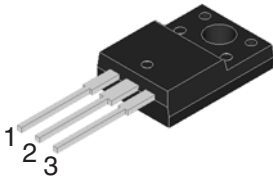
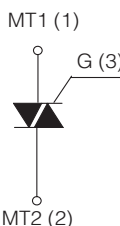


HIGH COMMUTATION TRIAC

TO-220F (FULLY ISOLATED CASE)  	On-State Current 4 Amp Gate Trigger Current ≤ 35 mA Off-State Voltage 400 V ÷ 800 V
	FEATURES • Glass/passivated die junctions • Medium current Triac • Low thermal resistance • Ideal for automated placement • 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   RoHS COMPLIANT
	MECHANICAL DATA • Case: TO-220F. 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 • Used on inductive loads, thanks to their high commutation performances.

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, $T_c = 95\text{ }^{\circ}\text{C}$	4	A
I_{TSM}	Non-repetitive On-State Current	Full Cycle, 60 Hz ($t = 16.7\text{ ms}$)	33	A
I_{TSM}	Non-repetitive On-State Current	Full Cycle, 50 Hz ($t = 20\text{ ms}$)	30	A
I^2t	Fusing Current	$t_p = 10\text{ ms}$, Half Cycle	4.5	A^2s
I_{GM}	Peak Gate Current	$20\text{ }\mu s$ 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	$I_G = 2 \times I_{GT}$, $t_r \leq 100ns$ $f = 120\text{ Hz}$, $T_j = 125\text{ }^{\circ}\text{C}$	50	A/ μs
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

HIGH COMMUTATION TRIAC

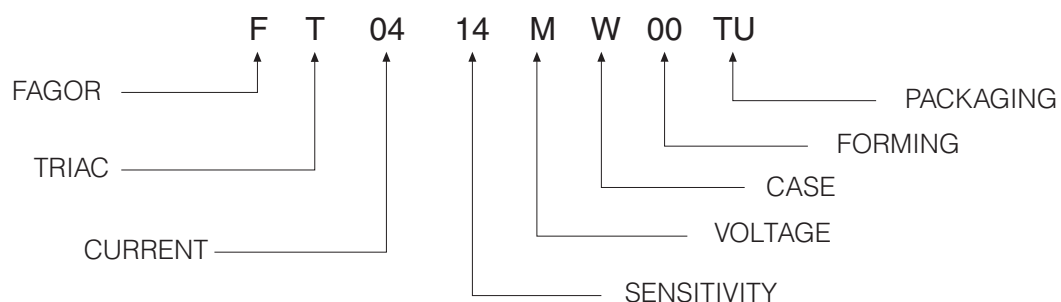
Electrical Characteristics at Tamb = 25 °C

SYMBOL	PARAMETER	CONDITIONS	Quadrant		SENSITIVITY	Unit
					14	
$I_{GT}^{(1)}$	Gate Trigger Current	$V_D = 12 V_{DC}$, $R_L = 33\Omega$, $T_j = 25^\circ C$	Q1÷Q3	MAX	35	mA
V_{GT}	Gate Trigger Voltage	$V_D = 12 V_{DC}$, $R_L = 33\Omega$, $T_j = 25^\circ C$	Q1÷Q3	MAX	1.3	V
V_{GD}	Gate Non Trigger Voltage	$V_D = V_{DRM}$, $R_L = 3.3 K\Omega$, $T_j = 125^\circ C$	Q1÷Q3	MIN	0.2	V
$I_H^{(2)}$	Holding Current	$I_T = 100$ mA, Gate open, $T_j = 25^\circ C$		MAX	35	mA
I_L	Latching Current	$I_G = 1.2 I_{GT}$, $T_j = 25^\circ C$	Q1,Q3	MAX	50	mA
			Q2	MAX	60	
$dV/dt^{(2)}$	Critical Rate of Voltage Rise	$V_D = 0.67 \times V_{DRM}$, Gate open $T_j = 125^\circ C$		MIN	400	V/ μs
$(dI/dt)_C^{(2)}$	Critical Rate of Current Rise	$(dv/dt)_C = 0.1$ V/ μs $T_j = 125^\circ C$		MIN	-	A/ms
		$(dv/dt)_C = 10$ V/ μs $T_j = 125^\circ C$		MIN	-	
		without snubber $T_j = 125^\circ C$		MIN	2.5	
$V_{TM}^{(2)}$	On-state Voltage	$I_T = 5.5$ Amp, $t_p = 380 \mu s$, $T_j = 25^\circ C$		MAX	1.6	V
$V_{t(o)}^{(2)}$	Threshold Voltage	$T_j = 125^\circ C$		MAX	0.9	V
$r_d^{(2)}$	Dynamic resistance	$T_j = 125^\circ C$		MAX	140	m Ω
I_{DRM}/I_{RRM}	Off-State Leakage Current	$V_D = V_{DRM}$, $T_j = 125^\circ C$		MAX	0.5	mA
		$V_R = V_{RRM}$, $T_j = 25^\circ C$		MAX	5	μA
$R_{th(j-c)}$	Thermal Resistance Junction-Case	for AC 360° conduction angle			4.0	°C/W
$R_{th(j-a)}$	Thermal Resistance Junction-Ambient				50	°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

