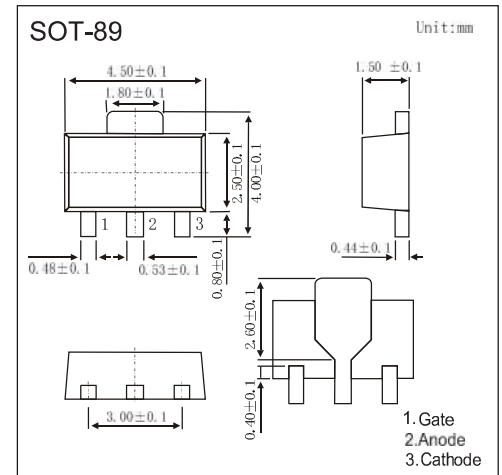
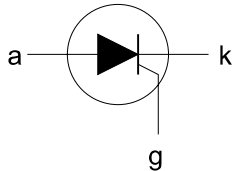


## Silicon Controlled Rectifiers

### ■ Features

- Blocking voltage to 600 V
- Average on-state current to 0.5 A
- General purpose switching



### ■ Absolute Maximum Ratings Ta = 25°C

Parameter	Symbol	Rating	Unit
Repetitive peak off-state voltages	V <sub>DRM</sub> , V <sub>RRM</sub>	600	V
Average on-state current	I <sub>T(AV)</sub>	0.5	A
RMS on-state current	I <sub>T(RMS)</sub>	0.8	A
Non-repetitive peak on-state current	I <sub>TSM</sub>	8	A

### ■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Repetitive peak off-state voltages	V <sub>DRM</sub>		600			V
Average on-state current	I <sub>T(AV)</sub>	Half sine wave; T <sub>lead</sub> ≤ 83 °C			0.5	A
RMS on-state current	I <sub>T(RMS)</sub>	All conduction angles			0.8	A
Non-repetitive peak on-state current	I <sub>TSM</sub>	full sine wave; T <sub>j</sub> = 25°C prior to surge	t = 10 ms		8	A
			t = 8.3 ms		9	A
I <sup>2</sup> t for fusing	I <sup>2</sup> t	t = 10 ms			0.32	A <sup>2</sup> S
Repetitive rate of rise of on-state current after triggering	dI <sub>T</sub> /dt	I <sub>TM</sub> = 2 A; I <sub>G</sub> = 10m A; dI <sub>G</sub> /dt = 100m A/μs			50	A/μs
Peak gate current	I <sub>GM</sub>				1	A
Peak gate voltage	V <sub>GM</sub>				5	V
Peak gate power	P <sub>GM</sub>				2	W
Average gate power	P <sub>G(AV)</sub>	over any 20 ms period			0.1	W
Thermal resistance junction to ambient	R <sub>θJA</sub>	PCB mounted, lead length=4mm		150		K/W
Storage temperature	T <sub>stg</sub>		-40		150	°C
Operating junction temperature	T <sub>j</sub>				125	°C

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

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Gate trigger current	I <sub>GT</sub>	V <sub>D</sub> = 12 V; I <sub>T</sub> = 10m A, gate open circuit		50	200	μ A
Latching current	I <sub>L</sub>	V <sub>D</sub> = 12 V; I <sub>GT</sub> = 0.5mA R <sub>GK</sub> =1K Ω		2	6	mA
Holding current	I <sub>H</sub>	V <sub>D</sub> = 12 V; I <sub>GT</sub> = 0.5mA R <sub>GK</sub> =1K Ω		2	5	
On-state voltage	V <sub>T</sub>	I <sub>T</sub> = 1 A		1.2	1.35	V
Gate trigger voltage	V <sub>GT</sub>	V <sub>D</sub> = 12 V; I <sub>T</sub> = 10mA, gate open circuit		0.5	0.8	V
		V <sub>D</sub> = V <sub>D</sub> DRM(max); I <sub>T</sub> = 10mA; T <sub>j</sub> = 125 °C	0.2	0.3		V
Off-state leakage current	I <sub>D</sub> , I <sub>R</sub>	V <sub>D</sub> = V <sub>D</sub> DRM(max); V <sub>R</sub> =V <sub>R</sub> RRM(max) T <sub>j</sub> = 125 °C R <sub>GK</sub> =1K Ω		0.05	0.1	mA
Critical rate of rise of off-state voltage	dV <sub>D</sub> /dt	V <sub>DM</sub> =67% V <sub>D</sub> DRM(max); T <sub>j</sub> = 125°C; exponential R <sub>GK</sub> =1K Ω		25		V/ μ S
Gate controlled turn-on time	t <sub>gt</sub>	I <sub>TM</sub> =2A; V <sub>D</sub> =V <sub>D</sub> DRM(max); I <sub>G</sub> =10mA dI <sub>G</sub> /dt = 0.1 A/ μ s		2		μ S
Circuit commutated turn-off time	t <sub>q</sub>	I <sub>TM</sub> = 1.6 A; V <sub>D</sub> = 67%V <sub>D</sub> DRM(max); T <sub>j</sub> =125°C; V <sub>R</sub> =35V; R <sub>GK</sub> =1kΩ dI <sub>TM</sub> /dt = 30 A/ μ s; V <sub>D</sub> /dt = 2V/ μ s		100		μ S

