

MCR08B, MCR08M

ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
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OFF CHARACTERISTICS

Peak Repetitive Forward or Reverse Blocking Current (Note 3) ($V_{AK} = \text{Rated } V_{DRM} \text{ or } V_{RRM}, R_{GK} = 1 \text{ k}\Omega$) $T_J = 25^\circ\text{C}$ $T_J = 110^\circ\text{C}$	I_{DRM}, I_{RRM}	– –	– –	10 200	μA μA
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ON CHARACTERISTICS

Peak Forward On-State Voltage (Note 2) ($I_T = 1.0 \text{ A Peak}$)	V_{TM}	–	–	1.7	V
Gate Trigger Current (Continuous dc) (Note 4) ($V_{AK} = 12 \text{ Vdc}, R_L = 100 \Omega$)	I_{GT}	–	–	200	μA
Holding Current (Note 3) ($V_{AK} = 12 \text{ Vdc}$, Initiating Current = 20 mA)	I_H	–	–	5.0	mA
Gate Trigger Voltage (Continuous dc) (Note 4) ($V_{AK} = 12 \text{ Vdc}, R_L = 100 \Omega$)	V_{GT}	–	–	0.8	V

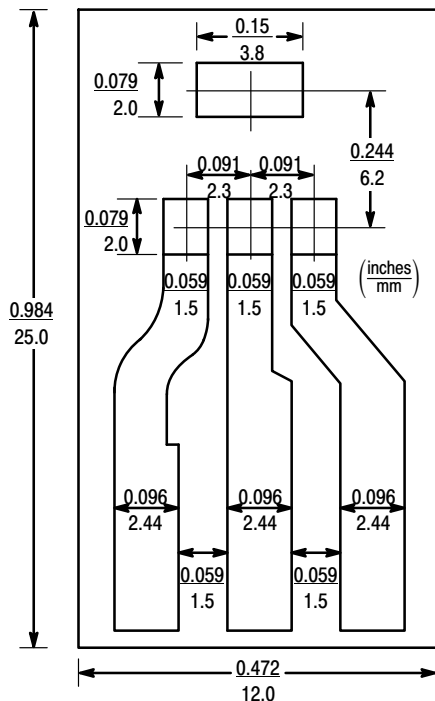
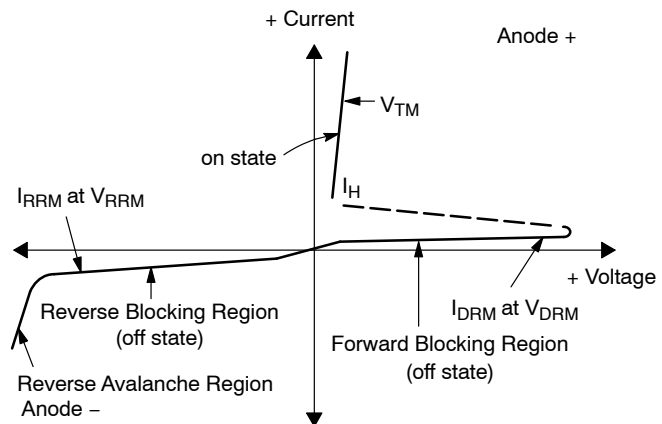
DYNAMIC CHARACTERISTICS

Critical Rate-of-Rise of Off State Voltage ($V_{pk} = \text{Rated } V_{DRM}, T_C = 110^\circ\text{C}, R_{GK} = 1 \text{ k}\Omega$, Exponential Method)	dv/dt	10	–	–	V/ μs
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2. Pulse Test: Pulse Width $\leq 300 \mu\text{s}$, Duty Cycle $\leq 2\%$.
3. $R_{GK} = 1000 \Omega$ is included in measurement.
4. R_{GK} is not included in measurement.

