

INSULATED STANDARD TRIAC

<p style="text-align: center; font-weight: bold; font-size: 1.2em;">INSULATED TO-220AB</p> <div style="text-align: center; margin-top: 20px;"> </div> <div style="text-align: center; margin-top: 20px;"> </div>	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; border-right: 1px solid black; padding: 5px;"> <p>On-State Current 16 Amp</p> </td> <td style="width: 50%; padding: 5px;"> <p>Gate Trigger Current ≤ 50 mA (18) ≤ 100 mA (17)</p> </td> </tr> <tr> <td colspan="2" style="text-align: center; padding: 5px;"> <p>Off-State Voltage 200 V ÷ 800 V</p> </td> </tr> </table> <p>FEATURES</p> <ul style="list-style-type: none"> 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 260° C Certified compliance of UL 1557 Standard for Electrically Isolated Semiconductors. Fille reference E320541, Vol. 3 <p>MECHANICAL DATA</p> <ul style="list-style-type: none"> 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. <p>TYPICAL APPLICATIONS</p> <p>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,</p>	<p>On-State Current 16 Amp</p>	<p>Gate Trigger Current ≤ 50 mA (18) ≤ 100 mA (17)</p>	<p>Off-State Voltage 200 V ÷ 800 V</p>	
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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, $T_c = 83\text{ }^\circ\text{C}$	16	A
I_{TSM}	Non-repetitive On-State Current	Full Cycle, 60 Hz ($t = 16.7\text{ ms}$)	168	A
I_{TSM}	Non-repetitive On-State Current	Full Cycle, 50 Hz ($t = 20\text{ ms}$)	160	A
I^2t	Fusing Current	$t_p = 10\text{ ms}$, Half Cycle	144	A ² s
I_{GM}	Peak Gate Current	$20\text{ }\mu\text{s max.}$ $T_j = 125\text{ }^\circ\text{C}$	4	A
$P_{G(AV)}$	Average Gate Power Dissipation	$T_j = 125\text{ }^\circ\text{C}$	1	W
di / dt	Critical rate of rise of on-state current	$I_G = 2x I_{GT}$, $t_r \leq 100\text{ ns}$ $f = 120\text{ Hz}$, $T_j = 125\text{ }^\circ\text{C}$	50	A/ μs
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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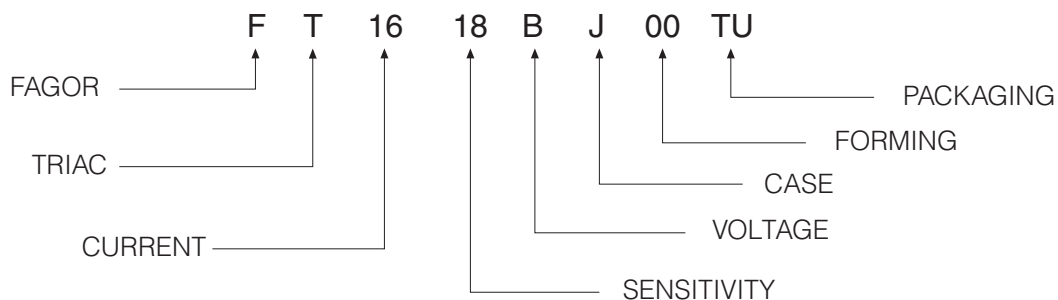
Electrical Characteristics at Tamb = 25 °C

SYMBOL	PARAMETER	CONDITIONS	Quadrant		SENSITIVITY		Unit
					18	17	
I _{GT} ⁽¹⁾	Gate Trigger Current	V _D = 12 V _{DC} , R _L = 33Ω, 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 = 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 = 500 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	50	60	mA
			Q2	MAX	80	120	mA
dV/dt ⁽²⁾	Critical Rate of Voltage Rise	V _D = 400V, Gate open T _j = 125 °C		MIN	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 guaranteed at 5% of I_{GT} max.

