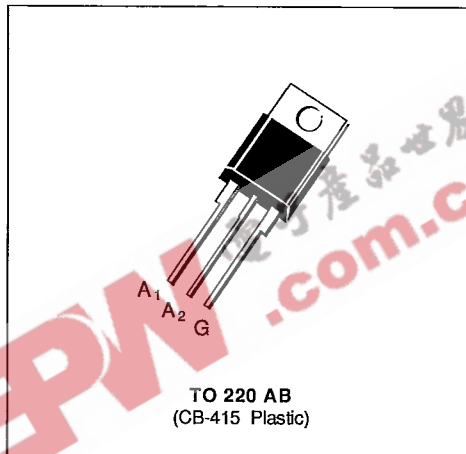


## SNUBBERLESS TRIACS

- $I_{TRMS} = 12\text{ A}$  at  $T_c = 85\text{ °C}$ .
- $V_{DRM} : 200\text{ V to }800\text{ V}$ .
- $I_{GT} = 75\text{ mA}$  (QI-II-III).
- GLASS PASSIVATED CHIP.
- HIGH SURGE CURRENT :  $I_{TSM} = 120\text{ A}$ .
- HIGH COMMUTATION CAPABILITY :  
( $di/dt$ )<sub>c</sub> > 16 A / ms without snubber.
- INSULATING VOLTAGE : 2500  $V_{RMS}$ .
- UL RECOGNIZED (E81734).



## DESCRIPTION

New range suited for applications such as phase control and static switching on inductive or resistive load.

## ABSOLUTE RATINGS (limiting values)

Symbol	Parameter	Value	Unit
$I_{TRMS}$	RMS on-state current (360 ° conduction angle)	$T_c = 85\text{ °C}$ 12	A
$I_{TSM}$	Non repetitive surge peak on-state current ( $T_j$ initial = 25 °C)	$t = 8.3\text{ ms}$	126
		$t = 10\text{ ms}$	120
$I^2 t$	$I^2 t$ value	$t = 10\text{ ms}$ 72	$A^2\text{ s}$
$di/dt$	Critical rate of rise of on-state current (1)	Repetitive $F = 50\text{ Hz}$	20
		Non Repetitive	100
$T_{stg}$ $T_j$	Storage and operating junction temperature range	- 40, + 150 - 40, + 125	°C °C

Symbol	Parameter	BTA 12-					Unit
		200 AW	400 AW	600 AW	700 AW	800 AW	
$V_{DRM}$	Repetitive peak off-state voltage (2)	± 200	± 400	± 600	± 700	± 800	V

(1) Gate supply :  $I_G = 750\text{ mA} - di_G / dt = 1\text{ A} / \mu\text{s}$ .

(2)  $T_j = 125\text{ °C}$ .

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**THERMAL RESISTANCES**

Symbol	Parameter	Value	Unit
$R_{th(j-a)}$	Junction to ambient	60	°C/W
$R_{th(j-c) DC}$	Junction to case for DC	3.3	°C/W
$R_{th(j-c) AC}$	Junction to case for 360 ° conduction angle (F = 50 Hz)	2.5	°C/W

**GATE CHARACTERISTICS (maximum values)**

$P_{GM} = 40 W$  (t = 10  $\mu s$ )  $P_{G(AV)} = 1 W$   $I_{GM} = 4 A$  (t = 10  $\mu s$ )  $V_{GM} = 16 V$  (t = 10  $\mu s$ ).

