

Ordering Information⁽¹⁾

Part Number	Marking ⁽²⁾	Nominal V _{TH} (V)	Minimum t _{RESET} ⁽³⁾ (ms)	Junction Temperature Range	Package
MIC803-46D2VC3	<u>AS</u>	4.63	20	–40° to +125°C	SC70-3
MIC803-44D2VC3	<u>AP</u>	4.38	20	–40° to +125°C	SC70-3
MIC803-41D2VC3	<u>AK</u>	4.10	20	–40° to +125°C	SC70-3
MIC803-40D2VC3	<u>A2</u>	4.00	20	–40° to +125°C	SC70-3
MIC803-31D2VC3	<u>AG</u>	3.08	20	–40° to +125°C	SC70-3
MIC803-30D2VC3	<u>AV</u>	3.00	20	–40° to +125°C	SC70-3
MIC803-29D2VC3	<u>AD</u>	2.93	20	–40° to +125°C	SC70-3
MIC803-26D2VC3	<u>AA</u>	2.63	20	–40° to +125°C	SC70-3
MIC803-46D3VC3	<u>AT</u>	4.63	140	–40° to +125°C	SC70-3
MIC803-44D3VC3	<u>AQ</u>	4.38	140	–40° to +125°C	SC70-3
MIC803-41D3VC3	<u>AM</u>	4.10	140	–40° to +125°C	SC70-3
MIC803-40D3VC3	<u>A5</u>	4.00	140	–40° to +125°C	SC70-3
MIC803-31D3VC3	<u>A4</u>	3.08	140	–40° to +125°C	SC70-3
MIC803-30D3VC3	<u>AX</u>	3.00	140	–40° to +125°C	SC70-3
MIC803-29D3VC3	<u>AE</u>	2.93	140	–40° to +125°C	SC70-3
MIC803-26D3VC3	<u>AB</u>	2.63	140	–40° to +125°C	SC70-3
MIC803-46D4VC3	<u>AU</u>	4.63	1120	–40° to +125°C	SC70-3
MIC803-44D4VC3	<u>AR</u>	4.38	1120	–40° to +125°C	SC70-3
MIC803-41D4VC3	<u>AN</u>	4.10	1120	–40° to +125°C	SC70-3
MIC803-40D4VC3	<u>A6</u>	4.00	1120	–40° to +125°C	SC70-3
MIC803-31D4VC3	<u>AJ</u>	3.08	1120	–40° to +125°C	SC70-3
MIC803-30D4VC3	<u>AZ</u>	3.00	1120	–40° to +125°C	SC70-3
MIC803-29D4VC3	<u>A3</u>	2.93	1120	–40° to +125°C	SC70-3
MIC803-26D4VC3	<u>AC</u>	2.63	1120	–40° to +125°C	SC70-3
MIC803-46D2VM3	<u>AS</u>	4.63	20	–40° to +125°C	SOT23-3
MIC803-44D2VM3	<u>AP</u>	4.38	20	–40° to +125°C	SOT23-3
MIC803-41D2VM3	<u>AK</u>	4.10	20	–40° to +125°C	SOT23-3
MIC803-40D2VM3	<u>A2</u>	4.00	20	–40° to +125°C	SOT23-3
MIC803-31D2VM3	<u>AG</u>	3.08	20	–40° to +125°C	SOT23-3
MIC803-30D2VM3	<u>AV</u>	3.00	20	–40° to +125°C	SOT23-3
MIC803-29D2VM3	<u>AD</u>	2.93	20	–40° to +125°C	SOT23-3
MIC803-26D2VM3	<u>AA</u>	2.63	20	–40° to +125°C	SOT23-3
MIC803-46D3VM3	<u>AT</u>	4.63	140	–40° to +125°C	SOT23-3

