

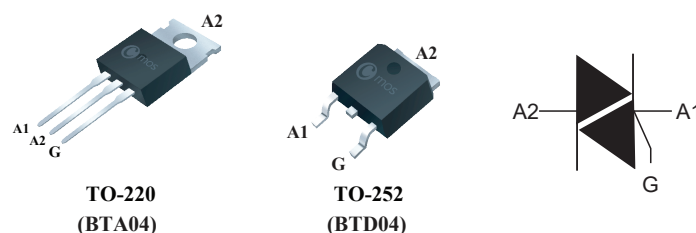
General Description

The BTA/BTD04 triac family are high performance glass passivated PNP devices. These parts are suitable for general purpose applications where gate high sensitivity is required.

Applications

- General purpose low power motor control
- Home appliances

TO-220/TO-252 Pin Configuration



ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Rating	Units
$I_{T(RMS)}$	RMS on-state current (360° conduction angle) ($T_c=90^\circ\text{C}$)		4	A
I_{TSM}	Non repetitive surge peak on-state current (T_j initial = 25°C)	$t_p=8.3\text{ms}$	42	A
		$t_p=10\text{ms}$	40	
I_{2t}	I_{2t} value	$t_p=10\text{ms}$	8	A2s
di/dt	Critical rate of rise of on-state current Gate supply: $I_g=50\text{mA}$ $diG/dt=0.1\text{A}/\mu\text{s}$	Repetitive $F=50\text{Hz}$	10	$\text{A}/\mu\text{s}$
		Non Repetitive	50	
T_{stg}	Storage and operating junction temperature range		- 40 to + 150	$^\circ\text{C}$
T_j			- 40 to + 110	$^\circ\text{C}$
T_I	Maximum lead temperature for soldering during 10 s at 4.5 mm from case		260	$^\circ\text{C}$

Symbol	Parameter	Rating				Unit
		400	600	700	800	
V_{DRM} V_{RRM}	Repetitive peak off-state voltage $T_j = 110^\circ\text{C}$	400	600	700	800	V

Thermal resistances

Symbol	Parameter		Value	Unit
Rth (j-a)	Junction to ambient	BTA	60	°C/W
		S = 0.5 cm ² BTD	70	
Rth (j-c) DC	Junction to case for DC		4.4	°C/W
Rth (j-c) AC	Junction to case for 360° conduction angle (F= 50 Hz)		3.3	°C/W

GATE CHARACTERISTICS (maximum values)

P_G (AV) = 1W P_{GM} = 10W (tp = 20 ms) I_{GM} = 4A (tp = 20 μ s) V_{GM} = 16V (tp = 20 μ s).

Electrical characteristics

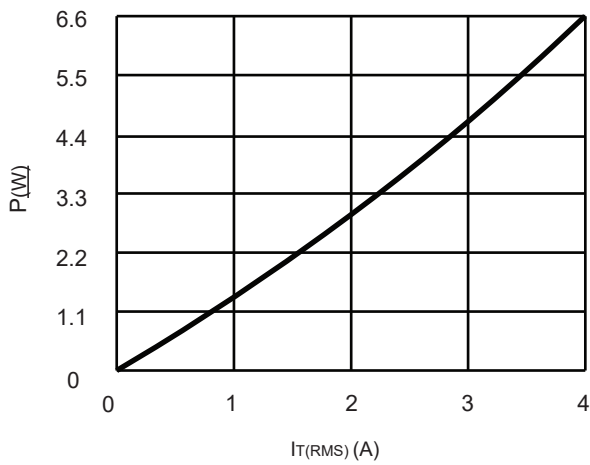
Symbol	Test Conditions	Quadrant		Value	Unit
I_{GT}	$V_D=12V$ (DC) $R_L=100\Omega$, $T_j=25^\circ C$	I	MAX	10	mA
		II	MAX	10	
		III	MAX	15	
		IV	MAX	30	
V_{GT}	$V_D=12V$ (DC) $R_L=33\Omega$, $T_j=25^\circ C$	I-II-III-IV	MAX	1.5	V
V_{GD}	$V_D=V_{DRM}$ $R_L=3.3k\Omega$, $T_j=110^\circ C$	I-II-III-IV	MIN	0.2	V
tgt	$V_D=V_{DRM}$ $I_G=40mA$ $dI_G/dt = 0.5A/\mu s$, $T_j=25^\circ C$	I-II-III-IV	TYP	2	μs
I_L	$I_G=1.2 I_{GT}$, $T_j=25^\circ C$	I	MAX	15	mA
		II	MAX	20	
		III	MAX	20	
		IV	MAX	30	
I_H^*	$I_T= 500mA$ gate open, $T_j=25^\circ C$		MAX	25	mA
V_{TM}^*	$I_{TM}= 6A$, $t_p= 380\mu s$, $T_j=25^\circ C$		MAX	1.7	V
I_{DRM}	V_{DRM} Rated, $T_j=25^\circ C$		MAX	0.02	mA
I_{RRM}	V_{RRM} Rated, $T_j=110^\circ C$		MAX	1	
dV/dt *	Linear slope up to $V_D=67\%V_{DRM}$ gate open, $T_j=110^\circ C$		TYP	10	V/ μs
(dV/dt)c*	(dI/dt)c = 1.8A/ms, $T_j=110^\circ C$		TYP	1	V/ μs

* For either polarity of electrode A2 voltage with reference to electrode A1.