Symbol	Parameter
V_{DRM}	Peak Repetitive Off State Forward Voltage
I_{DRM}	Peak Forward Blocking Current
V_{RRM}	Peak Repetitive Off State Reverse Voltage
I_{RRM}	Peak Reverse Blocking Current
V_{TM}	Peak On State Voltage
I_H	Holding Current

Voltage Current Characteristic of SCR



BOARD MOUNTED VERTICALLY IN CINCH 8840 EDGE CONNECTOR.
BOARD THICKNESS = 65 MIL., FOIL THICKNESS = 2.5 MIL.
MATERIAL: G10 FIBERGLASS BASE EPOXY

Figure 1. PCB for Thermal Impedance and Power Testing of SOT-223

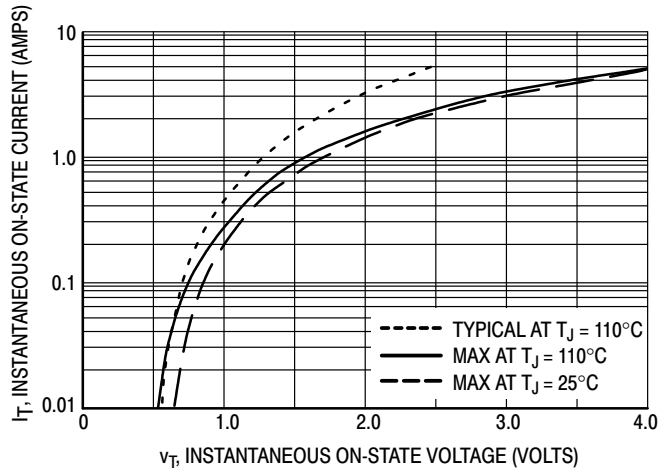


Figure 2. On-State Characteristics

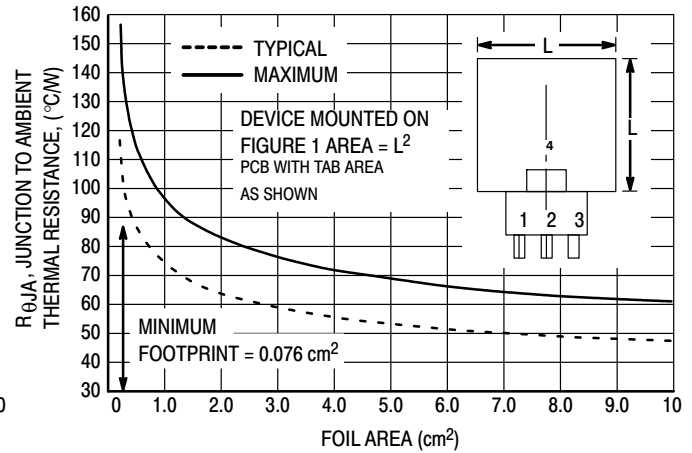


Figure 3. Junction to Ambient Thermal Resistance versus Copper Tab Area

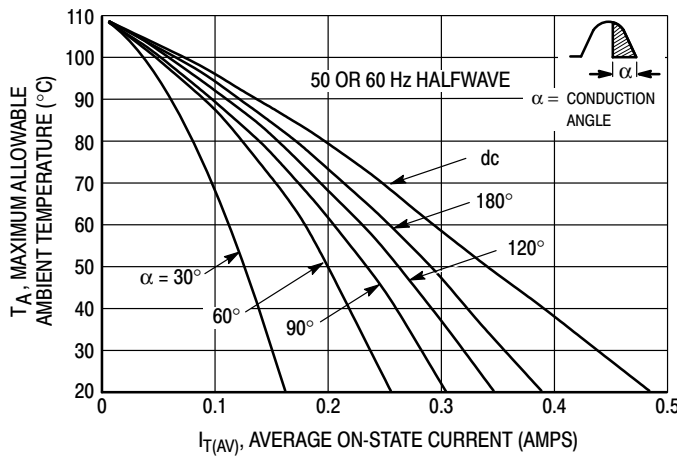


Figure 4. Current Derating, Minimum Pad Size
Reference: Ambient Temperature

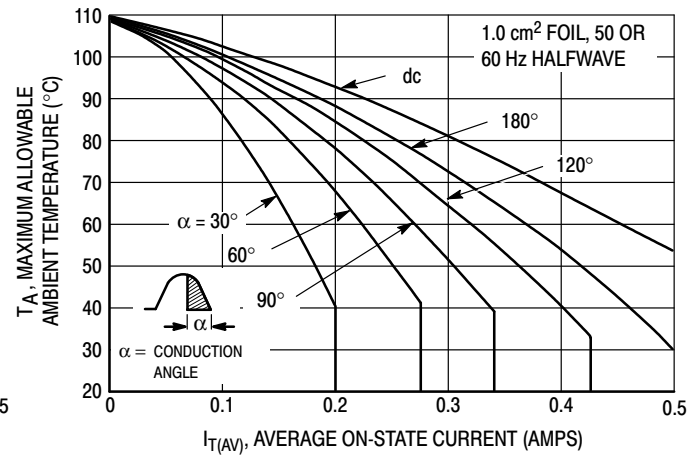


Figure 5. Current Derating, 1.0 cm Square Pad
Reference: Ambient Temperature

