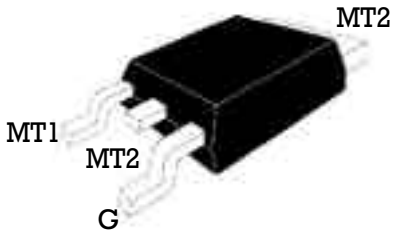
SURFACE MOUNT TRIAC

DPAK
(Plastic)



On-State Current
4 Amp

Gate Trigger Current
< 5 mA to < 35 mA

Off-State Voltage
200 V ÷ 600 V

This series of **TRIAC**s uses a high performance PNPN technology.

These devices are intended for AC control applications using surface mount technology.

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...

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 °C	4		A
I_{TSM}	Non-repetitive On-State Current	Half Cycle, 60 Hz	31		A
I_{TSM}	Non-repetitive On-State Current	Half Cycle, 50 Hz	30		A
I^2t	Fusing Current	t_p = 10 ms, Half Cycle	5.1		A^2s
I_{GM}	Peak Gate Current	20 µs max.		4	A
P_{GM}	Peak Gate Dissipation	20 µs max.		3	W
$P_{G(AV)}$	Gate Dissipation	20 ms max.		1	W
di/dt	Critical rate of rise of on-state current	I_G = 2 x I_{GT} Tr ≤ 200 ns, F = 120 Hz T_j = 125 °C	50		A/µs
T_j	Operating Temperature			+125	°C
T_{stg}	Storage Temperature		-40	+150	°C
T_L	Lead Temperature for Soldering	4.5 mm from case, 10s max.	-40	260	°C

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

Electrical Characteristics

SYMBOL	PARAMETER	CONDITIONS	Quadrant		SENSITIVITY				Unit
					07	08	11	14	
I_{GT} (1)	Gate Trigger Current	V_D = 12 V_{DC}, R_L = 30Ω T_j = 25 °C	Q1÷Q3 Q4	MAX	5 7	10	25	35	mA mA
I_{DRM} /I_{RRM}	Off-State Leakage Current	V_R = V_{DRM}, T_j = 125 °C V_R = V_{RRM}, T_j = 25 °C		MAX MAX	1 5				mA µA
V_{to} (2)	Threshold Voltage	T_j = 125 °C		MAX	0.9				V
R_d (2)	Dynamic Resistance	T_j = 125 °C		MAX	120				mΩ
V_{TM} (2)	On-state Voltage	I_T = 5.5 Amp, tp = 380 µs, T_j = 25 °C		MAX	1.6				V
V_{GT}	Gate Trigger Voltage	V_D = 12 V_{DC}, R_L = 30Ω, T_j = 25 °C	Q1÷Q3	MAX	1.3				V
V_{GD}	Gate Non Trigger Voltage	V_D = V_{DRM}, R_L = 3.3KΩ, T_j = 125 °C	Q1÷Q3	MIN	0.2				V
I_H (2)	Holding Current	I_T = 100 mA, Gate open, T_j = 25 °C		MAX	10	15	25	35	mA
I_L	Latching Current	I_G = 1.2 I_{GT}, T_j = 25 °C	Q1,Q3 Q2	MAX MAX	10 15	20 30	25 50	50 60	mA
dv / dt (2)	Critical Rate of Voltage Rise	V_D = 0.67 x V_{DRM}, Gate open T_j = 125 °C		MIN	20	100	200	400	V/µs
(dI/dt)c (2)	Critical Rate of Current Rise	(dv/dt)c= 0.1 V/µs T_j = 125 °C (dv/dt)c= 10 V/µs T_j = 125 °C without snubber Tj = 125 °C		MIN MIN MIN	1.8 0.9 -	2.7 2.0 -	4.4 2.7 -	- - 2.5	A/ms
t_{gd}	Gate Controlled Delay Time	I_G = 2xI_{GT}, V_D = V_{DRM} di_G/dt = 3 A/µs, I_{TM} = 5.5 A	Q1÷Q3	TYP	2				µs
$R_{th(j-c)}$	Thermal Resistance Junction-Case				2.6				°C/W
$R_{th(j-a)}$	Thermal Resistance Junction-Ambient				70				°C/W

