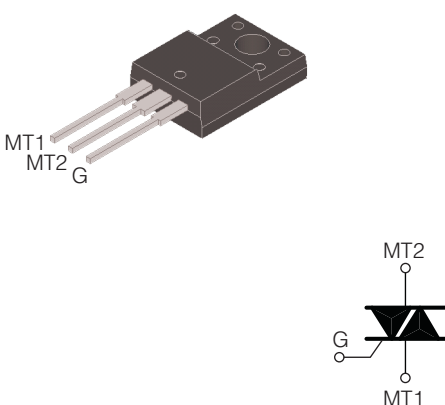


**HIGH COMMUTATION TRIAC**

<p style="text-align: center;"><b>TO220-F</b> (FULLY ISOLATED CASE)</p> 	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; text-align: center;"><b>On-State Current</b> 16 Amp</td> <td style="width: 50%; text-align: center;"><b>Gate Trigger Current</b> ≤ 50 mA</td> </tr> <tr> <td colspan="2" style="text-align: center;"><b>Off-State Voltage</b> 200 V ÷ 800 V</td> </tr> </table> <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>	<b>On-State Current</b> 16 Amp	<b>Gate Trigger Current</b> ≤ 50 mA	<b>Off-State Voltage</b> 200 V ÷ 800 V	
<b>On-State Current</b> 16 Amp	<b>Gate Trigger Current</b> ≤ 50 mA				
<b>Off-State Voltage</b> 200 V ÷ 800 V					

**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, $T_c = 95\text{ }^\circ\text{C}$	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 <sup>2</sup> s
$I_{GM}$	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	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

## HIGH COMMUTATION TRIAC

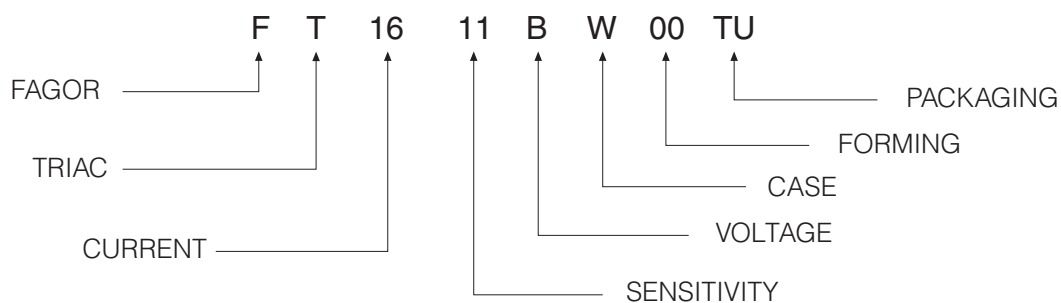
### Electrical Characteristics

SYMBOL	PARAMETER	CONDITIONS	Quadrant		SENSITIVITY			Unit
					11	14	16	
$I_{GT}^{(1)}$	Gate Trigger Current	$V_D = 12 V_{DC}, R_L = 33\Omega, T_j = 25^\circ C$	Q1÷Q3	MAX	25	35	50	mA
$V_{GT}$	Gate Trigger Voltage	$V_D = 12 V_{DC}, R_L = 33\Omega, T_j = 25^\circ C$	Q1÷Q3	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÷Q3	MIN	0.2			V
$I_H^{(2)}$	Holding Current	$I_T = 100 mA, \text{Gate open}, T_j = 25^\circ C$		MAX	25	35	50	mA
$I_L$	Latching Current	$I_G = 1.2 I_{GT}, T_j = 25^\circ C$	Q1,Q3	MAX	40	50	70	mA
			Q2	MAX	50	60	80	
$dV/dt^{(2)}$	Critical Rate of Voltage Rise	$V_D = 0.67 \times V_{DRM}, \text{Gate open}$ $T_j = 125^\circ C$		MIN	200	500	1000	V/ $\mu s$
$(dI/dt)_c^{(2)}$	Critical Rate of Current Rise	$(dv/dt)_c = 0.1 V/\mu s \quad T_j = 125^\circ C$ $(dv/dt)_c = 10 V/\mu s \quad T_j = 125^\circ C$ without snubber $T_j = 125^\circ C$		MIN	-	-	-	A/ms
				MIN	-	-	-	
				MIN	5	8.5	14	
$V_{TM}^{(2)}$	On-state Voltage	$I_T = 22.5 \text{ Amp}, t_p = 380 \mu s, T_j = 25^\circ C$		MAX	1.55			V
$V_{t(o)}^{(2)}$	Threshold Voltage	$T_j = 125^\circ C$		MAX	0.77			V
$r_d^{(2)}$	Dynamic resistance	$T_j = 125^\circ C$		MAX	30			m $\Omega$
$I_{DRM}/I_{RRM}$	Off-State Leakage Current	$V_D = V_{DRM}, T_j = 125^\circ C$ $V_R = V_{RRM}, T_j = 25^\circ C$		MAX	2			mA
				MAX	5			$\mu A$
$R_{th(j-c)}$	Thermal Resistance Junction-Case	for AC 360° conduction angle			2.7			°C/W
$R_{th(j-a)}$					60			°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



## HIGH COMMUTATION TRIAC

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

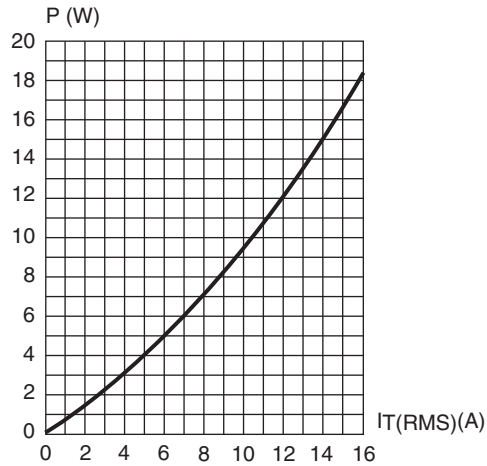


Fig. 2: RMS on-state current versus case temperature (full cycle).

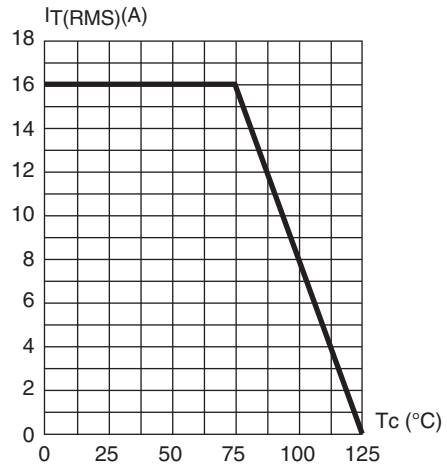


Fig. 3: Relative variation of thermal impedance versus pulse duration.

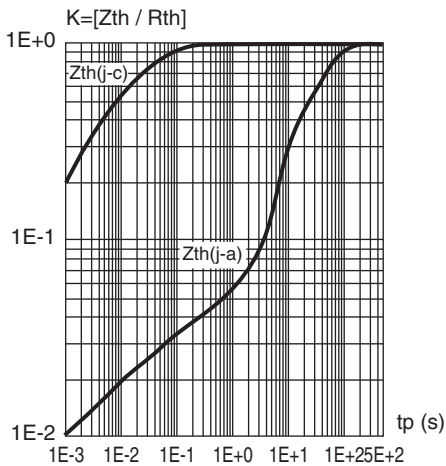


Fig. 5: Surge peak on-state current versus number of cycles

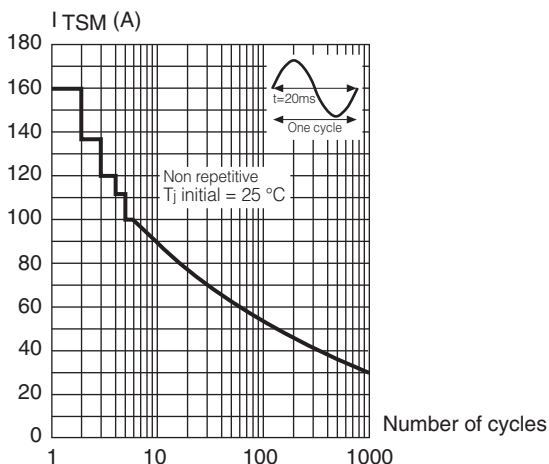


Fig. 4: On-state characteristics (maximum values)

