INSULATED STANDARD TRIAC

INSULATED TO-220AB

On-State Current	Gate Trigger Current
16 Amp	≤ 50 mA (18)
	≤ 100 mA (17)
Off-State Voltage	
200 V ÷ 800 V	

FEATURES
- Glass/passivated die junctions
- Provides voltage insulated tab (rated at 2500V RMS)
- Medium current Triac
- 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 260º C
- Certified compliance of UL 1557 Standard for Electrically Isolated Semiconductors. Fille reference E320541, Vol. 3

RoHS COMPLIANT

MECHANICAL DATA
- **Case:** INSULATED TO-220AB. 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, ...

MT1 (1)
G (3)
MT2 (2)

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 = 83 °C	16	A
I_{TSM}	Non-repetitive On-State Current	Full Cycle, 60 Hz (t = 16.7 ms)	168	A
I_{TSM}	Non-repetitive On-State Current	Full Cycle, 50 Hz (t = 20 ms)	160	A
I^2t	Fusing Current	tp = 10 ms, Half Cycle	144	A^2s
I_{GM}	Peak Gate Current	20 μs max. Tj = 125 °C	4	A
$P_{G(AV)}$	Average Gate Power Dissipation	Tj = 125 °C	1	W
dI / dt	Critical rate of rise of on-state current	I_G = 2x I_{GT}, t_r ≤100ns	50	A/μs
		f = 120 Hz, Tj = 125 °C		
T_j	Operating Temperature		(-40 +125)	°C
T_{stg}	Storage Temperature		(-40 +125)	°C
T_{sld}	Soldering Temperature	10s max	260	°C
V_{iso}	R.M.S. isolation voltage 50/60 Hz sinusoidal waveform		2.500	Vac

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

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Electrical Characteristics at Tamb = 25 °C

SYMBOL	PARAMETER	CONDITIONS	Quadrant		SENSITIVITY		Unit
					18	17	
I_{GT} [1]	Gate Trigger Current	$V_D = 12\ V_{DC}$, $R_L = 33\Omega$, $T_j = 25\ °C$	Q1÷Q3	MAX	25	50	mA
			Q4	MAX	50	100	mA
V_{GT}	Gate Trigger Voltage	$V_D = 12\ V_{DC}$, $R_L = 33\Omega$, $T_j = 25\ °C$	Q1÷Q4	MAX	1.3		V
V_{GD}	Gate Non Trigger Voltage	$V_D = V_{DRM}$, $R_L = 3.3\ K\Omega$, $T_j = 125\ °C$	Q1÷Q4	MIN	0.2		V
I_H [2]	Holding Current	$I_T = 500\ mA$, Gate open, $T_j = 25\ °C$		MAX	25	25	mA
I_L	Latching Current	$I_G = 1.2\ I_{GT}$, $T_j = 25\ °C$	Q1,Q3,Q4	MAX	50	50	mA
			Q2	MAX	80	80	mA
dV/dt [2]	Critical Rate of Voltage Rise	$V_D = 400V$, Gate open $T_j = 125\ °C$		MIN	200	200	V/µs
(dV/dt)c [2]	Critical rise rate of Commutating off-state voltage	$(dI/dt)c = 2.7\ A/ms$ $T_j = 125\ °C$		MIN	5	10	V/µs
V_{TM} [2]	On-state Voltage	$I_T = 22.5\ Amp$, $tp = 380\ µs$, $T_j = 25\ °C$		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	25		mΩ
I_{DRM}/I_{RRM}	Off-State Leakage Current	$V_D = V_{DRM}$, $T_j = 125\ °C$		MAX	2		mA
		$V_R = V_{RRM}$, $T_j = 25\ °C$		MAX	10		µA
$R_{th(j-c)}$	Thermal Resistance Junction-Case	for AC 360° conduction angle			2.1		°C/W
$R_{th(j-a)}$	Thermal Resistance Junction-Ambient				60		°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.
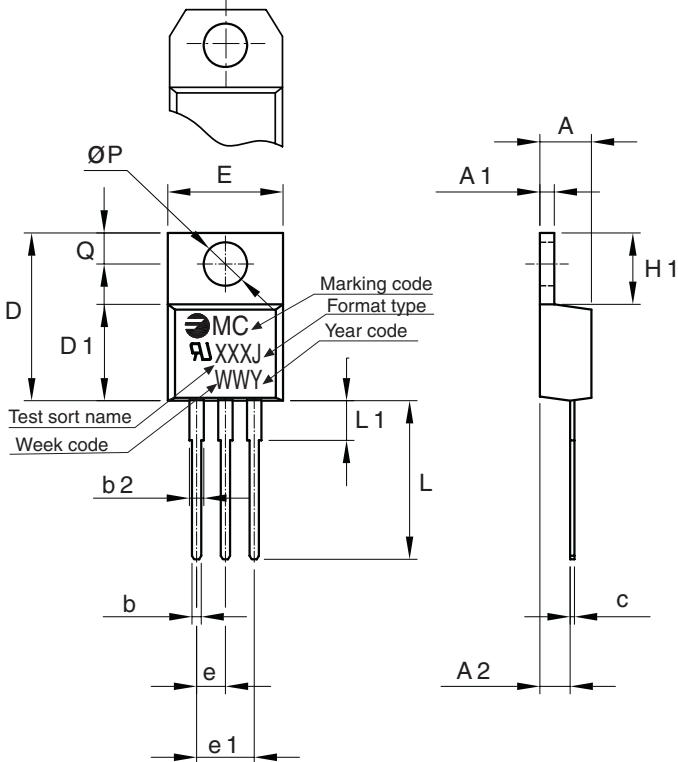
Part Number Information