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

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

PART NUMBER INFORMATION

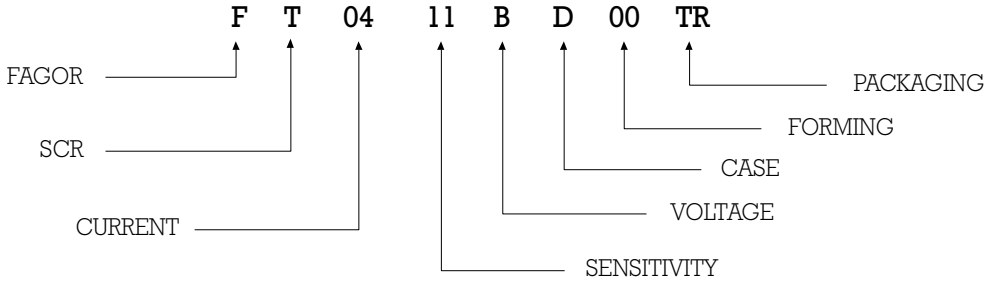


Fig. 1: Maximum power dissipation versus RMS on-state current

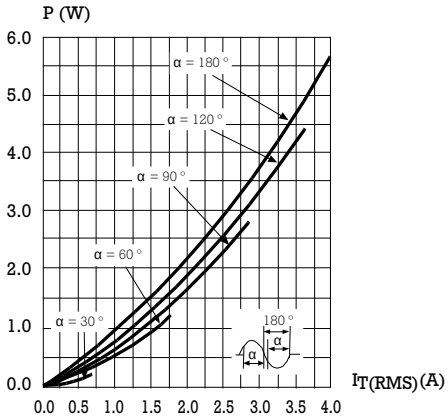


Fig. 2: Correlation between maximum power dissipation and maximum allowable temperatures (Tamb and Tcase) for different thermal resistances heatsink + contact.

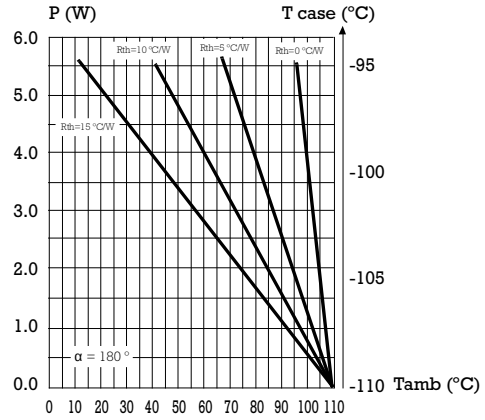


Fig. 3: RMS on-state current versus ambient temperature

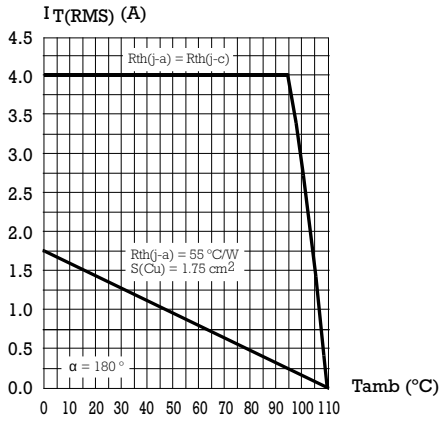


Fig. 4: Relative variation of thermal impedance junction to case versus pulse duration.

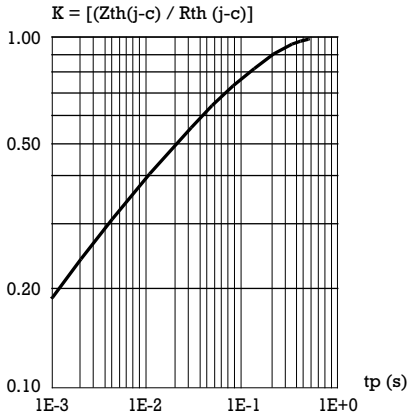


Fig. 5: Relative variation of gate trigger current and holding current versus junction temperature (typical values).

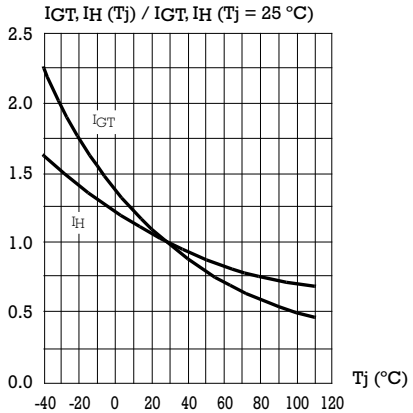


Fig. 6: Non repetitive surge peak on-state current versus number of cycles.