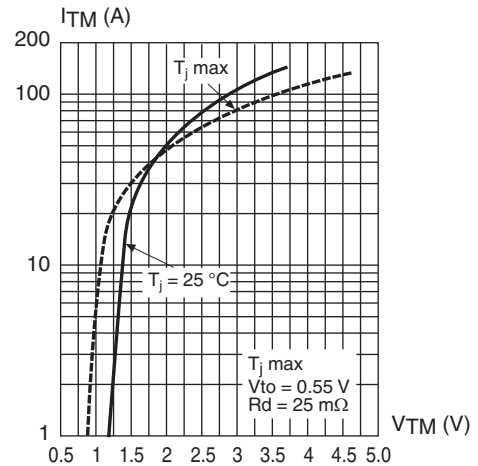
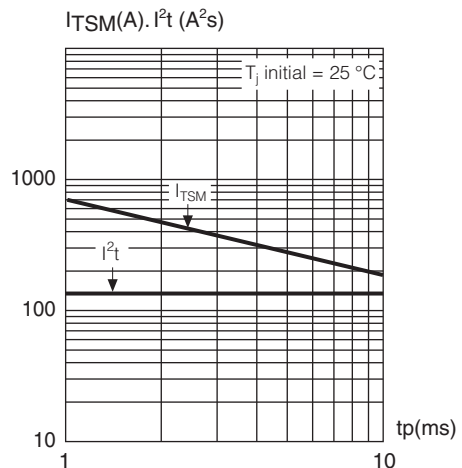


Fig. 6: Non repetitive surge peak on-state current for a sinusoidal pulse with width:  $t_p < 10$  ms, and corresponding value of  $I^2t$ .



**HIGH COMMUTATION TRIAC**

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

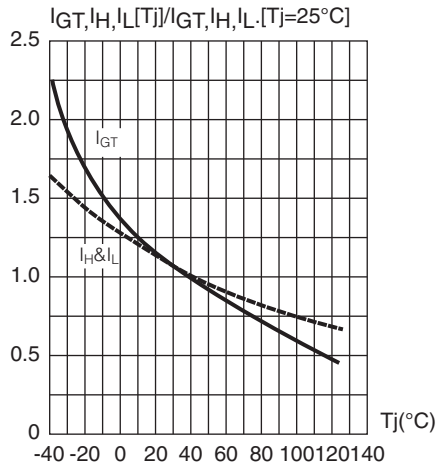
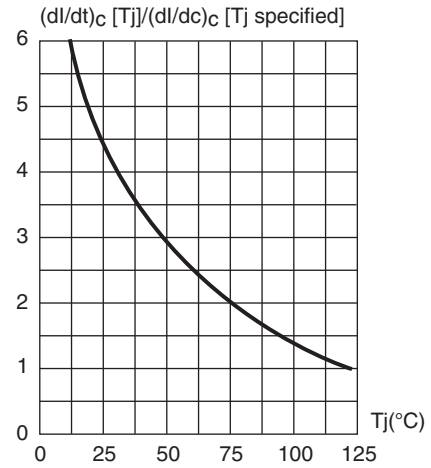
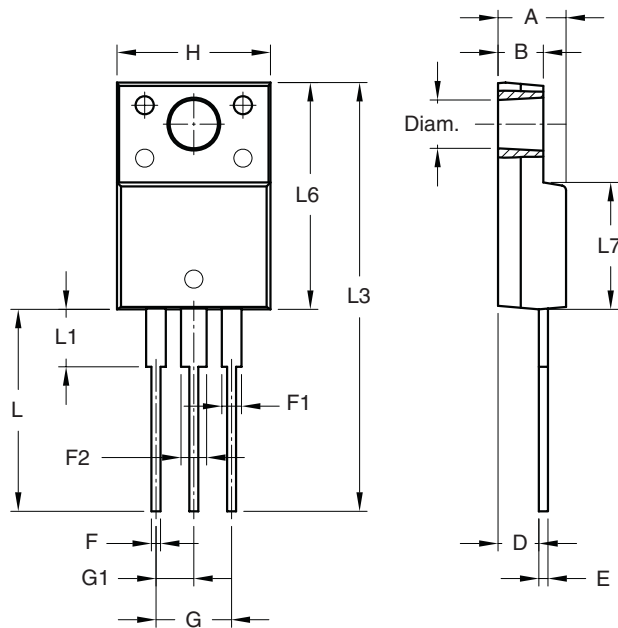


Fig. 8: Relative variation of critical rate of decrease of main current versus junction temperature



**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