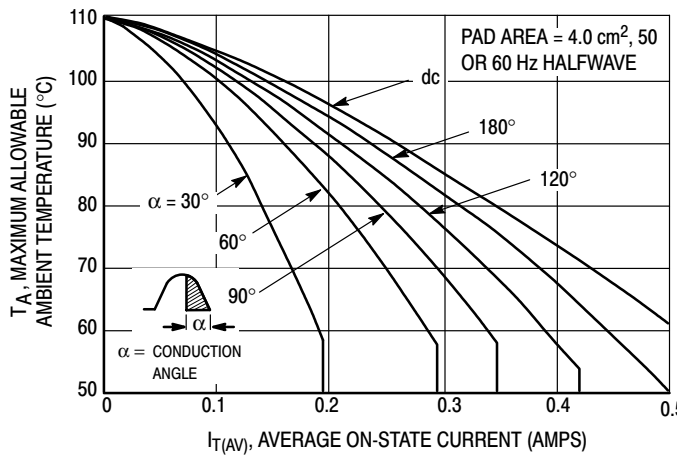


Figure 6. Current Derating, 2.0 cm Square Pad
Reference: Ambient Temperature

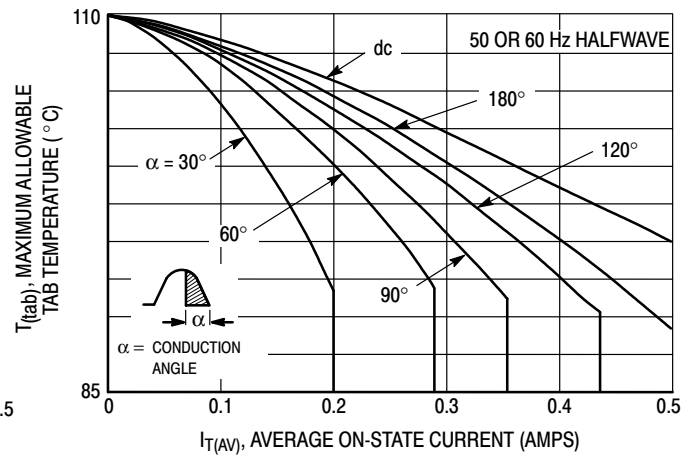


Figure 7. Current Derating
Reference: Anode Tab

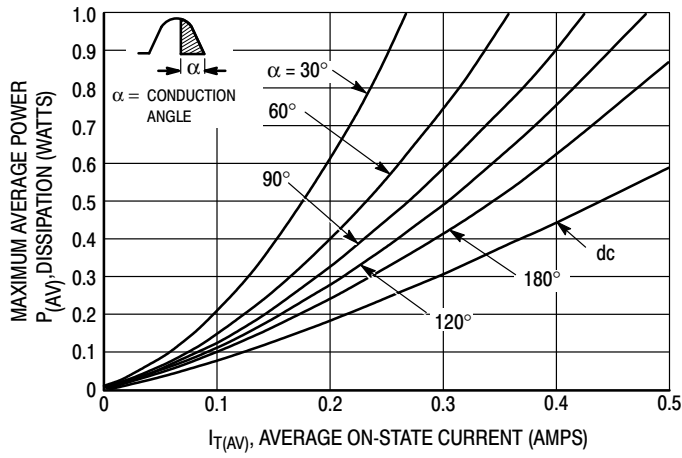


Figure 8. Power Dissipation

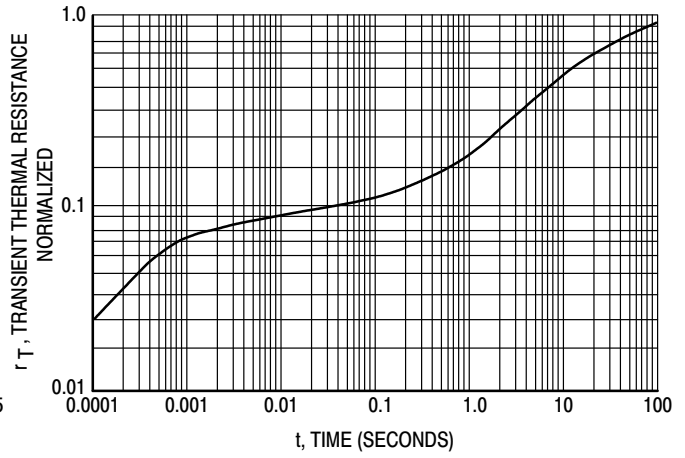


Figure 9. Thermal Response Device Mounted on Figure 1 Printed Circuit Board

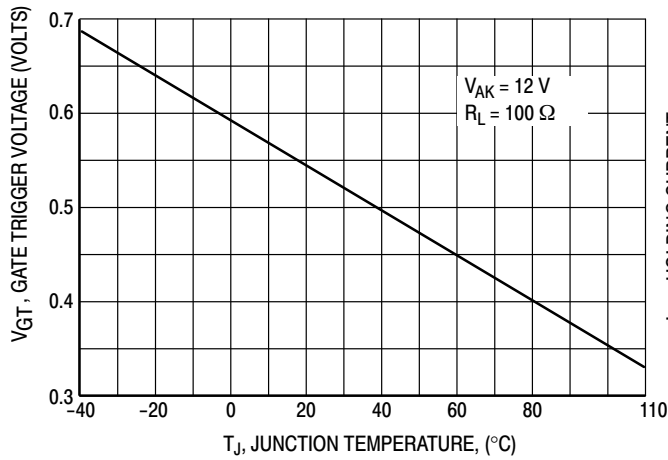


