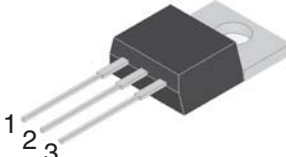
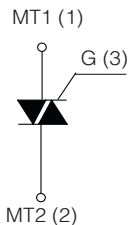


## INSULATED STANDARD TRIAC

<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%; padding: 5px;"><b>On-State Current</b> 12 Amp</td> <td style="width: 50%; padding: 5px;"><b>Gate Trigger Current</b> ≤ 50 mA (18) ≤ 100 mA (17)</td> </tr> <tr> <td colspan="2" style="text-align: center; padding: 5px;"><b>Off-State Voltage</b> 200 V ÷ 800 V</td> </tr> </table> <p><b>FEATURES</b></p> <ul style="list-style-type: none"> <li>Glass/passivated die junctions</li> <li>Provides voltage insulated tab (rated at 2500V RMS)</li> <li>Medium current Triac</li> <li>Low thermal resistance</li> <li>High surge current capability</li> <li>Low forward voltage drop</li> <li>Solder dip 260°C, 10s</li> <li>Component in accordance to RoHS 2011/65/EU and WEEE 2002/96/EC</li> <li>Meets MSL level 3, per J-STD-020, LF maximum peak of 260° C</li> <li>Certified compliance of UL 1557 Standard for Electrically Isolated Semiconductors. Fille reference E320541, Vol. 3</li> </ul> <p><b>MECHANICAL DATA</b></p> <ul style="list-style-type: none"> <li><b>Case:</b> INSULATED TO-220AB. Epoxy meets UL 94V-0 flammability rating.</li> <li><b>Polarity:</b> As marked on the body.</li> <li><b>Terminals:</b> 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.</li> </ul> <p><b>TYPICAL APPLICATIONS</b></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>	<b>On-State Current</b> 12 Amp	<b>Gate Trigger Current</b> ≤ 50 mA (18) ≤ 100 mA (17)	<b>Off-State Voltage</b> 200 V ÷ 800 V	
<b>On-State Current</b> 12 Amp	<b>Gate Trigger Current</b> ≤ 50 mA (18) ≤ 100 mA (17)				
<b>Off-State Voltage</b> 200 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, $T_c = 90\text{ }^\circ\text{C}$	12	A
$I_{TSM}$	Non-repetitive On-State Current	Full Cycle, 60 Hz ( $t = 16.7\text{ ms}$ )	126	A
$I_{TSM}$	Non-repetitive On-State Current	Full Cycle, 50 Hz ( $t = 20\text{ ms}$ )	120	A
$I^2t$	Fusing Current	$t_p = 10\text{ ms}$ , Half Cycle	72	$A^2s$
$I_{GM}$	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 +125)	$^\circ\text{C}$
$T_{sld}$	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
		B	D	M	N	
$V_{DRM}/V_{RRM}$	Repetitive Peak Off State Voltage	200	400	600	800	V

# INSULATED STANDARD TRIAC

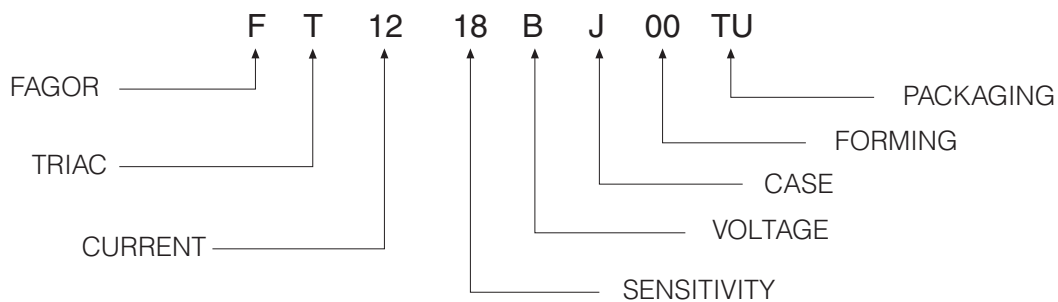
## Electrical Characteristics at Tamb = 25 °C