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

Part Number Information



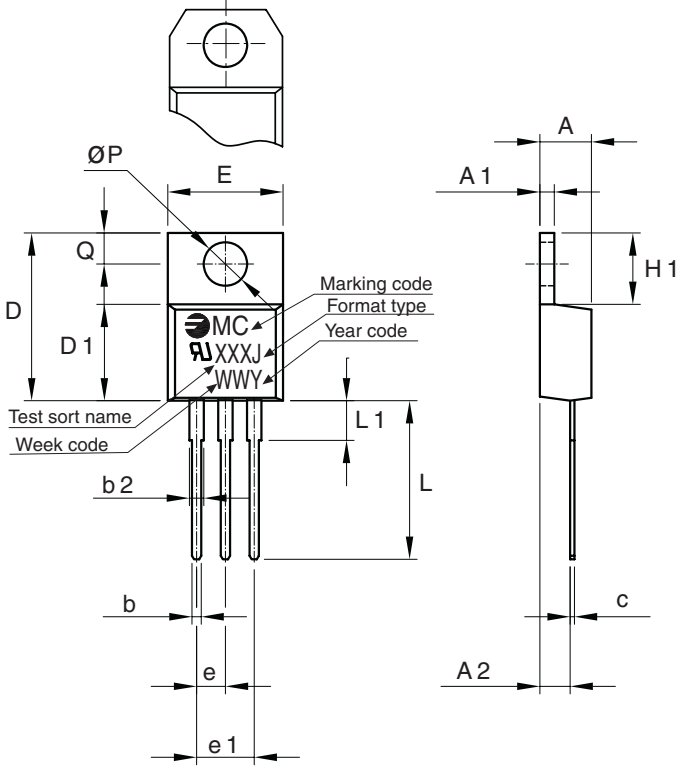
INSULATED STANDARD TRIAC

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	
	Millimeters	
	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

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).

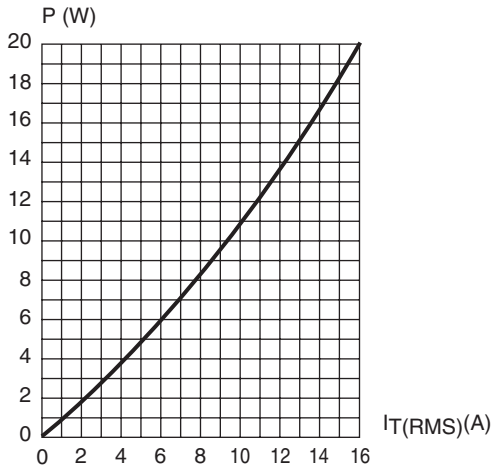


Fig. 2: RMS on-state current versus case temperature (full cycle).

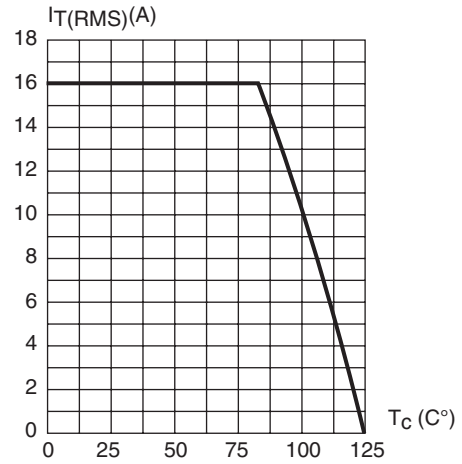


Fig. 3: Relative variation of thermal impedance versus pulse duration.

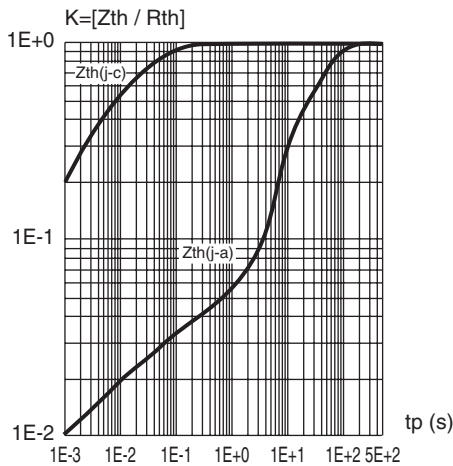


Fig. 4: On-state characteristics (maximum values)

