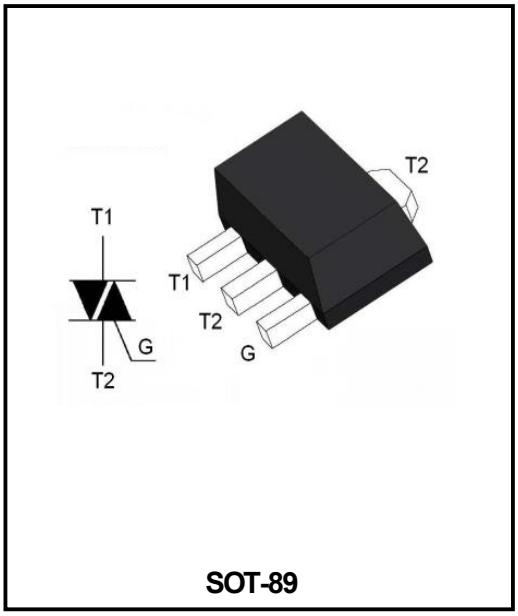
2.0A 4Quadrants TRIACs

Product Summary

Symbol	Value	Unit
$I_{T(RMS)}$	2.0	A
V_{DRM} V_{RRM}	600/800	V
V_{TM}	1.5	V



SOT-89

General Description

Glass passivated triacs in a plastic envelope suitable for surface mounting, intended for use in applications requiring high bidirectional transient and blocking voltage capability and high thermal cycling performance. Typical applications include motor control, industrial and domestic lighting,heating and static switching.

Absolute Maximum Rating (Ta=25°C)

Limiting values in accordance with the Absolute Maximum System

Parameter	Conditions		Symbol	Value	Unit
Repetitive peak off-state voltage			V_{DRM}	600/800	V
Repetitive peak reverse voltage			V_{RRM}	600/800	V
On-State RMS Current	full sine wave; T_{mb} 108 °C		$I_{T(RMS)}$	2	A
Non-repetitive peak on-state current	full sine wave; T_j = 25 °C prior to surge	t = 20 ms	I_{TSM}	15	A
		t = 16.7 ms		18	
I^2t for fusing	t = 10 ms		I^2t	0.5	A^2s
Repetitive rate of rise of on-state current after triggering	I_{TM} = 3 A; I_G = 0.2 A; dI_G/dt = 0.2 A/ s	T2+ G+	dI_T/dt	50	A/us
		T2+ G-		50	
		T2- G-		50	
		T2- G+		10	
Peak gate current			I_{GM}	2	A
Peak Gate Voltage			V_{GM}	5	V
Peak gate power			P_{GM}	5	W
Average gate power	over any 20 ms period		$P_{G(AV)}$	0.5	W
Storage Temperature			Tstg	-40 ~+150	°C
Operating junction temperature			T_J	125	°C

Thermal Resistances

Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Thermal resistance junction to solder point	full or half cycle	Rth j-sp	-	-	15	°C /W
Thermal resistance junction to ambient	pcb mounted; minimum footprint pcb mounted;	Rth j-a	-	156 70		°C /W

Static Characteristics T_j = 25 °C unless otherwise stated

Parameter	Conditions		Symbol	Min	Typ	Max	Unit
Gate trigger current	V_D = 12 V I_T = 0.1 A	T2+ G+	I_{GT}	-		10	mA
		T2+ G-		-		10	
		T2- G-		-		10	
		T2- G+		-		25	
Latching current	V_D = 12 V I_{GT} = 0.1 A	T2+ G+	I_L	-		15	mA
		T2+ G-		-		20	
		T2- G-		-		15	
		T2- G+		-		20	
Holding current	V_D = 12 V, I_{GT} = 0.1 A		I_H	-	-	30	mA
On-state voltage	I_T = 3A		V_{TM}	-	1.2	1.5	V
Gate trigger voltage	V_D = 12 V; I_T = 0.1 A V_D = 400 V; I_T = 0.1 A; T_j = 125 °C		V_{GT}	0	1.2	1.5	V
				0.25			
Off-state leakage current	V_D = $V_{DRM(max)}$; T_j = 125 °C		I_D			0.5	mA
Critical rate of rise of Critical rate of rise of	V_{DM} =67% V_{DRM}(max); V_{DM} =67% V_{DRM}(max); V_{DM} =67% V_{DRM}(max); circuit		dV_D/dt	50	250	-	**V/μs**
Critical rate of change of commutating voltage	V_{DM} = 400 V; T_j = 95°C; $I_{T(RMS)}$ = 1 A; d_{Icom}/dt = 1.5 A/ms; gate open circuit		dV_{com}/dt	10	50	-	**V/μs**