Figure 10. Typical Gate Trigger Voltage versus Junction Temperature

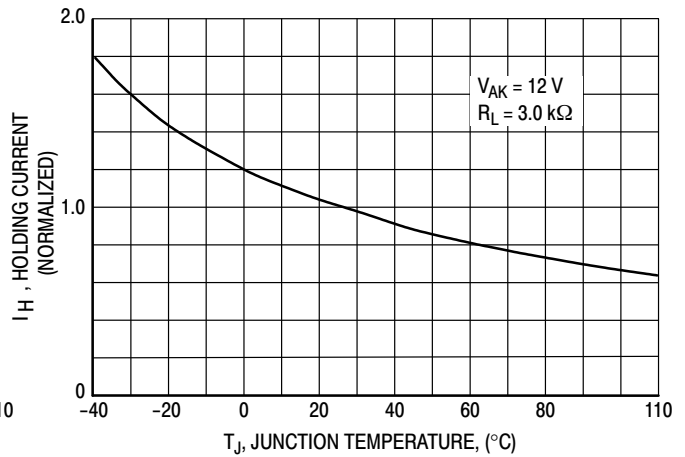


Figure 11. Typical Normalized Holding Current versus Junction Temperature

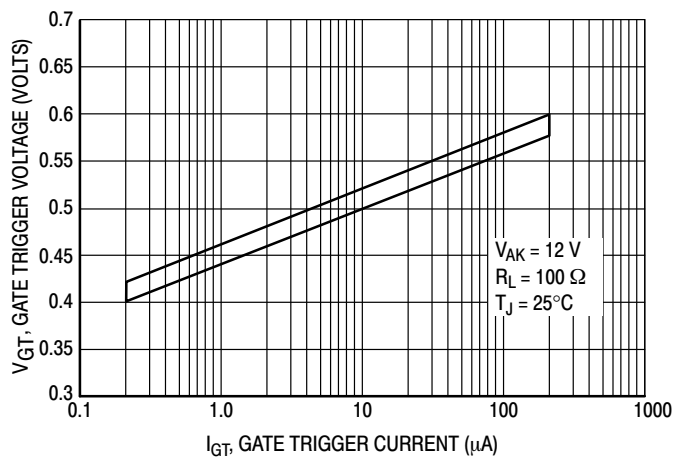


Figure 12. Typical Range of V_{GT} versus Measured I_{GT}

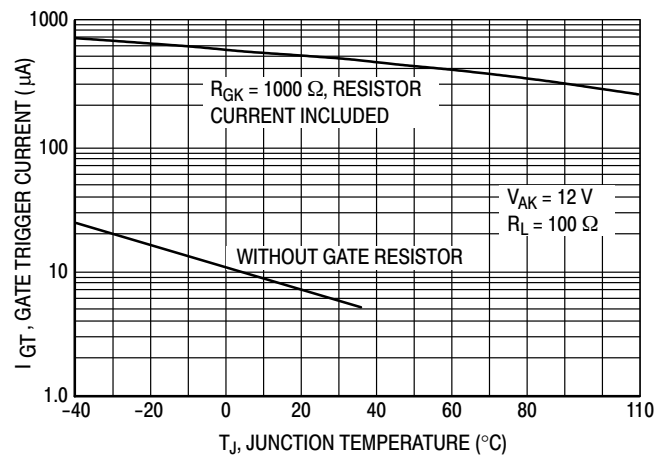


Figure 13. Typical Gate Trigger Current versus Junction Temperature

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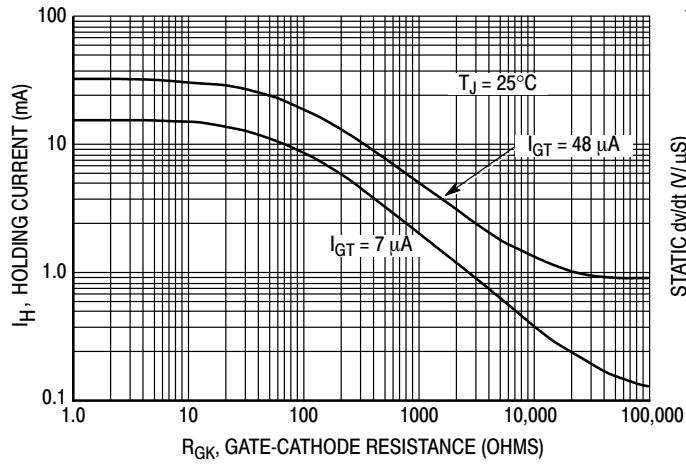


Figure 14. Holding Current Range versus Gate-Cathode Resistance

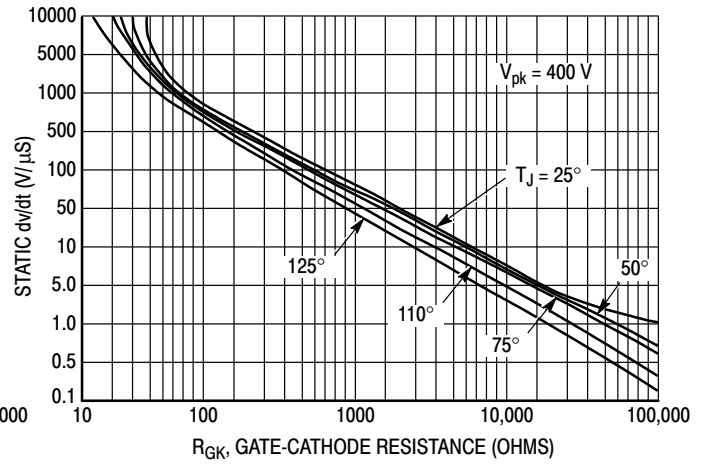


Figure 15. Exponential Static dv/dt versus Junction Temperature and Gate-Cathode Termination Resistance

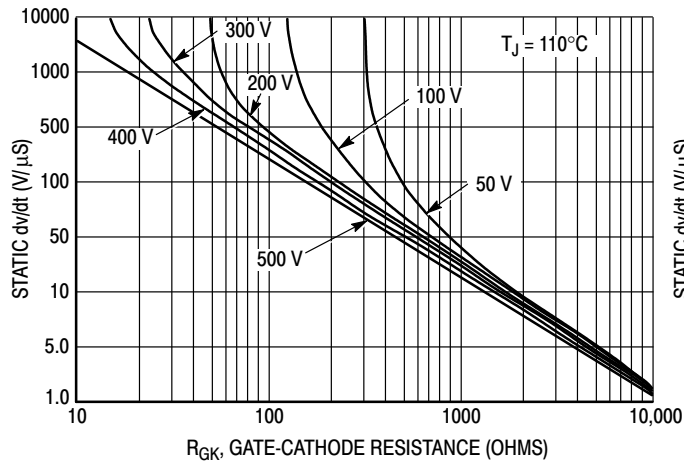


Figure 16. Exponential Static dv/dt versus Peak Voltage and Gate-Cathode Termination Resistance

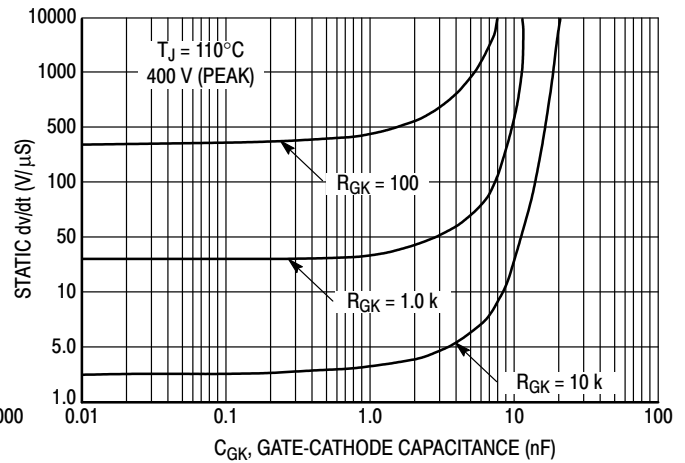


Figure 17. Exponential Static dv/dt versus Gate-Cathode Capacitance and Resistance