SYMBOL	PARAMETER	CONDITIONS	Quadrant		SENSITIVITY		Unit
					18	17	
I <sub>GT</sub> <sup>(1)</sup>	Gate Trigger Current	V <sub>D</sub> = 12 V <sub>DC</sub> , R <sub>L</sub> = 33Ω, T <sub>j</sub> = 25 °C	Q1÷Q3	MAX	25	50	mA
			Q4	MAX	50	100	mA
V <sub>GT</sub>	Gate Trigger Voltage	V <sub>D</sub> = 12 V <sub>DC</sub> , R <sub>L</sub> = 33Ω, T <sub>j</sub> = 25 °C	Q1÷Q4	MAX	1.3		V
V <sub>GD</sub>	Gate Non Trigger Voltage	V <sub>D</sub> = V <sub>DRM</sub> , R <sub>L</sub> = 3.3 KΩ, T <sub>j</sub> = 125 °C	Q1÷Q4	MIN	0.2		V
I <sub>H</sub> <sup>(2)</sup>	Holding Current	I <sub>T</sub> = 100 mA, Gate open, T <sub>j</sub> = 25 °C		MAX	25	50	mA
I <sub>L</sub>	Latching Current	I <sub>G</sub> = 1.2 I <sub>GT</sub> , T <sub>j</sub> = 25 °C	Q1,Q3,Q4	MAX	40	70	mA
			Q2	MAX	80	100	mA
dV/dt <sup>(2)</sup>	Critical Rate of Voltage Rise	V <sub>D</sub> = 0.67 x V <sub>DRM</sub> , Gate open T <sub>j</sub> = 125 °C		MIN	700	1000	V/μs
(dV/dt) <sub>c</sub> <sup>(2)</sup>	Critical rise rate of Commutating off-state voltage	(dI/dt) <sub>c</sub> = 2.7 A/ms T <sub>j</sub> = 125 °C		MIN	5	10	V/μs
V <sub>TM</sub> <sup>(2)</sup>	On-state Voltage	I <sub>T</sub> = 17 Amp, t <sub>p</sub> = 380 μs, T <sub>j</sub> = 25 °C		MAX	1.55		V
V <sub>t(o)</sub> <sup>(2)</sup>	Threshold Voltage	T <sub>j</sub> = 125 °C		MAX	0.85		V
r <sub>d</sub> <sup>(2)</sup>	Dynamic resistance	T <sub>j</sub> = 125 °C		MAX	35		mΩ
I <sub>DRM</sub> /I <sub>RRM</sub>	Off-State Leakage Current	V <sub>D</sub> = V <sub>DRM</sub> , T <sub>j</sub> = 125 °C V <sub>R</sub> = V <sub>RRM</sub> , T <sub>j</sub> = 25 °C		MAX	1		mA
				MAX	5		μA
R <sub>th(j-c)</sub>	Thermal Resistance Junction-Case	for AC 360° conduction angle			2.3		°C/W
R <sub>th(j-a)</sub>	Thermal Resistance Junction-Ambient				50		°C/W

(1) Minimum I<sub>GT</sub> is guaranteed at 5% of I<sub>GT</sub> max.