■ Typical Characteristics

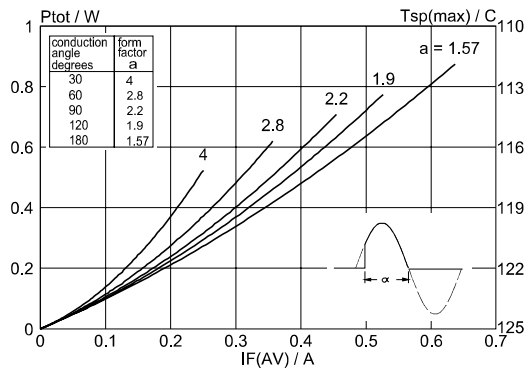


Fig. 1. Maximum on-state dissipation,  $P_{tot}$ , versus average on-state current,  $I_{T(AV)}$ , where  $a = \text{form factor} = I_{T(RMS)}/I_{T(AV)}$ .

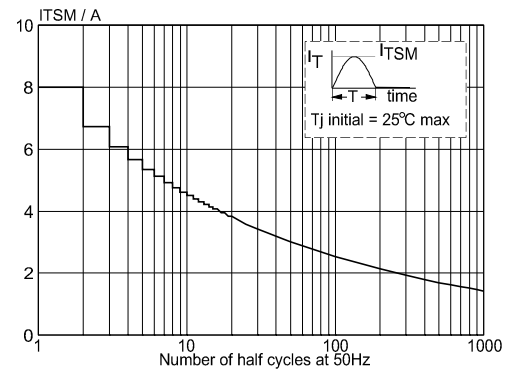


Fig. 4. Maximum permissible non-repetitive peak on-state current  $I_{TSM}$ , versus number of cycles, for sinusoidal currents,  $f = 50 \text{ Hz}$ .

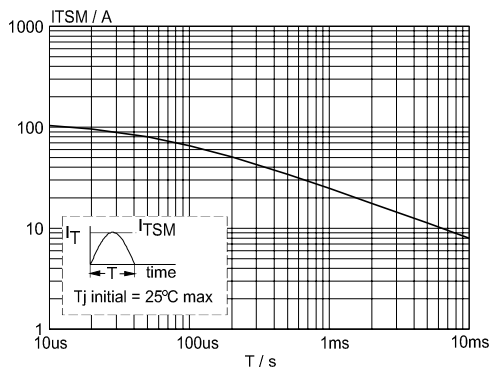


Fig. 2. Maximum permissible non-repetitive peak on-state current  $I_{TSM}$ , versus pulse width  $t_p$ , for sinusoidal currents,  $t_p \leq 10 \text{ ms}$ .

