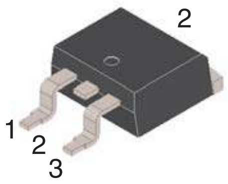
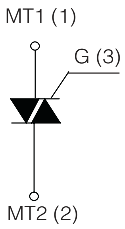
HIGH COMMUTATION TRIAC

TO-263AB / D2PAK





On-State Current
8 Amp

Gate Trigger Current
≤ 35 mA (14)

Off-State Voltage
200 V ÷ 800 V

FEATURES

- Glass/passivated die junctions
- Medium current Triac
- Low thermal resistance
- Ideal for automated placement
- High commutation
- High surge current capability
- Low forward voltage drop
- Solder dip 260ºC, 10s
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC
- Meets MSL level 3, per J-STD-020, LF maximum peak of 260º C

RoHS COMPLIANT

MECHANICAL DATA

- **Case:** TO-263AB / D2PAK. Epoxy meets UL 94V-0 flammability rating.
- **Polarity:** As marked on the body.
- **Terminals:** Matte tin plated leads, solderable per MIL-STD-750 Method 2026, J-STD-002 and JESD22-B102. Consumer grade, meets JESD 201 class 1A whisker test.

TYPICAL APPLICATIONS

- Used on inductive loads, thanks to their high commutation performances.

Maximun Ratings and Electrical Characteristics at 25°C

SYMBOL	PARAMETER	CONDITIONS	Value	Unit
$I_{T(RMS)}$	RMS On-state Current (full sine wave)	All Conduction Angle, T_C = 95 °C	8	A
I_{TSM}	Non-repetitive On-State Current	Full Cycle, 60 Hz (t = 16.7 ms)	84	A
I_{TSM}	Non-repetitive On-State Current	Full Cycle, 50 Hz (t = 20 ms)	80	A
I^2t	Fusing Current	tp = 10 ms, Half Cycle	32	A^2s
I_{GM}	Peak Gate Current	20 µs max. T_j = 125 °C	4	A
$P_{G(AV)}$	Average Gate Power Dissipation	T_j = 125 °C	1	W
dI/dt	Critical rate of rise of on-state current	I_G = 2x I_{GT}, t_r ≤100ns f = 120 Hz, T_j = 125 °C	50	A/µs
T_j	Operating Temperature		(-40 +125)	°C
T_{stg}	Storage Temperature		(-40 +150)	°C
T_{sld}	Soldering Temperature	10s max	260	°C

SYMBOL	PARAMETER	VOLTAGE					Unit
		B	D	M	S	N	
V_{DRM}/V_{RRM}	Repetitive Peak Off State Voltage	200	400	600	700	800	V

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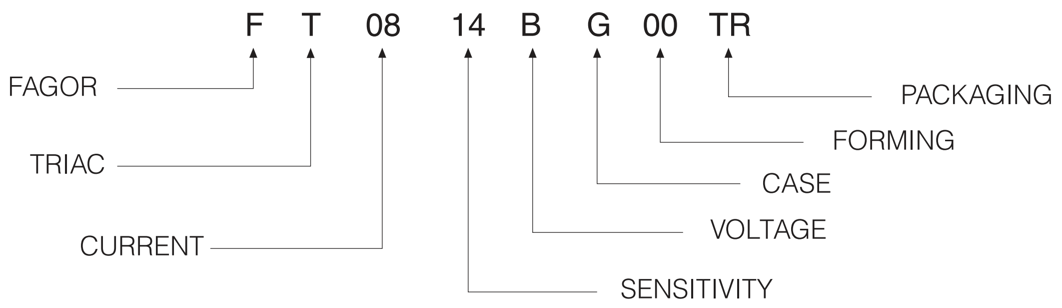
Electrical Characteristics at Tamb = 25 °C

SYMBOL	PARAMETER	CONDITIONS	Quadrant		SENSITIVITY 14	Unit
I_{GT} (1)	Gate Trigger Current	V_D = 12 V_{DC}, R_L = 33Ω, T_j = 25 °C	Q1÷Q3	MAX	35	mA
V_{GT}	Gate Trigger Voltage	V_D = 12 V_{DC}, R_L = 33Ω, T_j = 25 °C	Q1÷Q3	MAX	1.3	V
V_{GD}	Gate Non Trigger Voltage	V_D = V_{DRM}, R_L = 3.3 KΩ, 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	35	mA
I_L	Latching Current	I_G = 1.2 I_{GT}, T_j = 25 °C	Q1, Q3	MAX	50	mA
			Q2	MAX	60	
dV/dt (2)	Critical Rate of Voltage Rise	V_D = 0.67 x V_{DRM}, Gate open T_j = 125 °C		MIN	500	V/µs
(dI/dt)c (2)	Critical Rate of Current Rise	(dv/dt)c = 0.1 V/µs T_j = 125 °C		MIN	-	A/ms
		(dv/dt)c = 10 V/µs T_j = 125 °C		MIN	-	
		without snubber T_j = 125 °C		MIN	4.5	
V_{TM} (2)	On-state Voltage	I_T = 11 Amp, tp = 380 µs, T_j = 25 °C		MAX	1.6	V
$V_{t(o)}$ (2)	Threshold Voltage	T_j = 125 °C		MAX	0.85	V
r_d (2)	Dynamic resistance	T_j = 125 °C		MAX	90	mΩ
I_{DRM}/I_{RRM}	Off-State Leakage Current	V_D = V_{DRM}, T_j = 125 °C		MAX	1	mA
		V_R = V_{RRM}, T_j = 25 °C		MAX	5	µA
$R_{th(j-c)}$	Thermal Resistance Junction-Case	for AC 360° conduction angle			1.6	°C/W
$R_{th(j-a)}$	Thermal Resistance Junction-Ambient	S = 1 cm^2			45	°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