**ELECTRICAL CHARACTERISTICS**

Symbol	Test Conditions	Quadrants	Min.	Typ.	Max.	Unit
$I_{GT}$	$T_j = 25\text{ °C}$ $V_D = 12 V$ $R_L = 33\ \Omega$ Pulse duration > 20 $\mu s$	I-II-III	2		75	mA
$V_{GT}$	$T_j = 25\text{ °C}$ $V_D = 12 V$ $R_L = 33\ \Omega$ Pulse duration > 20 $\mu s$	I-II-III			1.5	V
$V_{GD}$	$T_j = 125\text{ °C}$ $V_D = V_{DRM}$ $R_L = 3.3\ k\Omega$ Pulse duration > 20 $\mu s$	I-II-III	0.2			V
$I_H^*$	$T_j = 25\text{ °C}$ $I_T = 100\text{ mA}$ Gate open $R_L = 140\ \Omega$				75	mA
$I_L$	$T_j = 25\text{ °C}$ $V_D = 12 V$ $I_G = 500\text{ mA}$ Pulse duration > 20 $\mu s$	I-III		75		mA
		II		150		
$V_{TM}^*$	$T_j = 25\text{ °C}$ $I_{TM} = 17 A$ $t_p = 10\text{ ms}$				1.6	V
$I_{DRM}^*$	$T_j = 25\text{ °C}$ $V_{DRM}$ rated $T_j = 125\text{ °C}$ Gate open				0.01	mA
					2	
$dv/dt^*$	$T_j = 125\text{ °C}$ Gate open Linear slope up to 0.67 $V_{DRM}$		750	1000		V/ $\mu s$
$(di/dt)_c^*$	$T_j = 125\text{ °C}$ $V_{DRM}$ rated Without snubber		16	32		A/ms
$t_{gt}$	$T_j = 25\text{ °C}$ $di_G/dt = 3.5\text{ A}/\mu s$ $I_G = 500\text{ mA}$ $I_T = 17 A$ $V_D = V_{DRM}$	I-II-III		2		$\mu s$

\* For either polarity of electrode A<sub>2</sub> voltage with reference to electrode A<sub>1</sub>.

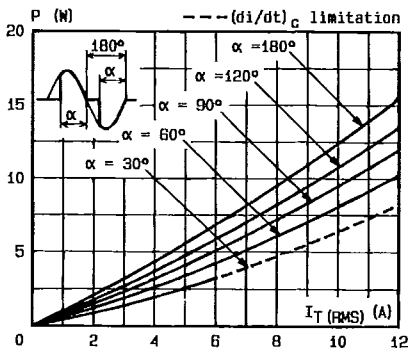


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

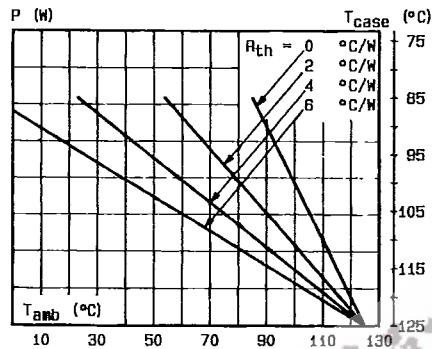


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T<sub>amb</sub> and T<sub>case</sub>) for different thermal resistances heatsink + contact.

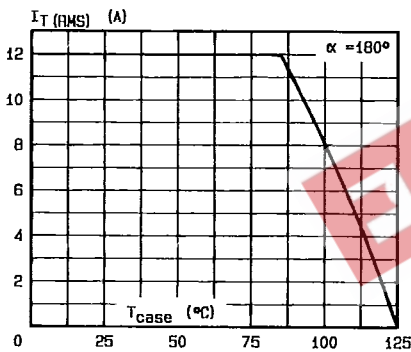


Fig.3 - RMS on-state current versus case temperature.

