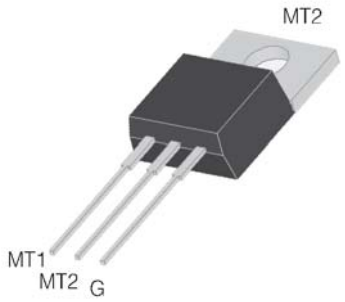
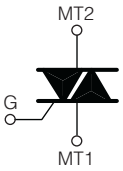
LOGIC LEVEL TRIAC

TO-220A B





On-State Current
8 Amp

Gate Trigger Current
< 10 mA

Off-State Voltage
200 V ÷ 800 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 °C	8	A
I_{TSM}	Non-repetitive On-State Current	Full Cycle, 60 Hz (t = 16.7 ms)	88	A
I_{TSM}	Non-repetitive On-State Current	Full Cycle, 50 Hz (t = 20 ms)	80	A
I^2t	Fusing Current	tp = 10 ms, Half Cycle	32	A^2s
I_{GM}	Peak Gate Current	20 µs 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 = 2x I_{GT}, tr ≤100ns f= 120 Hz, T_j =125 °C	50	A/µs
T_j	Operating Temperature		(-40 + 125)	°C
T_{stg}	Storage Temperature		(-40 + 150)	°C
T_{sld}	Soldering Temperature	10s max	260	°C

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

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Electrical Characteristics

SYMBOL	PARAMETER	CONDITIONS	Quadrant		SENSITIVITY					Unit
					03	04	07	08	09	
I_{GT} (1)	Gate Trigger Current	V_D = 12 V_{DC}, R_L = 33Ω, T_j = 25 °C	Q1÷Q3	MAX	3	5	5	10	10	mA
			Q4	MAX	5		7		10	mA
V_{GT}	Gate Trigger Voltage	V_D = 12 V_{DC}, R_L = 33Ω, T_j = 25 °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 KΩ, T_j = 125 °C	Q1÷Q3	MIN	0.2					V
			Q1÷Q4	MIN	0.2					V
I_H (2)	Holding Current	I_T = 100 mA, Gate open, T_j = 25 °C		MAX	7	15	15	15	20	mA
I_L	Latching Current	I_G = 1.2 I_{GT}, T_j = 25 °C	Q1,Q3	MAX		25		25		mA
			Q1,Q3,Q4	MAX	7		20		20	mA
			Q2	MAX	20	30	30	30	25	mA
dV/dt (2)	Critical Rate of Voltage Rise	V_D = 0.67 x V_{DRM}, Gate open T_j = 125 °C		MIN	10	40	20	40	50	V/µs
(dI/dt)c (2)	Critical Rate of Current Rise	(dv/dt)c = 0.1 V/µs T_j = 125 °C		MIN	1.2	5.4	3.5	5.4	2.5	A/ms
		(dv/dt)c = 10 V/µs T_j = 125 °C		MIN	0.6	2.8	1.5	2.8	1.5	A/ms
		without snubber T_j = 125 °C		MIN						
V_{TM} (2)	On-state Voltage	I_T = 11 Amp, tp = 380 µs, T_j = 25 °C		MAX	1.6					V
$V_{t(o)}$ (2)	Threshold Voltage	T_j = 125 °C		MAX	0.85					V
r_d (2)	Dynamic resistance	T_j = 125 °C		MAX	50					mΩ
I_{DRM}/I_{RRM}	Off-State Leakage Current	V_D = V_{DRM}, T_j = 125 °C		MAX	1					mA
		V_R = V_{RRM}, T_j = 25 °C		MAX	5					µA
$R_{th(j-c)}$	Thermal Resistance Junction-Case	for AC 360° conduction angle			1.6					°C/W
$R_{th(j-a)}$	Thermal Resistance Junction-Ambient	S = 1 cm^2			60					°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

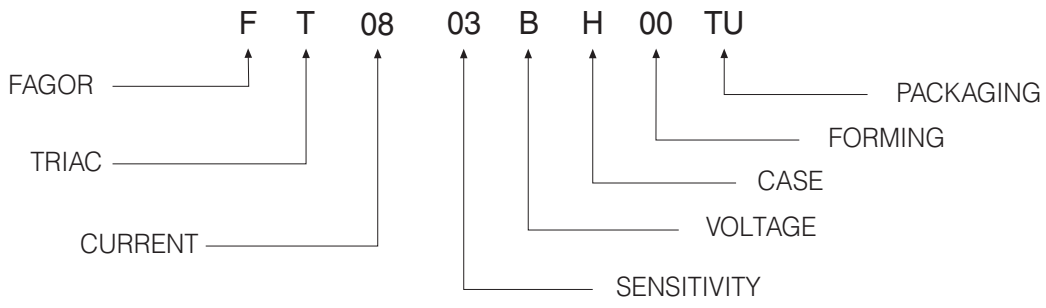

Fig. 1: Maximum power dissipation versus RMS on-state current (full cycle).