Typical Characteristics

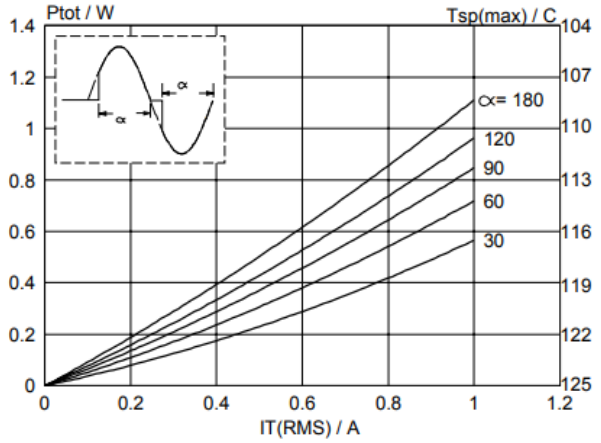


Fig.1. Maximum on-state dissipation, Ptot, versus rms on-state current, $I_{T(RMS)}$, where α = conduction angle.

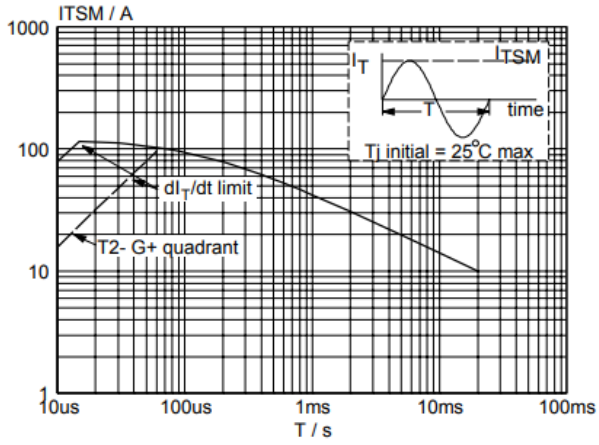


Fig.2. Maximum permissible non-repetitive peak on-state current I_{TSM}, versus pulse width tp, for sinusoidal currents, tp ≤ 20ms.

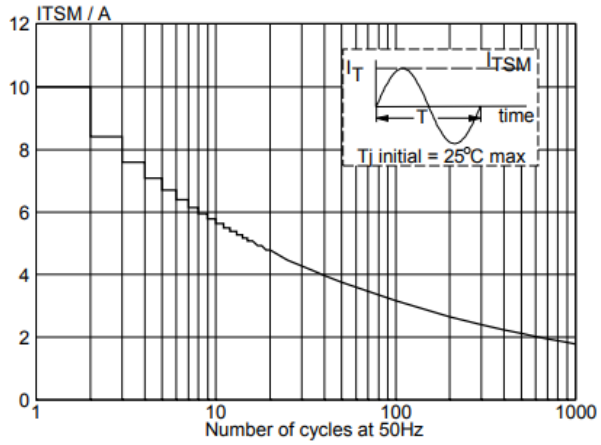


Fig.3. Maximum permissible non-repetitive peak on-state current I_{TSM}, versus number of cycles, for sinusoidal currents, f = 50 Hz.