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

## Part Number Information



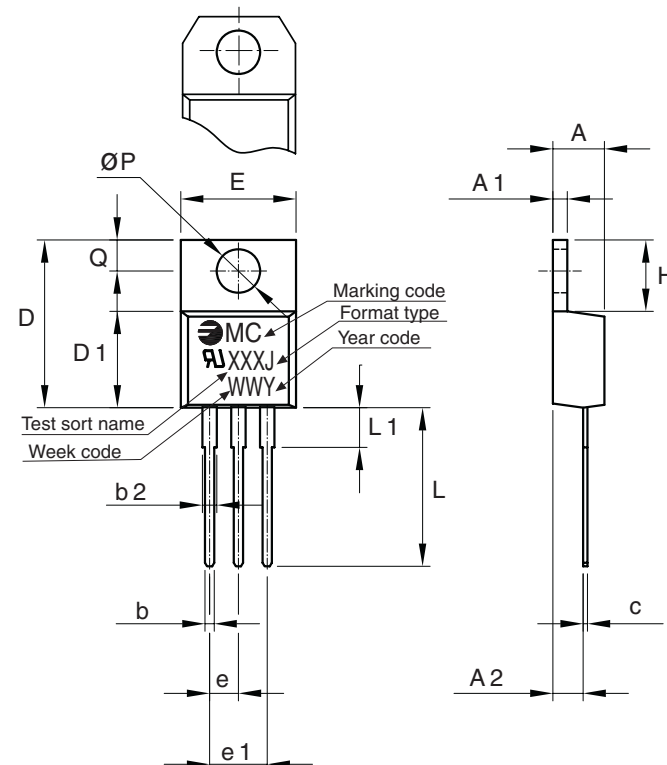
# INSULATED STANDARD TRIAC

## Ordering information

PREFERRED P/N	PACKAGE CODE	DELIVERY MODE	BASE QUANTITY	UNIT WEIGHT (g)
FT1218MJ 00TU	TU	TUBE	1000	2.30

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

Optional with chamfer



The drawing shows a top view and a side view of the triac package. The top view includes dimensions:  $\varnothing P$  (lead diameter),  $E$  (lead spacing),  $D$  (total width),  $Q$  (lead height),  $D1$  (body width),  $L$  (total length),  $L1$  (lead length),  $b$  (lead width),  $b2$  (lead thickness),  $e$  (lead pitch), and  $e1$  (lead offset). The marking code is shown as 'MC XXXJ WYY', with labels for 'Marking code', 'Format type', and 'Year code'. The side view shows dimensions:  $A$  (total height),  $A1$  (lead height),  $A2$  (body height),  $H1$  (lead height), and  $c$  (lead diameter).

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**

# INSULATED STANDARD TRIAC

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

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

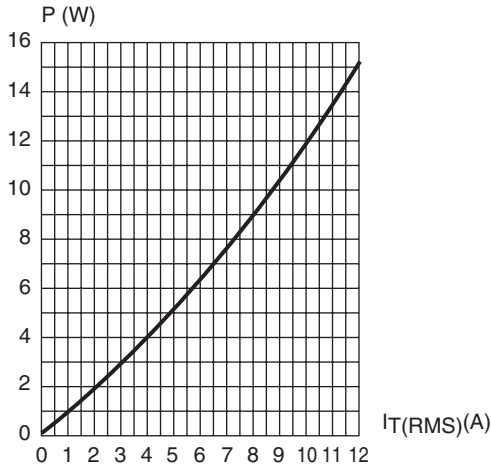


Fig. 2: RMS on-state current versus case temperature (full cycle).

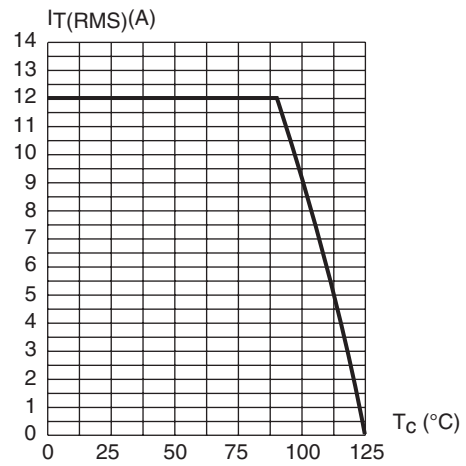


Fig. 3: Relative variation of thermal impedance versus pulse duration.

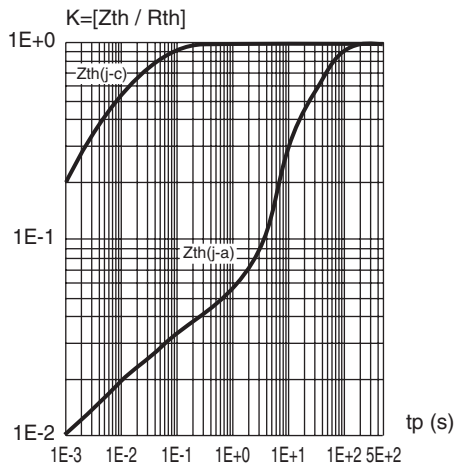


Fig. 4: On-state characteristics (maximum values)

