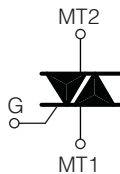
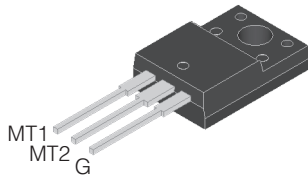


LOGIC LEVEL TRIAC
TO220-F
 (FULLY ISOLATED CASE)

On-State Current

16 Amp

Gate Trigger Current
 $< 10 \text{ mA}$
Off-State Voltage
 $200 \text{ V} \div 800 \text{ V}$

This series of **TRIACs** uses a high performance PNP technology.

These parts are intended for general purpose AC switching applications with highly inductive loads.

Absolute Maximum Ratings, according to IEC publication No. 134

SYMBOL	PARAMETER	CONDITIONS	Value	Unit
$I_{T(RMS)}$	RMS On-state Current (full sine wave)	All Conduction Angle, $T_c = 95^\circ\text{C}$	16	A
I_{TSM}	Non-repetitive On-State Current	Full Cycle, 60 Hz ($t = 16.7 \text{ ms}$)	176	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	128	A^2s
I_{GM}	Peak Gate Current	$20 \mu\text{s max.}$ $T_j = 125^\circ\text{C}$	4	A
$P_{G(AV)}$	Average Gate Power Dissipation	$T_j = 125^\circ\text{C}$	1	W
di/dt	Critical rate of rise of on-state current	$I_G = 2 \times I_{GT}$, $t_r \leq 100\text{ns}$ $f = 120 \text{ Hz}$, $T_j = 125^\circ\text{C}$	50	$\text{A}/\mu\text{s}$
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

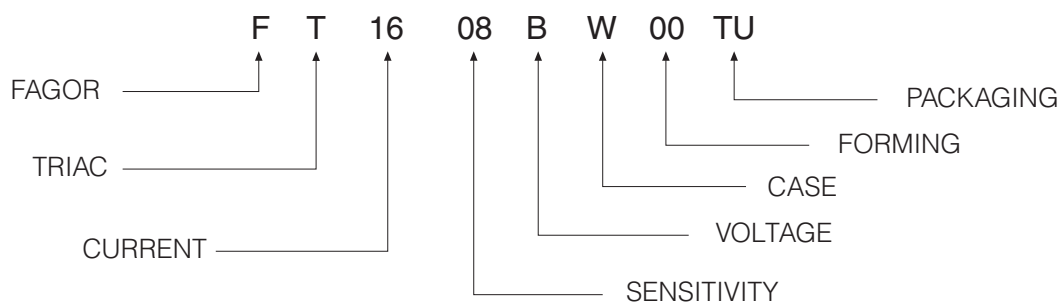
SYMBOL	PARAMETER	VOLTAGE					Unit
		B	D	M	S	N	
V_{DRM} V_{RRM}	Repetitive Peak Off State Voltage	200	400	600	700	800	V

LOGIC LEVEL TRIAC
Electrical Characteristics

SYMBOL	PARAMETER	CONDITIONS	Quadrant		SENSITIVITY		Unit
					08	09	
$I_{GT}^{(1)}$	Gate Trigger Current	$V_D = 12 V_{DC}$, $R_L = 33\Omega$, $T_j = 25^\circ C$	Q1÷Q3 Q4	MAX MAX	10	10 10	mA mA
V_{GT}	Gate Trigger Voltage	$V_D = 12 V_{DC}$, $R_L = 33\Omega$, $T_j = 25^\circ C$	Q1÷Q3 Q1÷Q4	MAX MAX	1.3	1.3	V V
V_{GD}	Gate Non Trigger Voltage	$V_D = V_{DRM}$, $R_L = 3.3 K\Omega$, $T_j = 125^\circ C$	Q1÷Q3 Q1÷Q4	MIN MIN	0.2	0.2	V V
$I_H^{(2)}$	Holding Current	$I_T = 100$ mA, Gate open, $T_j = 25^\circ C$		MAX	15	20	mA
I_L	Latching Current	$I_G = 1.2 I_{GT}$, $T_j = 25^\circ C$	Q1,Q3 Q1,Q3,Q4 Q2	MAX MAX MAX	25	20 25	mA mA mA
$dV/dt^{(2)}$	Critical Rate of Voltage Rise	$V_D = 0.67 \times V_{DRM}$, Gate open $T_j = 125^\circ C$		MIN	40	50	V/ μs
$(dI/dt)^{(2)}$	Critical Rate of Current Rise	$(dv/dt)_c = 0.1$ V/ μs $T_j = 125^\circ C$ $(dv/dt)_c = 10$ V/ μs $T_j = 125^\circ C$ without snubber $T_j = 125^\circ C$		MIN MIN MIN	8.5 3.0	2.5 1.5	A/ms A/ms
$V_{TM}^{(2)}$	On-state Voltage	$I_T = 22.5$ Amp, $t_p = 380 \mu s$, $T_j = 25^\circ C$		MAX	1.55		V
$V_{t(o)}^{(2)}$	Threshold Voltage	$T_j = 125^\circ C$		MAX	0.77		V
$r_d^{(2)}$	Dynamic resistance	$T_j = 125^\circ C$		MAX	30		m Ω
I_{DRM}/I_{RRM}	Off-State Leakage Current	$V_D = V_{DRM}$, $T_j = 125^\circ C$ $V_R = V_{RRM}$, $T_j = 25^\circ C$		MAX MAX	2	5	mA μA
$R_{th(j-c)}$	Thermal Resistance Junction-Case	for AC 360° conduction angle			2.7		°C/W
$R_{th(j-a)}$	Thermal Resistance Junction-Ambient	$S = 1$ cm ²			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


