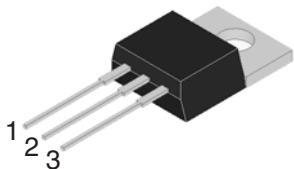
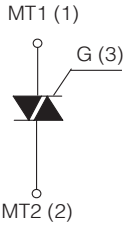




INSULATED HIGH COMMUTATION TRIAC

<p style="text-align: center; font-weight: bold; font-size: 1.2em;">INSULATED TO-220AB</p> <div style="text-align: center; margin: 20px 0;">  </div> <div style="text-align: center; margin: 20px 0;">  </div>	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; text-align: center;">On-State Current 16 Amp</td> <td style="width: 50%; text-align: center;">Gate Trigger Current ≤ 50 mA (16) ≤ 35 mA (14)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Off-State Voltage 400 V ÷ 800 V</td> </tr> </table> <p>FEATURES</p> <ul style="list-style-type: none"> Provides voltage insulated tab (rated at 2500V RMS) Glass/passivated die junctions Medium current Triac Low thermal resistance High commutation 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 style="text-align: right;">   RoHS <small>COMPLIANT</small> </p> <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> <ul style="list-style-type: none"> Used on inductive loads, thanks to their high commutation performances. 	On-State Current 16 Amp	Gate Trigger Current ≤ 50 mA (16) ≤ 35 mA (14)	Off-State Voltage 400 V ÷ 800 V	
On-State Current 16 Amp	Gate Trigger Current ≤ 50 mA (16) ≤ 35 mA (14)				
Off-State Voltage 400 V ÷ 800 V					

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^2s
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	$A/\mu\text{s}$
T_j	Operating Temperature		(-40 +125)	$^\circ\text{C}$
T_{stg}	Storage Temperature		(-40 +150)	$^\circ\text{C}$
T_{sld}	Soldering Temperature	10s max	260	$^\circ\text{C}$
V_{iso}	R.M.S. isolation voltage 50/60 Hz sinusoidal waveform		2.500	Vac

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

INSULATED HIGH COMMUTATION TRIAC

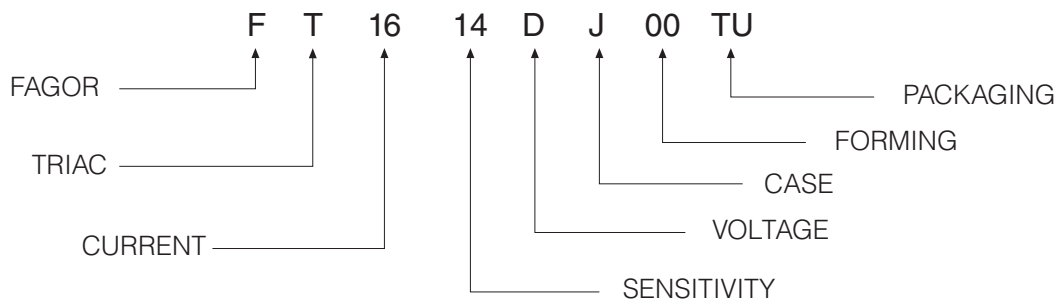
Electrical Characteristics at Tamb = 25 °C

SYMBOL	PARAMETER	CONDITIONS	Quadrant		SENSITIVITY		Unit
					14	16	
$I_{GT}^{(1)}$	Gate Trigger Current	$V_D = 12 V_{DC}, R_L = 33\Omega, T_j = 25\text{ °C}$	Q1÷Q3	MAX	35	50	mA
V_{GT}	Gate Trigger Voltage	$V_D = 12 V_{DC}, R_L = 33\Omega, T_j = 25\text{ °C}$	Q1÷Q3	MAX	1.3		V
V_{GD}	Gate Non Trigger Voltage	$V_D = V_{DRM}, R_L = 3.3\text{ K}\Omega, T_j = 125\text{ °C}$	Q1÷Q3	MIN	0.2		V
$I_H^{(2)}$	Holding Current	$I_T = 500\text{ mA}, \text{Gate open}, T_j = 25\text{ °C}$		MAX	35	50	mA
I_L	Latching Current	$I_G = 1.2 I_{GT}, T_j = 25\text{ °C}$	Q1,Q3	MAX	50	70	mA
			Q2	MAX	80	120	mA
$dV/dt^{(2)}$	Critical Rate of Voltage Rise	$V_D = 0.67 \times V_{DRM}, \text{Gate open}$ $T_j = 125\text{ °C}$		MIN	500	1000	V/ μ s
$(di/dt)^c^{(2)}$	Critical Rate of Current Rise	$(dv/dt)^c = 0.1\text{ V}/\mu\text{s}$ $T_j = 125\text{ °C}$		MIN	-	-	A/ms
		$(dv/dt)^c = 10\text{ V}/\mu\text{s}$ $T_j = 125\text{ °C}$		MIN	-	-	
		without snubber $T_j = 125\text{ °C}$		MIN	8.5	14	
$V_{TM}^{(2)}$	On-state Voltage	$I_T = 22.5\text{ Amp}, t_p = 380\mu\text{s}, T_j = 25\text{ °C}$		MAX	1.6		V
$V_{t(0)}^{(2)}$	Threshold Voltage	$T_j = 125\text{ °C}$		MAX	0.85		V
$r_d^{(2)}$	Dynamic resistance	$T_j = 125\text{ °C}$		MAX	25		m Ω
I_{DRM}/I_{RRM}	Off-State Leakage Current	$V_D = V_{DRM}, T_j = 125\text{ °C}$		MAX	2		mA
		$V_R = V_{RRM}, T_j = 25\text{ °C}$		MAX	10		μ A
$R_{th(j-c)}$	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



