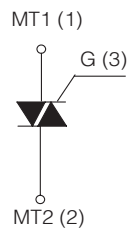
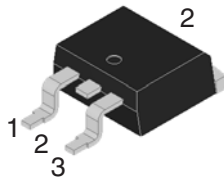


LOGIC LEVEL TRIAC
TO-263AB (D2PAK)


On-State Current 8 Amp	Gate Trigger Current ≤ 10 mA (09) ≤ 7 mA (07) ≤ 5 mA (04)
Off-State Voltage 400 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 2011/65/EU 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

Logic level versions are designed to interface directly with low power drivers such as microcontrollers.

Maximum 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, $T_c = 95^\circ C$	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	$t_p = 10$ ms, Half Cycle	36	A ² s
I_{GM}	Peak Gate Current	20 μ s max. $T_j = 125^\circ C$	4	A
$P_{G(AV)}$	Average Gate Power Dissipation	$T_j = 125^\circ C$	1	W
di/dt	Critical rate of rise of on-state current	$I_G = 2x I_{GT}$, $t_r \leq 100$ ns $f = 120$ Hz, $T_j = 125^\circ C$	50	A/ μ s
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
		D	M	N	
V_{DRM}/V_{RRM}	Repetitive Peak Off State Voltage	400	600	800	V

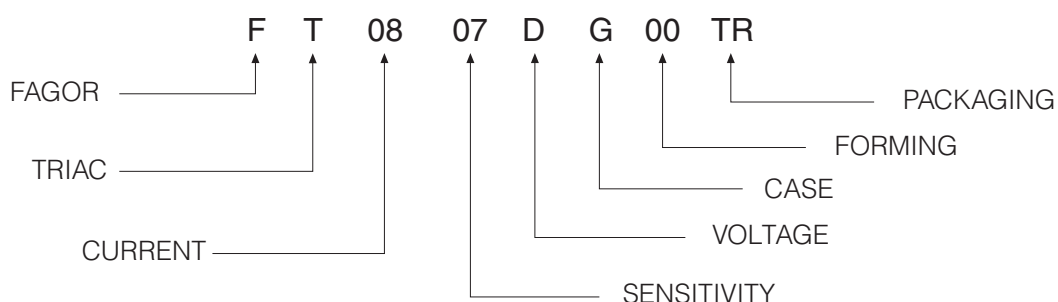
LOGIC LEVEL TRIAC
Electrical Characteristics at Tamb = 25 °C

SYMBOL	PARAMETER	CONDITIONS	Quadrant		SENSITIVITY			Unit
					04 *	07	09	
I _{GT} ⁽¹⁾	Gate Trigger Current	V _D = 12 V _{DC} , R _L = 33Ω, T _j = 25 °C	Q1÷Q3	MAX	5	5	10	mA
			Q4	MAX	-	7	10	mA
V _{GT}	Gate Trigger Voltage	V _D = 12 V _{DC} , R _L = 33Ω, T _j = 25 °C	Q1÷Q3	MAX	1.3			V
			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÷Q3	MIN	0.2			V
			Q1÷Q4	MIN	0.2			V
I _H ⁽²⁾	Holding Current	I _T = 100 mA, Gate open, T _j = 25 °C		MAX	15	15	20	mA
I _L	Latching Current	I _G = 1.2 I _{GT} , T _j = 25 °C	Q1,Q3	MAX	25	-	-	mA
			Q1, Q3, Q4	MAX	-	20	20	mA
			Q2	MAX	30	30	25	mA
dV/dt ⁽²⁾	Critical Rate of Voltage Rise	V _D = 0.67 x V _{DRM} , Gate open T _j = 125 °C		MIN	40	20	40	V/μs
(dl/dt) _c ⁽²⁾	Critical Rate of Current Rise	(dv/dt) _c = 0.1 V/μs T _j = 125 °C		MIN	5.4	1.8	2.5	A/ms
		(dv/dt) _c = 10 V/μs T _j = 125 °C		MIN	2.8	0.9	1.5	A/ms
		without snubber T _j = 125 °C		MIN	-	-	-	
V _{TM} ⁽²⁾	On-state Voltage	I _T = 11 Amp, t _p = 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 guaranteed at 5% of I_{GT} max.

