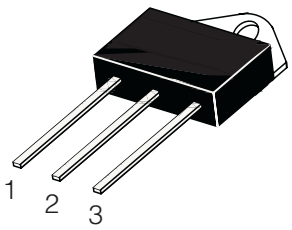
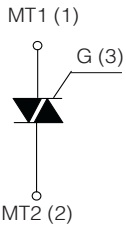
INSULATED STANDARD TRIAC

INSULATED TO3P





On-State Current
40 Amp

Gate Trigger Current
≤ 100 mA

Off-State Voltage
600 V ÷ 800 V

FEATURES

- Provides voltage insulated tab (rated at 2500V RMS)
- Glass/passivated die junctions
- High 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

RoHS COMPLIANT

MECHANICAL DATA

- **Case:** INSULATED TO3P. 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, ...

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 = 80 °C	40	A
I_{TSM}	Non-repetitive On-State Current	Full Cycle, 60 Hz (t = 16.7 ms)	420	A
I_{TSM}	Non-repetitive On-State Current	Full Cycle, 50 Hz (t = 20 ms)	400	A
I^2t	Fusing Current	tp = 10 ms, Half Cycle	1000	A^2s
I_{GM}	Peak Gate Current	20 µs max. T_j = 125 °C	8	A
$P_{G(AV)}$	Average Gate Power Dissipation	T_j = 125 °C	1	W
dI/dt	Critical rate of rise of on-state current	I_G = 2x I_{GT}, t_r ≤100ns f = 120 Hz, T_j = 125 °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
		M	N	
V_{DRM}/V_{RRM}	Repetitive Peak Off State Voltage	600	800	V

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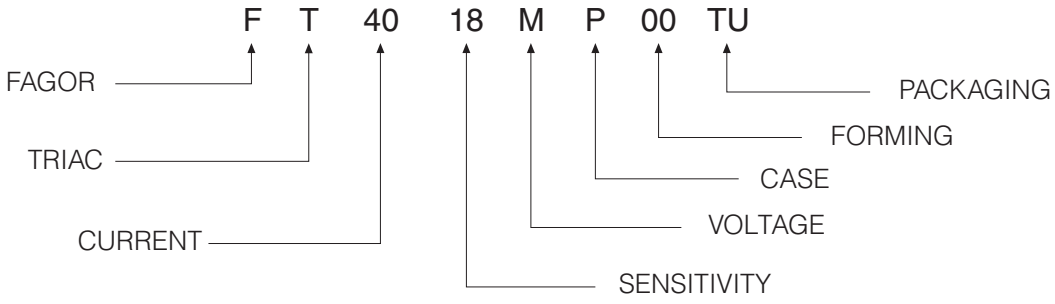
Electrical Characteristics at Tamb = 25 °C