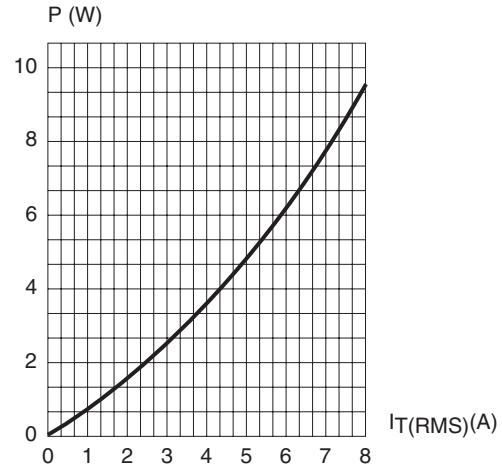

Fig. 2: RMS on-state current versus case temperature (full cycle).

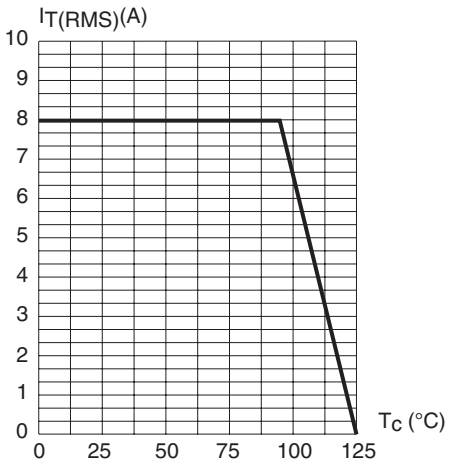

Fig. 3: Relative variation of thermal impedance versus pulse duration.

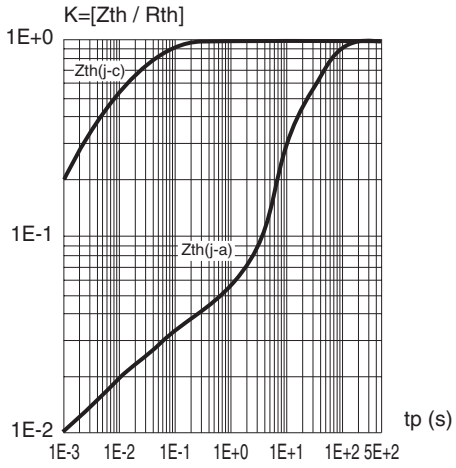

Fig. 4: On-state characteristics (maximum values)

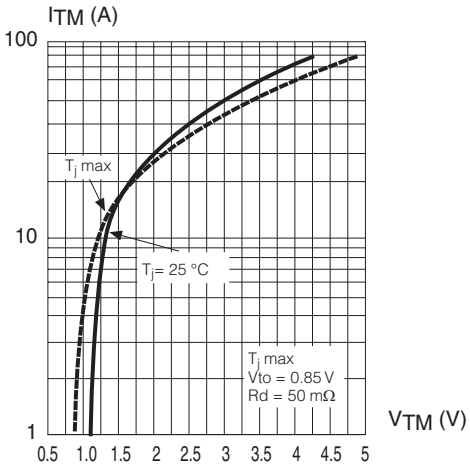

Fig. 5: Surge peak on-state current versus number of cycles

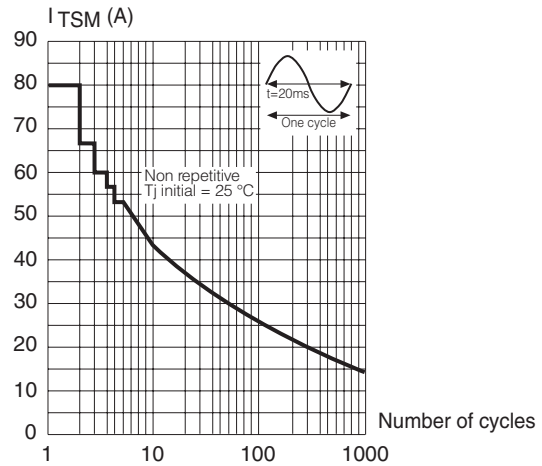

Fig. 6: Non repetitive surge peak on-state current for a sinusoidal pulse with width: tp < 10 ms, and corresponding value of I^2t.

