C}$ (Note 5)		3.04 3.00 2.92	3.08 – –	3.11 3.16 3.24	
MAX8xxSTR, MAX8xxSQ293 $T_A = +25\text{ C}$ $T_A = -40\text{ C to }+85\text{ C}$ $T_A = +85\text{ C to }+105\text{ C}$ (Note 5)		2.89 2.85 2.78	2.93 – –	2.96 3.00 3.08	
MAX8xxRTR, MAX8xxSQ263 $T_A = +25\text{ C}$ $T_A = -40\text{ C to }+85\text{ C}$ $T_A = +85\text{ C to }+105\text{ C}$ (Note 5)		2.59 2.56 2.49	2.63 – –	2.66 2.70 2.77	
MAX809SN232, MAX809SQ232 $T_A = +25\text{ C}$ $T_A = -40\text{ C to }+85\text{ C}$ $T_A = +85\text{ C to }+105\text{ C}$ (Note 5)		2.28 2.25 2.21	2.32 – –	2.35 2.38 2.45	
MAX809SN160 $T_A = +25\text{ C}$ $T_A = -40\text{ C to }+85\text{ C}$ $T_A = +85\text{ C to }+105\text{ C}$ (Note 5)		1.58 1.56 1.52	1.60 – –	1.62 1.64 1.68	
MAX809SN120, MAX8xxSQ120 $T_A = +25\text{ C}$ $T_A = -40\text{ C to }+85\text{ C}$ $T_A = +85\text{ C to }+105\text{ C}$ (Note 5)		1.18 1.17 1.14	1.20 – –	1.22 1.23 1.26	

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

3. Production testing done at $T_A = 25\text{ C}$, over temperature limits guaranteed by design.
4. For NCV automotive devices, this temperature range is $T_A = -40\text{ C to }+125\text{ C}$.
5. For NCV automotive devices, this temperature range is $T_A = +85\text{ C to }+125\text{ C}$.
6. Contact your **onsemi** sales representative for other threshold voltage options.

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ELECTRICAL CHARACTERISTICS (continued) $T_A = -40\text{ C to }+105\text{ C}$ unless otherwise noted. Typical values are at $T_A = +25\text{ C}$. (Note 7)

Characteristic	Symbol	Min	Typ	Max	Unit
Detector Voltage Threshold Temperature Coefficient		–	30	–	ppm/ C
V_{CC} to Reset Delay $V_{CC} = V_{TH}$ to $(V_{TH} - 100\text{ mV})$		–	10	–	μsec
Reset Active TimeOut Period (Note 8) MAX8xxSN(Q)293D1 MAX8xxSN(Q)293D2 MAX8xxSN(Q)293D3 MAX8xxSN(Q)293	t_{RP}	1.0 20 100 140	– – – –	3.3 66 330 460	msec
RESET Output Voltage Low (No Load) (MAX809) $V_{CC} = V_{TH} - 0.2\text{ V}$ $1.6\text{ V} \leq V_{TH} \leq 2.0\text{ V}$, $I_{SINK} = 0.5\text{ mA}$ $2.1\text{ V} \leq V_{TH} \leq 4.0\text{ V}$, $I_{SINK} = 1.2\text{ mA}$ $4.1\text{ V} \leq V_{TH} \leq 4.9\text{ V}$, $I_{SINK} = 3.2\text{ mA}$	V_{OL}	–	–	0.3	V
RESET Output Voltage High (No Load) (MAX809) $V_{CC} = V_{TH} + 0.2\text{ V}$ $1.6\text{ V} \leq V_{TH} \leq 2.4\text{ V}$, $I_{SOURCE} = 200\text{ }\mu\text{A}$ $2.5\text{ V} \leq V_{TH} \leq 4.9\text{ V}$, $I_{SOURCE} = 500\text{ }\mu\text{A}$	V_{OH}	$0.8 V_{CC}$	–	–	V
RESET Output Voltage High (No Load) (MAX810) $V_{CC} = V_{TH} - 0.2\text{ V}$ $1.6\text{ V} \leq V_{TH} \leq 2.4\text{ V}$, $I_{SOURCE} = 200\text{ }\mu\text{A}$ $2.5\text{ V} \leq V_{TH} \leq 4.9\text{ V}$, $I_{SOURCE} = 500\text{ }\mu\text{A}$	V_{OH}	$0.8 V_{CC}$	–	–	V
RESET Output Voltage Low (No Load) (MAX810) $V_{CC} = V_{TH} + 0.2\text{ V}$ $1.6\text{ V} \leq V_{TH} \leq 2.0\text{ V}$, $I_{SINK} = 0.5\text{ mA}$ $2.1\text{ V} \leq V_{TH} \leq 4.0\text{ V}$, $I_{SINK} = 1.2\text{ mA}$ $4.1\text{ V} \leq V_{TH} \leq 4.9\text{ V}$, $I_{SINK} = 3.2\text{ mA}$	V_{OL}	–	–	0.3	V

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

7. Production testing done at $T_A = 25\text{ C}$, over temperature limits guaranteed by design.

8. Contact your **onsemi** sales representative for timeout options availability for other threshold voltage options.

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Detail Operation Description