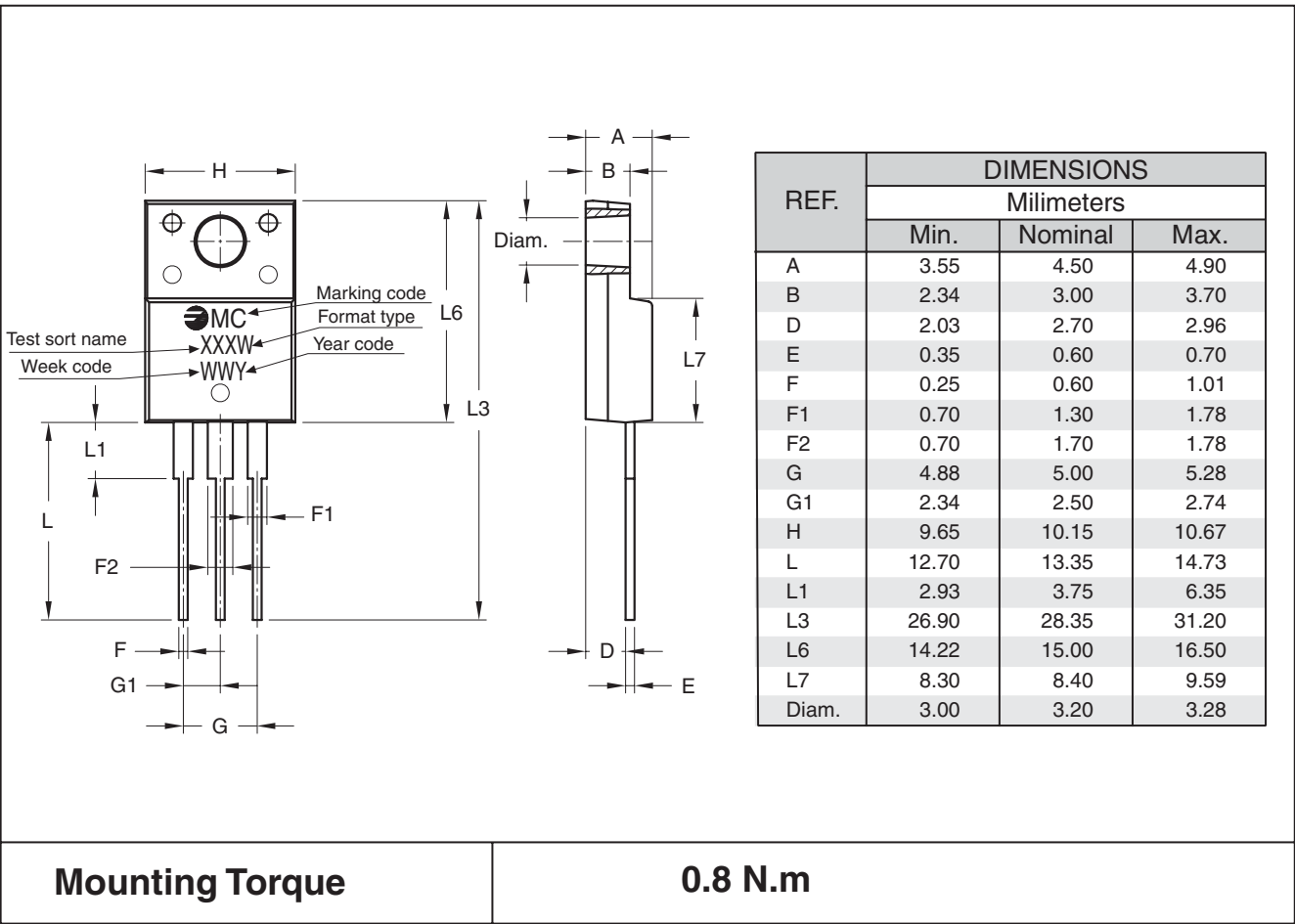


HIGH COMMUTATION TRIAC

Ordering information

PREFERRED P/N	PACKAGE CODE	DELIVERY MODE	BASE QUANTITY	UNIT WEIGHT (g)
FT0414MW 00TU	TU	TUBE	1,000	2.00

Package Outline Dimensions: (mm) TO-220F



HIGH COMMUTATION TRIAC

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