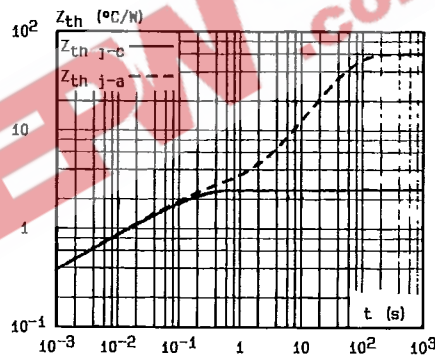


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

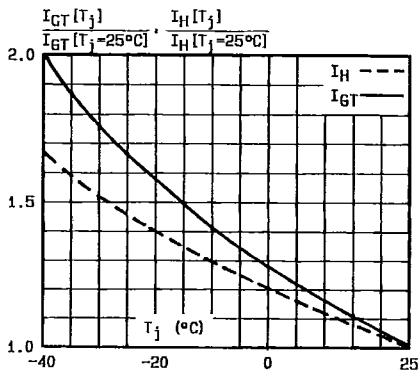


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

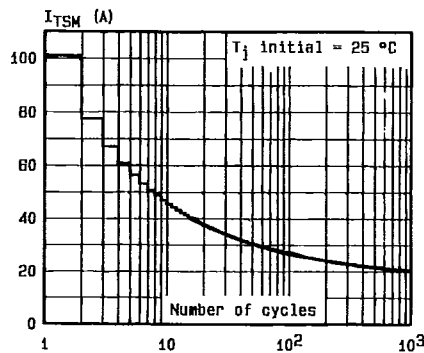


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

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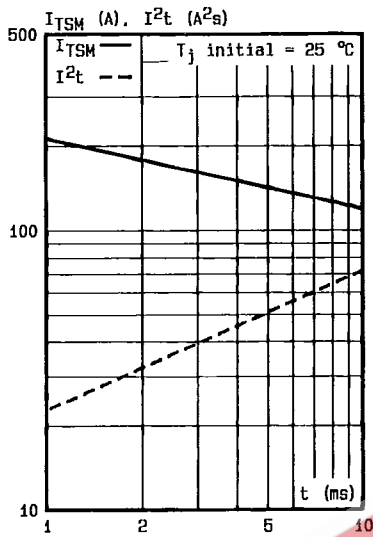


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width :  $t \leq 10$  ms, and corresponding value of  $I^2t$ .

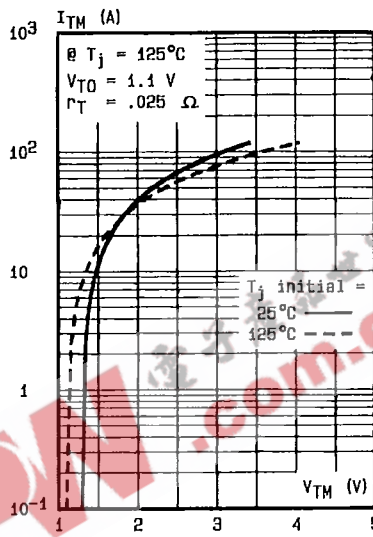
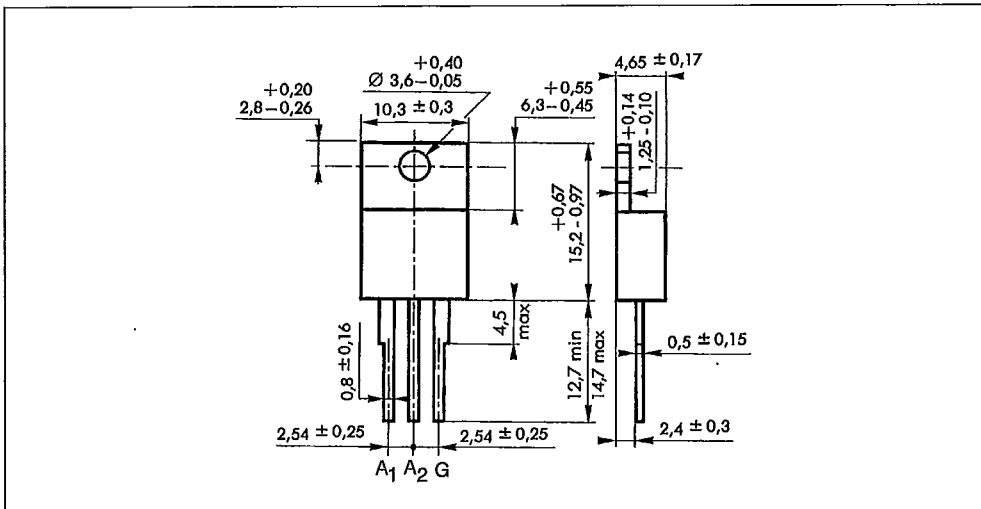


Fig.8 - On-state characteristics (maximum values).

PACKAGE MECHANICAL DATA

TO 220 AB (CB-415) Plastic



Cooling method : by conduction (method C)  
 Marking : type number  
 Weight : 2 g