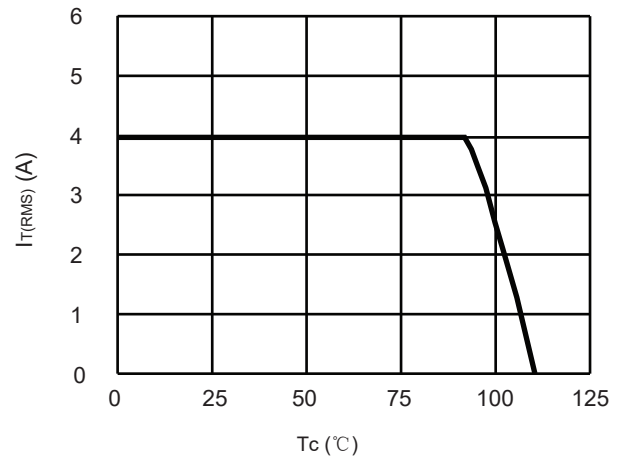
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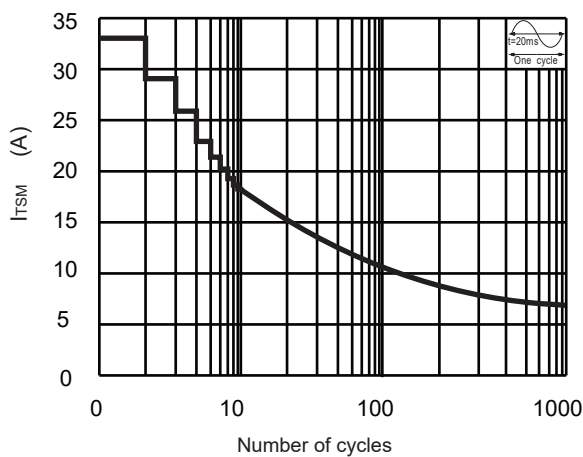
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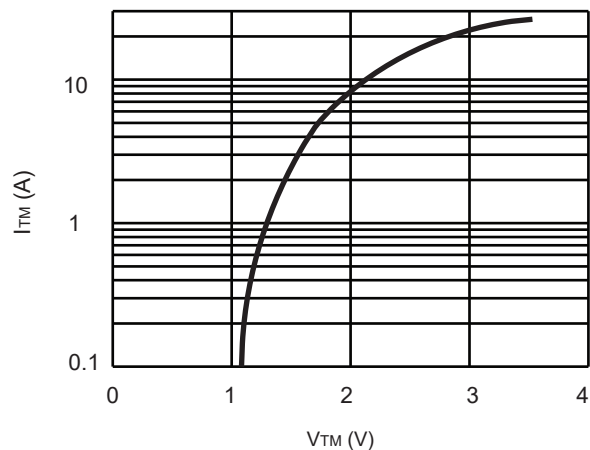
Maximum power dissipation versus RMS on-state current



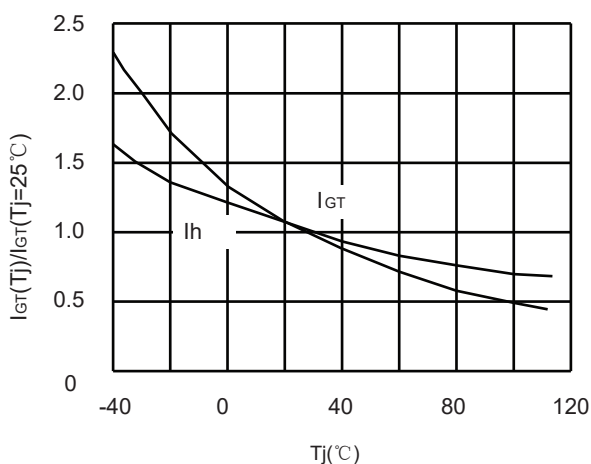
RMS on-state current versus case temperature



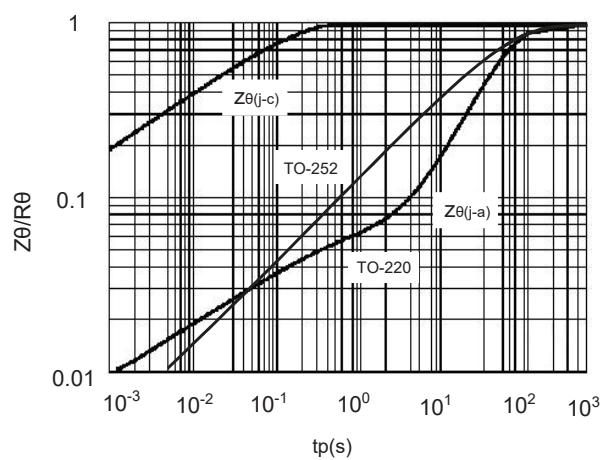
Surge peak on-state current versus number of cycles



On-state characteristics (maximum values).



Relative variation of gate trigger current and holding current versus junction temperature.



Relative variation of thermal impedance versus pulse duration.