

SURFACE MOUNT TRIAC

<p>SOT223 (Plastic)</p>	<p>On-State Current 1 Amp</p> <p>Gate Trigger Current < 3 mA to < 25 mA</p> <p>Off-State Voltage 200 V ÷ 400 V (02, 03) 200 V ÷ 600 V (04, 05, 07, 09, 10)</p>
	<p>The FT01 series of TRIACs uses a high performance PNP technology.</p> <p>These parts are intended for general purpose applications where logic compatible gate sensitivity is required using surface mount technology.</p>

Absolute Maximum Ratings, according to IEC publication No. 134

SYMBOL	PARAMETER	CONDITIONS	Min.	Max.	Unit
$I_{T(RMS)}$	RMS On-state Current	All Conduction Angle, $T_{ab} = 90\text{ }^{\circ}\text{C}$		1.0	A
I_{TSM}	Non-repetitive On-State Current	Half Cycle, 60 Hz		8.5	A
I_{TSM}	Non-repetitive On-State Current	Half Cycle, 50 Hz		8	A
I^2t	Fusing Current	$t_p = 10\text{ ms}$, Half Cycle		0.35	A ² s
I_{GM}	Peak Gate Current	20 μs max.		1	A
P_{GM}	Peak Gate Dissipation	20 μs max.		2	W
$P_{G(AV)}$	Gate Dissipation	20 ms max.		0.1	W
di/dt	Critical rate of rise of on-state current	$I_G = 2 \times I_{CT}$ Tr 100 ns, F = 120 Hz $T_j = 125\text{ }^{\circ}\text{C}$		20	A/ μs
T_j	Operating Temperature		-40	+125	$^{\circ}\text{C}$
T_{stg}	Storage Temperature		-40	+150	$^{\circ}\text{C}$
T_{sld}	Soldering Temperature	1.6 mm from case, 10s max.		260	$^{\circ}\text{C}$

SYMBOL	PARAMETER	VOLTAGE			Unit
		B	D	M *	
V_{DRM} V_{RRM}	Repetitive Peak Off State Voltage	200	400	600	V

* 04, 05, 07, 09 & 10 sensitivities

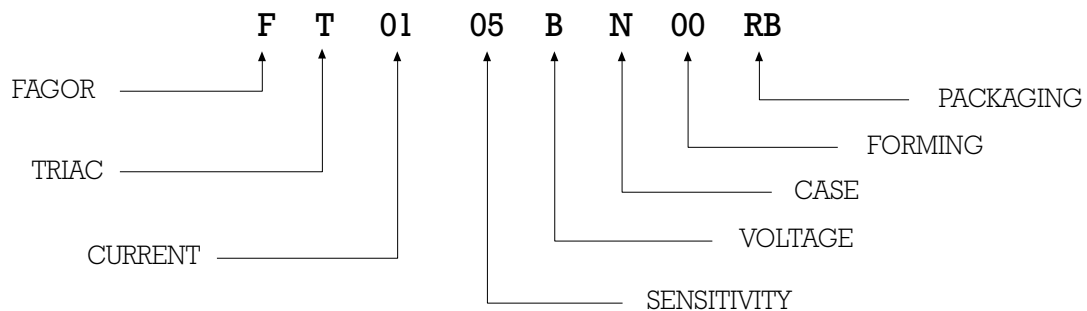
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Electrical Characteristics

SYMBOL	PARAMETER	CONDITIONS	Quadrant		SENSITIVITY								Unit
					02	03	04	05	07	09	10		
I_{GT}	Gate Trigger Current	$V_D = 12 V_{DC}, R_L = 30 \Omega, T_j = 25^\circ C$	Q1÷Q3	MAX	3	3	5	5	5	10	25	mA	
				Q4	MAX	3	5		5	7	10		25
I_{DRM}/I_{RRM}	Off-State Leakage Current	$V_D = V_{DRM}, T_j = 125^\circ C$ $V_R = V_{RRM}, T_j = 25^\circ C$		MAX	0.5								mA
				MAX	5								μA
V_{to}	Threshold Voltage	$T_j = 125^\circ C$		MAX	0.95								V
R_d	Dynamic Resistance	$T_j = 125^\circ C$		MAX	400								m
V_{TM}^*	On-state Voltage	$I_T = 1.1 \text{ Amp}, t_p = 380 \mu s, T_j = 25^\circ C$		MAX	1.5								V
V_{GT}	Gate Trigger Voltage	$V_D = 12 V_{DC}, R_L = 30 \Omega, T_j = 25^\circ C$	Q1÷Q4	MAX	1.3								V
V_{GD}	Gate Non Trigger Voltage	$V_D = V_{DRM}, R_L = 3.3K \Omega, T_j = 125^\circ C$	Q1÷Q4	MIN	0.2								V
I_H^*	Holding Current	$I_T = 50 \text{ mA}, T_j = 25^\circ C$		MAX	7		10						mA
I_L	Latching Current	$I_G = 1.2 I_{GT}, T_j = 25^\circ C$	Q1,Q3,Q4	MAX	7		10		25		25		mA
				Q2	MAX	14		20		25		50	
dv / dt^*	Critical Rate of Voltage Rise	$V_D = 0.67 \times V_{DRM}, \text{ Gate open}$ $T_j = 125^\circ C$		MIN	10		20		50		200		$V/\mu s$
$(dv/dt)_c^*$	Critical rise rate of commutating off-state Voltage	$(di/dt)_c = 0.44 \text{ A/ms}, T_j = 110^\circ C$		MIN	0.5		1		2		4.4		$V/\mu s$
$R_{th(j-l)}$	Thermal Resistance Junction-Leads for AC				60								$^\circ C/W$
$R_{th(j-a)}$	Thermal Resistance Junction-Ambient				150								$^\circ C/W$

