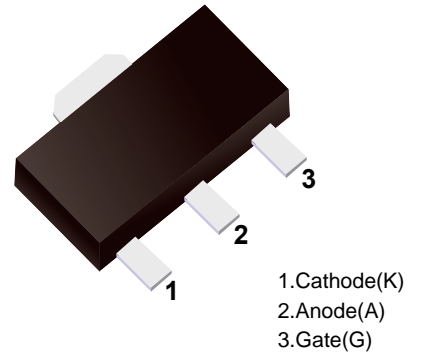


■ Silicon Controlled Rectifiers

■ Features

- Sensitive gate silicon controlled rectifiers
- Reverse blocking thyristors



■ Simplified outline(SOT-89)

Pin	Symbol	Description
1	K	Cathode
2	A	Anode
3	G	Gate

■ Absolute Maximum Ratings Ta = 25°C

Parameter	Symbols	Value	Units
Peak Repetitive Off-State Voltage <sup>Note4</sup> (T <sub>J</sub> = -40°C to 110°C, Sine Wave, 50 to 60 Hz, Gate Open)	MCR100-4 MCR100-6 MCR100-8 V <sub>DRM</sub> , V <sub>RRM</sub>	200 400 600	V
On-State RMS Current	I <sub>T(RMS)</sub>	0.8	A
Peak Non-Repetitive Surge Current (1/2 Cycle, Sine Wave, 60 Hz, T <sub>J</sub> = 25°C)	I <sub>TSM</sub>	8	A
Circuit Fusing Considerations (t = 8.3ms)	I <sup>2</sup> t	0.415	A <sup>2</sup> s
Forward Peak Gate Power (Pulse Width ≤ 1 μs)	P <sub>GM</sub>	0.1	W
Forward Average Gate Power (t = 8.3ms)	P <sub>G(AV)</sub>	0.1	W
Peak Gate Current – Forward (Pulse Width ≤ 1 μs)	I <sub>GM</sub>	1	A
Peak Gate Voltage – Reverse (Pulse Width ≤ 1 μs)	V <sub>GRM</sub>	5	V
Operating Junction Temperature Range	T <sub>J</sub>	- 40 to + 110	°C
Storage Temperature Range	T <sub>STG</sub>	- 40 to + 150	°C

**■ Electrical Characteristics Ta = 25°C**

Parameter	Symbols	Max.	Units
Peak Forward or Reverse Blocking Current <sup>Note2</sup> at $V_D = \text{Rated } V_{DRM} \text{ and } V_{RRM}, R_{GK} = 1K\Omega$	$I_{DRM}, I_{RRM}$	10	$\mu A$
Peak Forward On-State Voltage <sup>Note1</sup> at $I_{TM} = 0.8 A$	$V_{TM}$	1.7	V
Gate Trigger Current <sup>Note3</sup> at $V_{AK} = 7 V, R_L = 100 \Omega$	$I_{GT}$	200	$\mu A$
Holding Current <sup>Note2</sup> at $V_{AK} = 7 V, \text{Initiating Current} = 20 \text{ mA}$	$I_H$	5 10	mA
Latch Current at $V_{AK} = 7 V, I_g = 1 \text{ mA}$	$I_L$	10 15	mA
Gate Trigger Voltage <sup>Note3</sup> at $V_{AK} = 7 V, R_L = 100 \Omega$	$V_{GT}$	0.8 1.2	V

**Note:**

- 1)Indicates pulse teat width  $\leq 1 \text{ ms}$ , duty cycle  $\leq 1\%$
- 2) $R_{GK} = 1 K\Omega$  included in measurement
- 3)Does not include  $R_{GK}$  in measurement
- 4) $V_{DRM}$  and  $V_{RRM}$  for all types can be applied on continous basis. Ratings apply for zero negative gate voltage; however, positive gate voltage shall not be applied concurrent with negative potential on the anode. Blocking voltages shall not be tested with a constant current source such that the voltage ratings of the devices are exceeded.

