

## 4A TRIACs

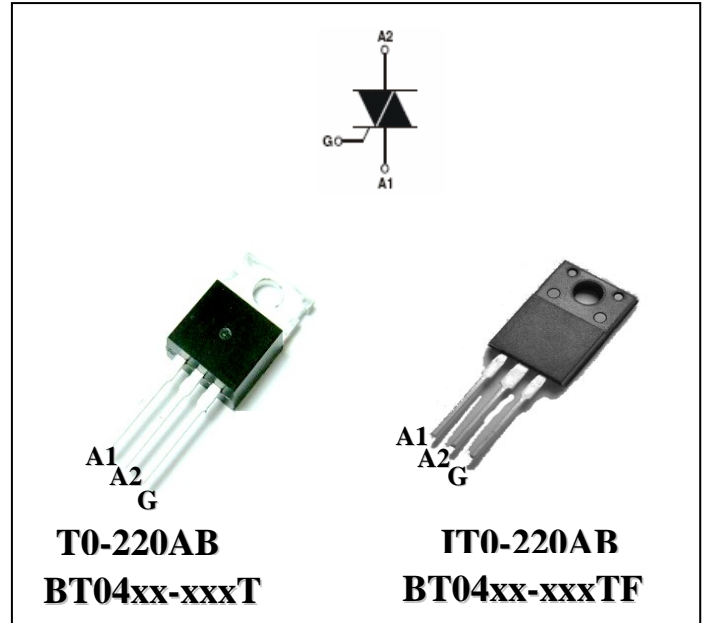
4-Quadrant Triacs (standard & logic level)

### Main features

Symbol	Value	Unit
$I_{T(RMS)}$	4	A
$V_{DRM}/V_{RRM}$	500 and 600	V
$I_{GT(Q1)}$	5 to 25	mA

### DESCRIPTION

The BT04 series is suitable for use on AC inductive loads. These devices intended to be interface directly to micro-controllers, logic integrated circuits and other low power gate trigger circuits....



### Absolute maximum ratings

Symbol	Parameter	Value	Unit	
$I_{T(RMS)}$	RMS on-state current ( full sine wave ) , $T_{mb} \leq 107^{\circ}C$	4	A	
$I_{TSM}$	Non repetitive surge on-state current ( full sine wave , $T_j$ initial = $25^{\circ}C$ )	F = 50Hz t = 20ms	25	A
		F = 60Hz t = 16.7ms	27	
$I^2t$	$I^2t$ Value for fusing $t_p = 10ms$	3.1	$A^2s$	
dl/dt	Critical rate of rise of on-state current $I_G = 2 \times I_{GT}$ , $t_r \leq 100ns$	F = 120Hz $T_j = 125^{\circ}C$	50	A/us
$I_{GM}$	Peak gate current $t_p = 20us$	$T_j = 125^{\circ}C$	2	A
$P_{G(AV)}$	Average gate power dissipation	$T_j = 125^{\circ}C$	0.5	W
$T_{stg}$ $T_j$	Storage junction temperature range Operating junction temperature range		-40 to +150 -40 to +125	$^{\circ}C$

Electrical characteristics ( $T_j = 25^\circ\text{C}$ , unless otherwise specified)

Symbol	Test conditions	Quadrant		BT04			Unit
				05	10	25	
$I_{GT}(1)$	$V_D = 12\text{V}$ $R_L = 100\ \text{ohm}$	I - II - III	MAX.	5	10	25	mA
		IV		10	25	70	
$V_{GT}$		ALL	MAX.	1.5			V
$I_H(2)$	$I_T = 100\ \text{mA}$		MAX.	10	15	20	mA
$I_L$	$I_G = 1.2 I_{GT}$	I - III	MAX.	10	15	20	mA
		II-IV		15	20	30	

## Static characteristics

Symbol	Test conditions			Value	Unit	
$V_T(2)$	$I_{TM} = 5\text{A}$	$t_p = 380\ \mu\text{s}$	$T_j = 25^\circ\text{C}$	MAX.	1.7	V
$I_{DRM}$ $I_{RRM}$	$V_{DRM} = V_{RRM(MAX)}$		$T_j = 25^\circ\text{C}$	MAX.	5	$\mu\text{A}$
			$T_j = 125^\circ\text{C}$		1	mA

**Note 1 :** minimum  $I_{GT}$  is guaranteed at 5% of  $I_{GT}$  max.

**Note 2 :** for both polarities of A2 referenced to A1

## Thermal resistance

Symbol	Parameter	Conditions	Value	Unit
$R_{th(j-mb)}$	Junction to mounting base	Full cycle	3.0(max.)	K/W
		Half cycle	3.7(max.)	
$R_{th(j-a)}$	Junction to ambient	In free air	60(typ.)	K/W



