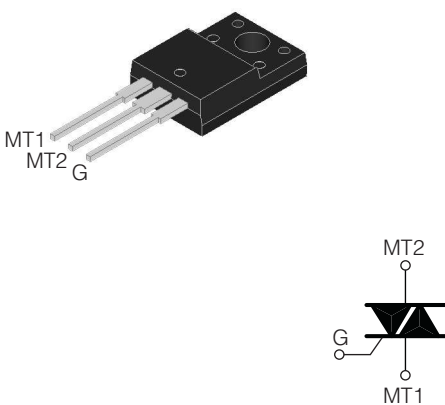


STANDARD TRIAC

<p style="text-align: center;">TO220-F (FULLY ISOLATED CASE)</p> 	<p>On-State Current 12 Amp</p>	<p>Gate Trigger Current $\leq 100 \text{ mA}$</p>
	<p>Off-State Voltage 200 V ÷ 800 V</p>	
<p>This series of TRIACs uses a high performance PNPN technology.</p> <p>These parts are intended for general purpose AC switching applications with highly inductive loads.</p>		

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, $T_c = 95 \text{ }^\circ\text{C}$	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	$20 \mu\text{s max.}$ $T_j = 125 \text{ }^\circ\text{C}$	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	$I_G = 2 \times I_{GT}$, $t_r \leq 100\text{ns}$ $f = 120 \text{ Hz}$, $T_j = 125 \text{ }^\circ\text{C}$	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

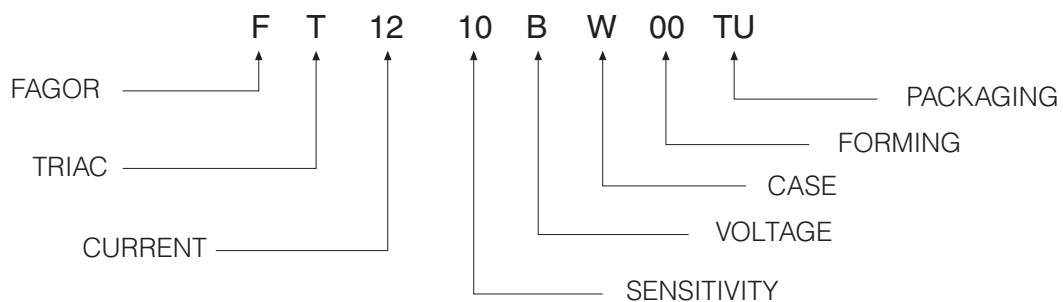
Electrical Characteristics

SYMBOL	PARAMETER	CONDITIONS	Quadrant		SENSITIVITY				Unit
					10	13	18	17	
I _{GT} ⁽¹⁾	Gate Trigger Current	V _D = 12 V _{DC} , R _L = 33Ω, T _j = 25 °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 = 33Ω, T _j = 25 °C	Q1÷Q4	MAX	1.3				V
V _{GD}	Gate Non Trigger Voltage	V _D = V _{DRM} , R _L = 3.3 KΩ, T _j = 125 °C	Q1÷Q4	MIN	0.2				V
I _H ⁽²⁾	Holding Current	I _T = 100 mA, Gate open, T _j = 25 °C		MAX	25	50	25	50	mA
I _L	Latching Current	I _G = 1.2 I _{GT} , T _j = 25 °C	Q1,Q3,Q4	MAX	40	70	40	70	mA
			Q2	MAX	60	80	80	100	
dV/dt ⁽²⁾	Critical Rate of Voltage Rise	V _D = 0.67 × V _{DRM} , Gate open T _j = 125 °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 A/ms T _j = 125 °C		MIN	3	8	5	10	V/μs
V _{TM} ⁽²⁾	On-state Voltage	I _T = 17 Amp, t _p = 380 μs, T _j = 25 °C		MAX	1.55				V
V _{t(o)} ⁽²⁾	Threshold Voltage	T _j = 125 °C		MAX	0.80				V
r _d ⁽²⁾	Dynamic resistance	T _j = 125 °C		MAX	40				mΩ
I _{DRM} /I _{RRM}	Off-State Leakage Current	V _D = V _{DRM} , T _j = 125 °C V _R = V _{RRM} , T _j = 25 °C		MAX	1				mA
				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 guaranteed 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)