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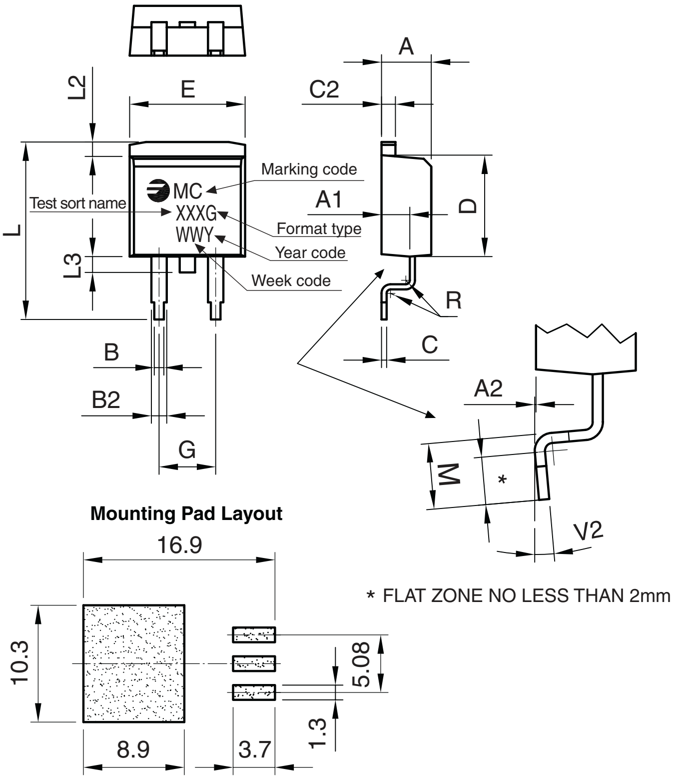
Ordering information

PREFERRED P/N	PACKAGE CODE	DELIVERY MODE	BASE QUANTITY	UNIT WEIGHT (g)
FT0814MG 00TR	TR	13" diameter tape and reel	800	1.50

Package Outline Dimensions: (mm) TO-263AB / D2PAK



REF.	DIMENSIONS		
	Milimeters		
	Min.	Nominal	Max.
A	4.40	4.45	4.60
A1	2.49	2.50	2.69
A2	0.03	0.10	0.23
B	0.70	0.90	0.93
B2	1.14	1.03	1.70
C	0.45	0.45	0.60
C2	1.23	1.23	1.36
D	8.95	9.00	9.35
E	10.00	10.25	10.40
G	4.88	5.15	5.28
L	15.00	15.40	15.85
L2	1.27	1.27	1.40
L3	1.40	1.55	1.75
M	2.40	3.00	3.20
R	0.40 typ		
V2	0º		8º

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Ratings and Characteristics (Ta 25 °C unless otherwise noted)

Fig. 1: Maximum power dissipation versus RMS on-state current (full cycle)

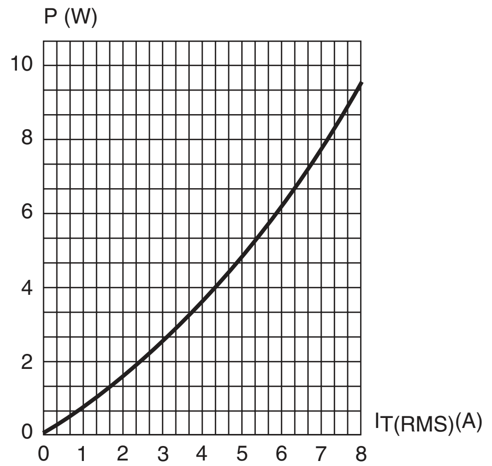


Fig. 2: RMS on-state current versus case temperature (full cycle).

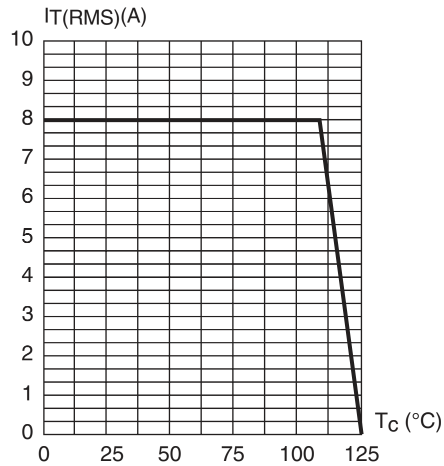


Fig. 3: Relative variation of thermal impedance versus pulse duration.