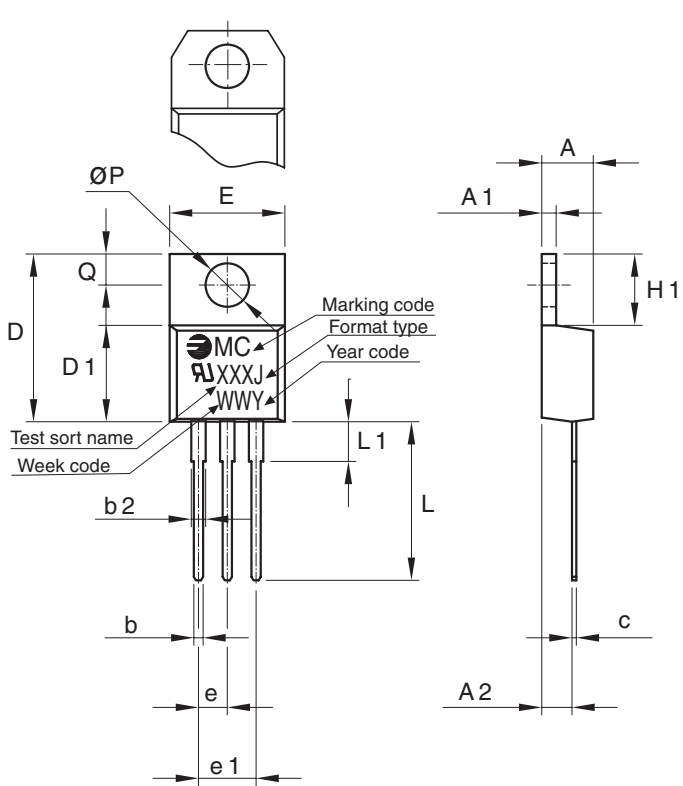
INSULATED HIGH COMMUTATION TRIAC

Ordering information

PREFERRED P/N	PACKAGE CODE	DELIVERY MODE	BASE QUANTITY	UNIT WEIGHT (g)
FT1614MJ 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

Mounting Torque	0.8 N.m
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INSULATED HIGH COMMUTATION TRIAC

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

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

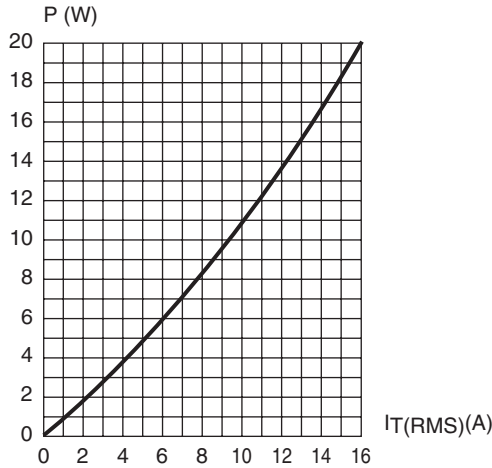


Fig. 2: RMS on-state current versus case temperature (full cycle).

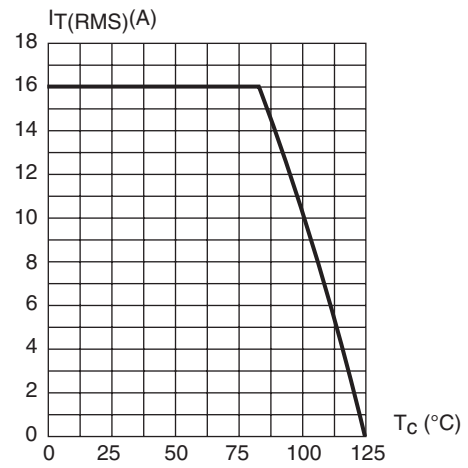


Fig. 3: Relative variation of thermal impedance versus pulse duration.