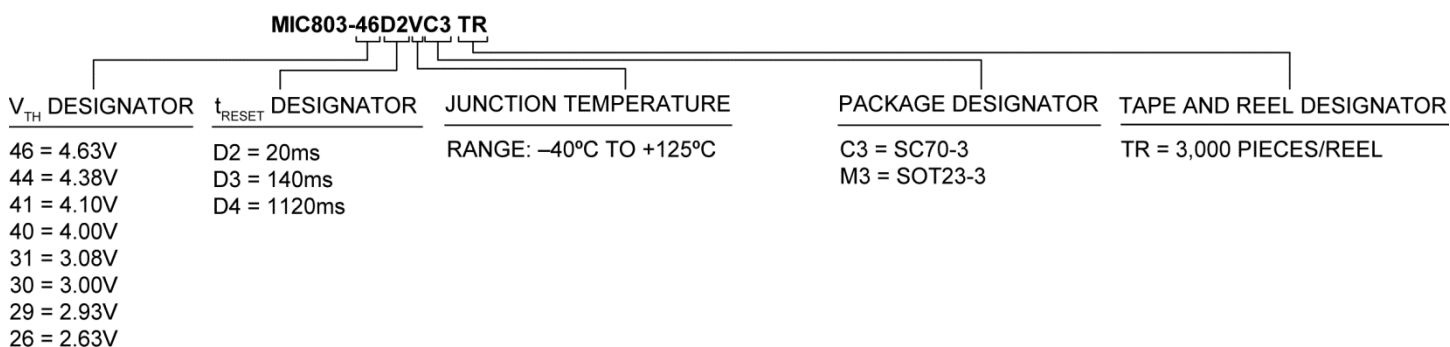
Note:

1. All devices available in tape and reel only. (Order entry PN, add TR. Example: MIC803-26D4VM3 TR)
Standard/full reel quantity is 3,000 pieces.
Reel diameter is 7 inches. Hub diameter is 2 inches. Width is 8mm.
2. Underbar symbol () may not be to scale.
3. –40° to +85°C temperature range.

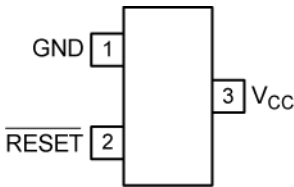
Ordering Information⁽¹⁾ (Continued)

Part Number	Marking ⁽²⁾	Nominal V_{TH} (V)	Minimum t_{RESET} ⁽³⁾ (ms)	Junction Temperature Range	Package
MIC803-44D3VM3	<u>AQ</u>	4.38	140	–40° to +125°C	SOT23-3
MIC803-41D3VM3	<u>AM</u>	4.10	140	–40° to +125°C	SOT23-3
MIC803-40D3VM3	<u>A5</u>	4.00	140	–40° to +125°C	SOT23-3
MIC803-31D3VM3	<u>A4</u>	3.08	140	–40° to +125°C	SOT23-3
MIC803-30D3VM3	<u>AX</u>	3.00	140	–40° to +125°C	SOT23-3
MIC803-29D3VM3	<u>AE</u>	2.93	140	–40° to +125°C	SOT23-3
MIC803-26D3VM3	<u>AB</u>	2.63	140	–40° to +125°C	SOT23-3
MIC803-46D4VM3	<u>AU</u>	4.63	1120	–40° to +125°C	SOT23-3
MIC803-44D4VM3	<u>AR</u>	4.38	1120	–40° to +125°C	SOT23-3
MIC803-41D4VM3	<u>AN</u>	4.10	1120	–40° to +125°C	SOT23-3
MIC803-40D4VM3	<u>A6</u>	4.00	1120	–40° to +125°C	SOT23-3
MIC803-31D4VM3	<u>AJ</u>	3.08	1120	–40° to +125°C	SOT23-3
MIC803-30D4VM3	<u>AZ</u>	3.00	1120	–40° to +125°C	SOT23-3
MIC803-29D4VM3	<u>A3</u>	2.93	1120	–40° to +125°C	SOT23-3
MIC803-26D4VM3	<u>AC</u>	2.63	1120	–40° to +125°C	SOT23-3

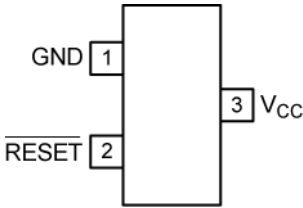
Part Numbering Convention



Pin Configuration



3-Pin SC70
(Top View)



3-Pin SOT-23
(Top View)

Pin Description

Pin Number	Pin Name	Pin Function
1	GND	Ground Pin.
2	/RESET	/RESET goes low if V_{CC} falls below the reset threshold (V_{TH}), and remains asserted for one timeout period after V_{CC} exceeds V_{TH} .
3	V_{CC}	Power Supply Input and Monitored Voltage.

