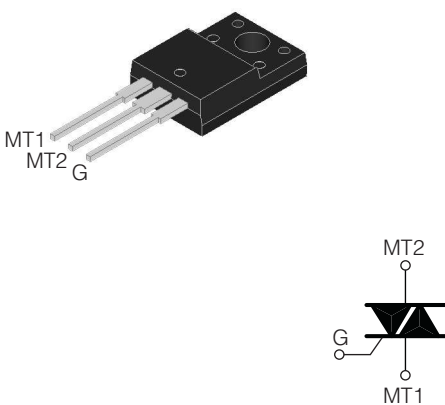


**STANDARD TRIAC**

<p style="text-align: center;"><b>TO220-F</b> (FULLY ISOLATED CASE)</p> 	<p><b>On-State Current</b> 10 Amp</p>	<p><b>Gate Trigger Current</b> <math>\leq 100</math> mA</p>
	<p><b>Off-State Voltage</b> 200 V ÷ 800 V</p>	
<p>This series of <b>TRIACs</b> 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, $T_c = 95$ °C	10	A
$I_{TSM}$	Non-repetitive On-State Current	Full Cycle, 60 Hz ( $t = 16.7$ ms)	110	A
$I_{TSM}$	Non-repetitive On-State Current	Full Cycle, 50 Hz ( $t = 20$ ms)	100	A
$I^2t$	Fusing Current	$t_p = 10$ ms, Half Cycle	50	A <sup>2</sup> s
$I_{GM}$	Peak Gate Current	20 $\mu$ s max. $T_j = 125$ °C	4	A
$P_{G(AV)}$	Average Gate Power Dissipation	$T_j = 125$ °C	1	W
$di/dt$	Critical rate of rise of on-state current	$I_G = 2 \times I_{GT}$ , $t_r \leq 100$ ns $f = 120$ Hz, $T_j = 125$ °C	50	A/ $\mu$ s
$T_j$	Operating Temperature		(-40 +125)	°C
$T_{stg}$	Storage Temperature		(-40 +150)	°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
		B	D	M	S	N	
$V_{DRM}$ $V_{RRM}$	Repetitive Peak Off State Voltage	200	400	600	700	800	V

# STANDARD TRIAC

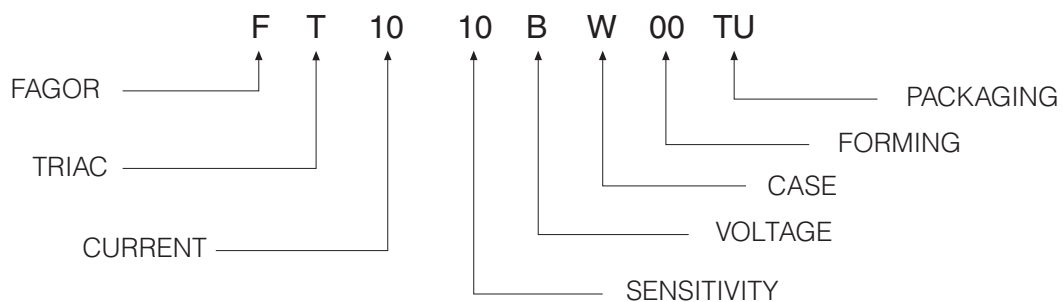
## Electrical Characteristics

SYMBOL	PARAMETER	CONDITIONS	Quadrant		SENSITIVITY				Unit
					10	13	18	17	
I <sub>GT</sub> <sup>(1)</sup>	Gate Trigger Current	V <sub>D</sub> = 12 V <sub>DC</sub> , R <sub>L</sub> = 33Ω, T <sub>j</sub> = 25 °C	Q1÷Q3	MAX	25	50	25	10	mA
			Q4	MAX	25	75	50	100	mA
V <sub>GT</sub>	Gate Trigger Voltage	V <sub>D</sub> = 12 V <sub>DC</sub> , R <sub>L</sub> = 33Ω, T <sub>j</sub> = 25 °C	Q1÷Q4	MAX	1.3				V
V <sub>GD</sub>	Gate Non Trigger Voltage	V <sub>D</sub> = V <sub>DRM</sub> , R <sub>L</sub> = 3.3 KΩ, T <sub>j</sub> = 125 °C	Q1÷Q4	MIN	0.2				V
I <sub>H</sub> <sup>(2)</sup>	Holding Current	I <sub>T</sub> = 100 mA, Gate open, T <sub>j</sub> = 25 °C		MAX	25	50	25	50	mA
I <sub>L</sub>	Latching Current	I <sub>G</sub> = 1.2 I <sub>GT</sub> , T <sub>j</sub> = 25 °C	Q1,Q3,Q4	MAX	40	70	40	70	mA
			Q2	MAX	60	80	80	100	
dV/dt <sup>(2)</sup>	Critical Rate of Voltage Rise	V <sub>D</sub> = 0.67 × V <sub>DRM</sub> , Gate open T <sub>j</sub> = 125 °C		MIN	500	1000	700	1000	V/μs
(dV/dt) <sub>c</sub> <sup>(2)</sup>	Critical Rise Rate of Commutating off-state voltage	(dI/dt) <sub>c</sub> = 2.7 A/ms T <sub>j</sub> = 125 °C		MIN	3	8	5	10	V/μs
V <sub>TM</sub> <sup>(2)</sup>	On-state Voltage	I <sub>T</sub> = 14 Amp, tp = 380 μs, T <sub>j</sub> = 25 °C		MAX	1.6				V
V <sub>t(o)</sub> <sup>(2)</sup>	Threshold Voltage	T <sub>j</sub> = 125 °C		MAX	0.85				V
r <sub>d</sub> <sup>(2)</sup>	Dynamic resistance	T <sub>j</sub> = 125 °C		MAX	40				mΩ
I <sub>DRM</sub> /I <sub>RRM</sub>	Off-State Leakage Current	V <sub>D</sub> = V <sub>DRM</sub> , T <sub>j</sub> = 125 °C V <sub>R</sub> = V <sub>RRM</sub> , T <sub>j</sub> = 25 °C		MAX	1				mA
				MAX	5				μA
R <sub>th(j-c)</sub>	Thermal Resistance Junction-Case	for AC 360° conduction angle			3.2				°C/W
R <sub>th(j-a)</sub>	Thermal Resistance Junction-Ambient				50				°C/W

