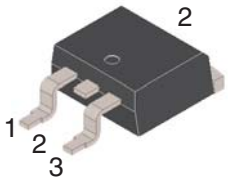
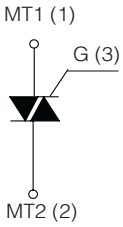
STANDARD TRIAC

TO-263AB / D2PAK





On-State Current 8 Amp

Gate Trigger Current ≤ 75 mA (13) ≤ 25 mA (10)

Off-State Voltage 200 V ÷ 800 V

FEATURES

- Glass/passivated die junctions
- Medium current Triac
- Ideal for automated placement
- Low thermal resistance
- High surge current capability
- Low forward voltage drop
- Solder dip 260°C, 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 260° 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

Suitable for general purpose AC switching. They can be used as an ON/OFF function in applications such as static relays, heating regulation, induction motor starting circuits... or for phase control operation in light dimmers, motor speed controllers, ...

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)	88	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

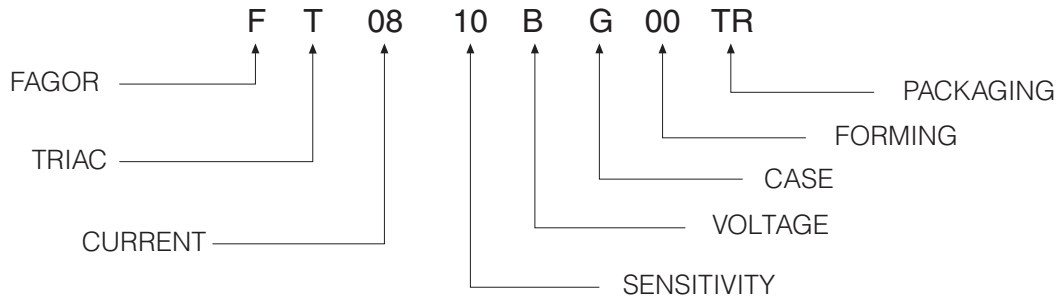
STANDARD TRIAC

Electrical Characteristics at Tamb = 25 °C

SYMBOL	PARAMETER	CONDITIONS	Quadrant		SENSITIVITY		Unit
					10	13	
I_{GT} (1)	Gate Trigger Current	V_D = 12 V_{DC}, R_L = 33Ω, T_j = 25 °C	Q1÷Q3	MAX	25	50	mA
			Q4	MAX	25	75	
V_{GT}	Gate Trigger Voltage	V_D = 12 V_{DC}, R_L = 33Ω, T_j = 25 °C	Q1÷Q4	MAX	1.3		V
V_{GD}	Gate Non Trigger Voltage	V_D = V_{DRM}, R_L = 3.3 KΩ, T_j = 125 °C	Q1÷Q4	MIN	0.2		V
I_H (2)	Holding Current	I_T =100 mA,Gate open, T_j = 25 °C		MAX	25	50	mA
I_L	Latching Current	I_G = 1.2 I_{GT}, T_j = 25 °C	Q1, Q3, Q4	MAX	40	70	mA
			Q2	MAX	60	80	
dV/dt (2)	Critical Rate of Voltage Rise	V_D = 0.67 x V_{DRM}, Gate open T_j = 125 °C		MIN	400	1000	V/µs
(dV/dt)c(2)	Critical Rate of Commutating off-state voltage	(dI/dt)c = 2.7 A/ms T_j = 125 °C		MIN	3	8	V/µs
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 = 1cm²			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

