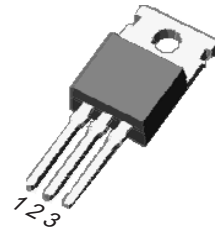
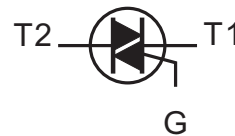


Simplified outline
TO-220

Description

Glass passivated triacs in a plastic envelope, intended for use in applications requiring high bidirectional transient and blocking voltage capability and high thermal cycling performance. Typical applications include motor control, industrial and domestic lighting, heating and static switching.

Symbol

Features

- Blocking voltage to 600 V
- On-state RMS current to 6 A

Applications

- Motor control
- Industrial and domestic lighting
- Heating
- Static switching

Pin	Description
1	Main terminal 1 (T1)
2	Main terminal 2 (T2)
3	gate (G)
TAB	Main terminal

SYMBOL	PARAMETER	Value	Unit
V_{DRM}	Repetitive peak off-state voltages	600	V
$I_T (RMS)$	RMS on-state current (full sine wave)	6	A
I_{TSM}	Non-repetitive peak on-state current (full cycle, T_j initial=25°C)	63	A

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
$R_{th(j-c)}$	Junction to case(AC)		-	1.8	-	°C/W
$R_{th(j-a)}$	Junction to ambient		-	60	-	°C/W

Limiting values in accordance with the Maximum system(IEC 134)

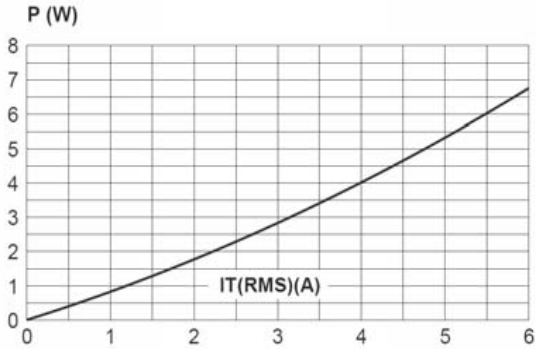
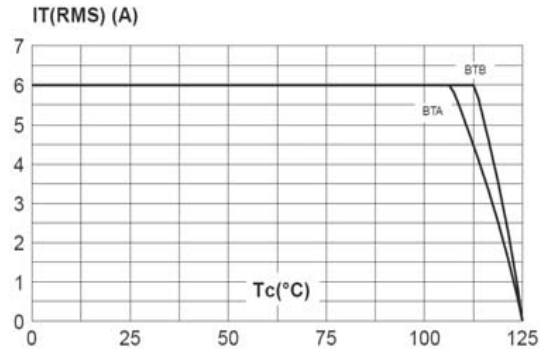
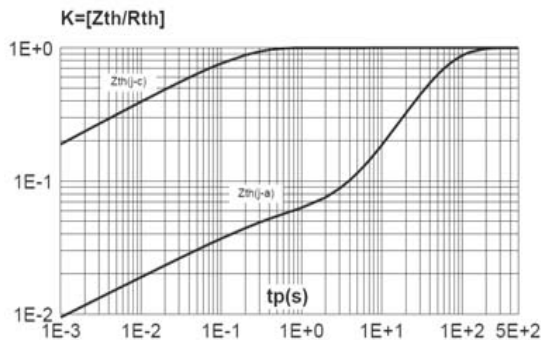
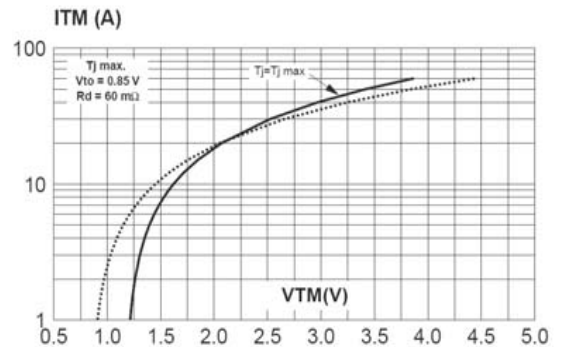
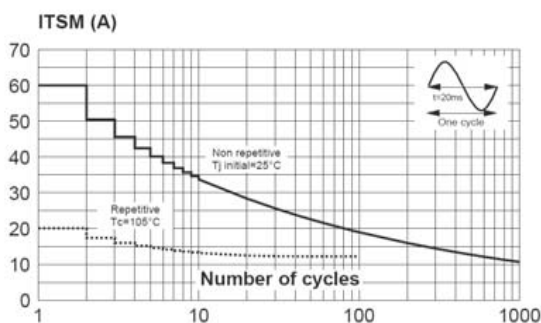
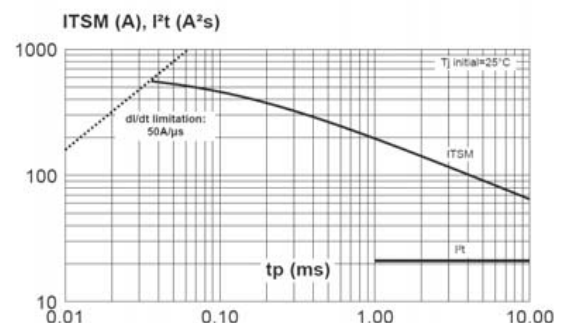
SYMBOL	PARAMETER	CONDITIONS			MIN	Value	UNIT	
V_{DRM}	Repetitive peak off-state Voltages	$T_j=110^{\circ}C$			-	600	V	
$I_{T(RMS)}$	RMS on-state current	$T_c=110^{\circ}C$			-	6	A	
I_{TSM}	Non repetitive surge peak on-state current	T_j initial =25°C	F=50Hz	t=20ms	-	60	A	
			F=60Hz	t=16.7ms	-	63	A	
I^2t	I^2t value for fusing	$T_p=10ms$			-	21	A ² S	
dl/dt	Critical rate of rise of on-state current	$I_G=2 \times I_{GT}$, tr≤100ns	F=120Hz	$T_j=125^{\circ}C$	-	50	A/μs	
I_{GM}	Peak gate current	$T_p=20 \mu s$		$T_j=125^{\circ}C$	-	4	A	
I_{DRM}	$V_{DRM}=V_{RRM}$				$T_j=25^{\circ}C$	-	5	μA
I_{RRM}	$V_{DRM}=V_{RRM}$				$T_j=125^{\circ}C$	-	1	mA
$P_{G(AV)}$	Average gate power				$T_j=125^{\circ}C$	-	1	W
T_{stg}	Storage temperature range				-40	150	°C	
T_j	Operating junction Temperature range				-40	125	°C	