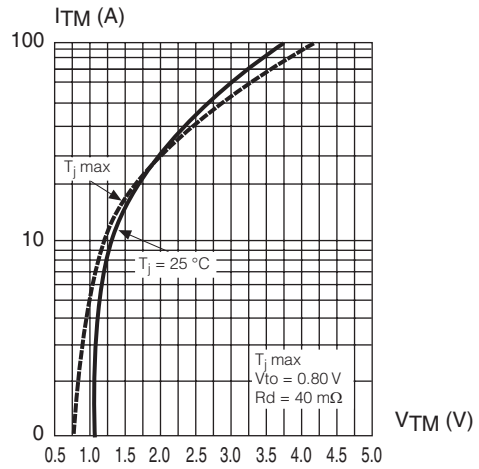


Fig. 5: Surge peak on-state current versus number of cycles

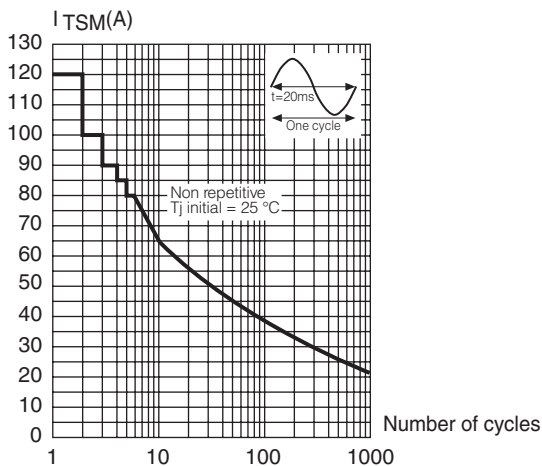
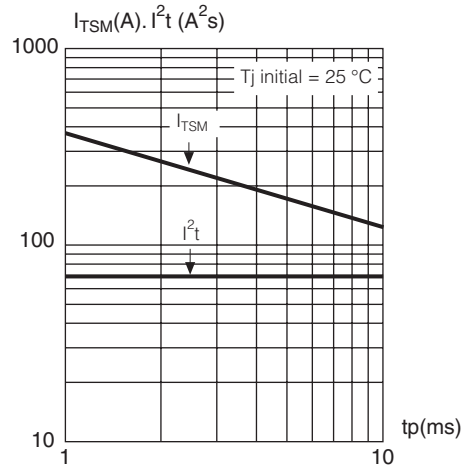


Fig. 6: Non repetitive surge peak on-state current for a sinusoidal pulse with width: tp < 10 ms, and corresponding value of I²t.



**INSULATED STANDARD 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)

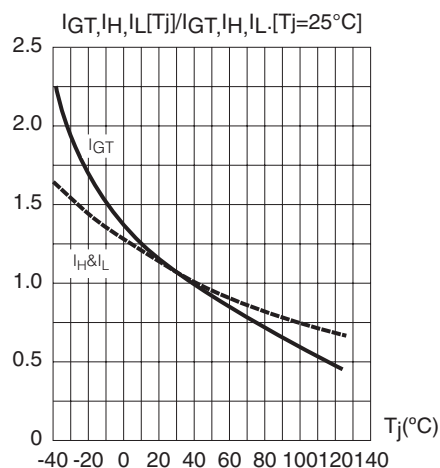


Fig. 8: Relative variation of critical rate of decrease of main current versus junction temperature

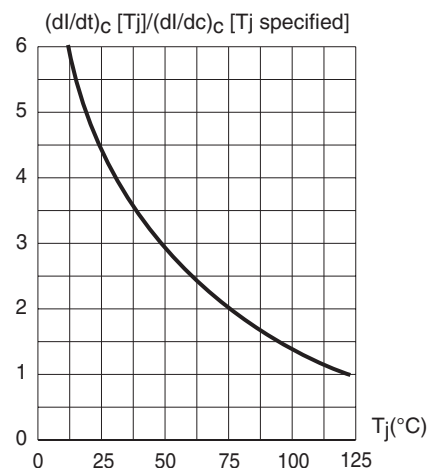
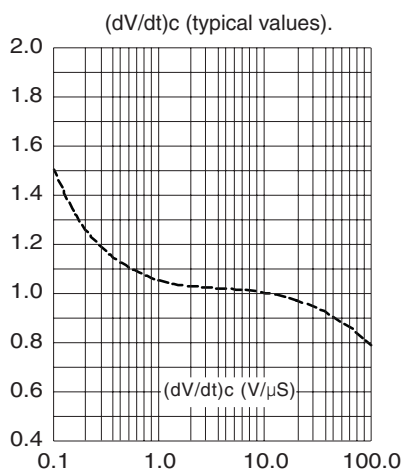


Fig. 9: Relative variation of critical rate of decrease of main current versus (dV/dt)<sub>c</sub> (typical values).



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