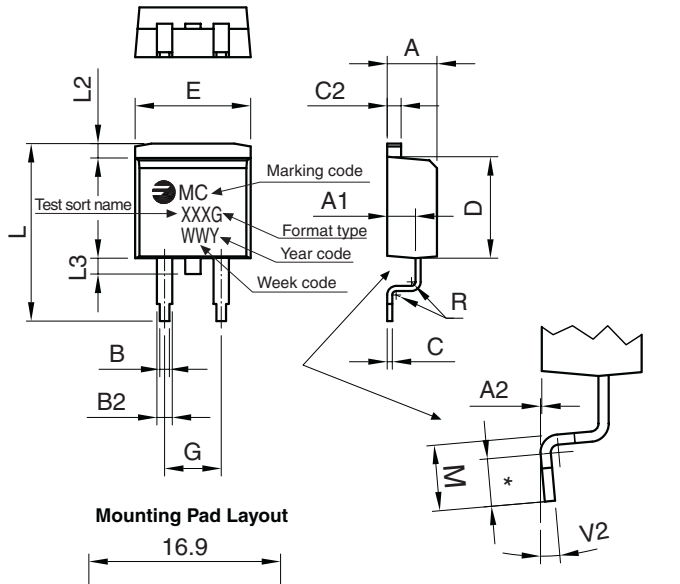


STANDARD TRIAC

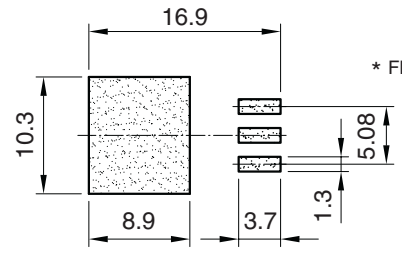
Ordering information

PREFERRED P/N	PACKAGE CODE	DELIVERY MODE	BASE QUANTITY	UNIT WEIGHT (g)
FT0813MG 00TR	TR	13" diameter tape and reel	800	1.50

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



Mounting Pad Layout



* FLAT ZONE NO LESS THAN 2mm

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

Ratings and Characteristics (Ta 25 ºC unless otherwise noted)

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

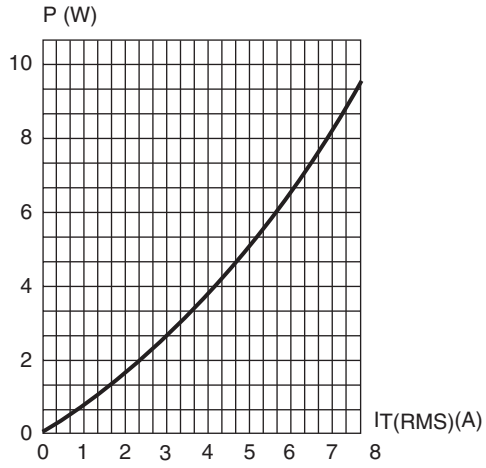


Fig. 2: RMS on-state current versus case temperature (full cycle).

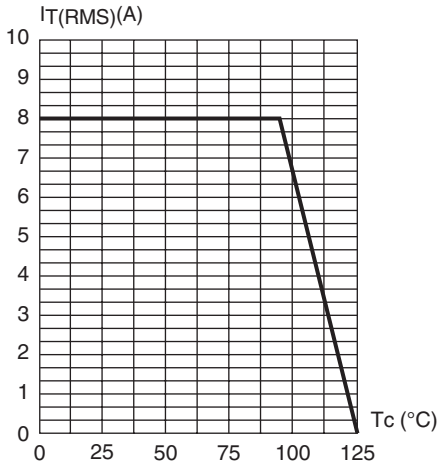


Fig. 3: Relative variation of thermal impedance versus pulse duration.

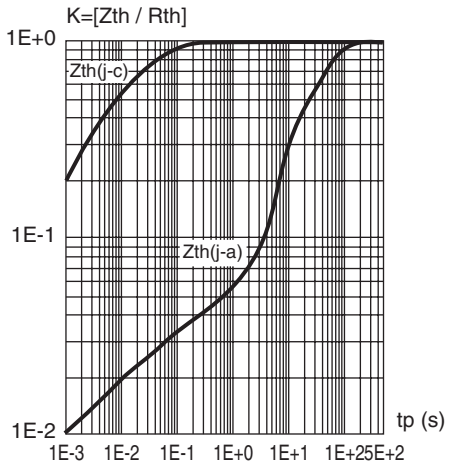


Fig. 4: On-state characteristics (maximum values)