LOGIC LEVEL TRIAC

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

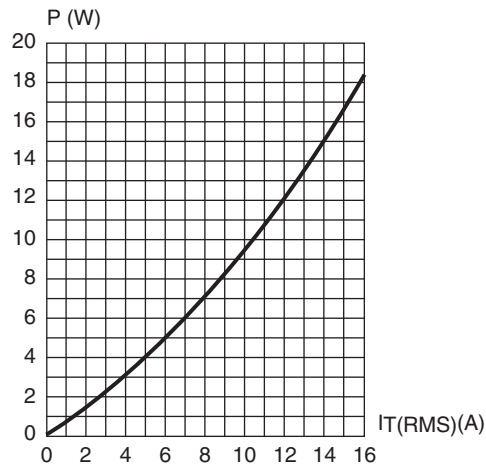


Fig. 2: RMS on-state current versus case temperature (full cycle).

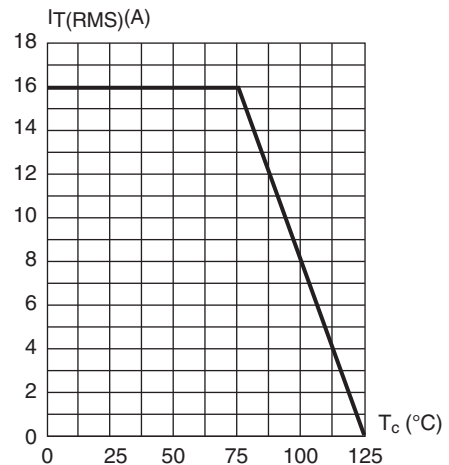


Fig. 3: Relative variation of thermal impedance versus pulse duration.

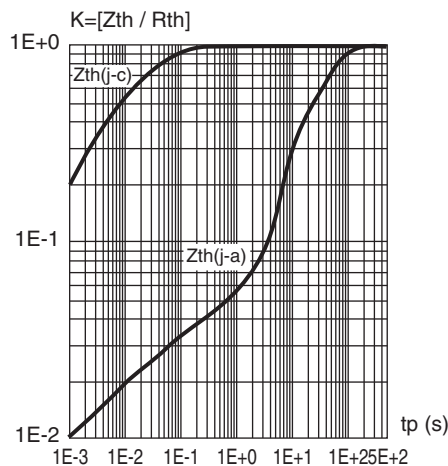


Fig. 5: Surge peak on-state current versus number of cycles

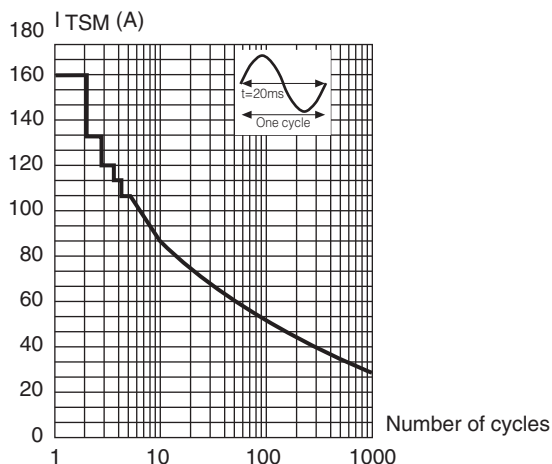


Fig. 4: On-state characteristics (maximum values)

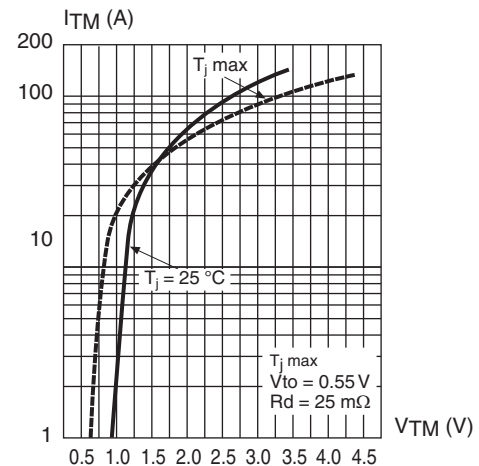
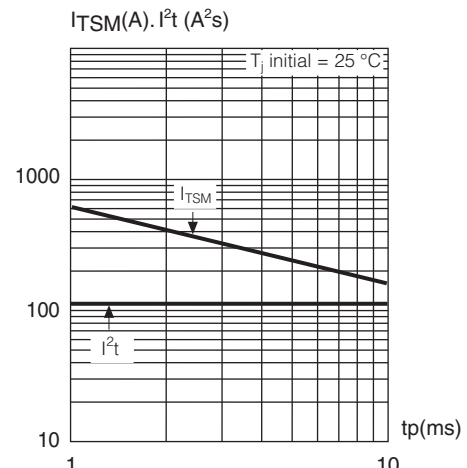


