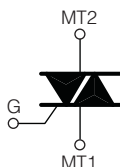
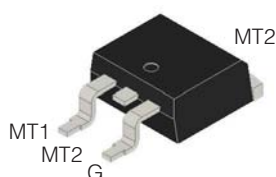


LOGIC LEVEL TRIAC
D²PAK

On-State Current

16 Amp

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

This series of **TRIACs** uses a high performance PNPN 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	$^\circ\text{C}$

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

LOGIC LEVEL TRIAC

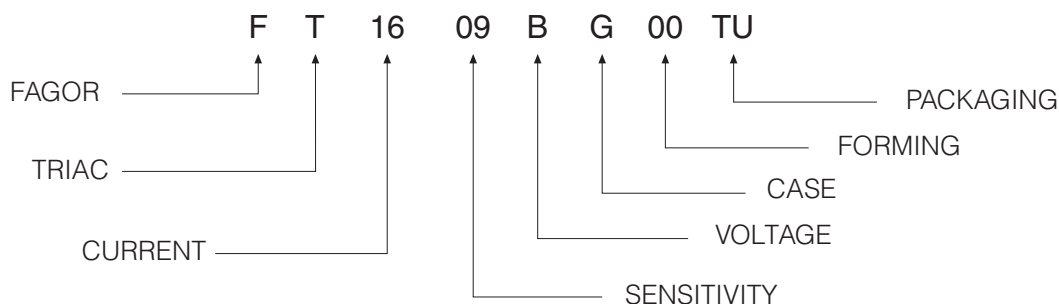
Electrical Characteristics

SYMBOL	PARAMETER	CONDITIONS	Quadrant		SENSITIVITY	Unit
					09	
$I_{GT}^{(1)}$	Gate Trigger Current	$V_D = 12 V_{DC}, R_L = 33 \Omega, T_j = 25^\circ C$	Q1÷Q3	MAX	10	mA
			Q4	MAX	10	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
			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÷Q3	MIN	0.2	V
			Q1÷Q4	MIN	0.2	V
$I_H^{(2)}$	Holding Current	$I_T = 100 mA, \text{Gate open}, T_j = 25^\circ C$		MAX	20	mA
I_L	Latching Current	$I_G = 1.2 I_{GT}, T_j = 25^\circ C$	Q1,Q3	MAX		mA
			Q1,Q3,Q4	MAX	20	mA
			Q2	MAX	25	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	40	V/ μs
$(dI/dt)_C^{(2)}$	Critical Rate of Current Rise	$(dv/dt)_C = 0.1 V/\mu s, T_j = 125^\circ C$		MIN	2.5	A/ms
		$(dv/dt)_C = 10 V/\mu s, T_j = 125^\circ C$		MIN	1.5	A/ms
		without snubber $T_j = 125^\circ C$		MIN	-	
$V_{TM}^{(2)}$	On-state Voltage	$I_T = 22.5 Amp, t_p = 380 \mu s, T_j = 25^\circ C$		MAX	1.60	V
$V_{to}^{(2)}$	Threshold Voltage	$T_j = 125^\circ C$		MAX	0.77	V
$r_d^{(2)}$	Dynamic resistance	$T_j = 125^\circ C$		MAX	50	m Ω
I_{DRM}/I_{RRM}	Off-State Leakage Current	$V_D = V_{DRM}, T_j = 125^\circ C$		MAX	2	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			1.1	°C/W
$R_{th(j-a)}$	Thermal Resistance Junction-Ambient	$S = 1 cm^2$			45	°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).

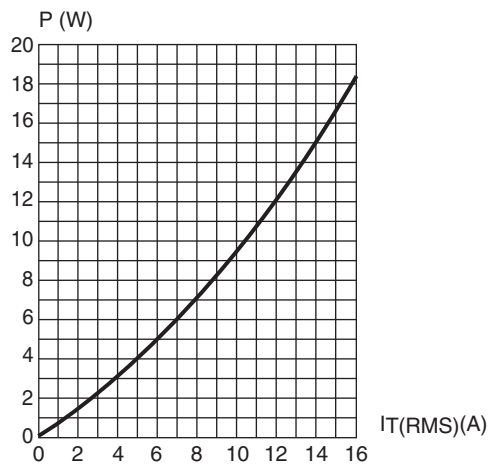


Fig. 2: RMS on-state current versus case temperature (full cycle).