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            F  T  16  18  B  J  00  TU
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TRIAC

CURRENT

SENSITIVITY

VOLTAGE

CASE

FORMING

PACKAGING

FAGOR
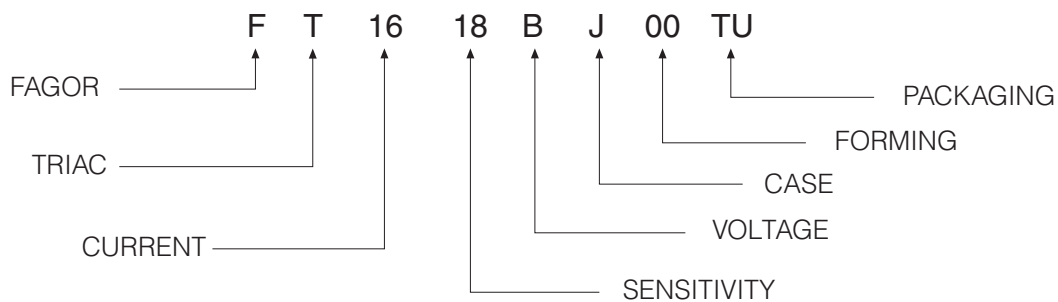
INSULATED STANDARD TRIAC

Ordering information

PREFERRED P/N	PACKAGE CODE	DELIVERY MODE	BASE QUANTITY	UNIT WEIGHT (g)
FT1618MJ 00TU	TU	TUBE	1000	2.30

Package Outline Dimensions: (mm)   INSULATED TO-220AB

Optional with chamfer

REF.	DIMENSIONS Milimeters	
	Min.	Max.
A	4.32	4.62
A1	1.21	1.29
A2	2.40	2.70
b	0.80	0.83
b2	1.40	--
c	0.42	0.48
D	15.5	15.68
D1	9.26	9.42
E	10.08	10.24
e	2.54	2.54
e1	5.08	5.08
H1	6.24	6.26
L	12.81	13.81
L1	3.28	4.17
P	3.70	3.80
Q	2.75	2.85

Marking code
Format type
Year code
Test sort name
Week code

MC
XXXJ
WWY

Mounting Torque	**0.8 N.m**

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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).
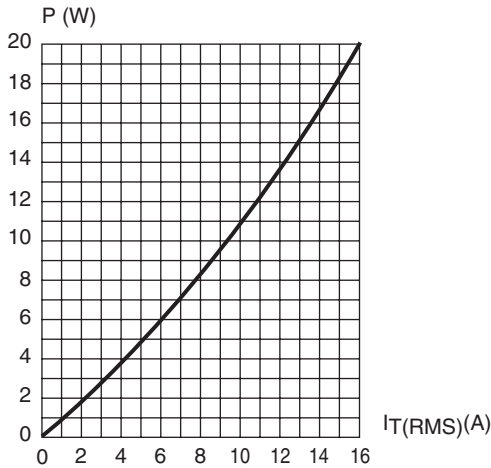

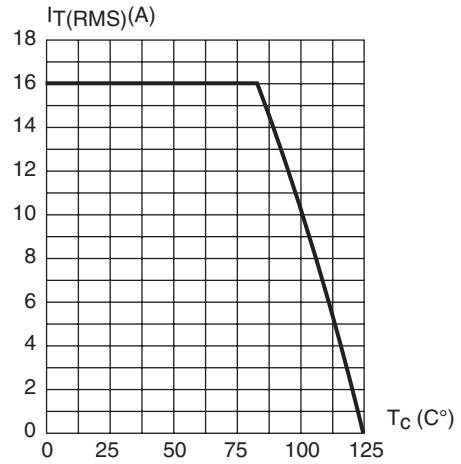Fig. 2: RMS on-state current versus case temperature (full cycle).

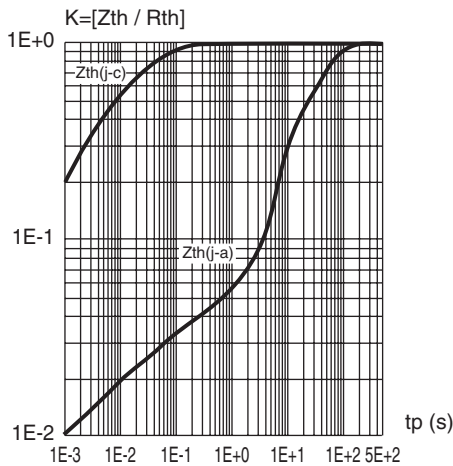Fig. 3: Relative variation of thermal impedance versus pulse duration.