 $T_j = 25^{\circ}C$ unless otherwise stated

SYMBOL	PARAMETER	CONDITIONS		MIN	TYP	MAX	UNIT
Static characteristics							
I_{GT}		$V_D=12V$; $R_L=30 \Omega$	I-II-III	-	-	50	mA
			IV	-	-	100	mA
I_L		$I_G=1.2 I_{GT}$	I-III-IV	-	-	50	mA
			II	-	-	100	mA
I_H		$I_T=500mA$		-	-	50	mA
V_{GT}		$V_D=12V$; $R_L=30 \Omega$	ALL	-	-	1.3	V
V_{GD}		$V_D=V_{DRM}$ $R_L=3.3K \Omega$ $T_j=125^{\circ}C$	ALL	0.2	-	-	V
dV/dt		$V_D=67\%V_{DRM}$ gate open; $T_j=125^{\circ}C$		400	-	-	V/μs
(dV/dt)c	(dl/dt)c=2.7A/ms	$T_j=125^{\circ}C$		10	-	-	V/μs

Dynamic Characteristics

V_{TM}	$I_{TM}=5.5A$ tp=380us	$T_j=25^{\circ}C$	-	-	1.55	V
V_{to}	Threshold voltage	$T_j=125^{\circ}C$	-	-	0.85	V
R_d	Dynamic resistance	$T_j=125^{\circ}C$	-	-	60	mΩ

Description
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 $tp < 10\text{ms}$, and corresponding value of I^2t .


Description

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

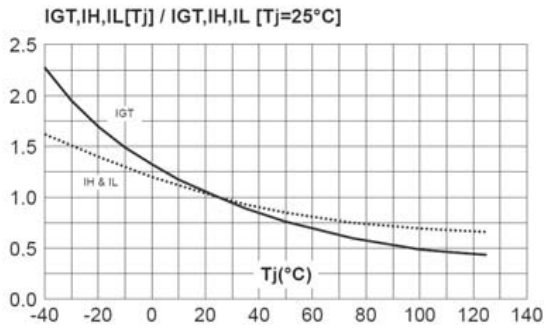


Fig. 8-1: Relative variation of critical rate of decrease of main current versus (dV/dt)c (typical values). Snubberless & Logic Level Types