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

* Sensitivity group 04 maximum V_{drm}: 600V.

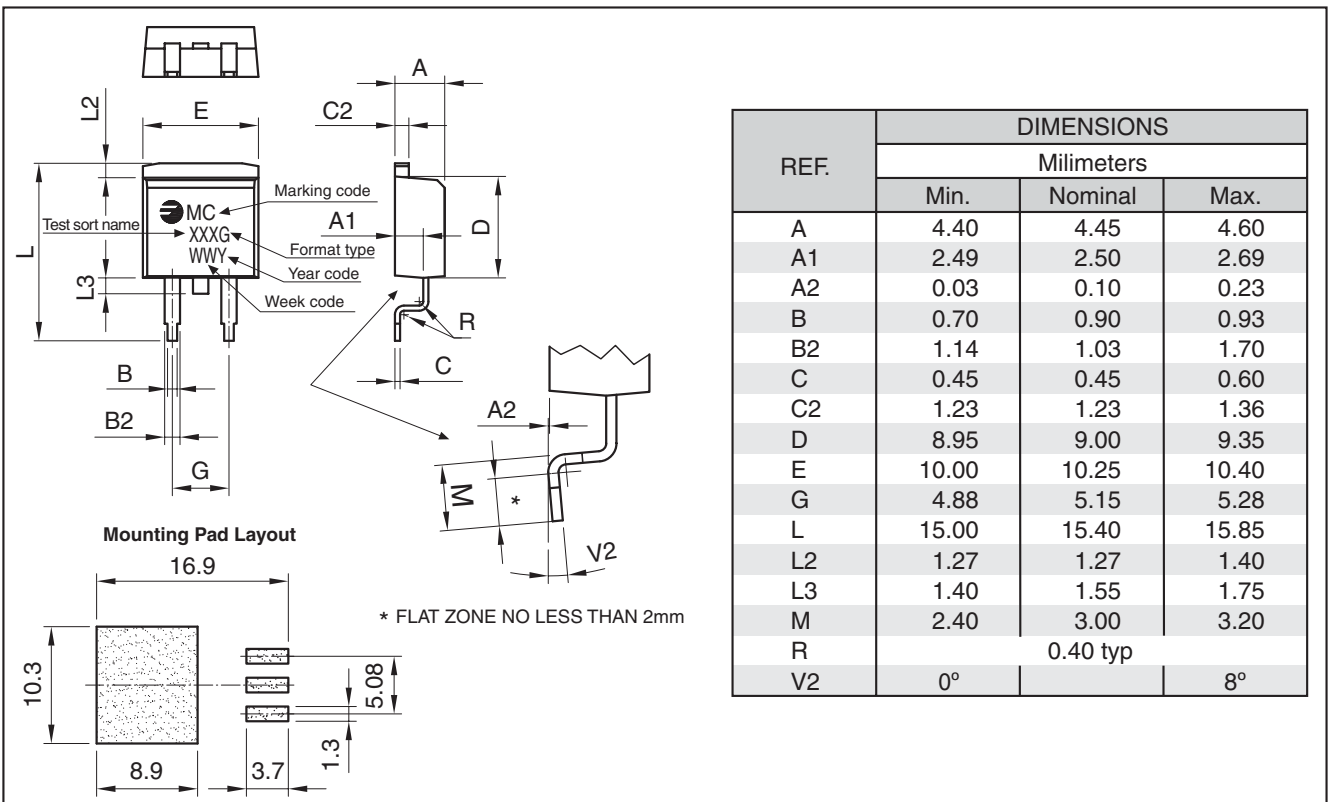
Part Number Information


LOGIC LEVEL TRIAC

Ordering information

PREFERRED P/N	PACKAGE CODE	DELIVERY MODE	BASE QUANTITY	UNIT WEIGHT (g)
FT0809MG 00TR	TR	13" diameter tape and reel	800	1.50