Absolute Maximum Ratings⁽⁴⁾

Supply Voltage (V_{CC})	–0.3V to 6.0V
Reset Output (/RESET)	–0.3V to 6.0V
Input Current (V_{CC})	20mA
Output Current (/RESET)	20mA
Rate of Rise (V_{CC})	100V/ μ s
Junction Temperature (T_J)	+150°C
Lead Temperature (soldering, 10s)	260°C
Storage Temperature (T_S)	–65°C to +150°C
ESD Rating ⁽⁶⁾	3kV

Operating Ratings⁽⁵⁾

Supply Voltage (V_{CC})	1.0V to 5.5V
Reset Output Voltage (/RESET)	0.0V to 5.5V
Junction Temperature (T_J)	–40°C to +125°C
Junction Thermal Resistance	
3-Pin SC70 (θ_{JA})	260°C/W
3-Pin SOT-23 (θ_{JA})	203°C/W

Electrical Characteristics⁽⁷⁾

For typical values, $V_{CC} = 5.0V$ for MIC803-46/44/41/40, $V_{CC} = 3.3V$ for MIC803-31/30/29, $V_{CC} = 3.0V$ for MIC803-26; $T_J = 25^\circ\text{C}$, **Bold** values indicate $-40^\circ\text{C} \leq T_J \leq +125^\circ\text{C}$; unless noted.

Parameter	Conditions		Min.	Typ.	Max.	Units
Power Supply Input						
Operating Voltage Range (V _{CC})	T _J = −40°C to +85°C		1.0		5.5	V
	T _J = −40°C to +125°C		1.2		5.5	
Supply Current (I _{CC})	T _J = −40°C to +85°C	V _{CC} = 5.5V, No Load		5.5	15	μA
		V _{CC} = 3.6V, No Load		4.5	10	
	T _J = +85°C to +125°C	V _{CC} = 5.5V, No Load			18	
		V _{CC} = 3.6V, No Load			13	
		Voltage Threshold				
Reset Threshold (V _{TH})	MIC803-46	T _J = −40°C to +85°C	4.50	4.63	4.75	V
		T _J = −40°C to +125°C	4.44		4.82	
	MIC803-44	T _J = −40°C to +85°C	4.25	4.38	4.50	
		T _J = −40°C to +125°C	4.20		4.56	
	MIC803-41	T _J = −40°C to +85°C	4.00	4.10	4.20	
		T _J = −40°C to +125°C	3.97		4.24	
	MIC803-40	T _J = −40°C to +85°C	3.89	4.00	4.10	
		T _J = −40°C to +125°C	3.80		4.20	
	MIC803-31	T _J = −40°C to +85°C	3.00	3.08	3.15	
		T _J = −40°C to +125°C	2.95		3.21	

Notes:

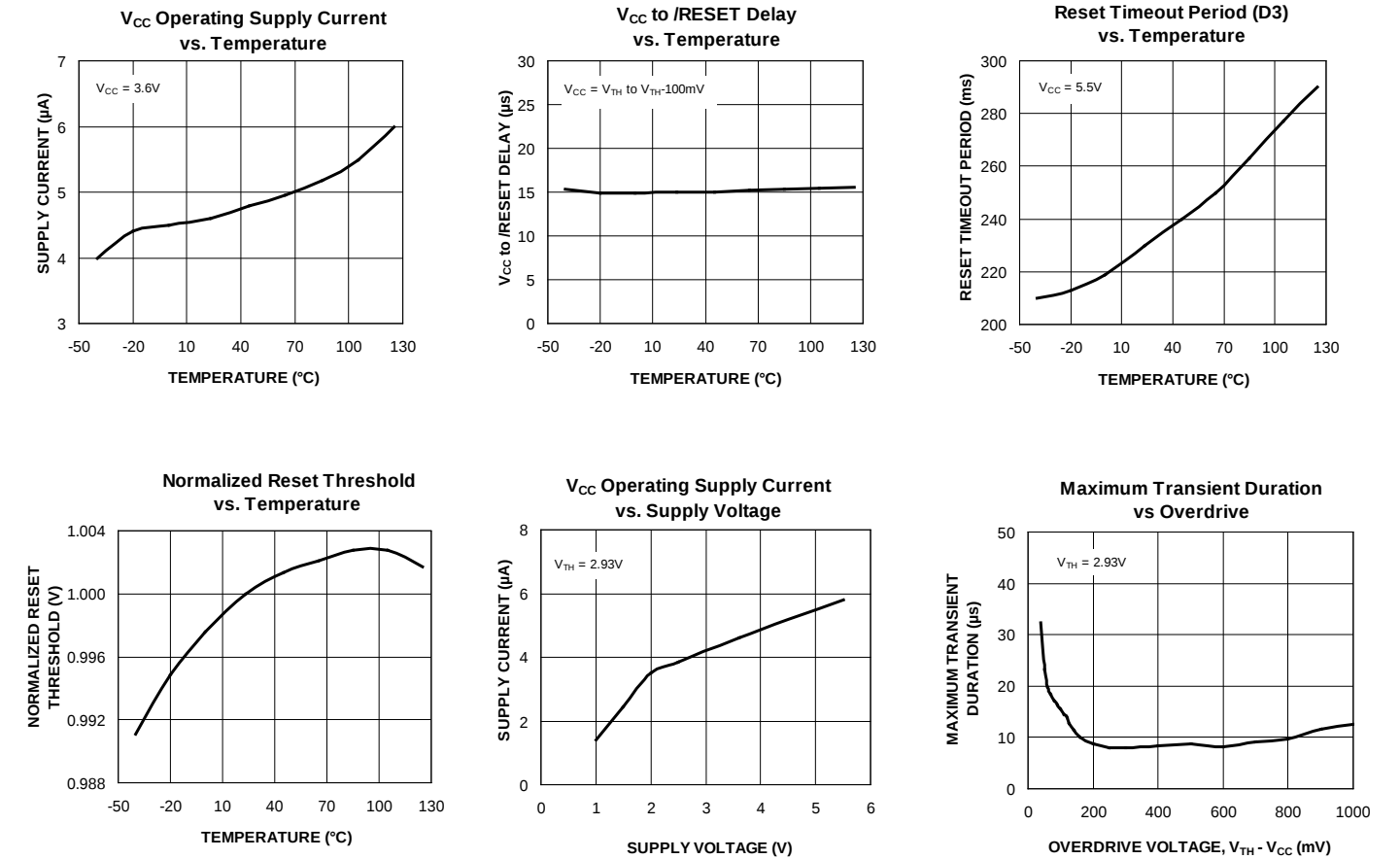
- Exceeding the absolute maximum ratings may damage the device.
- The device is not guaranteed to function outside its operating ratings.
- Devices are ESD sensitive. Handling precautions are recommended. Human body model, 1.5k Ω in series with 100pF.
- Specification for packaged product only.

Electrical Characteristics⁽⁷⁾ (Continued)

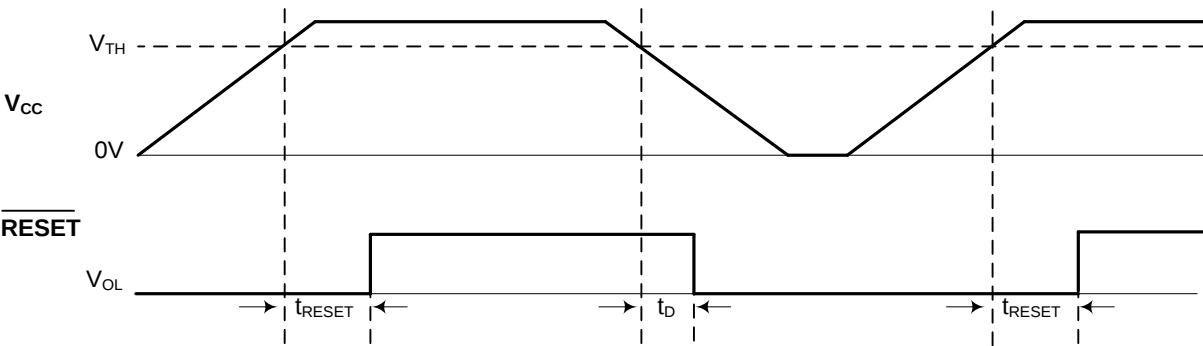
For typical values, $V_{CC} = 5.0V$ for MIC803-46/44/41/40, $V_{CC} = 3.3V$ for MIC803-31/30/29, $V_{CC} = 3.0V$ for MIC803-26; $T_J = 25^\circ C$, **Bold** values indicate $-40^\circ C \leq T_J \leq +125^\circ C$; unless noted.

