

DESCRIPTION:

The BT148-400R SCR provides high dv/dt rate with strong resistance to electromagnetic interface. They are especially recommended for use on residual current circuit breaker, straight hair, igniter etc.

MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	4	A
I_{GT}	≤ 200	μA



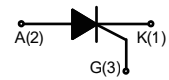
TO-126



TO-220A



TO-251


ABSOLUTE MAXIMUM RATINGS

Parameter		Symbol	Value	Unit
Storage junction temperature range		T_{stg}	-40 - 150	$^{\circ}C$
Operating junction temperature range		T_j	-40 - 125 ^①	$^{\circ}C$
Repetitive peak off-state voltage		V_{DRM}	600	V
Repetitive peak reverse voltage		V_{RRM}	600	V
RMS on-state current	TO-126/ TO-202-3 ($T_C=85^{\circ}C$)	$I_{T(RMS)}$	4	A
	TO-251 ($T_C=90^{\circ}C$)			
	TO-220A(Non-Ins) ($T_C=105^{\circ}C$)			
Non repetitive surge peak on-state current ($t_p=10ms$)		I_{TSM}	30	A
I^2t value for fusing ($t_p=10ms$)		I^2t	4.5	A^2s
Critical rate of rise of on-state current		di/dt	50	$A/\mu s$
Peak gate current ($t_p=20\mu s$, $T_j=125^{\circ}C$)		I_{GM}	1.2	A
Peak gate power ($t_p=20\mu s$, $T_j=125^{\circ}C$)		P_{GM}	2	W
Average gate power dissipation($T_j=125^{\circ}C$)		$P_{G(AV)}$	0.2	W

NOTE 1: When we parallel connect a $\leq 1K\Omega$ resistor between Gate and Cathode, the T_j can reach $125^{\circ}C$; if without this resistor, the T_j only can reach $110^{\circ}C$.

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

Symbol	Test Condition	Value			Unit
		MIN.	TYP.	MAX.	
I_{GT}	$V_D=12V R_L=33\Omega$	-	50	200	μA
V_{GT}		-	0.6	0.8	V
V_{GD}	$V_D=V_{DRM} T_j=125^\circ\text{C}$	0.2	-	-	V
I_L	$I_G=1.2 I_{GT}$	-	-	6	mA
I_H	$I_T=0.05A$	-	-	5	mA
dV/dt	$V_D=2/3V_{DRM} T_j=125^\circ\text{C} R_{GK}=1K\Omega$	10	-	-	V/ μs

STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX)	Unit
V_{TM}	$I_T=8A t_p=380\mu\text{s}$	$T_j=25^\circ\text{C}$	1.5	V
I_{DRM}	$V_D=V_{DRM} V_R=V_{RRM}$	$T_j=25^\circ\text{C}$	5	μA
I_{RRM}		$T_j=125^\circ\text{C}$	100	μA

THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	junction to case	TO-126	7.2	$^\circ\text{C/W}$
		TO-251	6.5	
		TO-220A(Non-Ins) 3.0		
		TO-202-3	7.6	

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

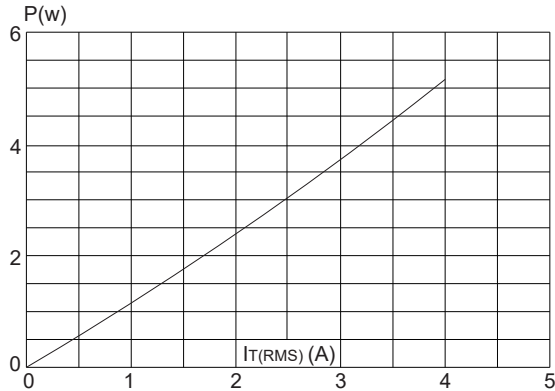


FIG.3: Surge peak on-state current versus number of cycles

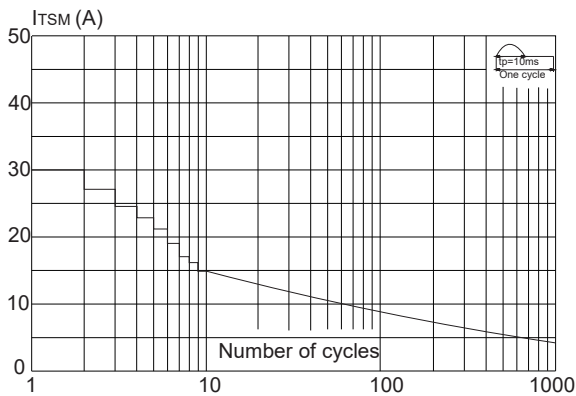


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10ms$, and corresponding value of I^2t ($di/dt < 50A/\mu s$)

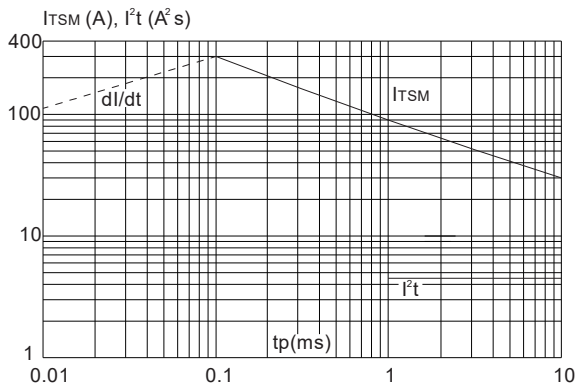


FIG.2: RMS on-state current versus case temperature

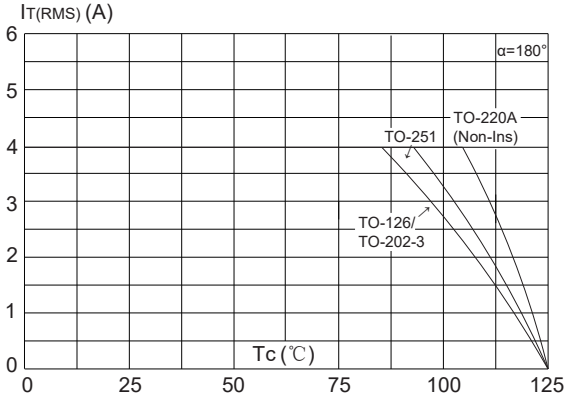


FIG.4: On-state characteristics (maximum values)

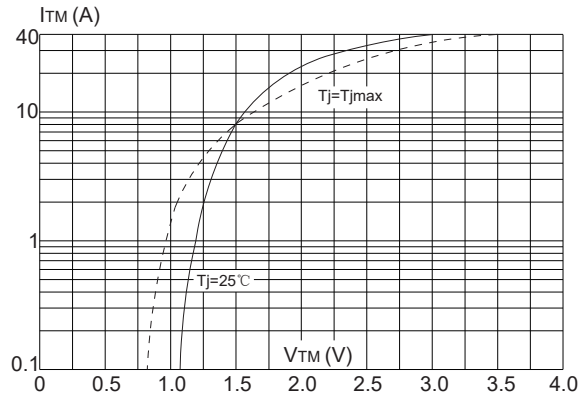


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature