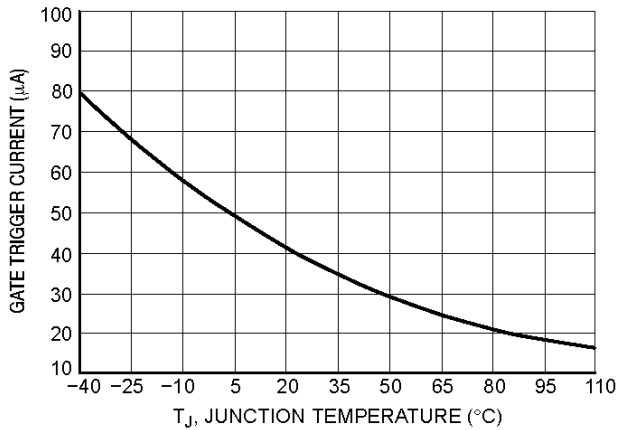


Figure 1. Typical Gate Trigger Current versus Junction Temperature

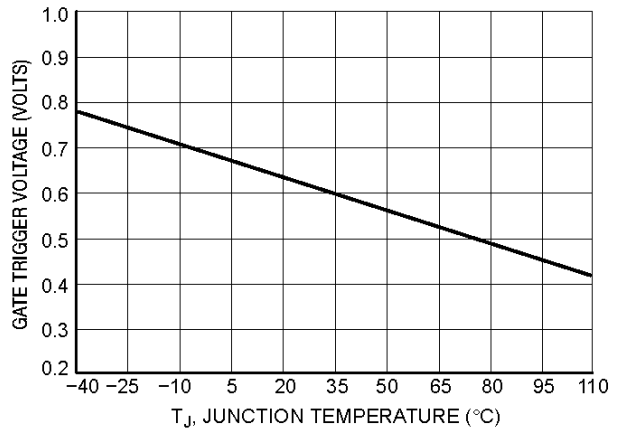


Figure 2. Typical Gate Trigger Voltage versus Junction Temperature

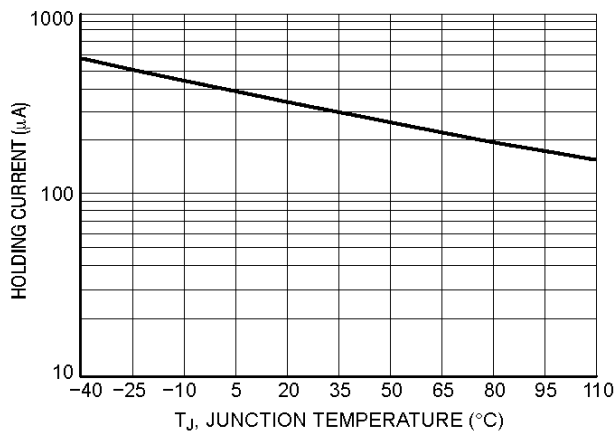


Figure 3. Typical Holding Current versus Junction Temperature

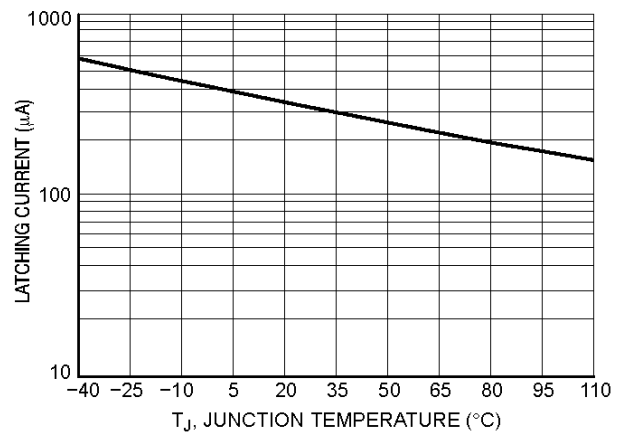


Figure 4. Typical Latching Current versus Junction Temperature

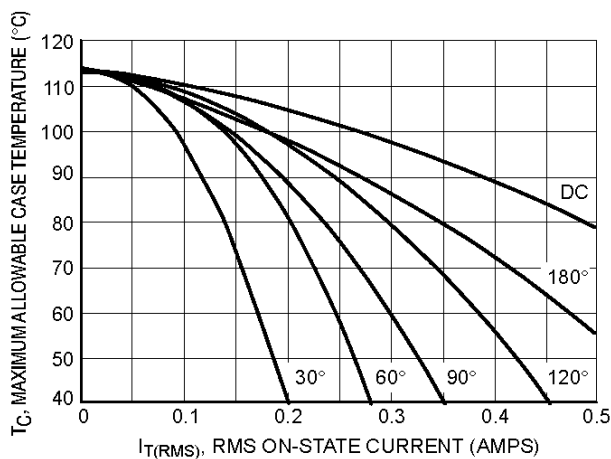


Figure 5. Typical RMS Current Derating