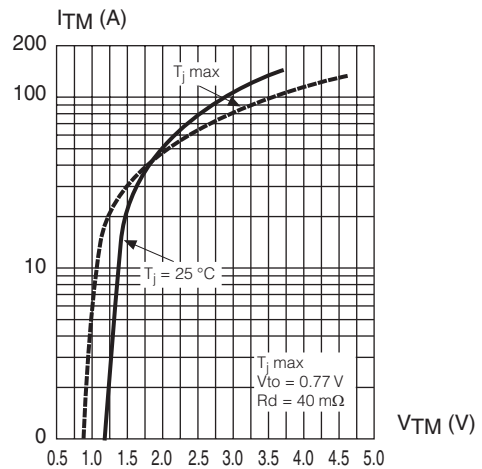


Fig. 5: Surge peak on-state current versus number of cycles

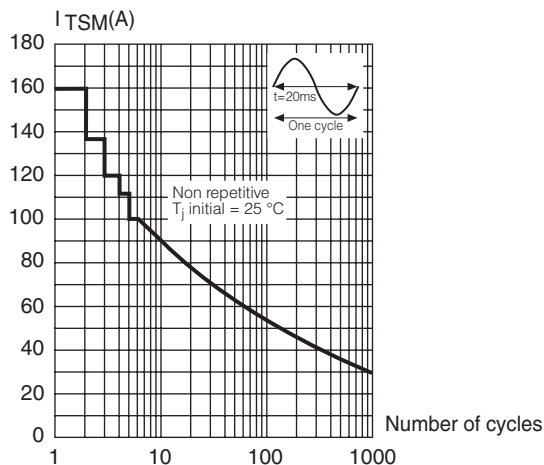
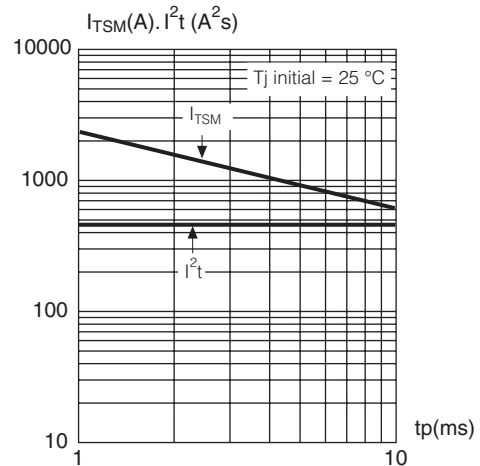


Fig. 6: Non repetitive surge peak on-state current for a sinusoidal pulse with width: $t_p < 10$ ms, and corresponding value of I^2t .



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

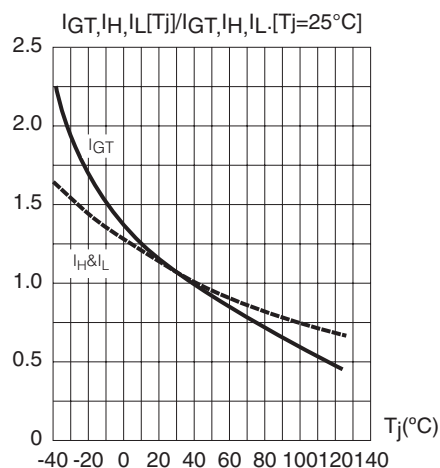


Fig. 8: Relative variation of critical rate of decrease of main current versus junction temperature

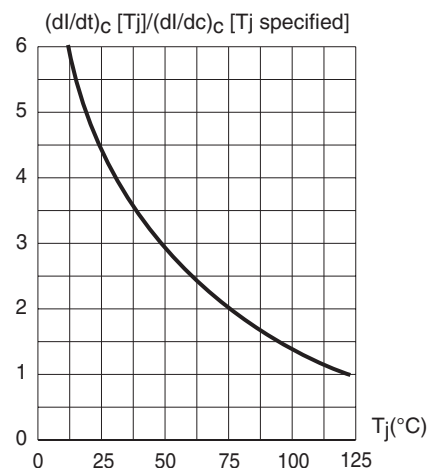
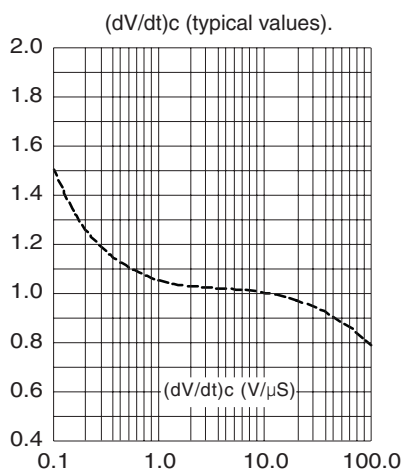


Fig. 9: Relative variation of critical rate of decrease of main current versus



INSULATED STANDARD TRIAC**Revision History**

Date	Revision	Description of Changes
14-Oct-2012	0	Original Data Sheet
16-May-2013	1	Change values of: I_H / I_L

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