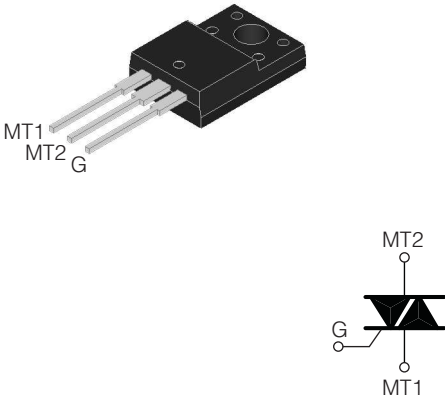


STANDARD TRIAC

TO220-F (FULLY ISOLATED CASE) 	<table> <tr> <td>On-State Current 12 Amp</td><td>Gate Trigger Current $\leq 100 \text{ mA}$</td></tr> <tr> <td colspan="2">Off-State Voltage $200 \text{ V} \div 800 \text{ V}$</td></tr> <tr> <td colspan="2"> This series of TRIACs uses a high performance PNP technology. These parts are intended for general purpose AC switching applications with highly inductive loads. </td></tr> </table>	On-State Current 12 Amp	Gate Trigger Current $\leq 100 \text{ mA}$	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.	
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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, $T_c = 95^\circ\text{C}$	12	A
I_{TSM}	Non-repetitive On-State Current	Full Cycle, 60 Hz ($t = 16.7 \text{ ms}$)	132	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	$20 \mu\text{s max.}$ $T_j = 125^\circ\text{C}$	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

STANDARD TRIAC

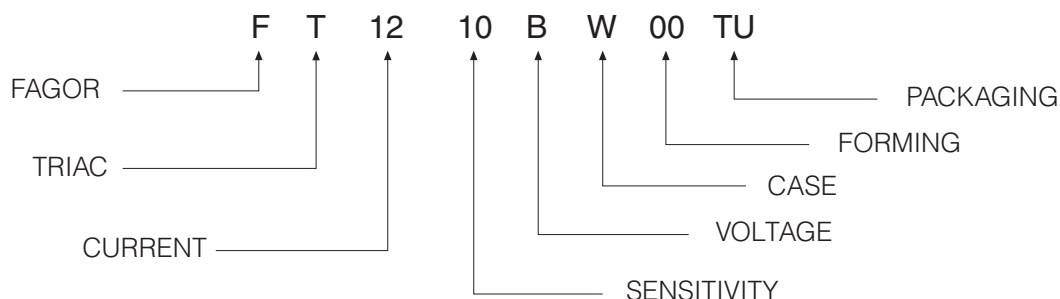
Electrical Characteristics

SYMBOL	PARAMETER	CONDITIONS	Quadrant		SENSITIVITY				Unit
					10	13	18	17	
$I_{GT}^{(1)}$	Gate Trigger Current	$V_D = 12 V_{DC}, R_L = 33\Omega, T_j = 25^\circ C$	Q1÷Q3	MAX	25	50	25	50	mA
			Q4	MAX	25	75	50	100	mA
V_{GT}	Gate Trigger Voltage	$V_D = 12 V_{DC}, R_L = 33\Omega, T_j = 25^\circ C$	Q1÷Q4	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÷Q4	MIN	0.2				V
$I_H^{(2)}$	Holding Current	$I_T = 100 \text{ mA}, \text{ Gate open}, T_j = 25^\circ C$		MAX	25	50	25	50	mA
I_L	Latching Current	$I_G = 1.2 I_{GT}, T_j = 25^\circ C$	Q1,Q3,Q4	MAX	40	70	40	70	mA
			Q2	MAX	60	80	80	100	mA
$dV/dt^{(2)}$	Critical Rate of Voltage Rise	$V_D = 0.67 \times V_{DRM}, \text{ Gate open}$ $T_j = 125^\circ C$		MIN	500	1000	700	1000	V/ μs
$(dV/dt)_c^{(2)}$	Critical Rise Rate of Commutating off-state voltage	$(dI/dt)_c = 2.7 \text{ A/ms}, T_j = 125^\circ C$		MIN	3	8	5	10	V/ μs
$V_{TM}^{(2)}$	On-state Voltage	$I_T = 17 \text{ Amp}, t_p = 380 \mu s, T_j = 25^\circ C$		MAX	1.55				V
$V_{t(o)}^{(2)}$	Threshold Voltage	$T_j = 125^\circ C$		MAX	0.80				V
$r_d^{(2)}$	Dynamic resistance	$T_j = 125^\circ C$		MAX	40				m Ω
I_{DRM}/I_{RRM}	Off-State Leakage Current	$V_D = V_{DRM}, T_j = 125^\circ C$		MAX	1				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			2.9				°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