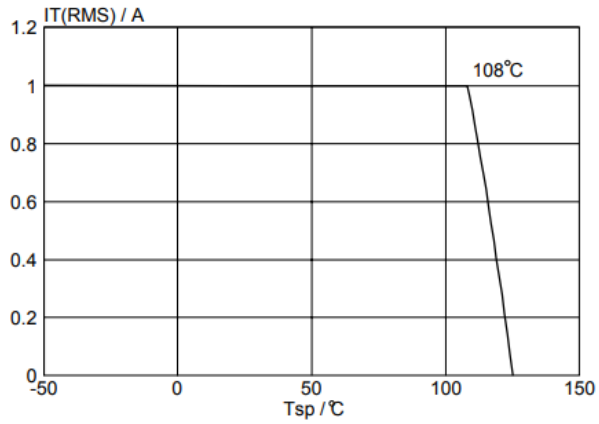


Fig.4. Maximum permissible rms current $I_{T(RMS)}$, versus solder point temperature Tsp.

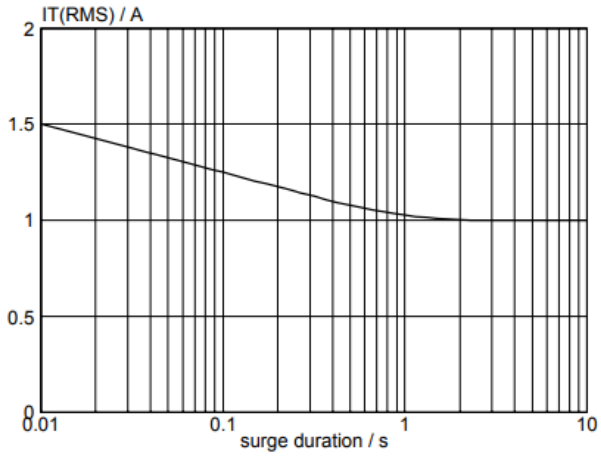


Fig.5. Maximum ermissible repetitive rms n-state current $I_{T(RMS)}$, versus surge duration, for sinusoidal currents, f = 50Hz; T_{sp} ≤ 108˚C.

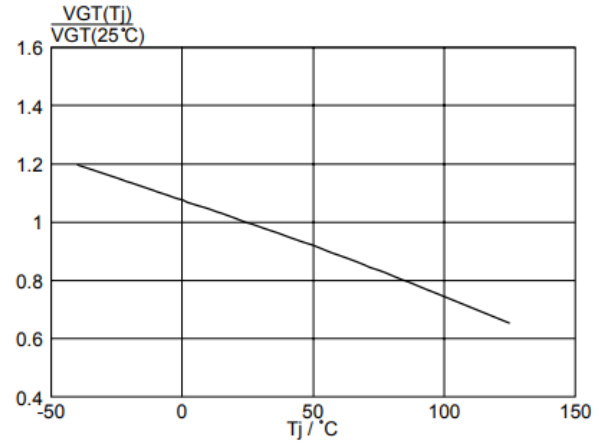


Fig.6.Normalised gate trigger voltage $V_{GT}(T_j)/V_{GT}(25˚C)$, versus junction temperature T_j

Typical Characteristics

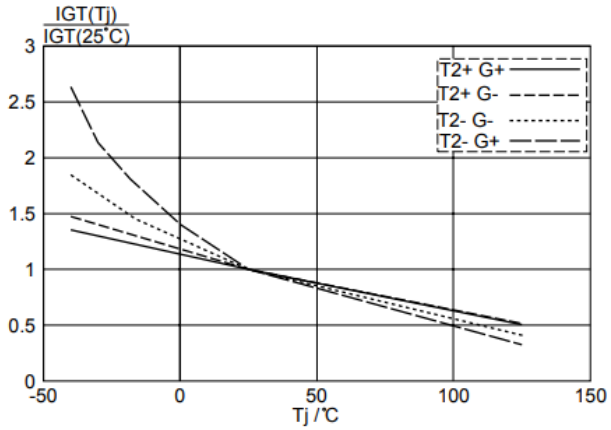


Fig.7. Normalised gate trigger current $I_{GT}(T_j)$/ $I_{GT}(25^{\circ}C)$, versus junction temperature T_j.

