

SURFACE MOUNT TRIAC

<p>DPAK (Plastic)</p>	<p>On-State Current 8 Amp</p> <p>Gate Trigger Current < 5 mA to < 50 mA</p> <p>Off-State Voltage 200 V ÷ 600 V</p>
	<p>This series of TRIACs uses a high performance PNPN technology.</p> <p>These devices are intended for AC control applications using surface mount technology.</p> <p>The high commutation performances combined with high sensitivity, make them perfect in all applications like solid state relays, home appliances, power tools, small motor drives...</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, $T_C = 110\text{ }^\circ\text{C}$	8		A
I_{TSM}	Non-repetitive On-State Current	Half Cycle, 60 Hz	84		A
I_{TSM}	Non-repetitive On-State Current	Half Cycle, 50 Hz	80		A
I^2t	Fusing Current	$t_p = 10\text{ ms}$, Half Cycle	36		A ² s
I_{GM}	Peak Gate Current	20 μs max.		4	A
P_{GM}	Peak Gate Dissipation	20 μs max.		10	W
$P_{G(AV)}$	Gate Dissipation	20 ms max.		1	W
di/dt	Critical rate of rise of on-state current	$I_G = 2 \times I_{GT}$ Tr 100 ns, F = 120 Hz $T_j = 125\text{ }^\circ\text{C}$	50		A/ μs
T_j	Operating Temperature Range		-40	+125	$^\circ\text{C}$
T_{stg}	Storage Temperature Range		-40	+150	$^\circ\text{C}$
T_L	Lead Temperature for soldering	10s max.		260	$^\circ\text{C}$

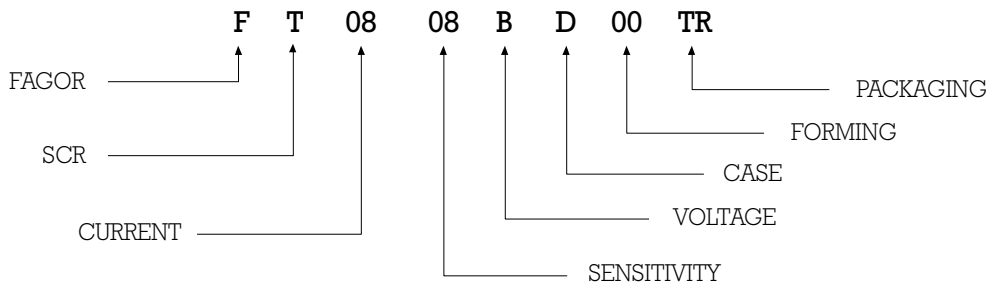
SYMBOL	PARAMETER	VOLTAGE			Unit
		B	D	M	
V_{DRM} V_{RRM}	Repetitive Peak Off State Voltage	200	400	600	V

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Electrical Characteristics

SYMBOL	PARAMETER	CONDITIONS	Quadrant		SENSITIVITY					Unit
					07	08	11	14	16	
$I_{GT}^{(1)}$	Gate Trigger Current	$V_D = 12 V_{DC}$, $R_L = 30$ $T_j = 25^\circ C$	Q1÷Q3	MAX	5 7	10	25	35	50	mA mA
I_{DRM} / I_{RRM}	Off-State Leakage Current	$V_R = V_{RRM}$, $T_j = 125^\circ C$ $T_j = 25^\circ C$		MAX MAX	1 5					mA μA
$V_{to}^{(2)}$	Threshold Voltage	$T_j = 125^\circ C$		MAX	0.85					V
$R_d^{(2)}$	Dynamic Resistance	$T_j = 125^\circ C$		MAX	60					m
$V_{TM}^{(2)}$	On-state Voltage	$I_T = 11$ Amp, $t_p = 380 \mu s$, $T_j = 25^\circ C$		MAX	1.55					V
V_{GT}	Gate Trigger Voltage	$V_D = 12 V_{DC}$, $R_L = 30$, $T_j = 25^\circ C$	Q1÷Q3	MAX	1.3					V
V_{GD}	Gate Non Trigger Voltage	$V_D = V_{DRM}$, $R_L = 3.3K$, $T_j = 125^\circ C$	Q1÷Q3	MIN	0.2					V
$I_H^{(2)}$	Holding Current	$I_T = 100$ mA, Gate open, $T_j = 25^\circ C$		MAX	10	15	25	35	50	mA
I_L	Latching Current	$I_G = 1.2 I_{GT}$, $T_j = 25^\circ C$	Q1,Q3 Q2	MAX MAX	10 15	20 30	25 50	50 60	80 80	mA mA
$dv / dt^{(2)}$	Critical Rate of Voltage Rise	$V_D = 0.67 \times V_{DRM}$, Gate open $T_j = 125^\circ C$		MIN	20	100	200	400	250	V/ μs
$(di/dt)^c^{(2)}$	Critical Rate of Current Rise	$(dv/dt)^c = 0.1$ V/ μs $T_j = 125^\circ C$ $(dv/dt)^c = 10$ V/ μs $T_j = 125^\circ C$ without snubber $T_j = 125^\circ C$		MIN MIN MIN	3.5 1.8 -	5.4 2.8 -	9 4.5 -	9 4.5 4.5	9 4.5 4.5	A/ms
$R_{th(j-c)}$	Thermal Resistance Junction-Case				1.6					$^\circ C/W$
$R_{th(j-a)}$	Thermal Resistance Junction-Ambient				70					$^\circ C/W$

(1) Minimum I_{GT} is guaranteed at 5% of I_{GT} max.