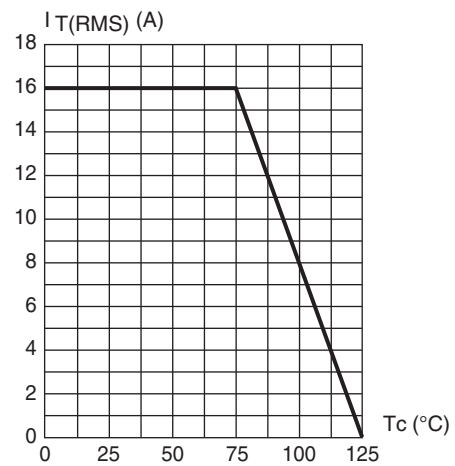


Fig. 3: Relative variation of thermal impedance versus pulse duration.

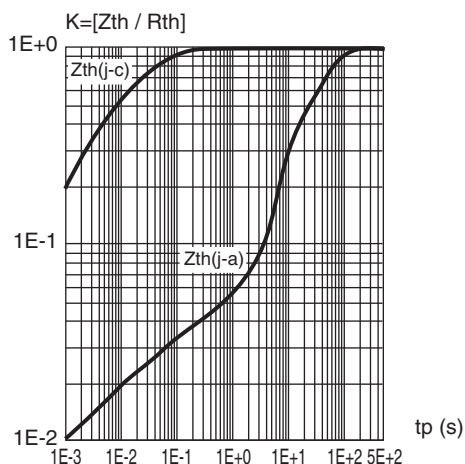


Fig. 4: On-state characteristics (maximum values)

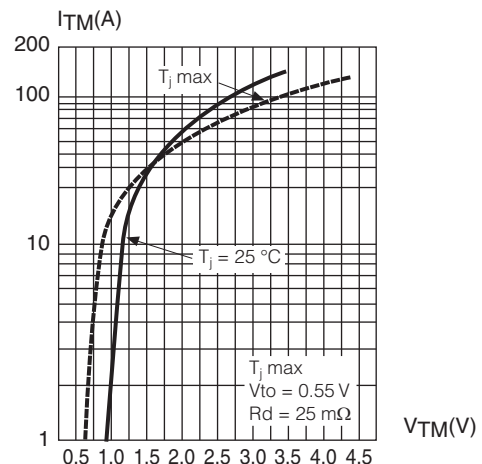


Fig. 5: Surge peak on-state current versus number of cycles

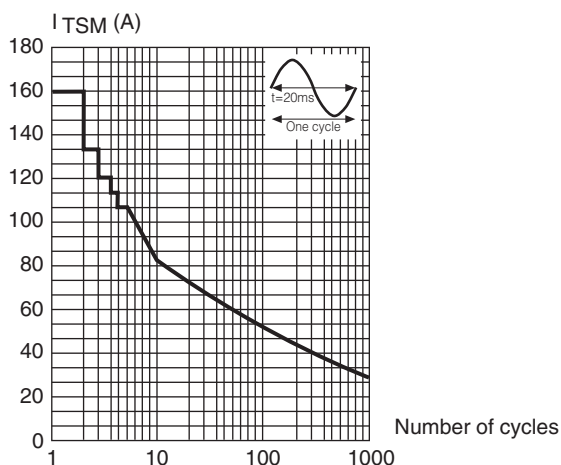
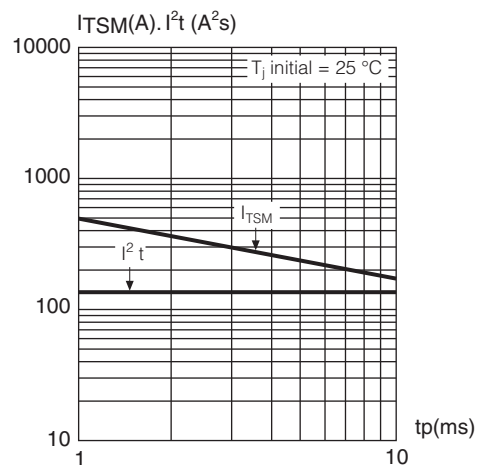


Fig. 6: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10ms$, and corresponding value of $I^2 t$.