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



LOGIC LEVEL TRIAC

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

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

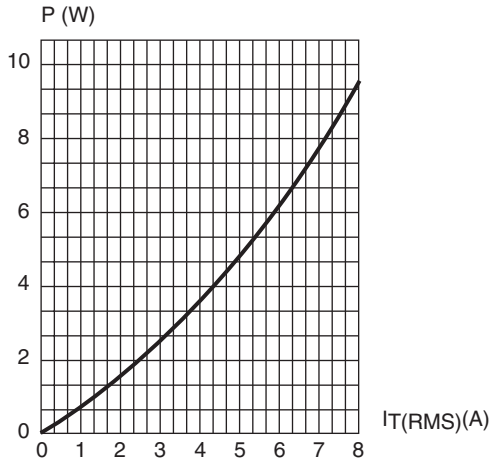


Fig. 3: Relative variation of thermal impedance versus pulse duration.

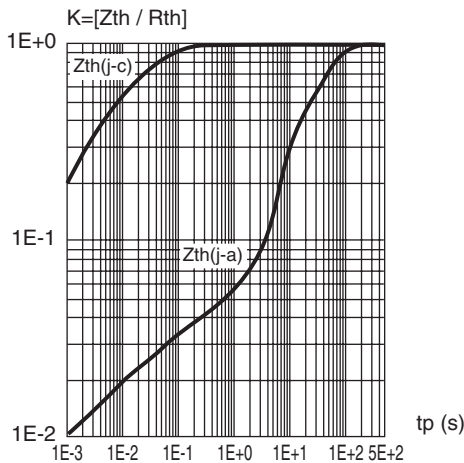


Fig. 5: Surge peak on-state current versus number of cycles

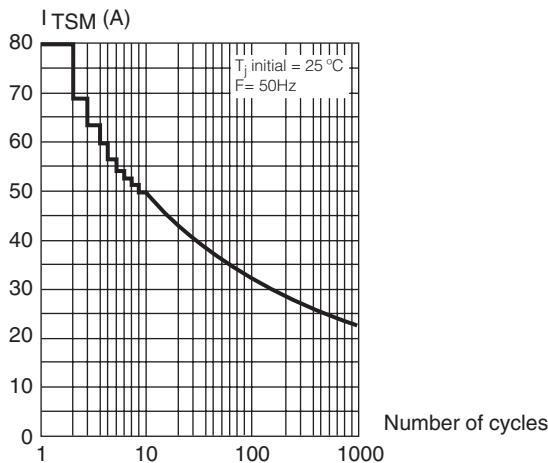


Fig. 2: RMS on-state current versus case temperature (full cycle).

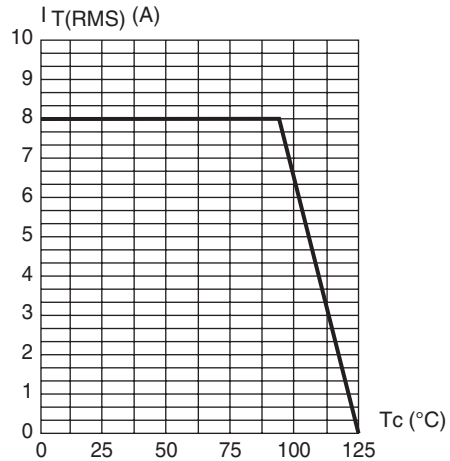


Fig. 4: On-state characteristics (maximum values)