Fig. 6: Non repetitive surge peak on-state current for a sinusoidal pulse with width: $t_p < 10$ ms, and corresponding value of $I^2 t$.



LOGIC LEVEL TRIAC

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

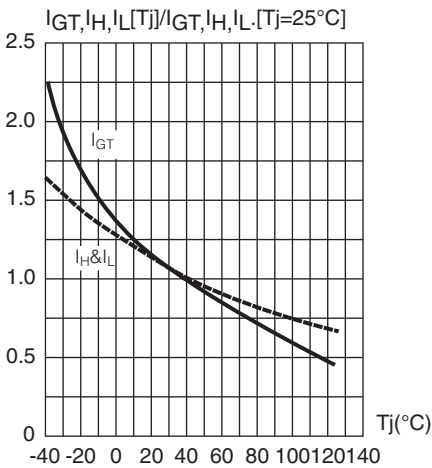


Fig. 8: Relative variation of critical rate of decrease of main current versus junction temperature

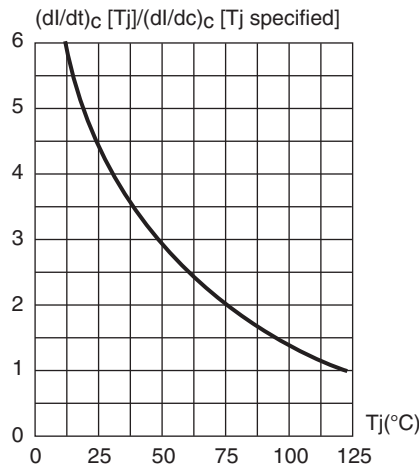
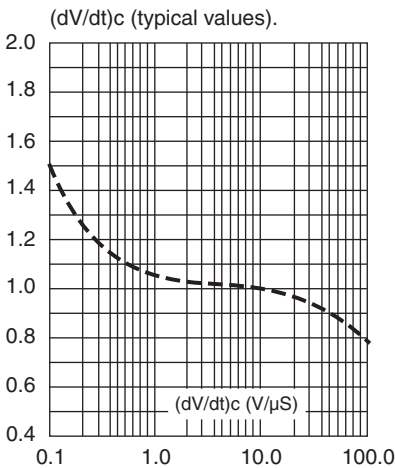
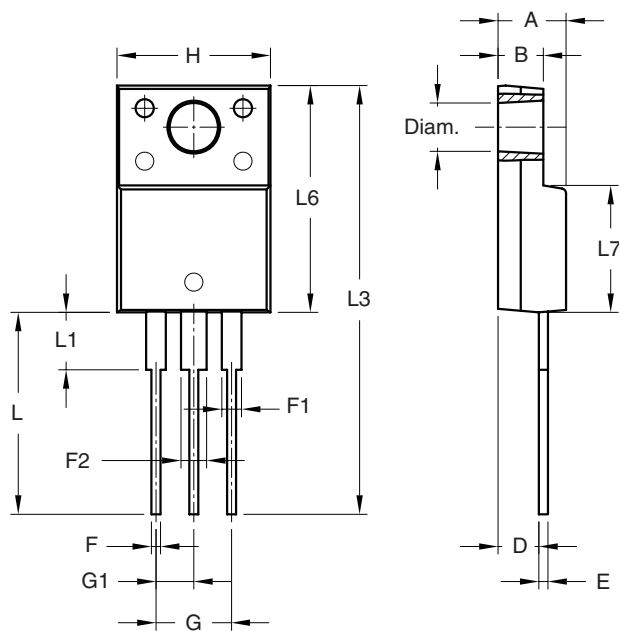


Fig. 9: Relative variation of critical rate of decrease of main current versus



PACKAGE MECHANICAL DATA

TO220-F



REF.	DIMENSIONS		
	Milimeters		
	Min.	Nominal	Max.
A	3.55	4.50	4.90
B	2.34	3.00	3.70
D	2.03	2.70	2.96
E	0.35	0.60	0.70
F	0.25	0.60	1.01
F1	0.70	1.30	1.78
F2	0.70	1.70	1.78
G	4.88	5.00	5.28
G1	2.34	2.50	2.74
H	9.65	10.15	10.67
L	12.70	13.35	14.73
L1	2.93	3.75	6.35
L3	26.90	28.35	31.20
L6	14.22	15.00	16.50
L7	8.30	8.40	9.59
Diam.	3.00	3.20	3.28