STANDARD TRIAC

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

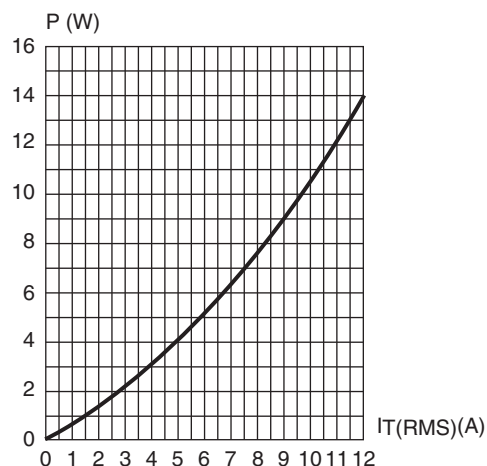


Fig. 2: RMS on-state current versus case temperature (full cycle).

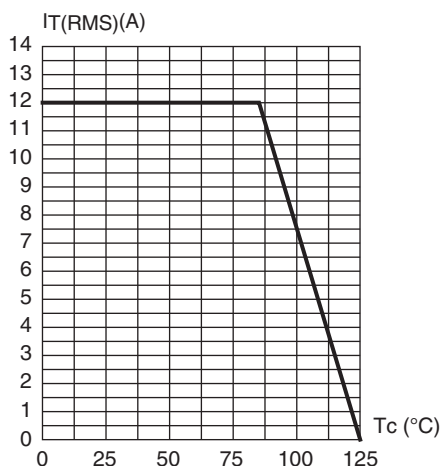


Fig. 3: Relative variation of thermal impedance versus pulse duration.

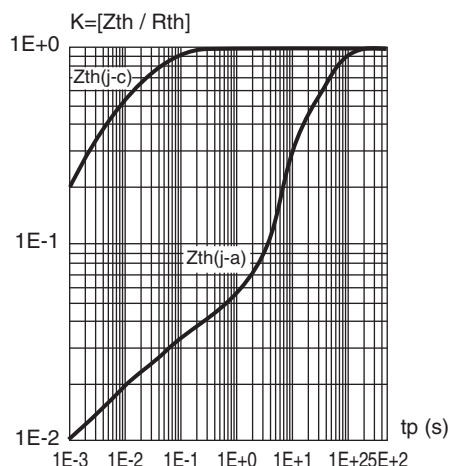


Fig. 5: Surge peak on-state current versus number of cycles

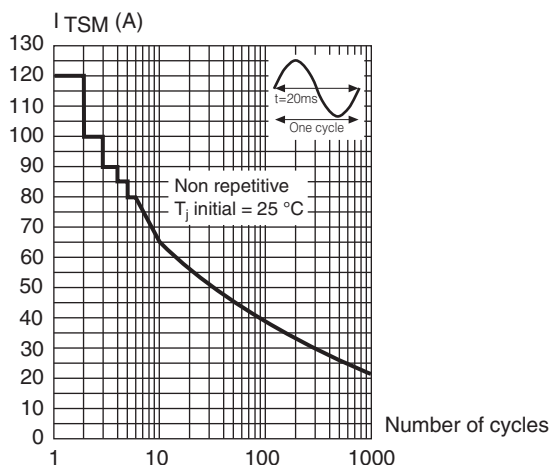


Fig. 4: On-state characteristics (maximum values)