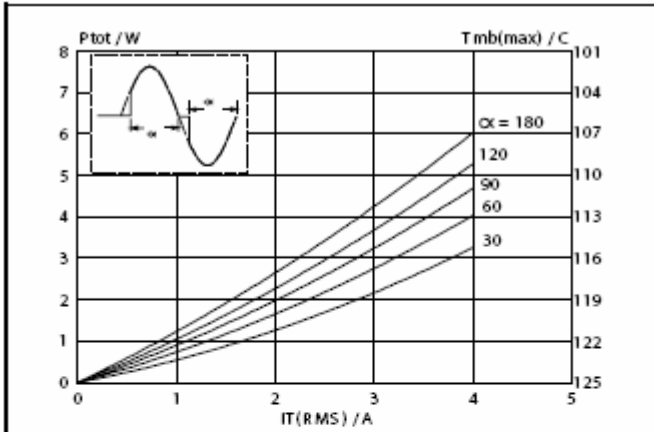


Fig. 1. Maximum on-state dissipation,  $P_{tot}$ , versus rms on-state current,  $I_T(RMS)$ , where  $\alpha =$  conduction angle.

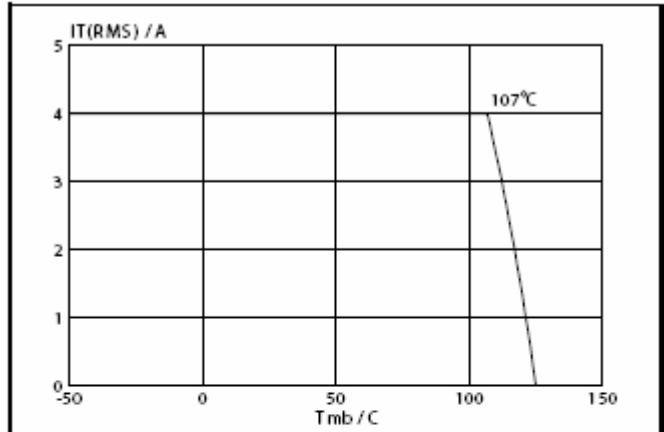


Fig. 4. Maximum permissible rms current  $I_T(RMS)$ , versus mounting base temperature  $T_{mb}$ .

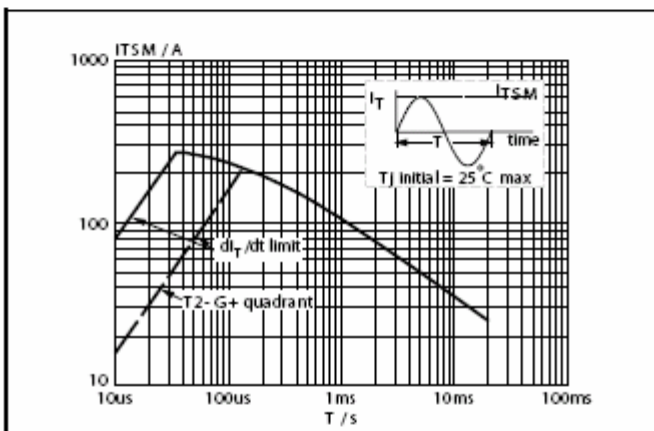


Fig. 2. Maximum permissible non-repetitive peak on-state current  $I_{TSM}$ , versus pulse width  $t_p$ , for sinusoidal currents,  $t_p \leq 20$  ms.

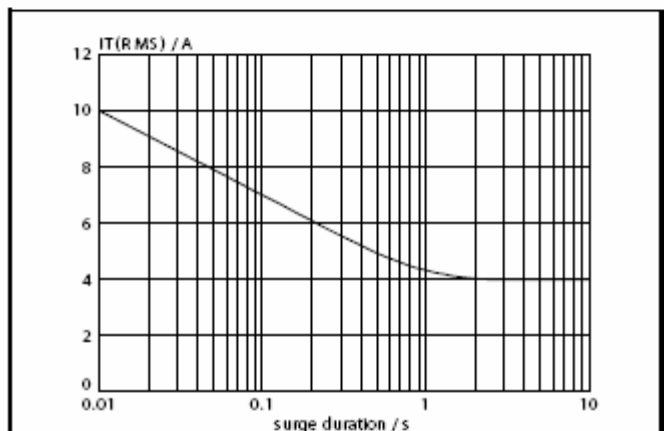


Fig. 5. Maximum permissible repetitive rms on-state current  $I_T(RMS)$ , versus surge duration, for sinusoidal currents,  $f = 50$  Hz;  $T_{mb} \leq 107^\circ\text{C}$ .