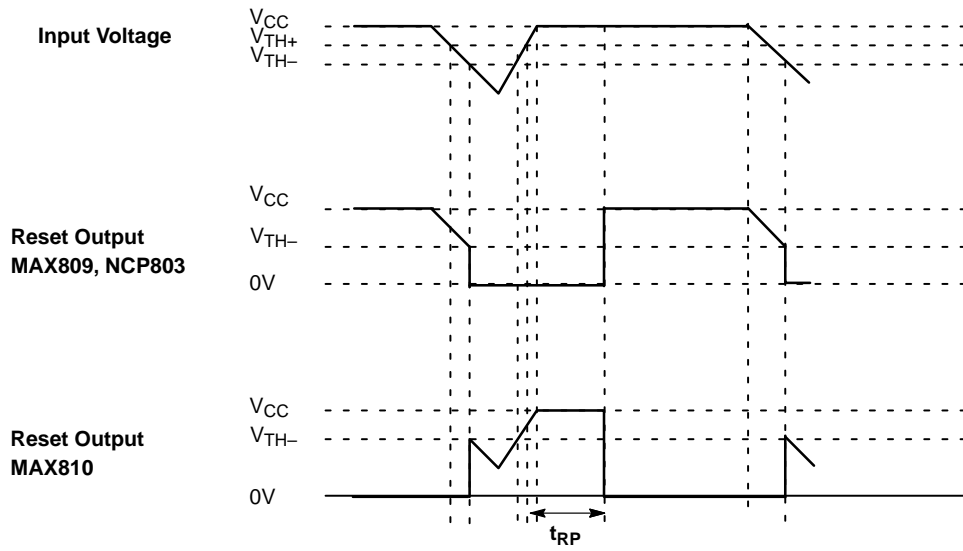


Figure 15. Timing Waveforms

APPLICATIONS INFORMATION

V_{CC} Transient Rejection

not under

μ

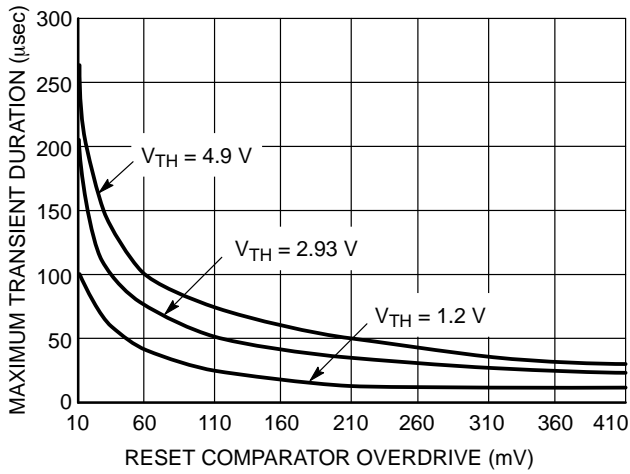
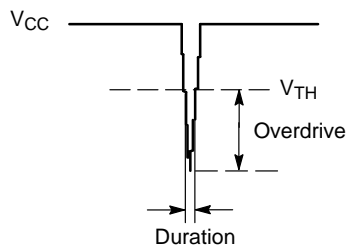


Figure 16. Maximum Transient Duration vs. Overdrive for Glitch Rejection at 25 C

RESET Signal Integrity During Power-Down

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ORDERING, MARKING AND THRESHOLD INFORMATION

Part Number	V _{TH} * (V)	Time-out (ms)	Shipping	Marking	Package	Shipping
MAX809STRG	2.93	140-460		SPT ACE	SOT23-3 (Pb-Free)	3000 / Tape & Reel

17.9071 re f BT 8 0 0 5

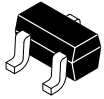
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ORDERING, MARKING AND THRESHOLD INFORMATION

Part Number	V _{TH} * (V)	Timeout* (ms)	Description	Marking	Package	Shipping†
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DISCONTINUED (Note 9)

MAX809TTRG	3.08	140–460	Push–Pull RESET	SPU	SOT23–3 (Pb–Free)	3000 / Tape & Reel
NCV809SN293D1T1G*	2.93					

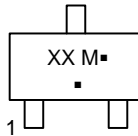


SCALE 4:1

SC-70 (SOT-323)
CASE 419
ISSUE R

DATE 11 OCT 2022

**GENERIC
MARKING DIAGRAM**



- XX = Specific Device Code
- M = Date Code
- = Pb-Free Package

*This information is generic. Please refer to device data sheet for actual part marking.
Pb-

STYLE 1:
CANCELLED

STYLE 2:
PIN 1. ANODE
2. N.C.
3. CATHODE

STYLE 3:
PIN 1. BASE
2. EMITTER
3. COLLECTOR

STYLE 4:
PIN 1. CATHODE
2. CATHODE
3. ANODE

STYLE 5:
PIN 1. ANODE
2. ANODE
3. CATHODE

STYLE 6:
PIN 1. EMITTER
2. BASE
3. COLLECTOR

STYLE 7:
PIN 1. BASE
2. EMITTER
3. COLLECTOR

STYLE 8:
PIN 1. GATE
2. SOURCE
3. DRAIN

STYLE 9:
PIN 1. ANODE
2. CATHODE
3. CATHODE-ANODE

STYLE 10:
PIN 1. CATHODE
2. ANODE
3. ANODE-CATHODE

STYLE 11:
PIN 1. CATHODE
2. CATHODE
3. CATHODE

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