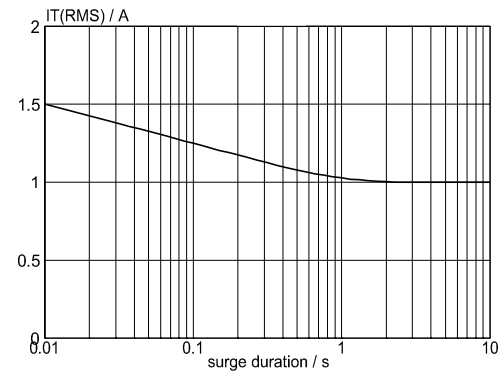


Fig. 5. Maximum permissible repetitive rms on-state current  $I_{T(RMS)}$ , versus surge duration, for sinusoidal currents,  $f = 50 \text{ Hz}$ ;  $T_{sp} \leq 112^\circ \text{C}$ .

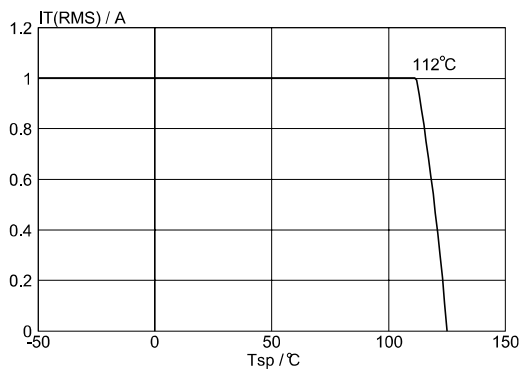


Fig. 3. Maximum permissible rms current  $I_{T(RMS)}$ , versus solder point temperature  $T_{sp}$ .

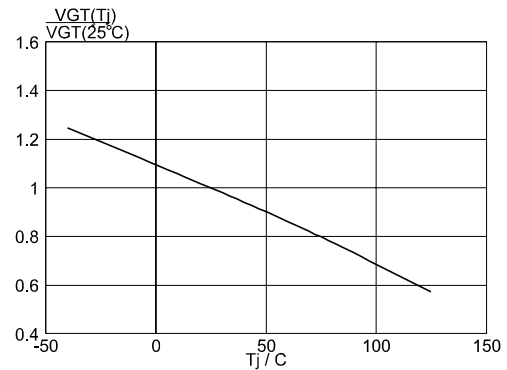


Fig. 6. Normalised gate trigger voltage  $V_{GT}(T_j)/V_{GT}(25^\circ \text{C})$ , versus junction temperature  $T_j$ .

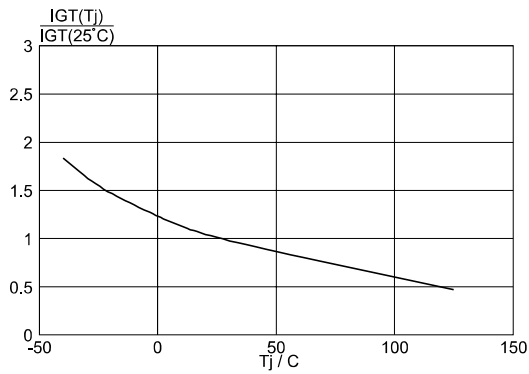


Fig. 7. Normalised gate trigger current  $I_{GT}(T_j)/I_{GT}(25^\circ\text{C})$ , versus junction temperature  $T_j$ .

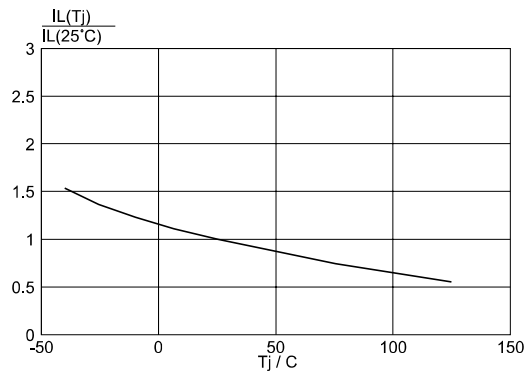


Fig. 8. Normalised latching current  $I_L(T_j)/I_L(25^\circ\text{C})$ , versus junction temperature  $T_j$ ,  $R_{GK} = 1\text{ k}\Omega$ .