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

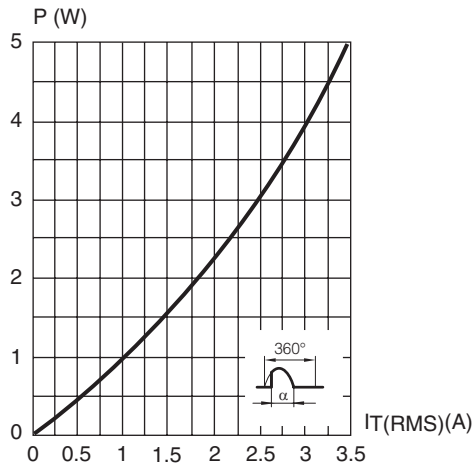


Fig. 2: RMS on-state current versus case temperature (full cycle).

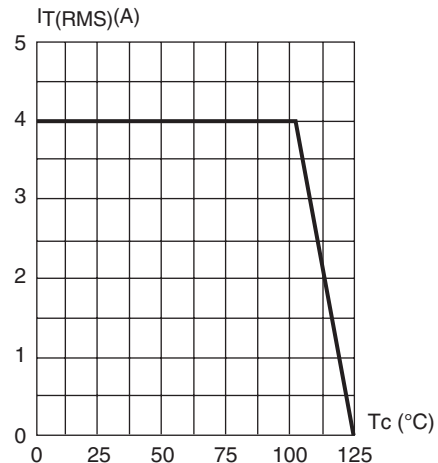


Fig. 3: Relative variation of thermal impedance versus pulse duration.