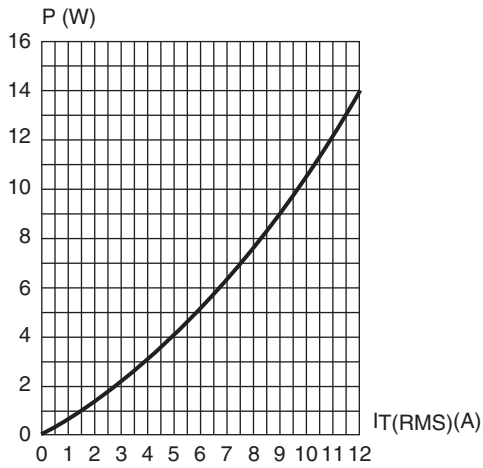


Fig. 2: RMS on-state current versus case temperature (full cycle).

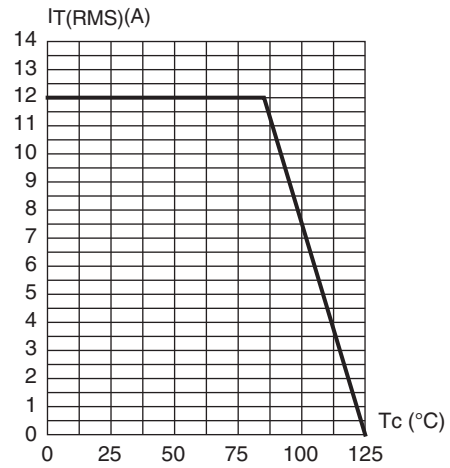


Fig. 3: Relative variation of thermal impedance versus pulse duration.

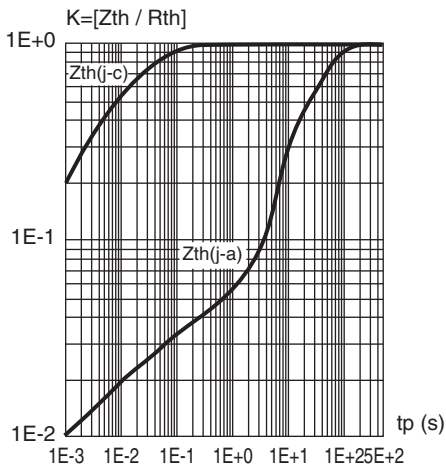


Fig. 5: Surge peak on-state current versus number of cycles

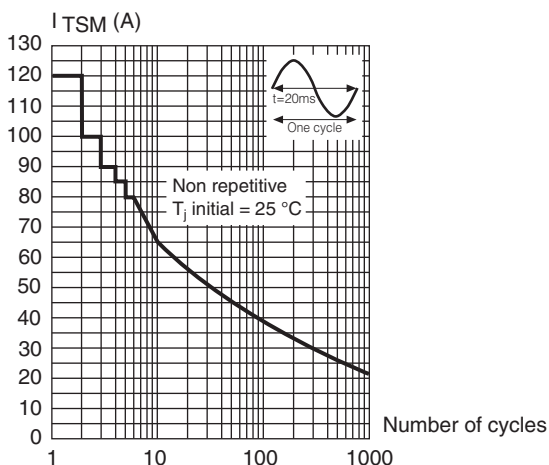


Fig. 4: On-state characteristics (maximum values)

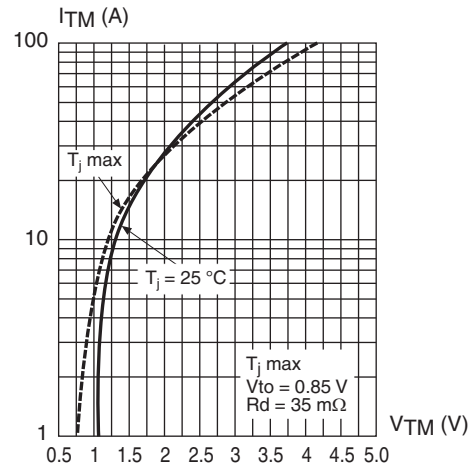
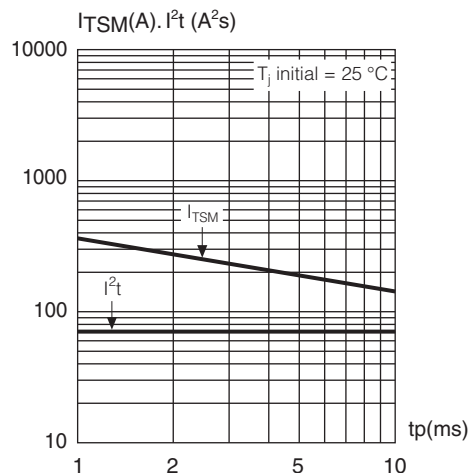