LOGIC LEVEL TRIAC

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

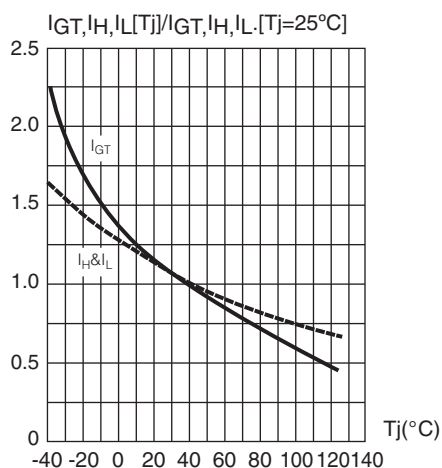


Fig. 8: Relative variation of critical rate of decrease of main current versus junction temperature

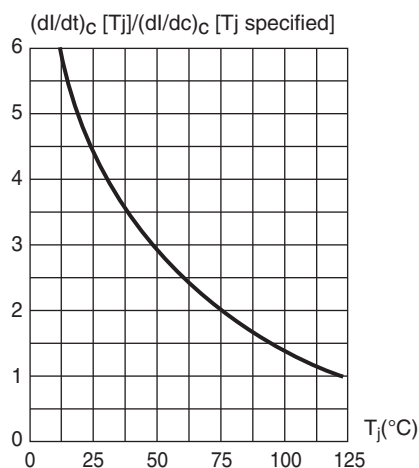
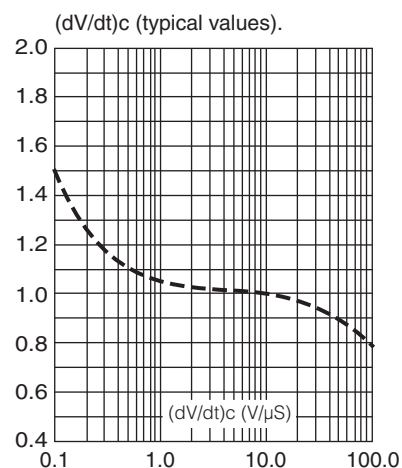
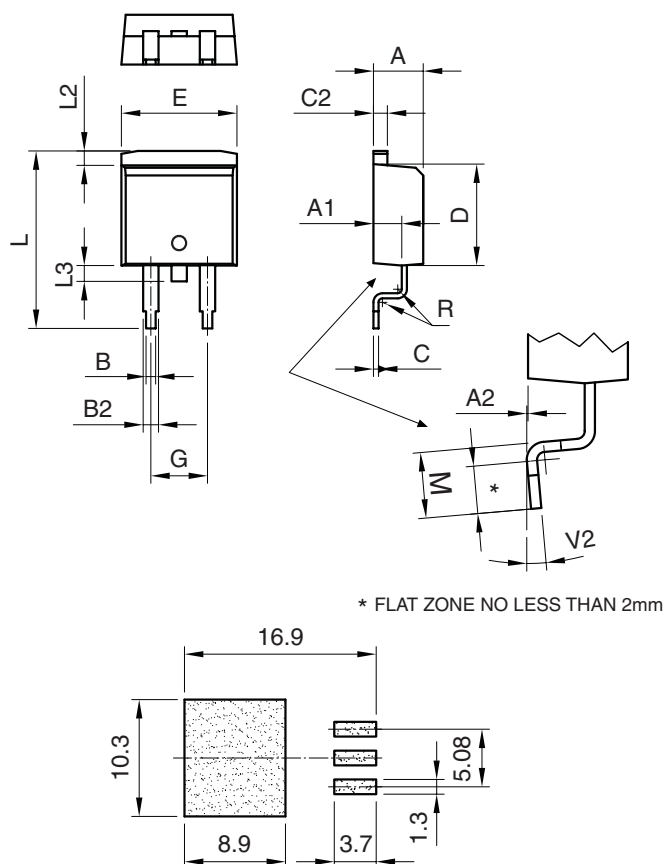


Fig. 9: Relative variation of critical rate of decrease of main current versus junction temperature



PACKAGE MECHANICAL DATA

D²PAK



REF.	DIMENSIONS		
	Milimeters		
	Min.	Nominal	Max.
A	4.40	4.45	4.60
A1	2.49	2.50	2.69
A2	0.03	0.10	0.23
B	0.70	0.90	0.93
B2	1.14	1.03	1.70
C	0.45	0.45	0.60
C2	1.23	1.23	1.36
D	8.95	9.00	9.35
E	10.00	10.25	10.40
G	4.88	5.15	5.28
L	15.00	15.40	15.85
L2	1.27	1.27	1.40
L3	1.40	1.55	1.75
M	2.40	3.00	3.20
R	0.40 typ		
V2	0°		8°

NOTE: LIMITING VALUES AND LIFE SUPPORT APPLICATIONS (SEE WEB PAGE).