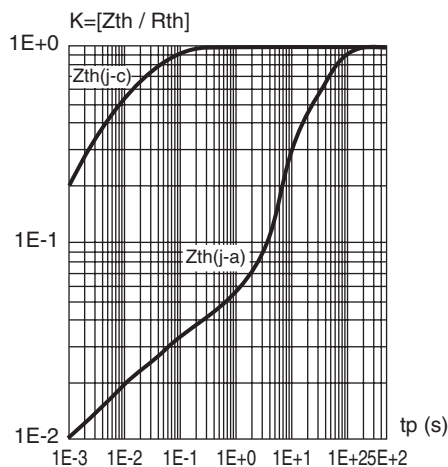


Fig. 5: Surge peak on-state current versus number of cycles

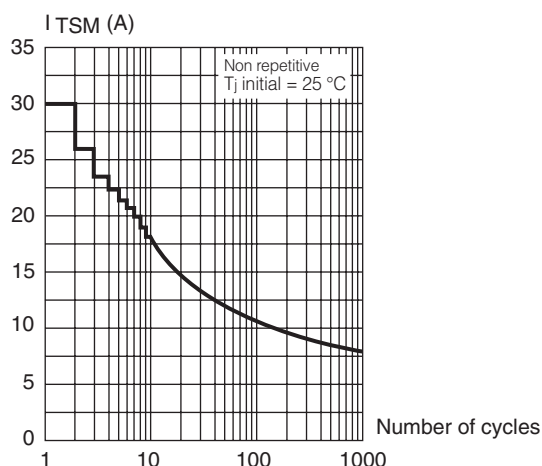


Fig. 4: On-state characteristics (maximum values)

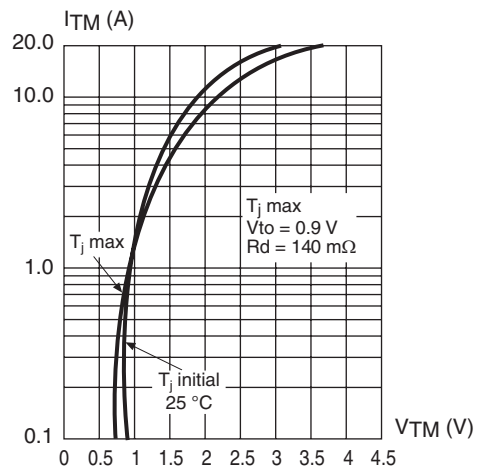
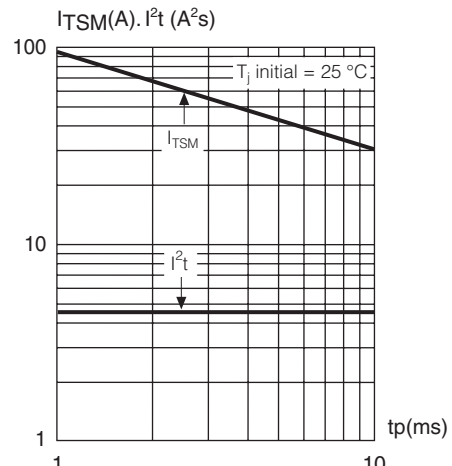


Fig. 6: Non repetitive surge peak on-state current for a sinusoidal pulse with width: $t_p < 10$ ms, and corresponding value of I^2t .



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)

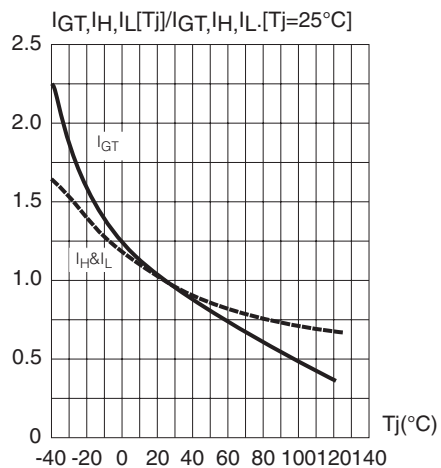
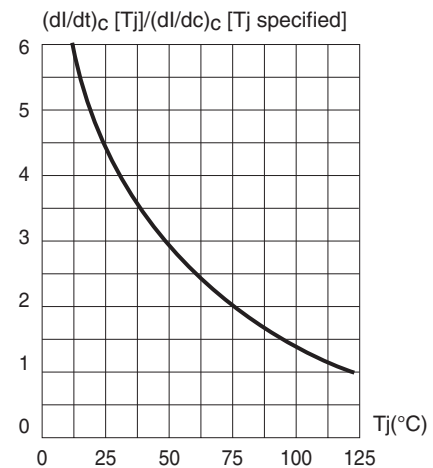


Fig. 8: Relative variation of critical rate of decrease of main current versus junction temperature



HIGH COMMUTATION TRIAC**Revision History**

Date	Revision	Description of Changes
14-Apr-2005	0	Original Data Sheet
05-May-2017	1	200V and 700V eliminated

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