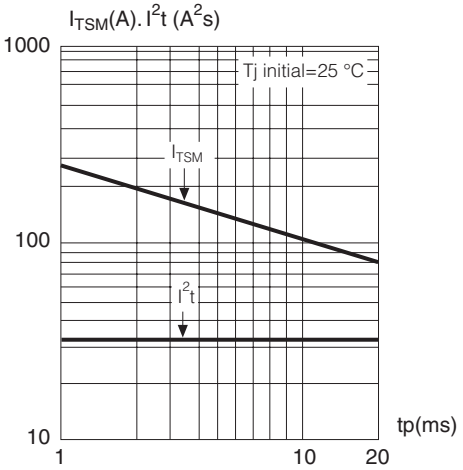

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Fig. 7: Relative variation of gate trigger current, holding current and latching versus junction temperature (typical values)

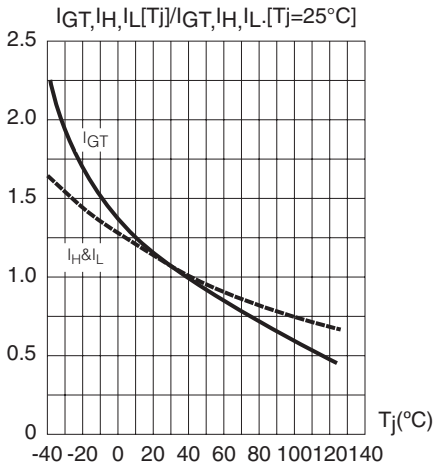


Fig. 8: Relative variation of critical rate of decrease of main current versus junction temperature

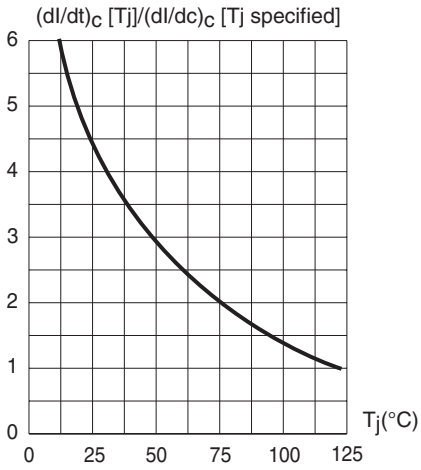
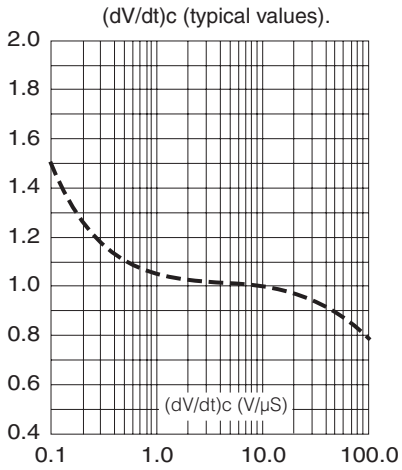
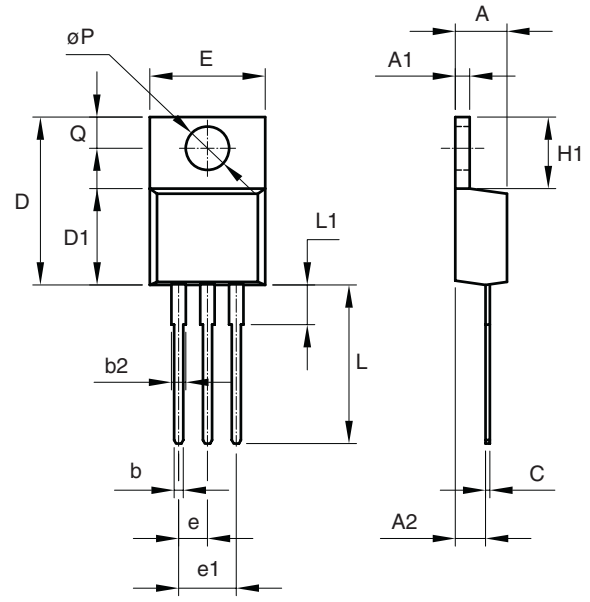


Fig. 9: Relative variation of critical rate of decrease of main current versus



PACKAGE MECHANICAL DATA TO-220AB



REF.	DIMENSIONS Milimeters	
	Min.	Max.
A	4.47	4.67
A1	1.17	1.37
A2	2.52	2.82
b	0.71	0.91
b2	1.17	1.37
c	0.31	0.53
D	14.65	15.35
D1	8.50	8.90
E	10.01	10.36
e	2.51	2.57
e1	4.98	5.18
H1	6.15	6.45
L	13.40	13.96
L1	3.56	3.96
P	3.735	3.935
Q	2.59	2.89

Mounting Torque	**1 N.m**

(*) Limiting values and life support applications, see Web page.