SYMBOL	PARAMETER	CONDITIONS	Quadrant		SENSITIVITY		Unit
					17	18	
I_{GT} (1)	Gate Trigger Current	V_D = 12 V_{DC}, R_L = 33Ω, T_j = 25 °C	Q1÷Q3	MAX	50	25	mA
			Q4	MAX	100	50	mA
V_{GT}	Gate Trigger Voltage	V_D = 12 V_{DC}, R_L = 33Ω, T_j = 25 °C	Q1÷Q3	MAX	1.3		V
V_{GD}	Gate Non Trigger Voltage	V_D = V_{DRM}, R_L = 3.3 KΩ, T_j = 125 °C	Q1÷Q3	MIN	0.2		V
I_H (2)	Holding Current	I_T =100 mA,Gate open, T_j = 25 °C		MAX	60	35	mA
I_L	Latching Current	I_G = 1.2 I_{GT}, T_j = 25 °C	Q1,Q3,Q4	MAX	70	40	mA
			Q2	MAX	90	50	mA
dV/dt (2)	Critical Rate of Voltage Rise	V_D = 0.67 x V_{DRM}, Gate open T_j = 125 °C		MIN	500	200	V/µs
V_{TM} (2)	On-state Voltage	I_T = 60 Amp, tp = 380 µs, T_j = 25 °C		MAX	1.55		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	10		mΩ
I_{DRM}/I_{RRM}	Off-State Leakage Current	V_D = V_{DRM}, T_j = 125 °C		MAX	5	5	mA
		V_R = V_{RRM}, T_j = 25 °C		MAX	10	20	µA
$R_{th(j-c)}$	Thermal Resistance Junction-Case	for AC 360° conduction angle			0.9		°C/W
$R_{th(j-a)}$	Thermal Resistance Junction-Ambient				50		°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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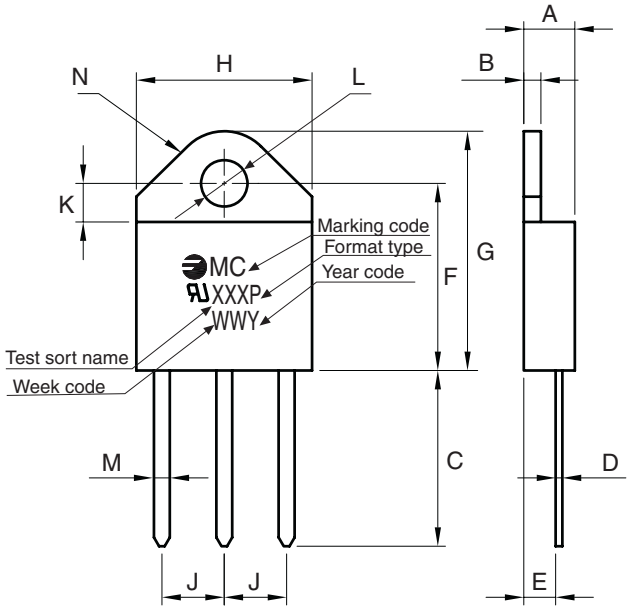
Ordering information

PREFERRED P/N	PACKAGE CODE	DELIVERY MODE	BASE QUANTITY	UNIT WEIGHT (g)
FT4018MP 00TU	TU	TUBE	450	4.50

Package Outline Dimensions: (mm) INSULATED TO3P



DIMENSIONS (mm)

	A	B	C	D	E	F	G	H	J	K	L	M	N
MAX	4.6	1.55	15.6	0.7	2.9	16.5	21.1	15.5	5.65	3.65	4.17	1.40	
TYP													4.60
MIN	4.4	1.45	14.35	0.5	2.7	15.8	20.4	15.1	5.4	3.4	4.08	1.20	

Mounting Torque	0.8 N.m

Ratings and Characteristics (Ta 25 ºC unless otherwise noted)

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

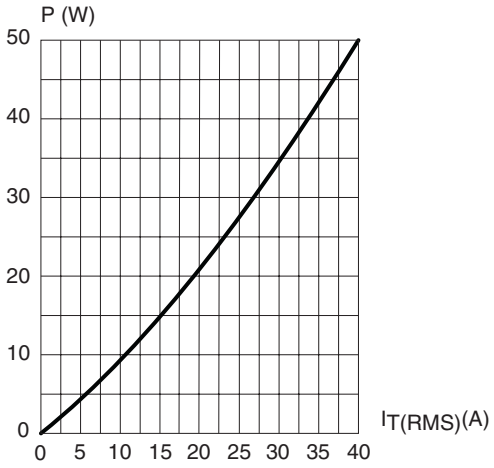


Fig. 2: RMS on-state current versus case temperature (full cycle).