(*) For either polarity of electrode MT2 voltage with reference to electrode MT1.

PART NUMBER INFORMATION



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Fig. 1: Maximum power dissipation versus RMS on-state current

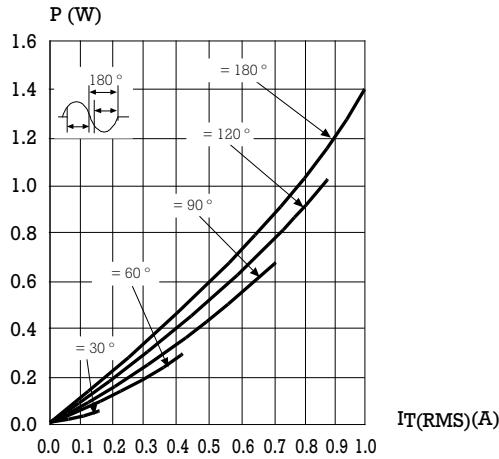


Fig. 2: Correlation between maximum power dissipation and maximum allowable temperature (Tamb and Ttab).

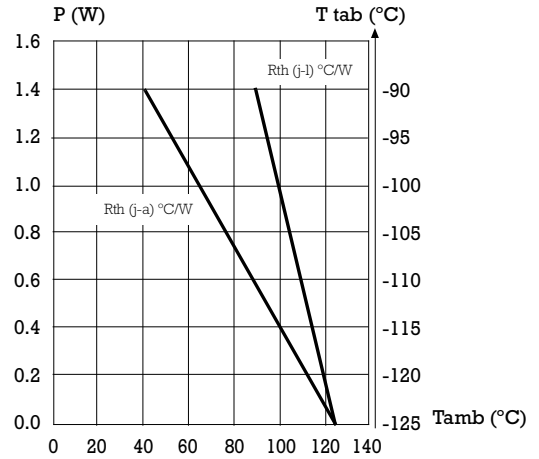


Fig. 3: RMS on-state current versus tab temperature

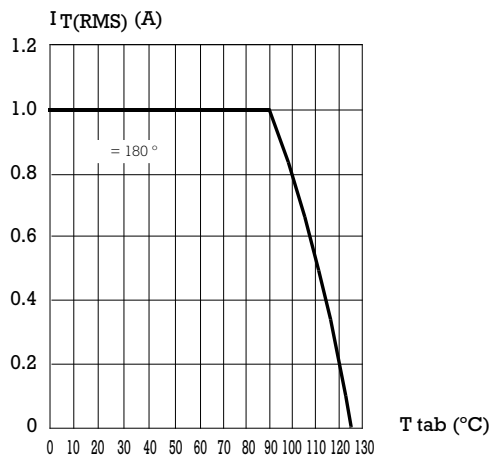


Fig. 4: Relative variation of thermal impedance junction to ambient versus pulse duration.

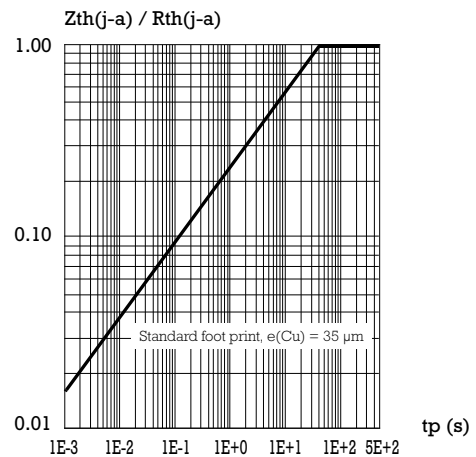


Fig. 5: Relative variation of gate trigger current and holding current versus junction temperature.