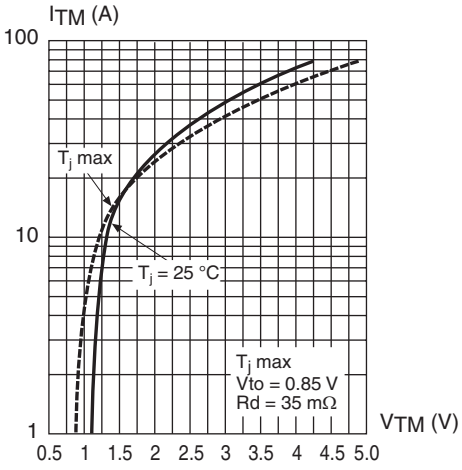


Fig. 5: Surge peak on-state current versus number of cycles

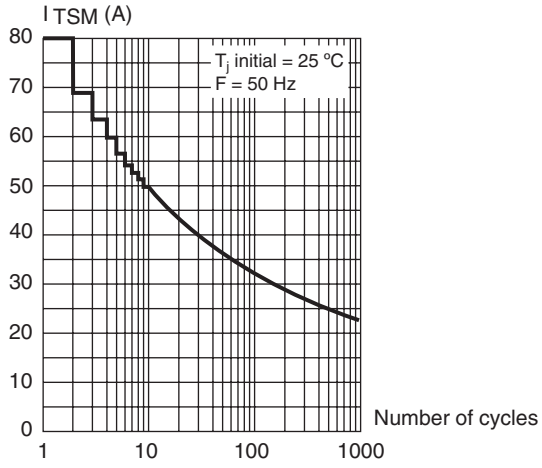
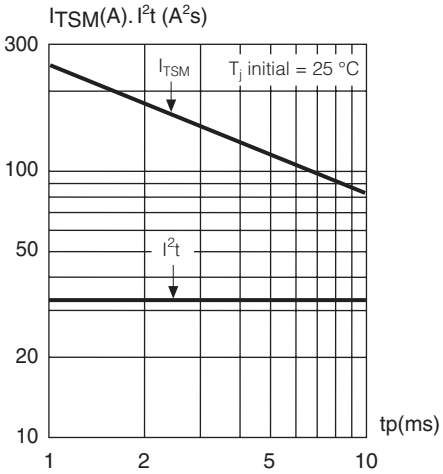


Fig. 6: Non repetitive surge peak on-state current for a sinusoidal pulse with width: tp < 10 ms, and corresponding value of I^2t.



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)

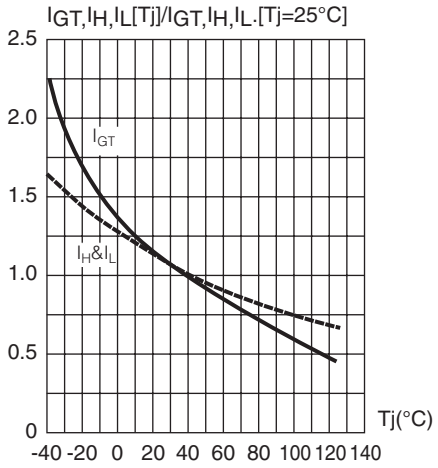


Fig. 8: Relative variation of critical rate of decrease of main current versus junction temperature

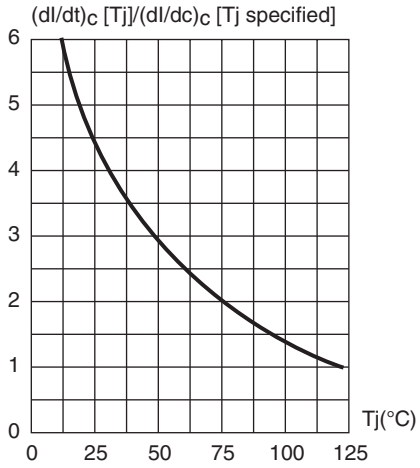
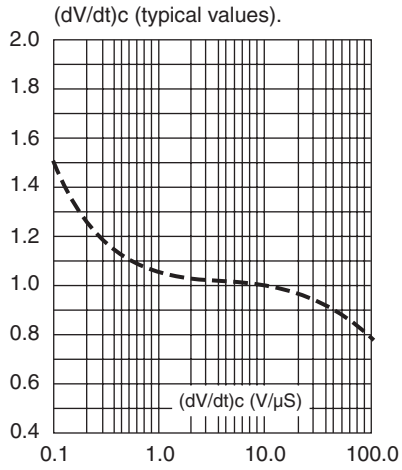


Fig. 9: Relative variation of critical rate of decrease of main current versus (dV/dt)c (typical values).



Disclaimer

All product, product specifications and data are subject to change without notice to improve reliability, function or design or otherwise.

Fagor Electrónica, S.Coop., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Fagor"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Fagor makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Fagor disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Fagor's knowledge of typical requirements that are often placed on Fagor products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and/or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Fagor's terms and conditions of purchase, including but nos limited to the warranty expressed therein.

Except as expressly indicated in writing. Fagor products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Fagor product could result in personal injury or death. Customers using or selling Fagor products not expressly indicated for use in such applications do so at their own risk and agree to fully indemnify and hold Fagor and its distributors harmless from and against any and all claims, liabilities, expenses and damages arising or resulting in connection with such use or sale, including attomeys fees, even if such claim alleges that Fagor or its distributor was negligent regarding the design or manufacture of the part. Please contact authorized Fagor personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Fagor, Product names and markings noted herein may be trademarks of their respective owners.