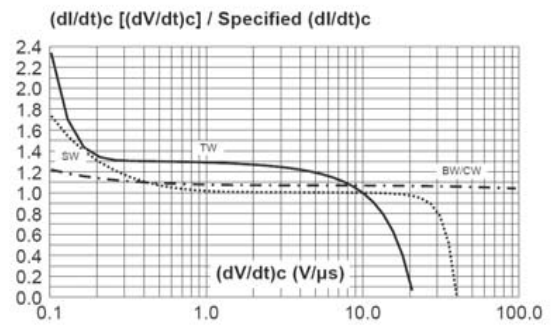


Fig. 8-2: Relative variation of critical rate of decrease of main current versus (dV/dt)c (typical values). Standard Types

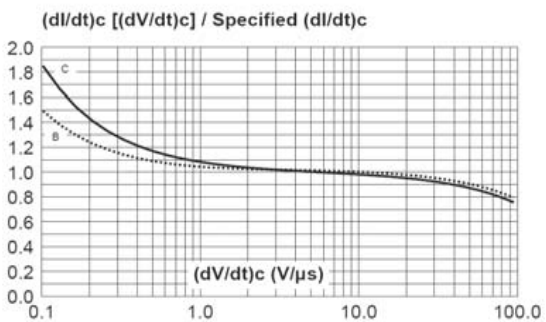
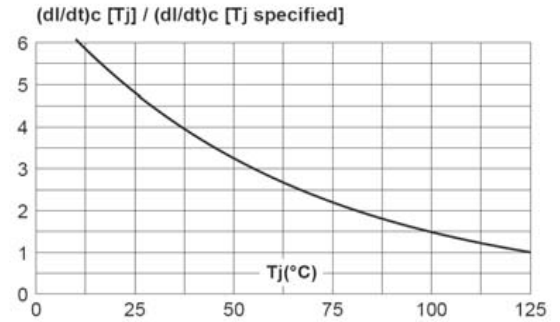
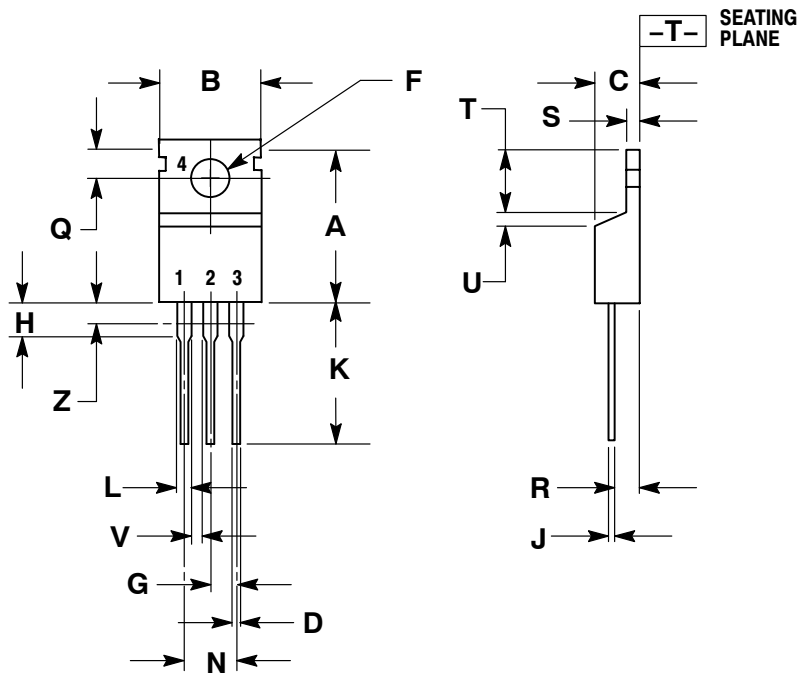


Fig. 9: Relative variation of critical rate of decrease of main current versus junction temperature.



Package Dimensions
TO-220

NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. DIMENSION Z DEFINES A ZONE WHERE ALL BODY AND LEAD IRREGULARITIES ARE ALLOWED.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.570	0.620	14.48	15.75
B	0.380	0.405	9.66	10.28
C	0.160	0.190	4.07	4.82
D	0.025	0.035	0.64	0.88
F	0.142	0.161	3.61	4.09
G	0.095	0.105	2.42	2.66
H	0.110	0.155	2.80	3.93
J	0.014	0.025	0.36	0.64
K	0.500	0.562	12.70	14.27
L	0.045	0.060	1.15	1.52
N	0.190	0.210	4.83	5.33
Q	0.100	0.120	2.54	3.04
R	0.080	0.110	2.04	2.79
S	0.045	0.055	1.15	1.39
T	0.235	0.255	5.97	6.47
U	0.000	0.050	0.00	1.27
V	0.045	---	1.15	---
Z	---	0.080	---	2.04

STYLE 6:

- PIN 1. ANODE
2. CATHODE
3. ANODE
4. CATHODE