(1) Minimum I<sub>GT</sub> is guaranteed at 5% of I<sub>GT</sub> 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)

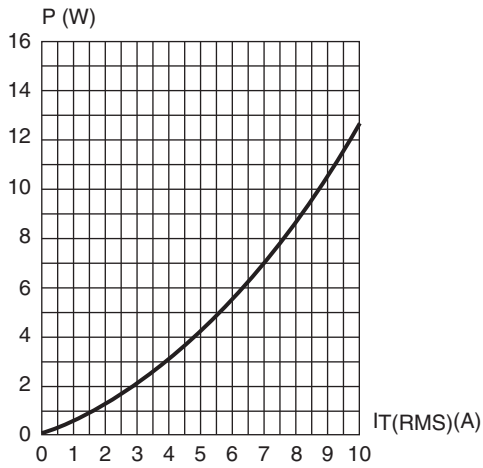


Fig. 2: RMS on-state current versus case temperature (full cycle).

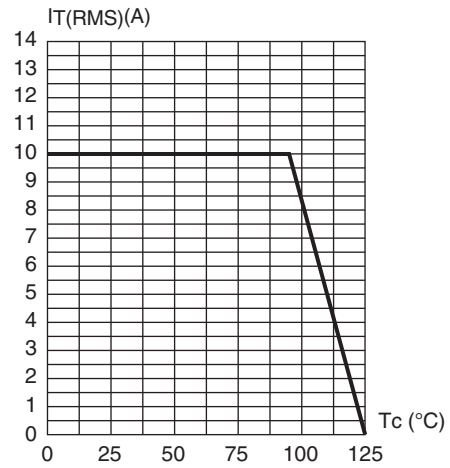


Fig. 3: Relative variation of thermal impedance versus pulse duration.

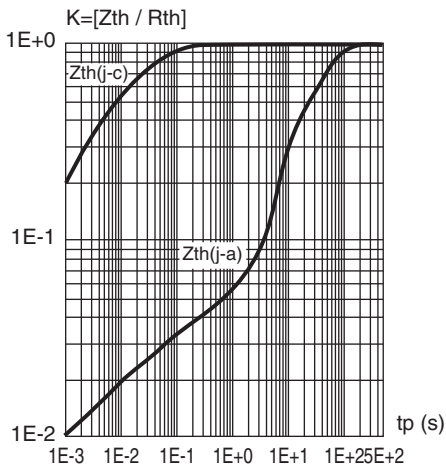


Fig. 5: Surge peak on-state current versus number of cycles

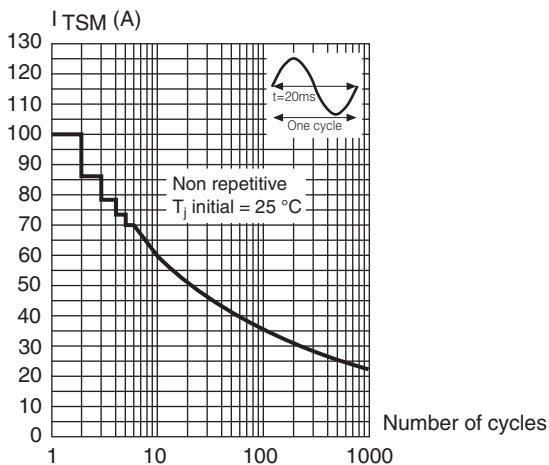


Fig. 4: On-state characteristics (maximum values)