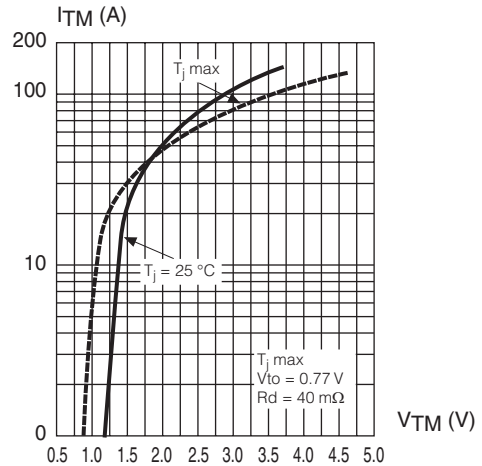Fig. 4: On-state characteristics (maximum values)

T_j max
V_{to} = 0.77 V
R_d = 40 mΩ

Fig. 5: Surge peak on-state current versus number of cycles
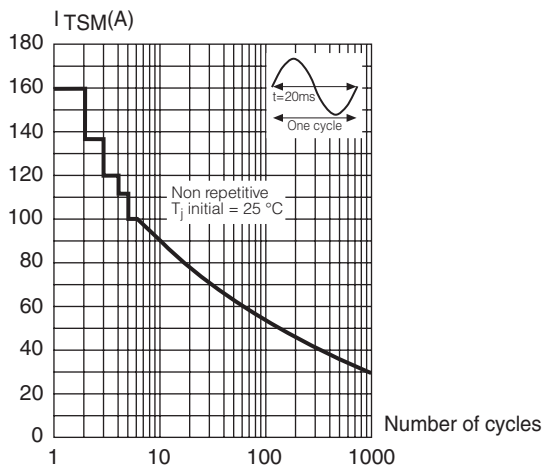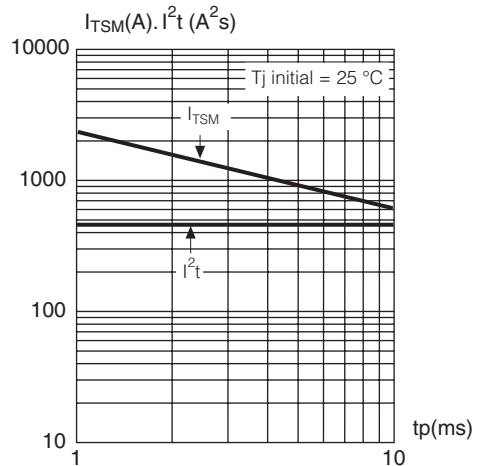
Non repetitive
T_j initial = 25 °C

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

Tj initial = 25 °C

I_{TSM}

$I^2 t$

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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)
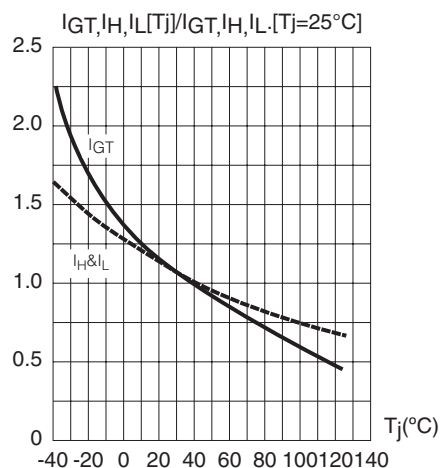
$I_{GT}, I_H, I_L[Tj]/I_{GT}, I_H, I_L.[Tj=25°C]$

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

$(dI/dt)_C [Tj]/(dI/dc)_C [Tj specified]$
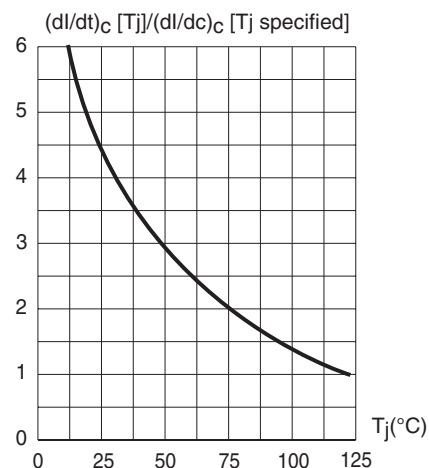
Fig. 9: Relative variation of critical rate of decrease of main current versus

$(dV/dt)c$ (typical values).
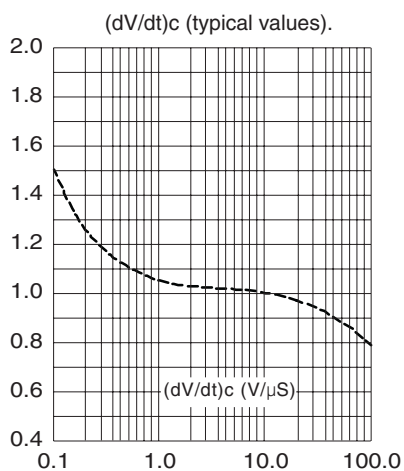
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