Fig. 6: Non repetitive surge peak on-state current for a sinusoidal pulse with width: tp < 10 ms, and corresponding value of I²t.



STANDARD TRIAC

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

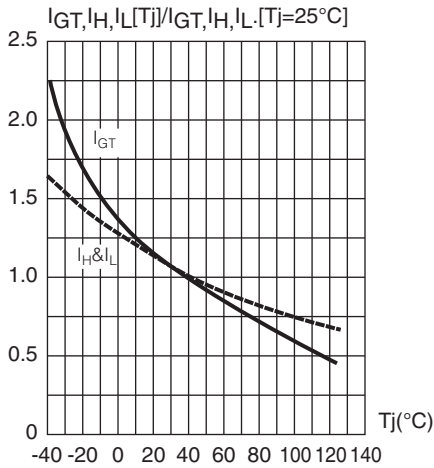


Fig. 8: Relative variation of critical rate of decrease of main current versus junction temperature

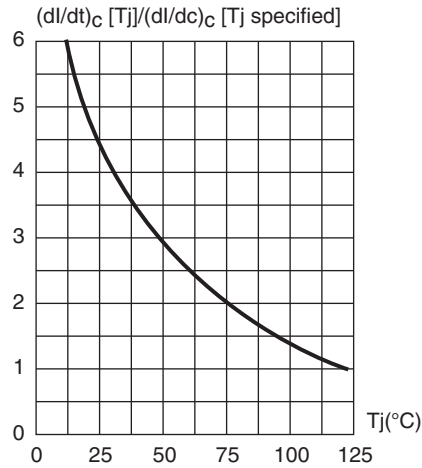
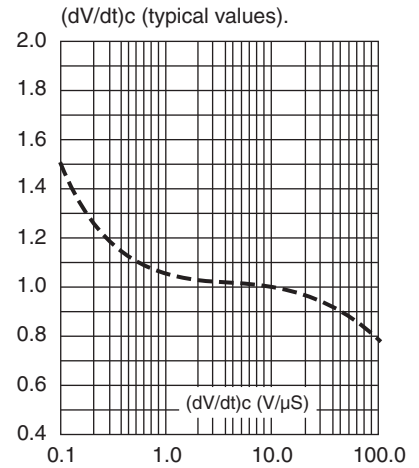
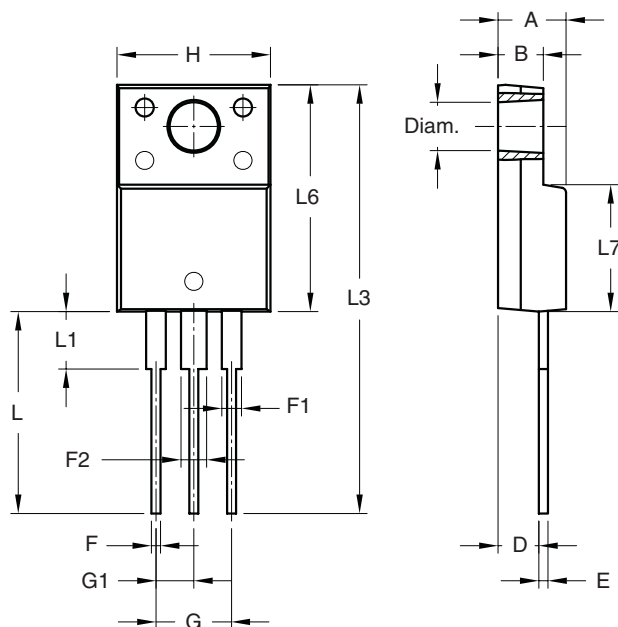


Fig. 9: Relative variation of critical rate of decrease of main current versus



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