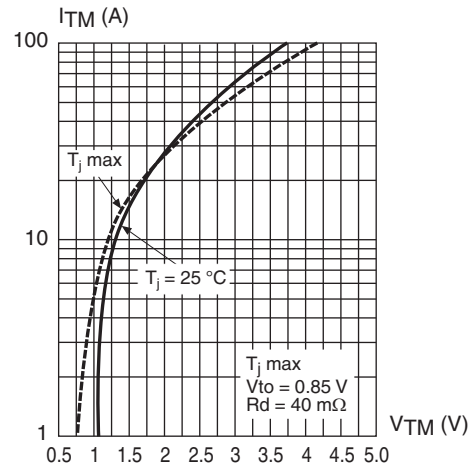
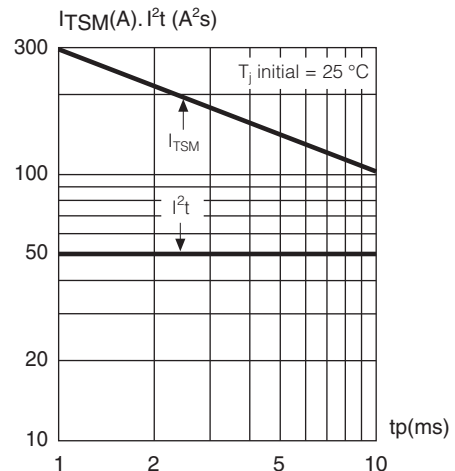


Fig. 6: Non repetitive surge peak on-state current for a sinusoidal pulse with width: tp < 10 ms, and corresponding value of I²t.



### STANDARD TRIAC

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

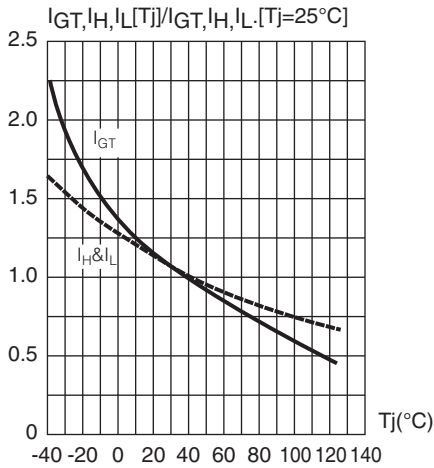


Fig. 8: Relative variation of critical rate of decrease of main current versus junction temperature

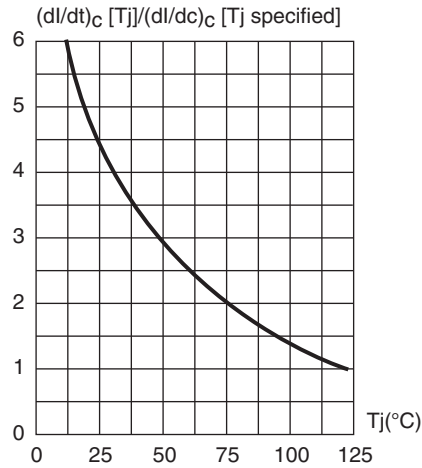
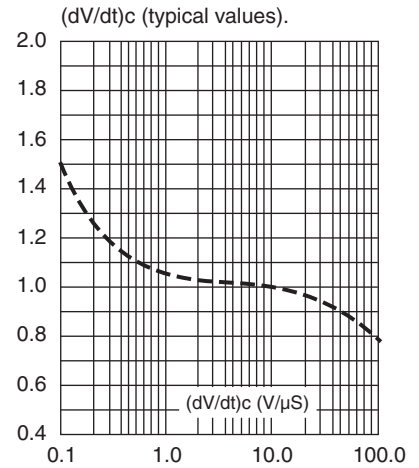
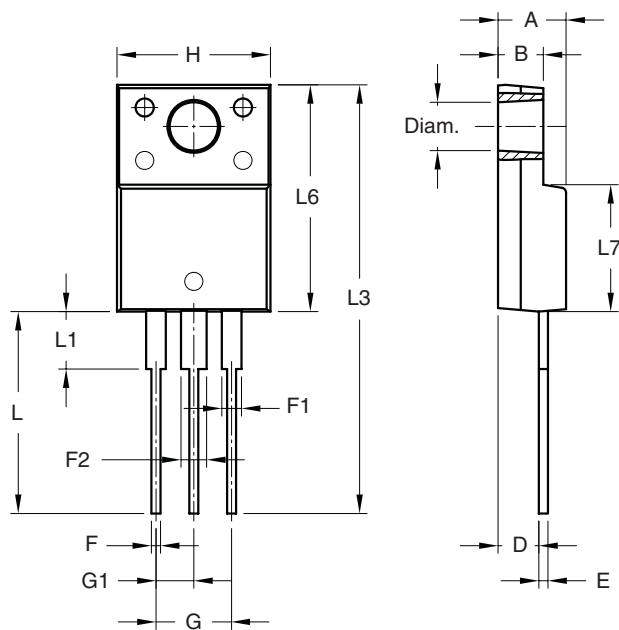


Fig. 9: Relative variation of critical rate of decrease of main current versus



### 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