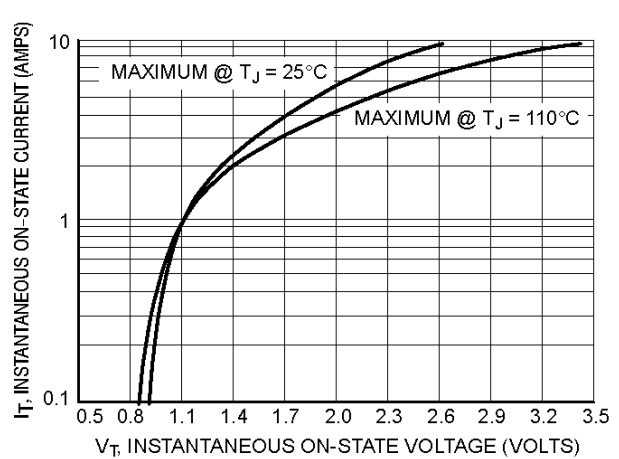
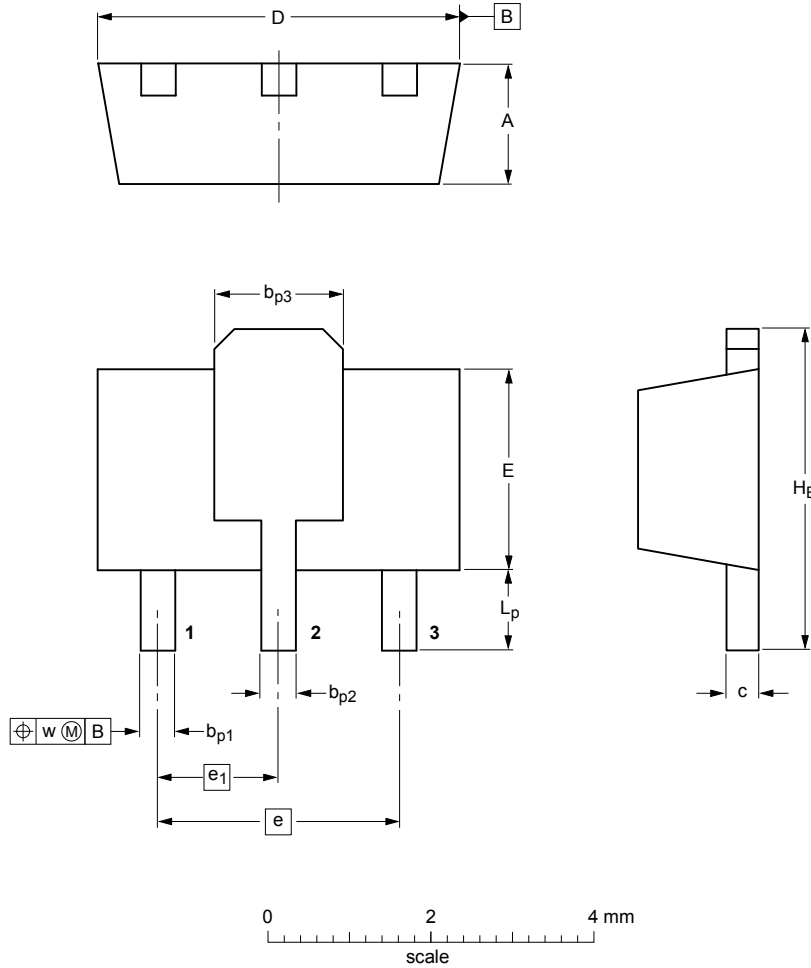


Figure 6. Typical On-State Characteristics

Package Outline

SOT-89



DIMENSIONS (mm are the original dimensions)

UNIT	A	b <sub>p1</sub>	b <sub>p2</sub>	b <sub>p3</sub>	c	D	E	e	e <sub>1</sub>	H <sub>E</sub>	L <sub>p</sub>	w
mm	1.6 1.4	0.48 0.35	0.53 0.40	1.8 1.4	0.44 0.23	4.6 4.4	2.6 2.4	3.0	1.5	4.25 3.75	1.2 0.8	0.13

Summary of Packing Options

Package	Package Description	Packing Quantity	Industry Standard
SOT-89	Tape/Reel, 7" reel	1000	EIA-481-1