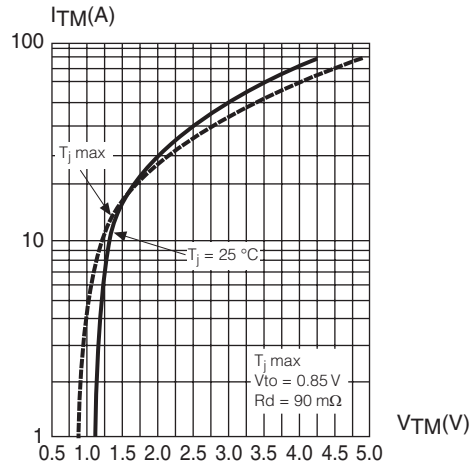
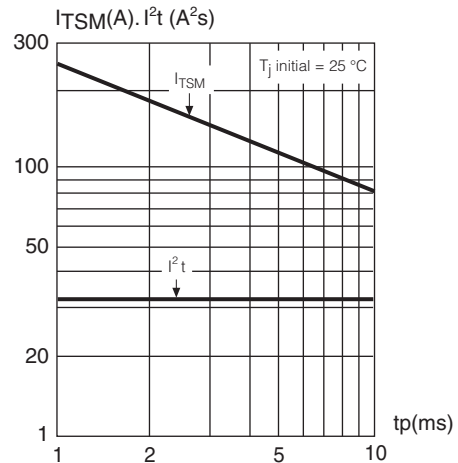


Fig. 6: Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp < 10ms, and corresponding value of i²t.



LOGIC LEVEL TRIAC

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

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

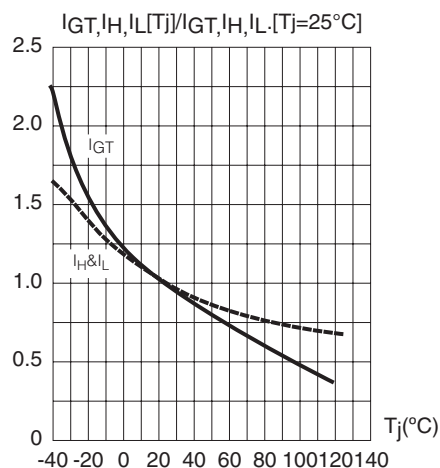


Fig. 8: Relative variation of critical rate of decrease of main current versus junction temperature

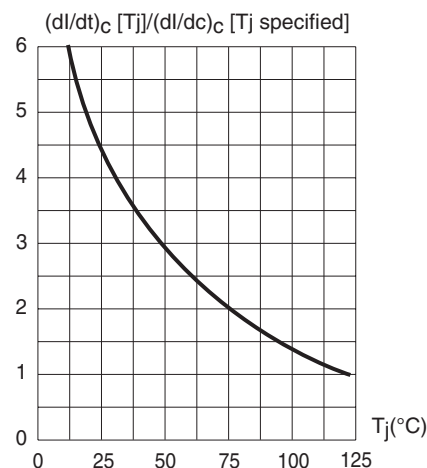
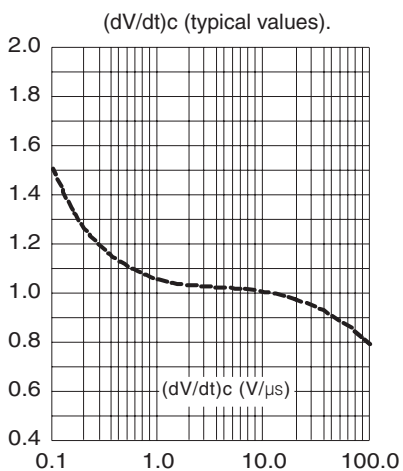


Fig. 9: Relative variation of critical rate of decrease of main current versus (dV/dt)c (typical values).



LOGIC LEVEL TRIAC

Revision History

Date	Revision	Description of Changes
12-Feb-2012	0	Original Data Sheet
29-Mar-2017	1	200V and 700V eliminated, changed values of: I_{TSM} / I^2t

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