Parameter	Conditions		Min.	Typ.	Max.	Units
Voltage Threshold (Continued)						
Reset Threshold (V_{TH})	MIC803-30	$T_J = -40^{\circ}C$ to $+85^{\circ}C$	2.93	3.00	3.08	V
		$T_J = -40^{\circ}C$ to $+125^{\circ}C$	2.90		3.11	
	MIC803-29	$T_J = -40^{\circ}C$ to $+85^{\circ}C$	2.82	2.93	3.00	
		$T_J = -40^{\circ}C$ to $+125^{\circ}C$	2.81		3.05	
	MIC803-26	$T_J = -40^{\circ}C$ to $+85^{\circ}C$	2.55	2.63	2.70	
		$T_J = -40^{\circ}C$ to $+125^{\circ}C$	2.50		2.76	
Reset Time						
V_{CC} to /RESET Delay (t_D)	$V_{CC} = V_{TH}$ to $(V_{TH} - 100mV)$			15		μs
Reset Timeout Period (t_{RESET})	D2	$T_J = -40^{\circ}C$ to $+85^{\circ}C$	20	35	44	ms
		$T_J = -40^{\circ}C$ to $+125^{\circ}C$	16		48	
	D3	$T_J = -40^{\circ}C$ to $+85^{\circ}C$	140	230	360	
		$T_J = -40^{\circ}C$ to $+125^{\circ}C$	112		420	
	D4	$T_J = -40^{\circ}C$ to $+85^{\circ}C$	1120	1800	2400	
		$T_J = -40^{\circ}C$ to $+125^{\circ}C$	900		3200	
Reset Output						
/RESET Output Voltage (V_{OL})	$V_{CC} \geq 4.0V$, $I_{SINK} = 3.2mA$				0.4	V
	$V_{CC} > 2.5V$, $I_{SINK} = 1.2mA$				0.3	V
	$V_{CC} \geq 1.0V$, $I_{SINK} = 50\mu A$				0.3	V
/RESET Output Leakage	$V_{CC} > V_{TH}$, /RESET Deasserted				1	μA

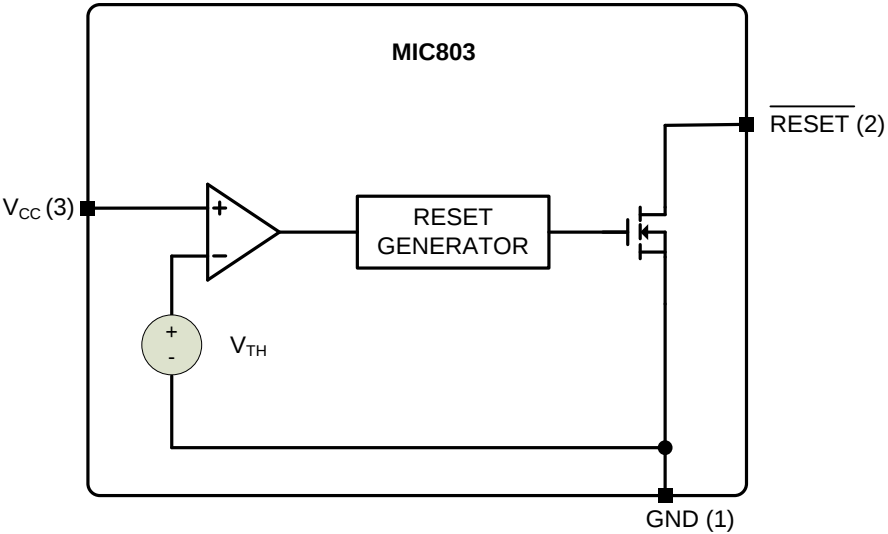
Typical Characteristics



Timing Diagram



Functional Diagram



Application Information

Microprocessor Reset

The $\overline{\text{RESET}}$ pin is asserted whenever V_{CC} falls below the reset threshold voltage, V_{TH} . The $\overline{\text{RESET}}$ pin remains asserted for the duration of the reset timeout period (t_{RESET}) after V_{CC} has risen above the reset threshold voltage. The reset function ensures the microprocessor is properly reset and powers up in a known condition after a power failure. $\overline{\text{RESET}}$ will remain valid with V_{CC} as low as 1.0V.