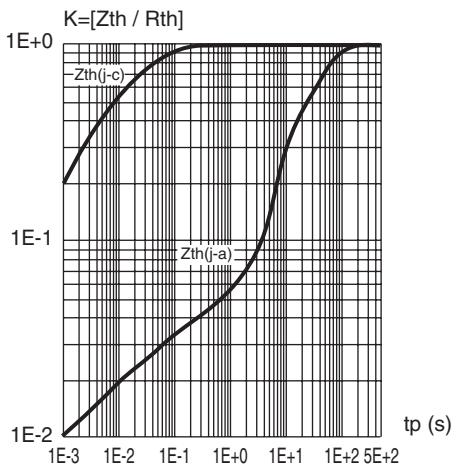


Fig. 4: On-state characteristics (maximum values)

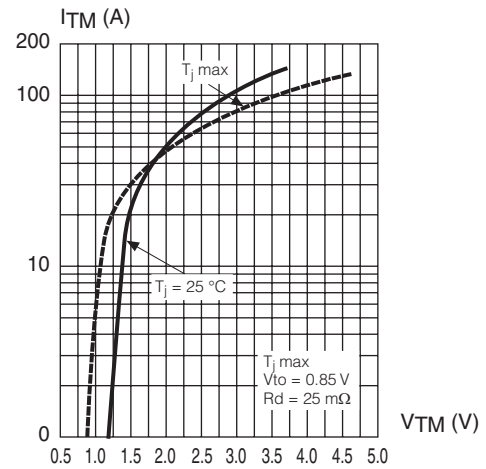


Fig. 5: Surge peak on-state current versus number of cycles

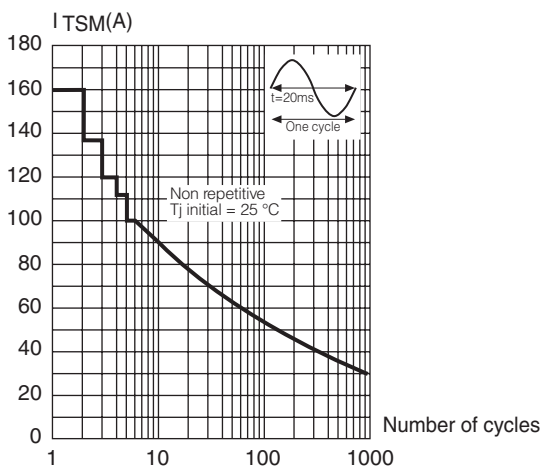
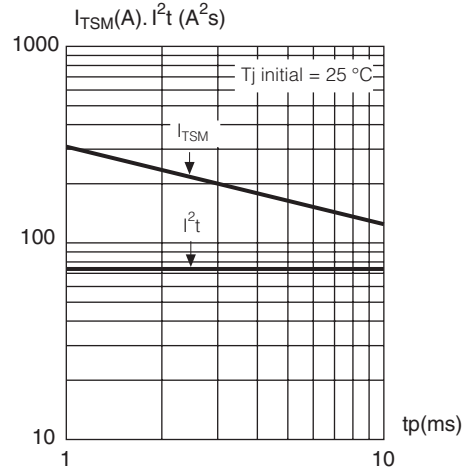


Fig. 6: Non repetitive surge peak on-state current for a sinusoidal pulse with width: tp < 10 ms, and corresponding value of I²t.



INSULATED HIGH COMMUTATION 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)

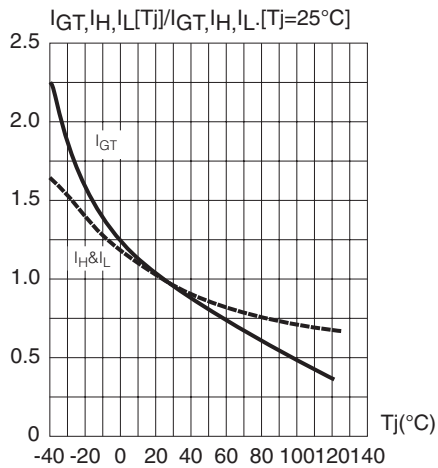
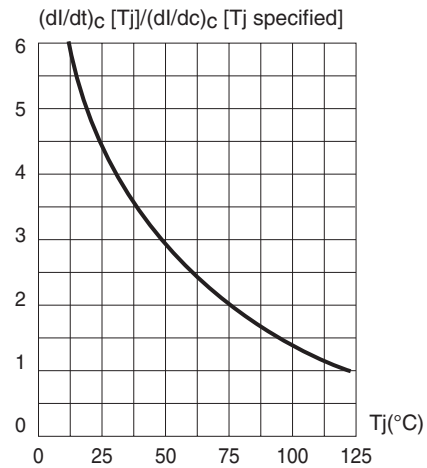


Fig. 8: Relative variation of critical rate of decrease of main current versus junction temperature



INSULATED HIGH COMMUTATION TRIAC**Revision History**

Date	Revision	Description of Changes
12-Nov-2012	0	Original Data Sheet
17-May-2013	1	200V eliminated
04-Dec-2014	2	I_T for V_{TM} corrected from 17Amp. to 22.5Amp.

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