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

PART NUMBER INFORMATION


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Fig. 1a: Maximum power dissipation versus RMS on-state current (FT0807.D, FT0808.D).

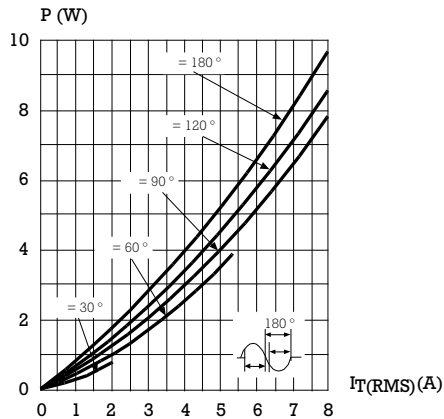


Fig. 1b: Maximum power dissipation versus RMS on-state current (FT0811.D, FT0814.D).

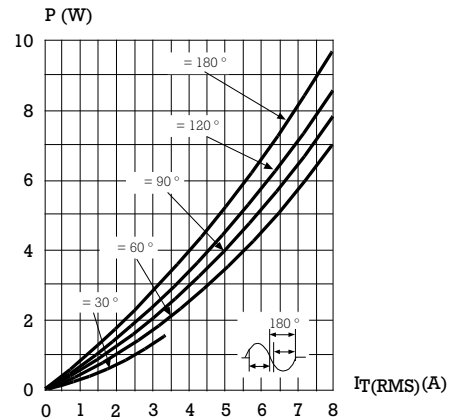
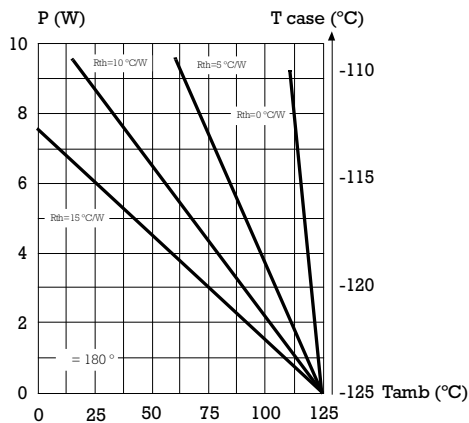

 Fig. 2: Correlation between maximum power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.


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

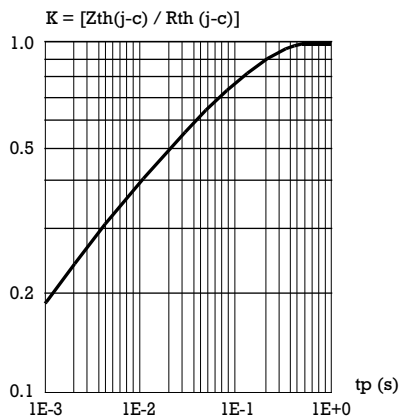


Fig. 3: RMS on-state current versus ambient temperature

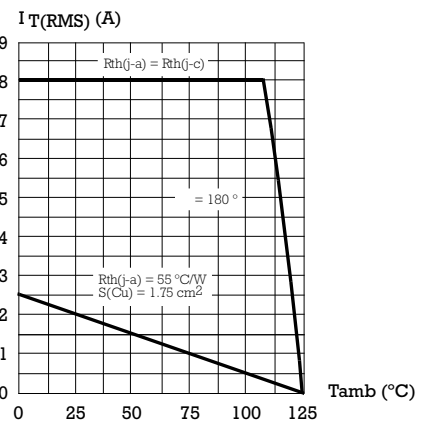
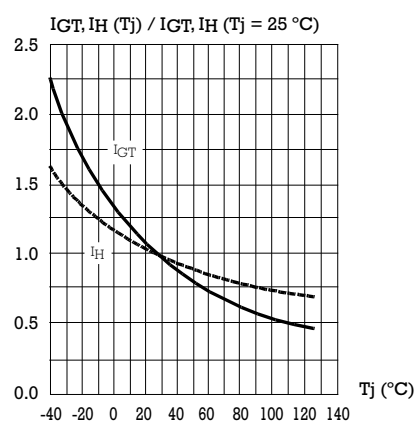


Fig. 5: Relative variation of gate trigger current and holding current versus junction temperature (typical values).



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

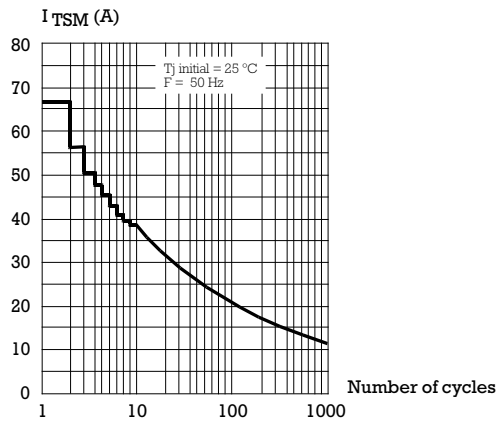


Fig. 7: Non repetitive surge peak on-state current for a sinusoidal pulse with width: $t_p < 10\text{ ms}$, and corresponding value of I^2t .