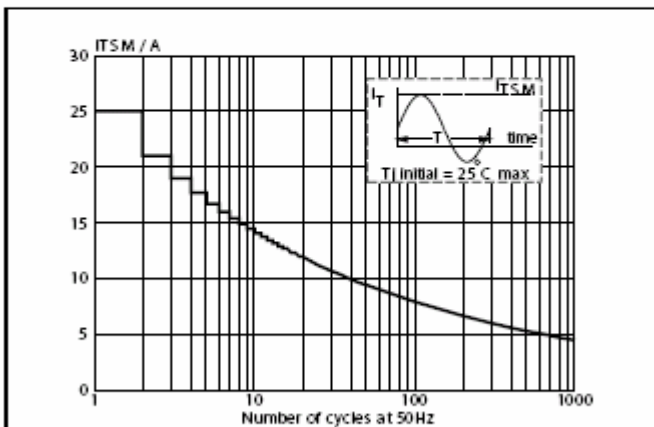


Fig. 3. Maximum permissible non-repetitive peak on-state current  $I_{TSM}$ , versus number of cycles, for sinusoidal currents,  $f = 50$  Hz.

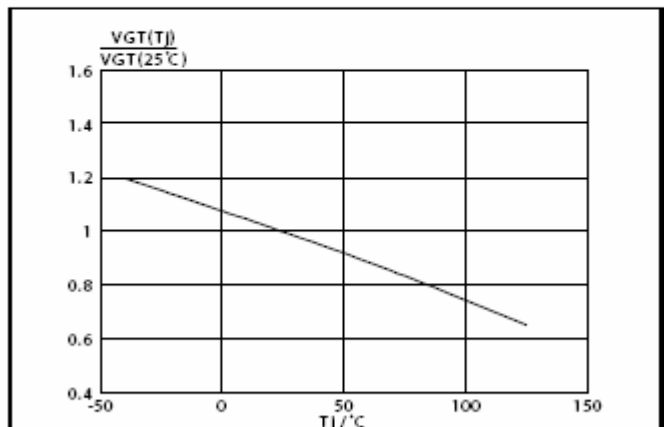
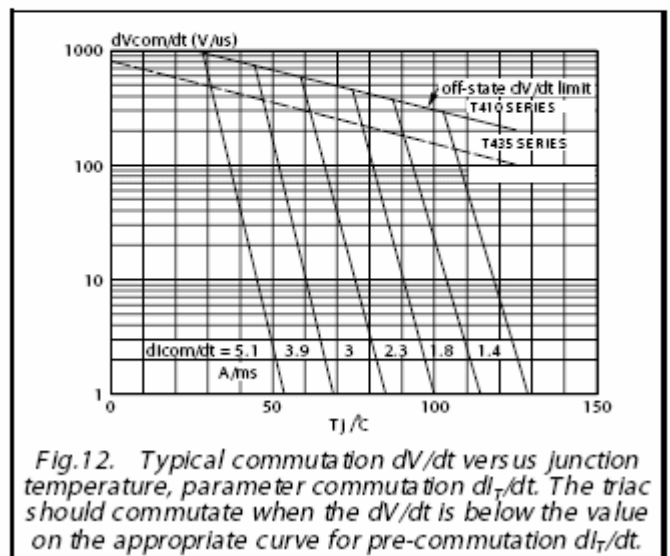
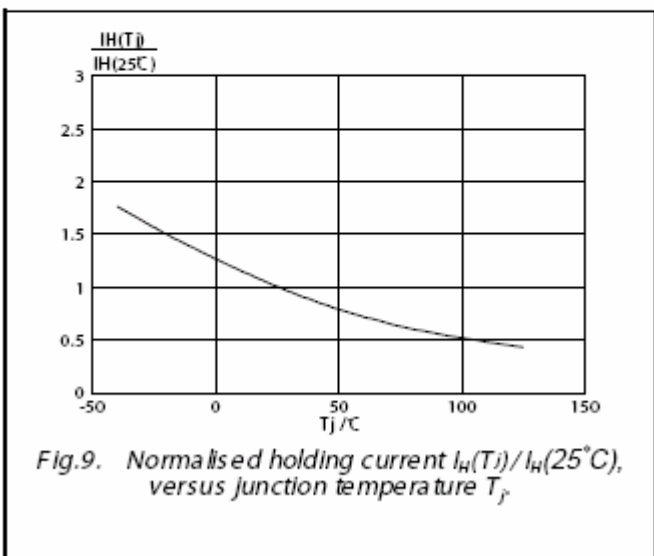
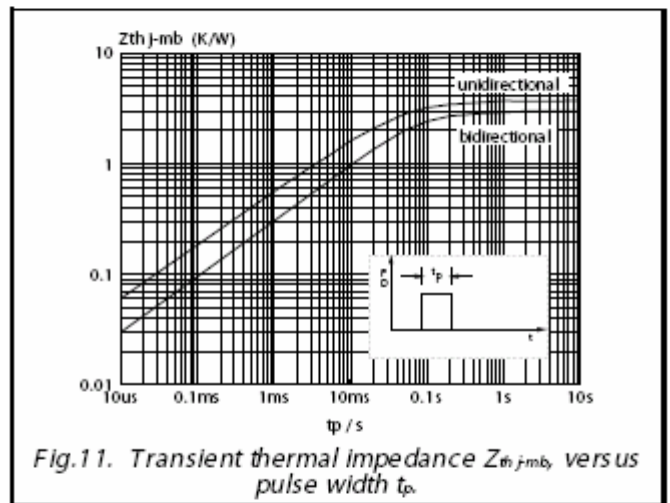
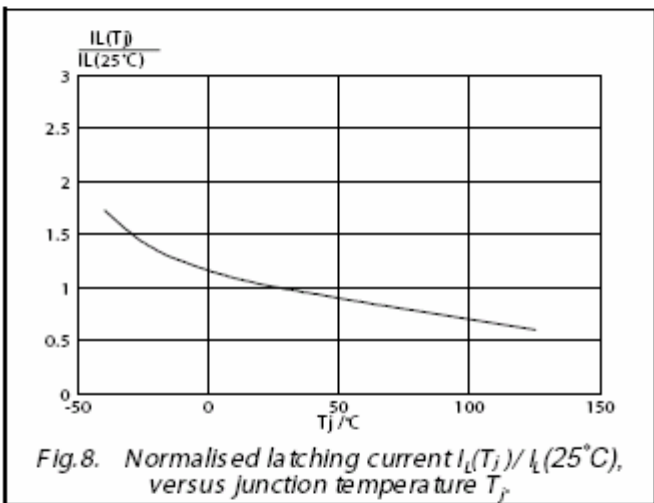
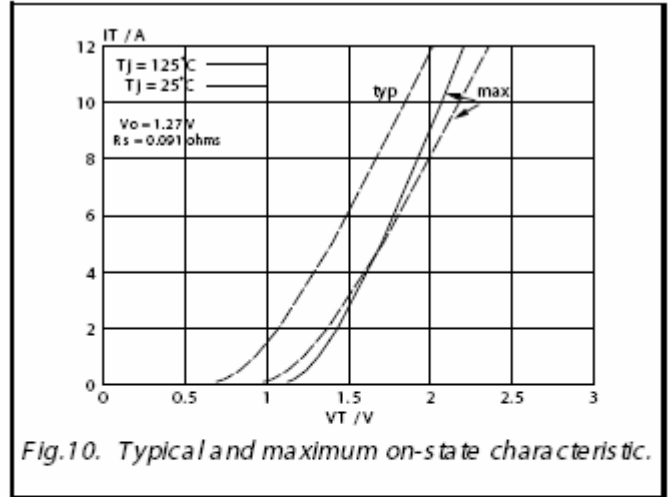