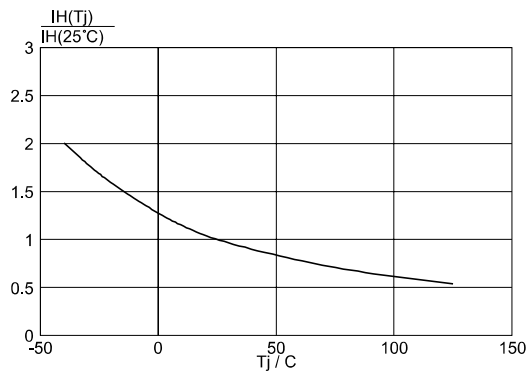


Fig. 9. Normalised holding current  $I_H(T_j)/I_H(25^\circ\text{C})$ , versus junction temperature  $T_j$ ,  $R_{GK} = 1\text{ k}\Omega$ .

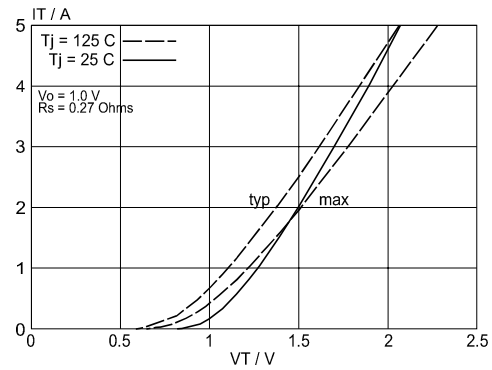


Fig. 10. Typical and maximum on-state characteristic.

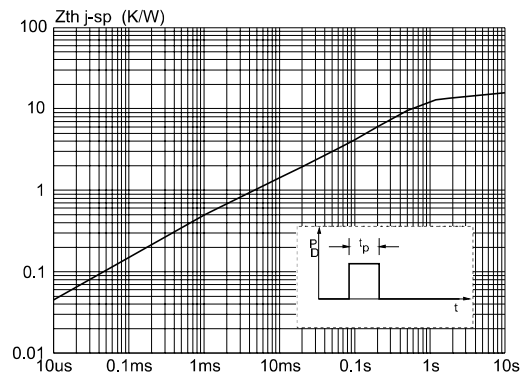


Fig. 11. Transient thermal impedance  $Z_{th(j-sp)}$  versus pulse width  $t_p$ .