The $\overline{\text{RESET}}$ output is a simple open-drain N-channel MOSFET structure. A pull-up resistor must be used to pull this output up to some voltage. For most applications, this voltage will be the same power supply that supplies V_{CC} to the MIC803. As shown in Figure 1, it is possible, however, to tie this resistor to some other voltage. This will allow the MIC803 to monitor one voltage while level-shifting the $\overline{\text{RESET}}$ output to some other voltage. The pull-up voltage must be limited to 5.5V. The resistor must be small enough to supply current to the inputs and leakage paths that are driven by the $\overline{\text{RESET}}$ output.

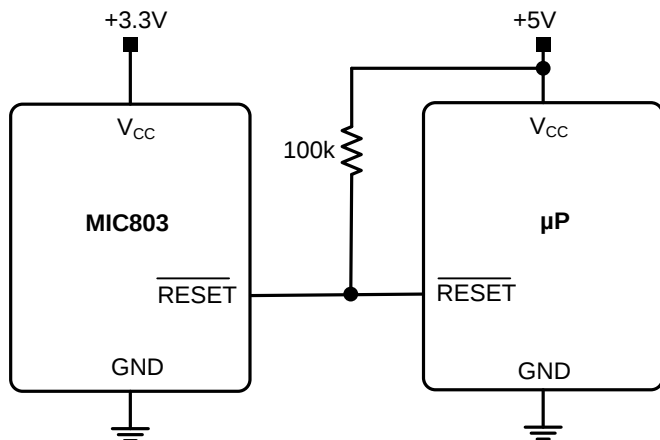


Figure 1. MIC803 Used in a Multiple Supply System

$\overline{\text{RESET}}$ Valid at Low Voltage

As V_{CC} drops to 0V, the MIC803 will no longer be able to pull the $\overline{\text{RESET}}$ output low, and the pull-up resistor will pull the output high. The value of the pull-up resistor and the voltage it is connected to will affect the point at which this happens.

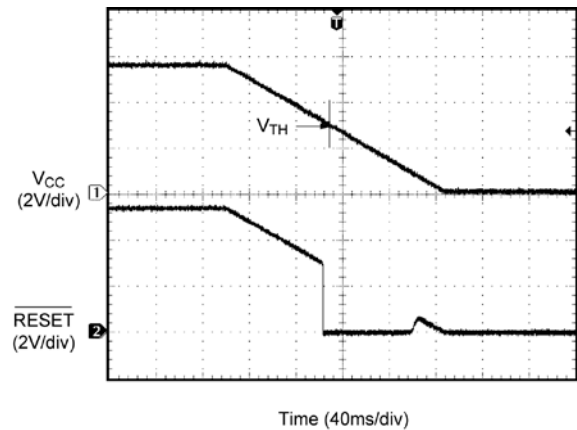


Figure 2. $\overline{\text{RESET}}$ at Falling V_{CC}

Wire ORing the $\overline{\text{RESET}}$ Output

Since the $\overline{\text{RESET}}$ output is open-drain, several reset sources can be wire-ORed, in parallel, to allow resets from multiple sources.

V_{CC} Transients

The MIC803 is relatively immune to negative-going V_{CC} glitches below the reset threshold (see [Typical Characteristics](#), graph titled "Maximum Transient Duration vs. Overdrive"). As shown in Figure 3, the overdrive voltage is the difference between the threshold voltage and the minimum point of the V_{CC} glitch. Typically, an overdrive of 100mV, with duration of 15 μ s or less will not cause a reset. If additional transient immunity is needed, a 0.1 μ F bypass capacitor can be placed as close as possible to the MIC803 on the VCC pin.