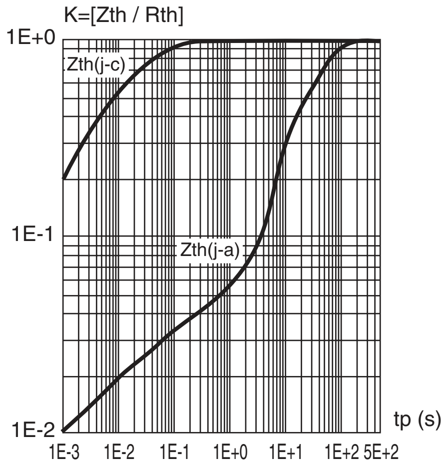


Fig. 4: On-state characteristics (maximum values)

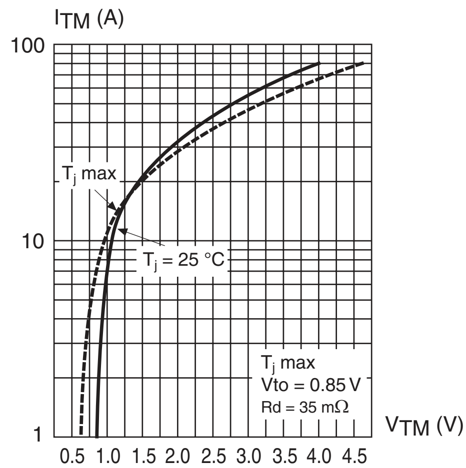


Fig. 5: Surge peak on-state current versus number of cycles

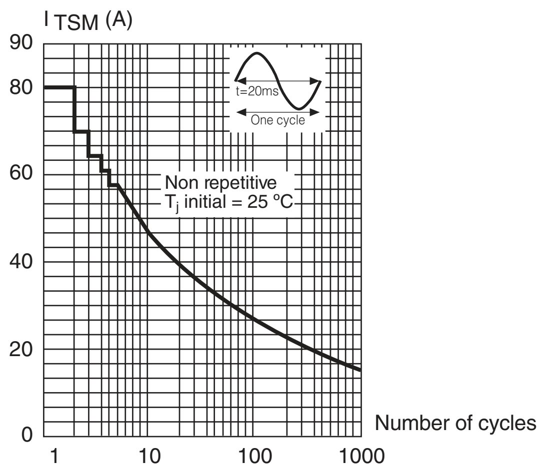
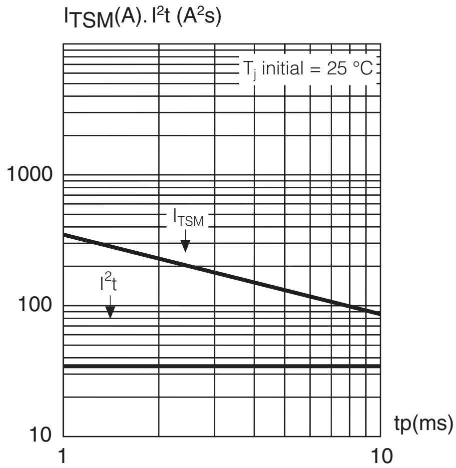


Fig. 6: Non repetitive surge peak on-state current for a sinusoidal pulse with width: tp < 10 ms, and corresponding value of I²t.



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Ratings and Characteristics (Ta 25 ºC unless otherwise noted)

Fig. 7: Relative variation of gate trigger current, holding current and latching versus junction temperature (typical values)

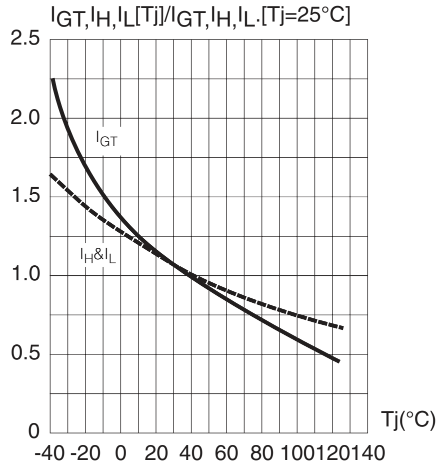
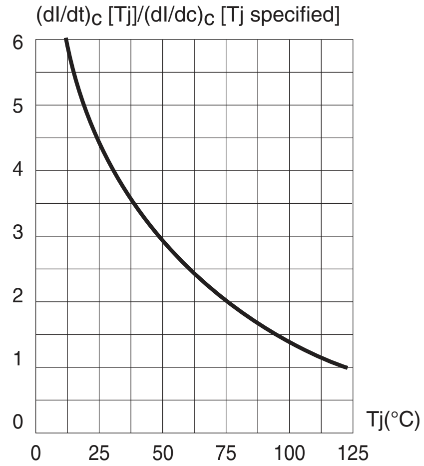


Fig. 8: Relative variation of critical rate of decrease of main current versus junction temperature



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