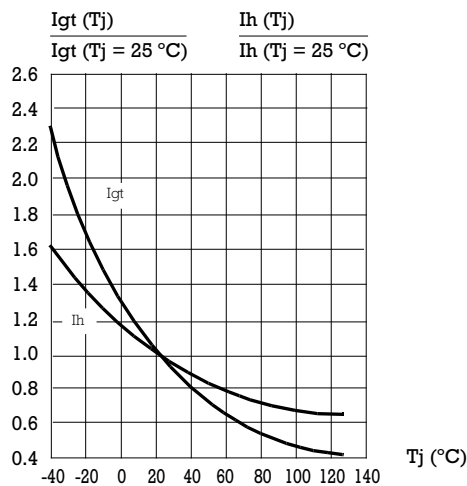
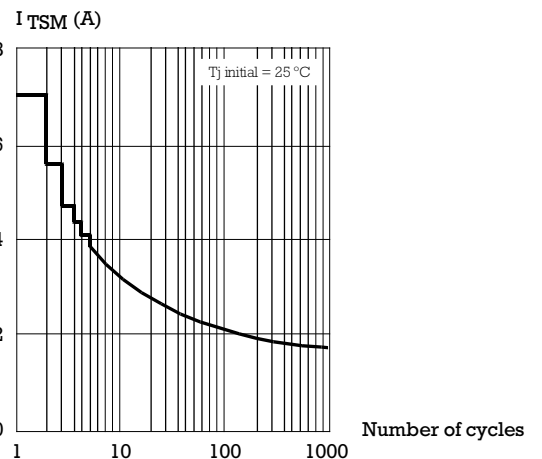


Fig. 6: Non repetitive surge peak on-state current versus number of cycles.



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Fig. 7: Non repetitive surge peak on-state current for a sinusoidal pulse with width: $t_p = 10$ ms, and corresponding value of I^2t .

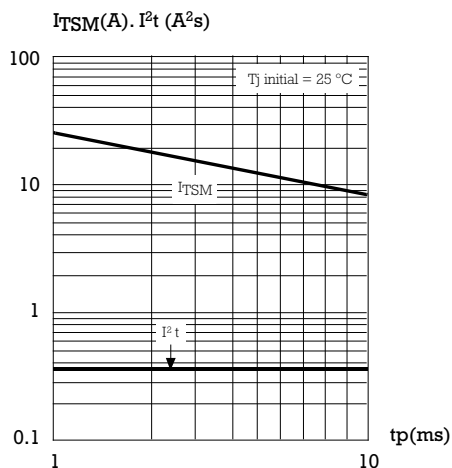
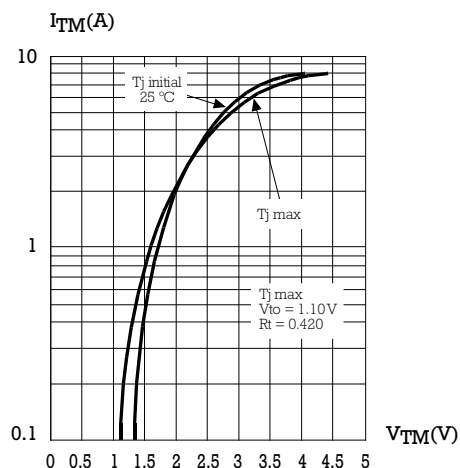
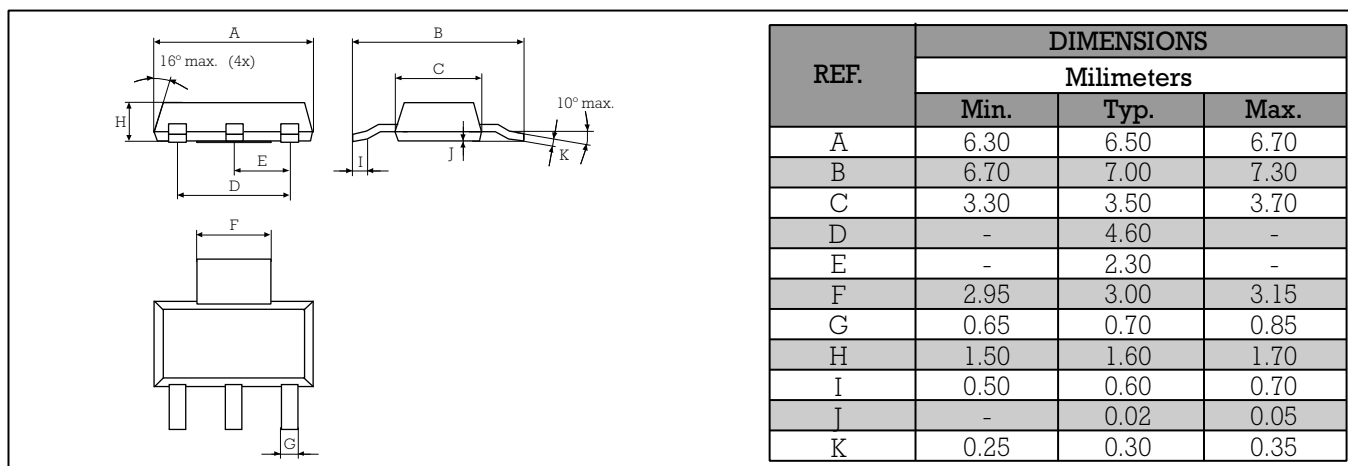


Fig. 8: On-state characteristics (maximum values).



PACKAGE MECHANICAL DATA SOT223 (Plastic)



Weight: 0.11 g

FOOT PRINT