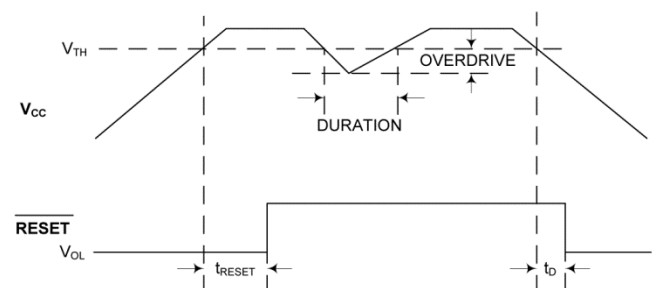
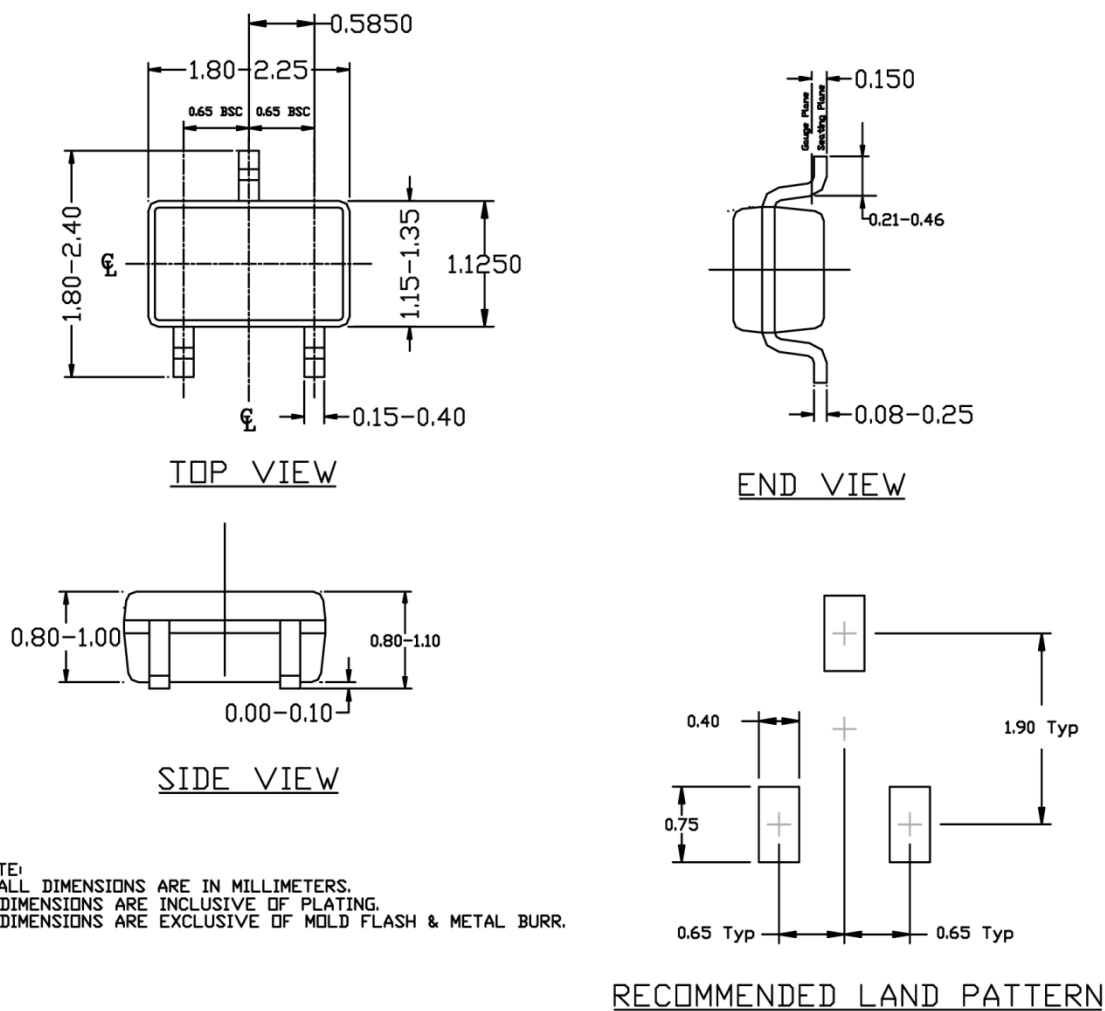