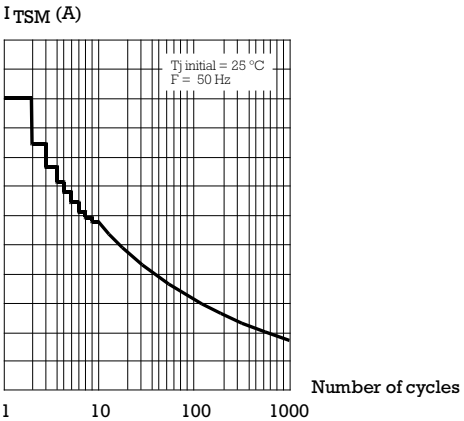


Fig. 7: Non repetitive surge peak on-state current for a sinusoidal pulse with width: tp ≤ 10 ms, and corresponding value of I^2t.

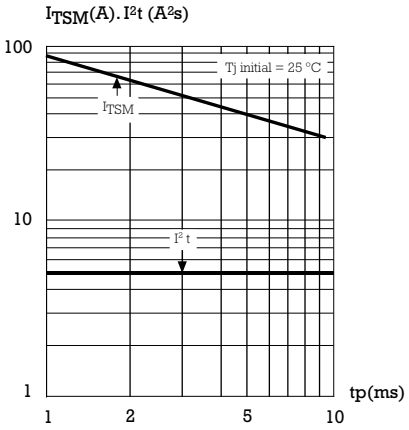


Fig. 8: On-state characteristics (maximum values).

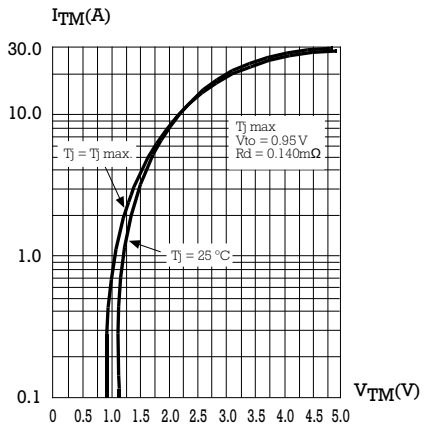
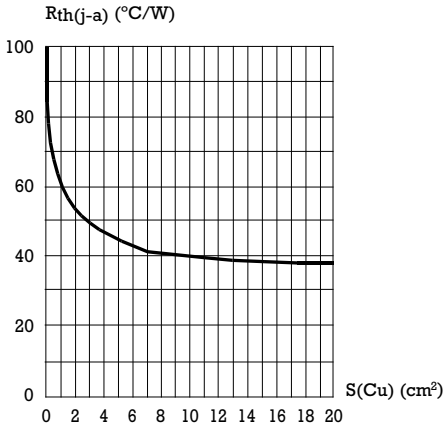
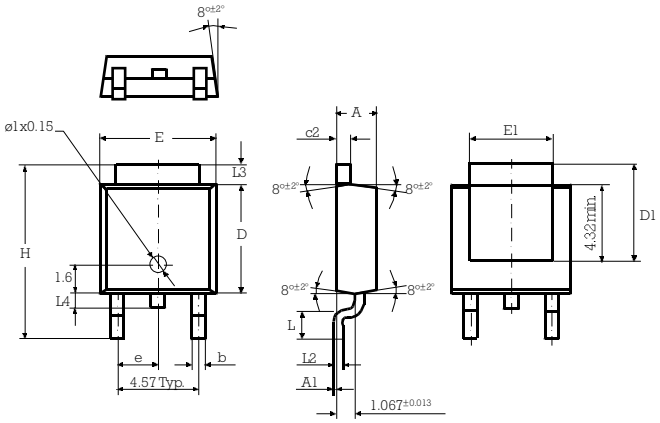


Fig. 9: Thermal resistance junction to ambient versus copper surface under tab (Epoxy printed circuit board FR4, copper thickness: 35 µm).



SURFACE MOUNT TRIAC

PACKAGE MECHANICAL DATA DPAK TO 252-AA



REF.	DIMENSIONS		
	Milimeters		
	Min.	Nominal	Max.
A	2.18	2.3±0.18	2.39
A1	0	0.12	0.127
b	0.64	0.75±0.1	0.89
c	0.46		0.61
c1	0.46		0.56
c2		0.8±0.013	
D	5.97	6.1±0.1	6.22
D1	5.21		5.52
E	6.35	6.58±0.14	6.73
E1	5.20	5.36±0.1	5.46
e		2.28BSC	
H	9.40	9.90±0.15	10.41
L	1.40		1.78
L1	2.55	2.6±0.05	2.74
L2	0.46	0.5±0.013	0.58
L3	0.89	1.20±0.05	1.27
L4	0.64	0.83±0.1	1.02

Marking: type number
Weight: 0.2 g

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