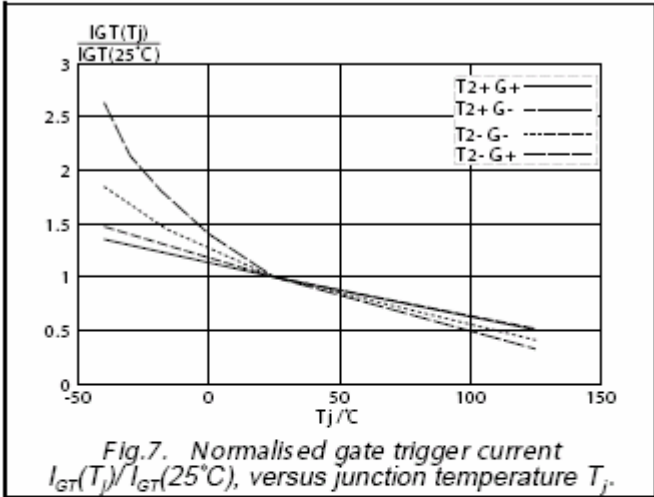


Fig. 6. Normalised gate trigger voltage  $V_{GT}(T_J)/V_{GT}(25^\circ\text{C})$ , versus junction temperature  $T_J$ .





**Product selector**

<b>Part Number</b>	<b>Voltage (xxx)</b>		<b>Sensitivity</b>	<b>Package</b>
	<b>500V</b>	<b>600V</b>		
BT0405-XXXT	X	X	5mA	TO-220AB
BT0405-XXXTF	X	X	5mA	ITO-220AB
BT0410-XXXT	X	X	10mA	TO-220AB
BT0410-XXXTF	X	X	10mA	ITO-220AB
BT0425-XXXT	X	X	25mA	TO-220AB
BT0425-XXXTF	X	X	25mA	ITO-220AB