Figure 3. V_{CC} Threshold

Package Information and Recommended Landing Pattern⁽⁸⁾

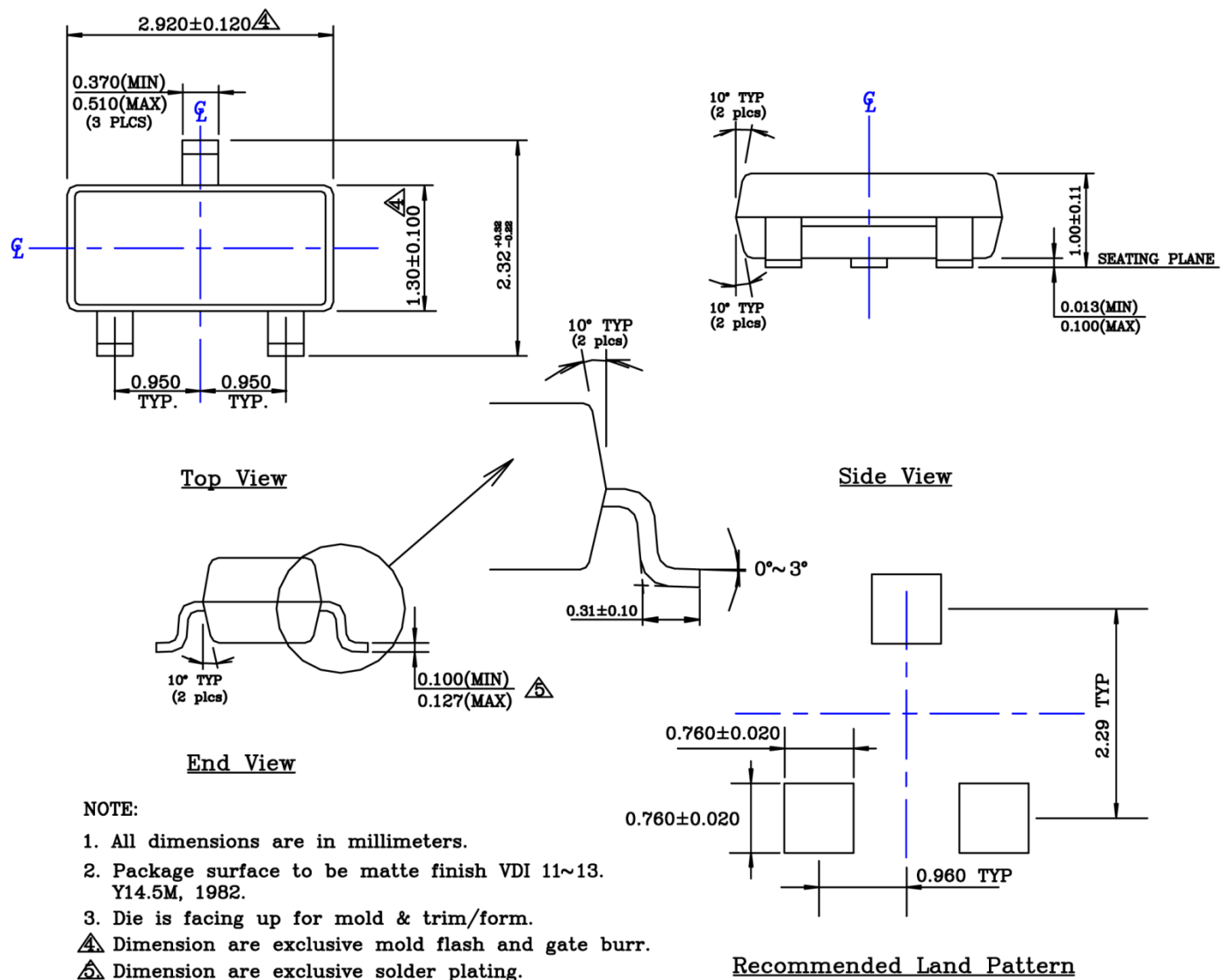


3-Pin SC70 (MM)

Note:

8. Package information is correct as of the publication date. For updates and most current information, go to www.micrel.com.

Package Information and Recommended Landing Pattern⁽⁸⁾



3-Pin SOT-23 (MM)

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