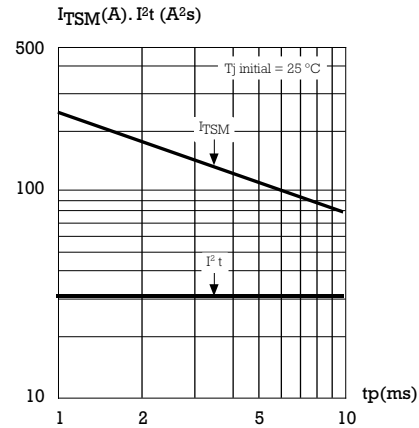


Fig. 8: On-state characteristics (maximum values).

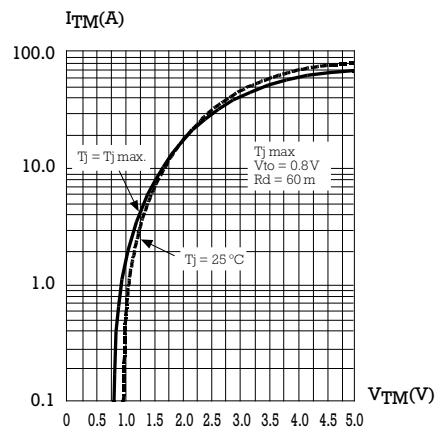
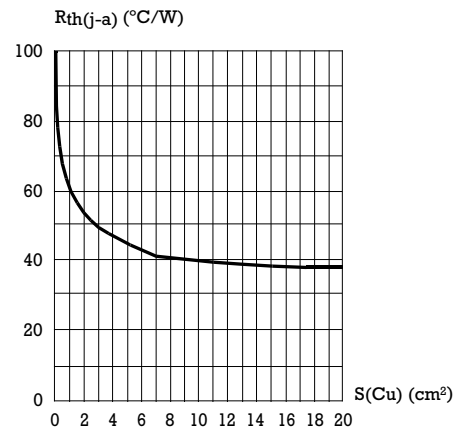
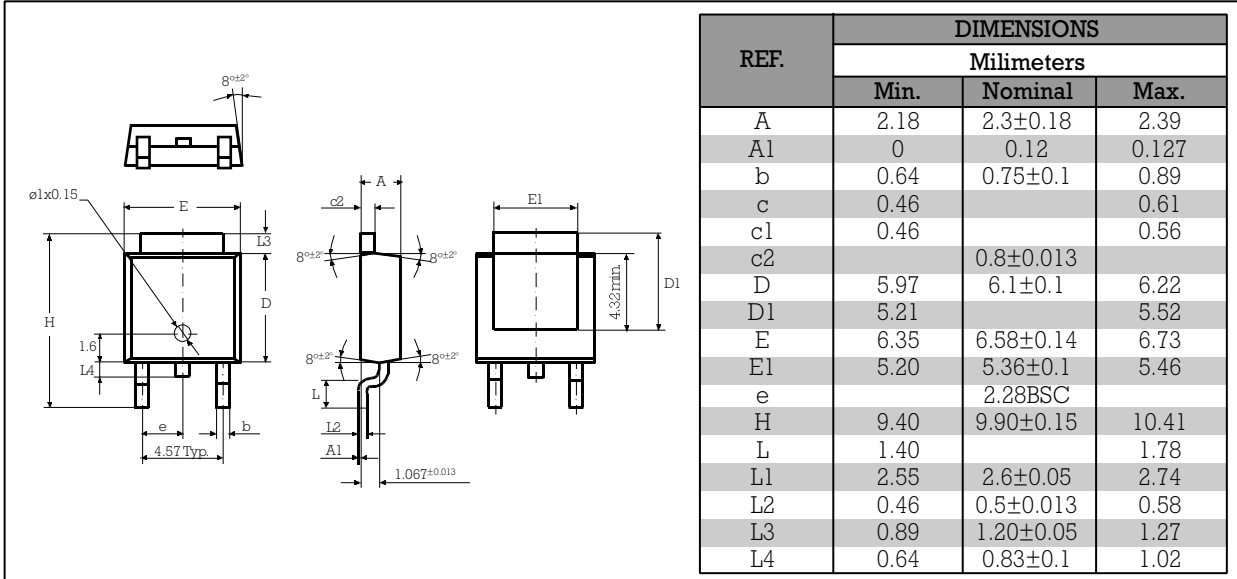


Fig. 9: Thermal resistance junction to ambient versus copper surface under tab (Epoxy printed circuit board FR4, copper thickness: $35\text{ }\mu\text{m}$).



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PACKAGE MECHANICAL DATA DPAK TO 252-AA



Marking: type number
Weight: 0.2 g

FOOT PRINT