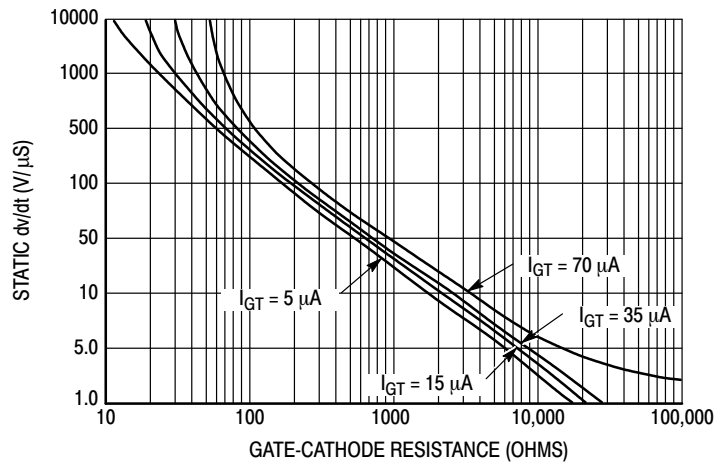


Figure 18. Exponential Static dv/dt versus Gate-Cathode Termination Resistance and Product Trigger Current Sensitivity

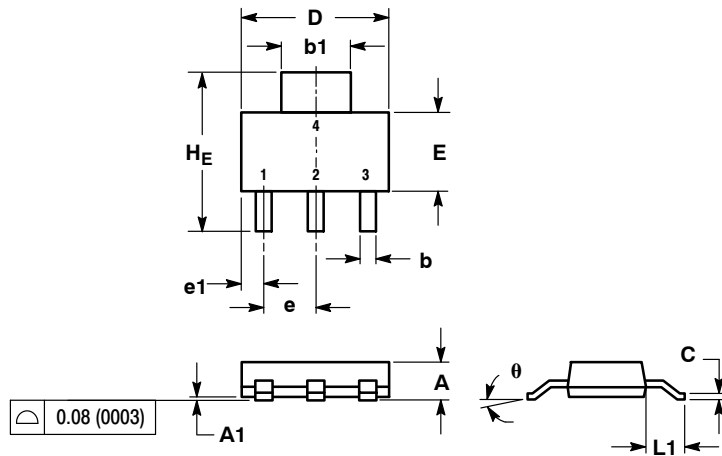
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PACKAGE DIMENSIONS

SOT-223 (TO-261)

CASE 318E-04

ISSUE L



NOTES:

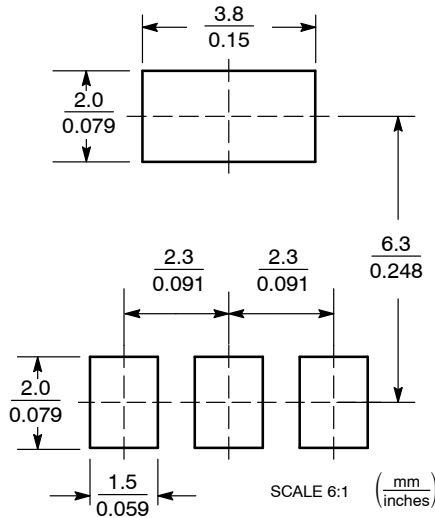
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.

DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	1.50	1.63	1.75	0.060	0.064	0.068
A1	0.02	0.06	0.10	0.001	0.002	0.004
b	0.60	0.75	0.89	0.024	0.030	0.035
b1	2.90	3.06	3.20	0.115	0.121	0.126
c	0.24	0.29	0.35	0.009	0.012	0.014
D	6.30	6.50	6.70	0.249	0.256	0.263
E	3.30	3.50	3.70	0.130	0.138	0.145
e	2.20	2.30	2.40	0.087	0.091	0.094
e1	0.85	0.94	1.05	0.033	0.037	0.041
L1	1.50	1.75	2.00	0.060	0.069	0.078
HE	6.70	7.00	7.30	0.264	0.276	0.287
θ	0°	—	10°	0°	—	10°

STYLE 10:

- PIN 1: CATHODE
- ANODE
- GATE
- ANODE

SOLDERING FOOTPRINT*



*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

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