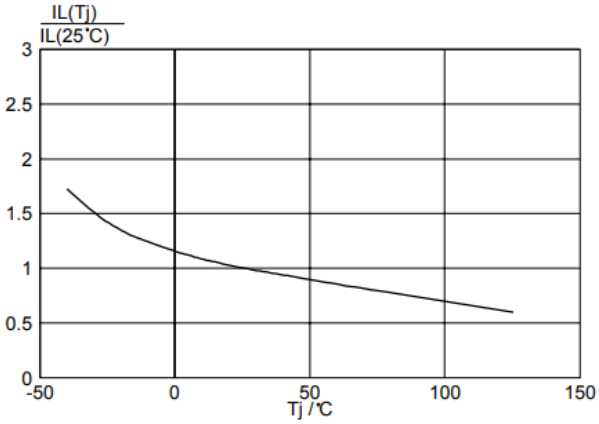


Fig.8. Normalised latching current $I_L(T_j)$/ $I_L(25^{\circ}C)$, versus junction temperature T_j.

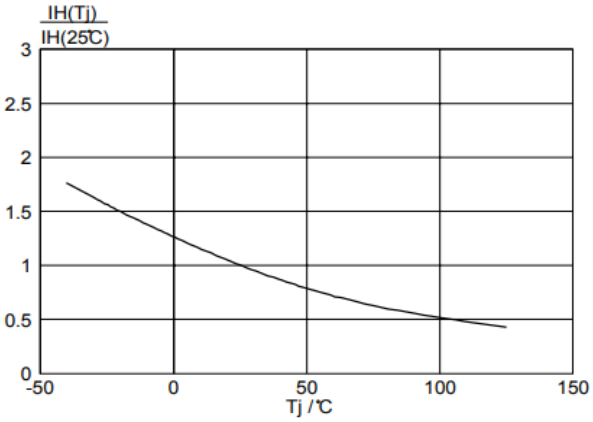


Fig.9. Normalised holding current $I_H(T_j)$/ I_H (25°C), versus junction temperature T_j.

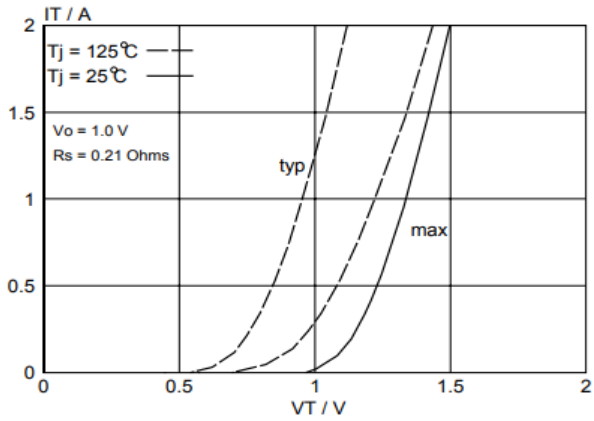


Fig.10. Typical and maximum on-state characteristic.

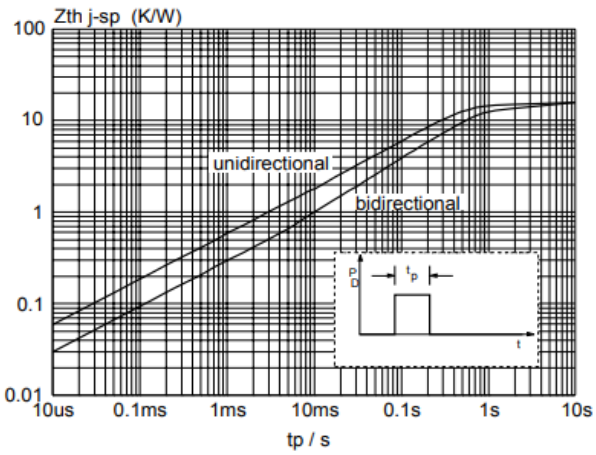


Fig.11. Transient thermal impedance $Z_{th\ j\text{-}sp}$, versus pulse width tp.