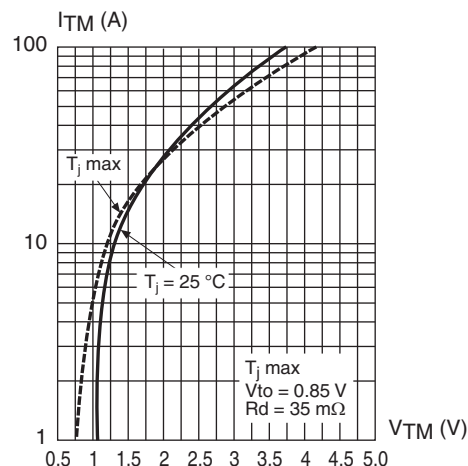
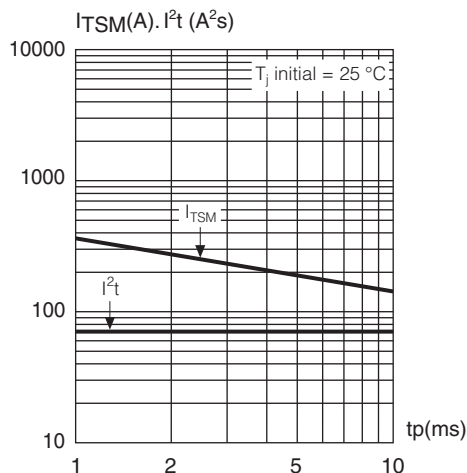


Fig. 6: Non repetitive surge peak on-state current for a sinusoidal pulse with width: $t_p < 10 ms$, and corresponding value of I^2t .



STANDARD TRIAC

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

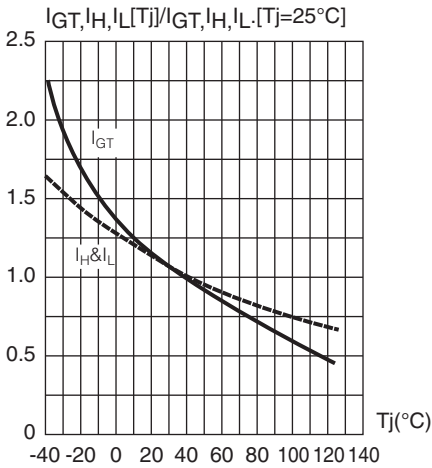


Fig. 8: Relative variation of critical rate of decrease of main current versus junction temperature

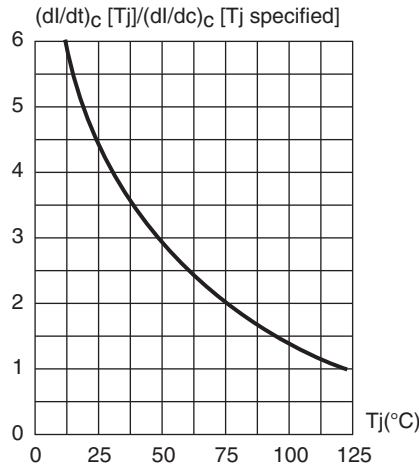
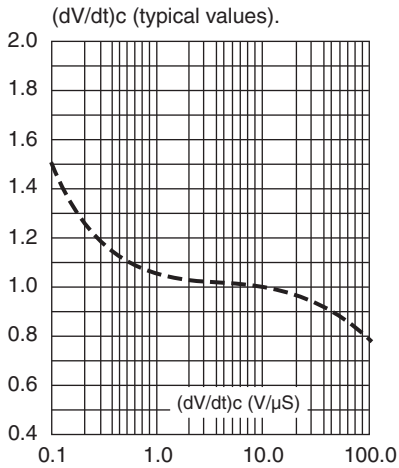
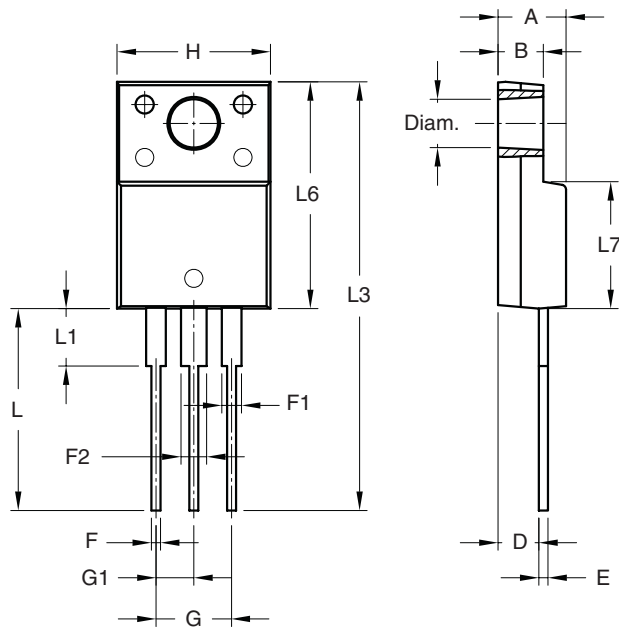


Fig. 9: Relative variation of critical rate of decrease of main current versus



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