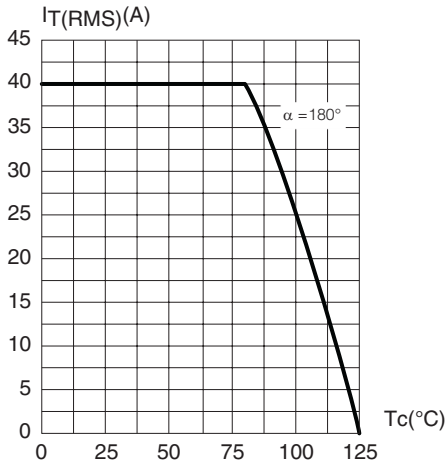


Fig. 3: On-state characteristics (maximum values)

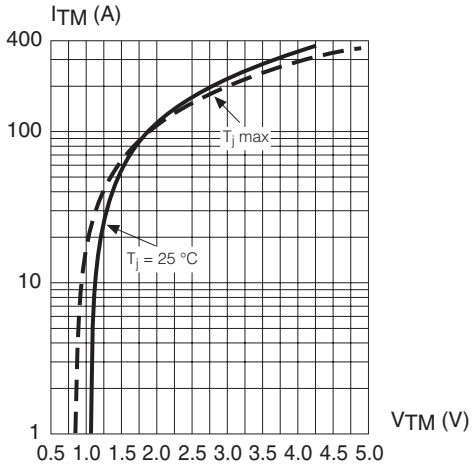


Fig. 4: Surge peak on-state current versus number of cycles

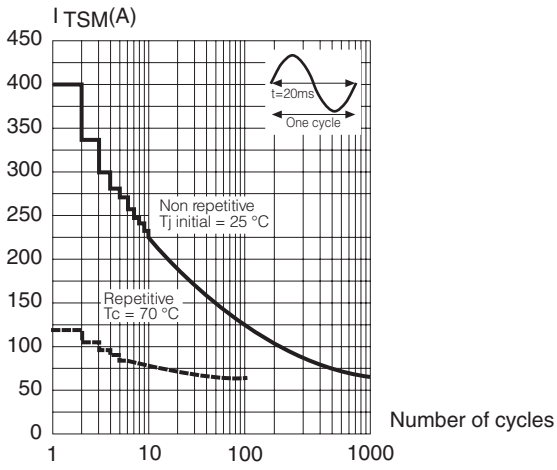


Fig. 5: Non repetitive surge peak on-state current for a sinusoidal pulse with width: tp < 10 ms, and corresponding value of I^2t.

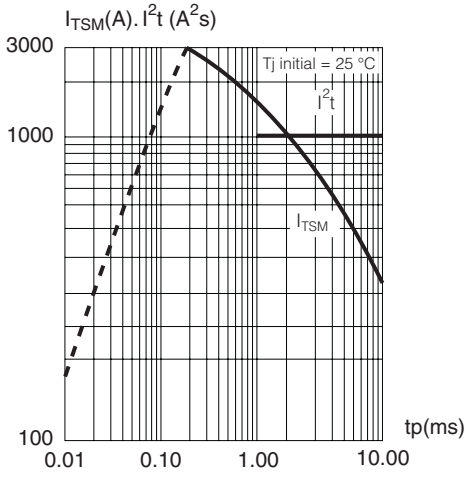
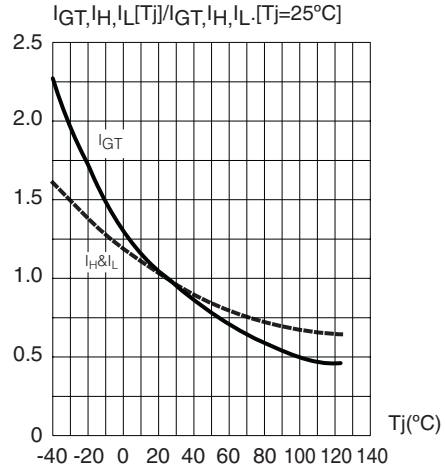


Fig. 7: Relative variation of gate trigger current, holding current and latching versus junction temperature (typical values)



Revision History

Date	Revision	Description of Changes
14-Sep-2012	0	Original Data Sheet
28-Nov-2013	1	Included Sensitivity 17

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