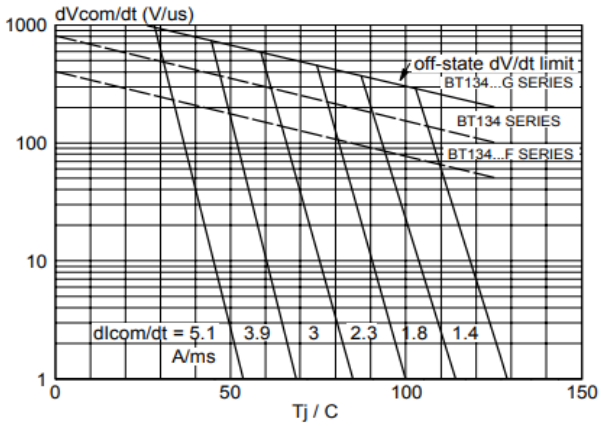


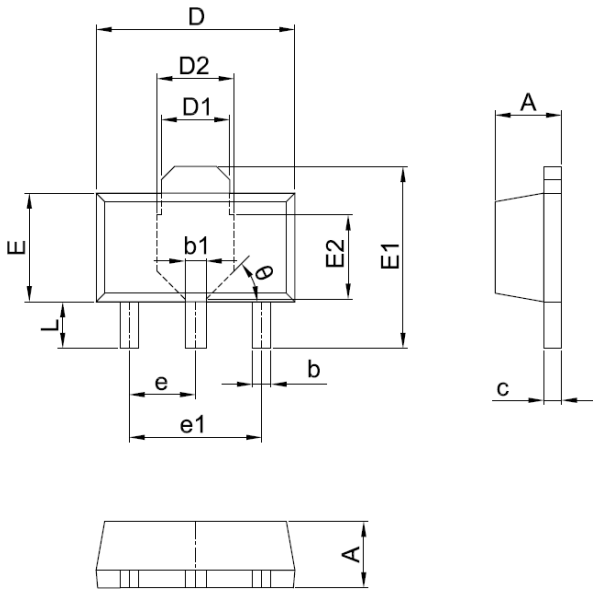
Fig.12. Typical commutation dV/dt versus junction temperature, parameter commutation dI_T/dt. The triac should commutate when the dV/dt is below the value on the appropriate curve for pre-commutation dI_T/dt.

Ordering information

Package	Packing Description	Base Quantity	Packing Quantity
SOT-89	Tape/Reel,7"reel	1000pcs/Reel	6000PCS/Box 30000PCS/Carton

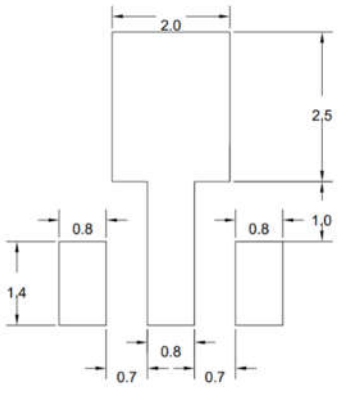
Package Dimensions

SOT-89



Dim	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	1.40	1.60	0.055	0.063
b	0.32	0.52	0.013	0.020
b1	0.38	0.58	0.015	0.023
c	0.35	0.45	0.014	0.018
D	4.40	4.60	0.173	0.181
D1	1.45	1.65	0.057	0.065
D2	1.70	1.80	0.067	0.071
E	2.30	2.60	0.091	0.102
E1	3.95	4.25	0.156	0.167
E2	1.80	2.00	0.071	0.079
e	1.40	1.60	0.055	0.063
e1	2.80	3.20	0.110	0.126
L	0.90	1.20	0.035	0.047

The recommended mounting pad size



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