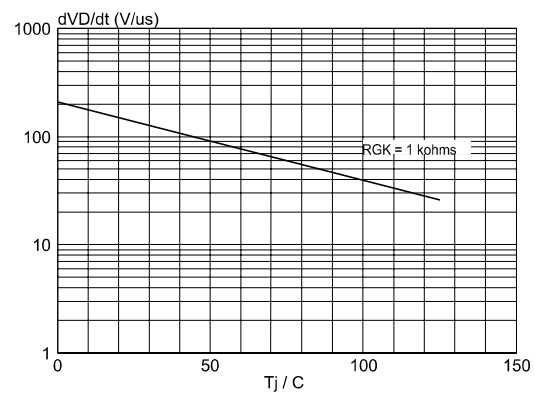
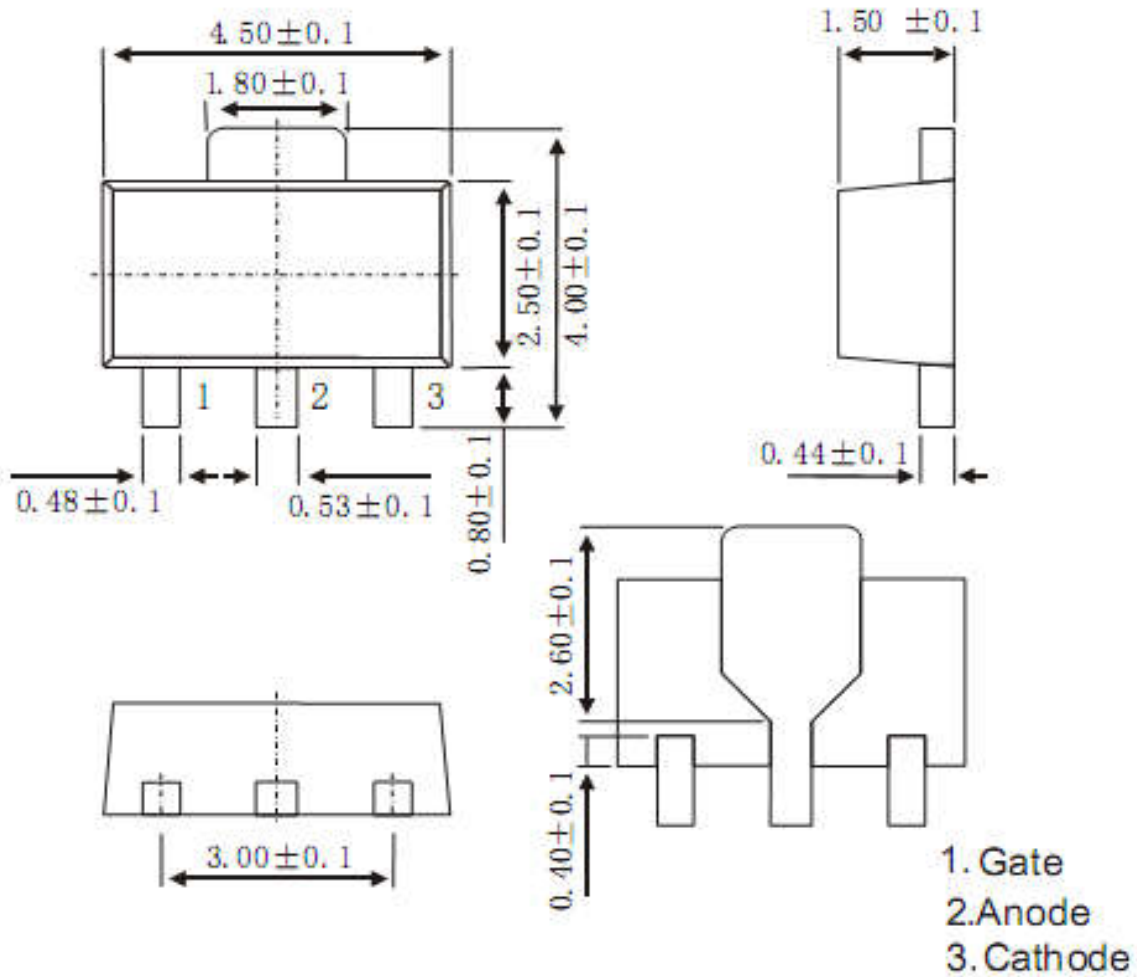


Fig. 12. Typical, critical rate of rise of off-state voltage,  $dV_D/dt$  versus junction temperature  $T_j$ .

Unit:mm



**Summary of Packing Options**

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

## X-ON Electronics

Largest Supplier of Electrical and Electronic Components

*Click to view similar products for [Triacs](#) category:*

*Click to view products by [YFW Electronics](#) manufacturer:*

Other Similar products are found below :

[BT137-600-0Q](#) [2N6075A](#) [NTE5688](#) [D31410](#) [ACS102-5T1](#) [ACS102-5TA](#) [MAC97A4G](#) [Z0107MAG](#) [Z0107MARL1G](#) [Z0109MARLRPG](#)  
[BTA316-800ET,127](#) [BTA316-800CTQ](#) [ACTT8X-800CTNQ](#) [MCR22-6G](#) [BTA16-800B\(MS\)](#) [TYN1025RG-JSM](#) [BT138-600D](#) [BTA26-800BRG](#) [BT138-600E](#) [BTA24-600CWRG](#) [BTA16-800CWRG](#) [BT138-600E](#) [BTA08-800CW](#) [BTB24-800CW](#) [BTA16-800CW](#) [BTA16-600CW](#) [BT169](#) [MCR100-6U](#) [FT10050-12P](#) [BT151S-600R](#) [BT136-800E](#) [BT136S](#) [PCR606J](#) [CT404D-800S](#) [JST24A-800CW](#) [JST60IS-1600BW](#) [TYN810RG-JSM](#) [BT139B-600E-JSM](#) [TYN812RG-JSM](#) [BT152-800R](#) [BTB16-800BRG-JSM](#) [BTA20-800CRG TO-220](#) [BTA16-800BRG](#) [BTW69-1200RG](#) [TYN825RG-JSM](#) [BTA12-600CRG](#) [BT136-600E](#) [BTA12-600BRG](#) [BT139-600E](#) [BTA24-800CRG TO-220](#)