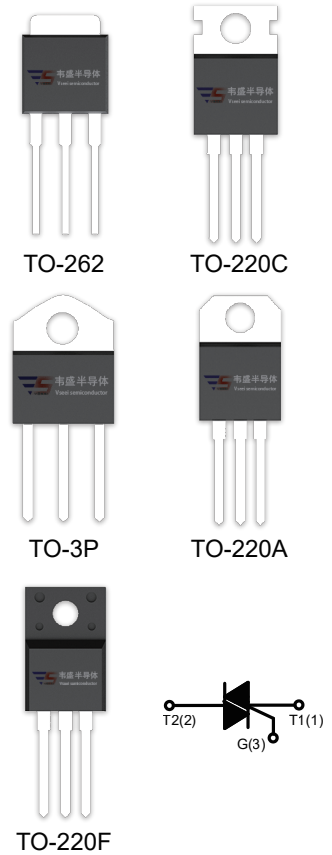


DESCRIPTION:

The BTB24-600B SCR series with the parallel resistor between Gate and Cathode are especially recommended for use on straight hair, igniter, anion generator, etc.



MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	25	A
V_{DRM} / V_{RRM}	600/800/1200/1600	V

ABSOLUTE MAXIMUM RATINGS

Parameter		Symbol	Value	Unit
Storage junction temperature range		T_{stg}	-40-150	°C
Operating junction temperature range		T_j	-40-125	°C
Repetitive peak off-state voltage ($T_j=25^\circ\text{C}$)		V_{DRM}	600/800/1200/1600	V
Repetitive peak reverse voltage ($T_j=25^\circ\text{C}$)		V_{RRM}	600/800/1200/1600	V
RMS on-state current	TO-220A(Ins)/ TO-220F(Ins) ($T_c=70^\circ\text{C}$)	$I_{T(RMS)}$	25	A
	TO-220C/ TO-220A(Non-Ins) ($T_c=85^\circ\text{C}$)			
	TO-262 ($T_c=50^\circ\text{C}$)			
	TO-3P(Ins) ($T_c=95^\circ\text{C}$)			
Non repetitive surge peak on-state current (full cycle, $F=50\text{Hz}$)		I_{TSM}	250	A
I^2t value for fusing ($t_p=10\text{ms}$)		I^2t	340	A^2s

Critical rate of rise of on-state current ($I_G = 2 \times I_{GT}$)	di/dt	50	A/ μ s
Peak gate current	I_{GM}	4	A
Average gate power dissipation	$P_{G(AV)}$	1	W
Peak gate power	P_{GM}	10	W

ELECTRICAL CHARACTERISTICS ($T_j = 25^\circ\text{C}$ unless otherwise specified)

 V_{DRM}/V_{RRM} : 600/800V

Symbol	Test Condition	Quadrant		JST24-600/800V		Unit
				BW	CW	
I_{GT}	$V_D = 12V$ $R_L = 33\Omega$	I - II - III	MAX	50	35	mA
V_{GT}		I - II - III	MAX	1.3		V
V_{GD}	$V_D = V_{DRM}$ $T_j = 125^\circ\text{C}$ $R_L = 3.3K\Omega$	I - II - III	MIN	0.2		V
I_L	$I_G = 1.2I_{GT}$	I - III	MAX	80	70	mA
		II		100	80	
I_H	$I_T = 100\text{mA}$		MAX	75	50	mA
dV/dt	$V_D = 2/3V_{DRM}$ Gate Open $T_j = 125^\circ\text{C}$		MIN	1000	500	V/ μ s

 V_{DRM}/V_{RRM} : 1200/1600V

Symbol	Test Condition	Quadrant		JST24-1200V/1600V		Unit
				BW	CW	
I_{GT}	$V_D = 12V$ $R_L = 33\Omega$	I - II - III	MAX	50	35	mA
V_{GT}		I - II - III	MAX	1.5		V
V_{GD}	$V_D = V_{DRM}$ $T_j = 125^\circ\text{C}$ $R_L = 3.3K\Omega$	I - II - III	MIN	0.2		V
I_L	$I_G = 1.2I_{GT}$	I - III	MAX	90	70	mA
		II		100	80	
I_H	$I_T = 100\text{mA}$		MAX	80	60	mA
dV/dt	$V_D = 2/3V_{DRM}$ Gate Open $T_j = 125^\circ\text{C}$		MIN	1500	1000	V/ μ s

$V_{DRM}/V_{RRM}: 600/800V$

Symbol	Test Condition	Quadrant	JST24-600/800V		Unit	
			B	C		
I_{GT}	$V_D = 12V R_L = 33\Omega$	I - II - III	MAX	50	25	mA
		IV		70	50	
V_{GT}		ALL	MAX	1.3		V
V_{GD}	$V_D = V_{DRM} T_j = 125^\circ C$ $R_L = 3.3K\Omega$	ALL	MIN	0.2		V
I_L	$I_G = 1.2I_{GT}$	I - III - IV	MAX	80	70	mA
		II		100	90	
I_H	$I_T = 100mA$		MAX	75	60	mA
dV/dt	$V_D = 2/3V_{DRM}$ Gate Open $T_j = 125^\circ C$		MIN	500	200	V/ μs

STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX)	Unit
V_{TM}	$I_{TM} = 35A$ $t_p = 380\mu s$	$T_j = 25^\circ C$	1.5	V
I_{DRM}	$V_D = V_{DRM} V_R = V_{RRM}$	$T_j = 25^\circ C$	5	μA
I_{RRM}		$T_j = 125^\circ C$	3	mA

THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	junction to case(AC)	TO-220A(Ins)	1.5	$^\circ C/W$
		TO-220C/ TO-220A(Non-Ins)	1.1	
		TO-220F(Ins)	1.7	
		TO-262	2.1	
		TO-3P(Ins)	0.67	

FIG.1: Maximum power dissipation versus RMS on-state current

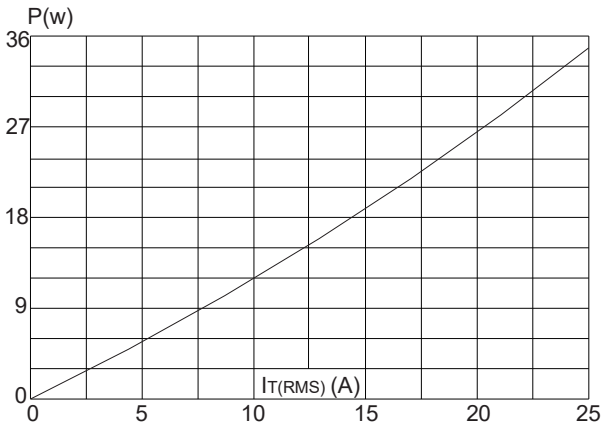


FIG.2: RMS on-state current versus case temperature

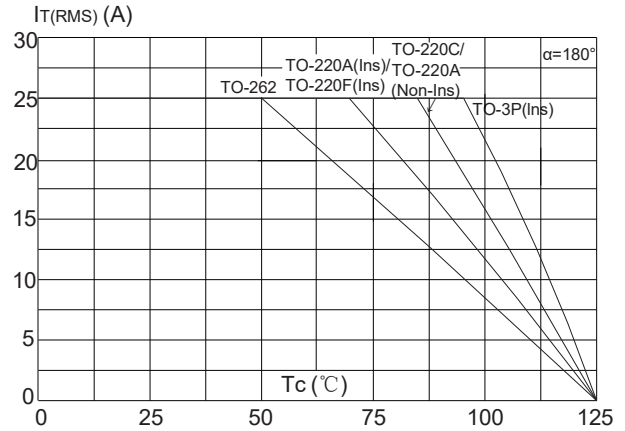


FIG.3: Surge peak on-state current versus number of cycles

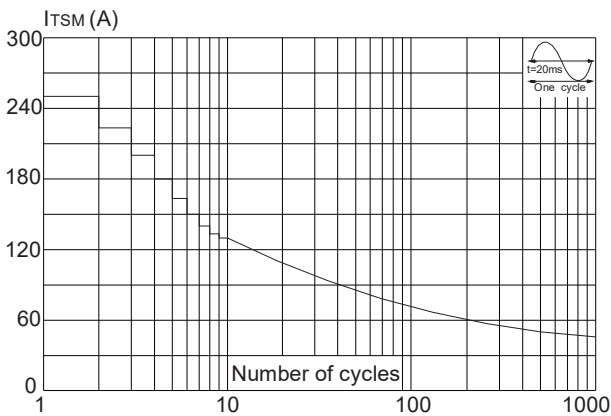


FIG.4: On-state characteristics (maximum values)

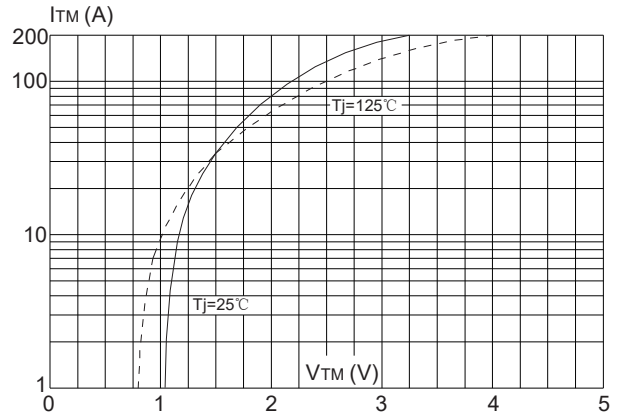


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20ms$, and corresponding value of I^2t ($di/dt < 50A/\mu s$)

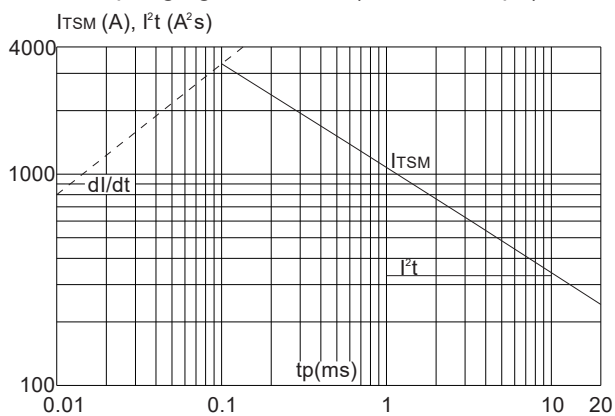


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature

