

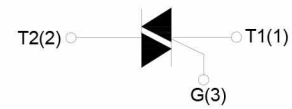
DESCRIPTION:

With high ability to withstand the shock loading of large current, **VSA20/VSB20** triacs provide high dv/dt rate with strong resistance to electromagnetic interface. With high commutation performances, 3 quadrants products especially recommended for use on inductive load.



MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	20	A
V_{DRM}/V_{RRM}	600/800/1200	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 ($T_j=25^{\circ}C$)		V_{DRM}	600/800/1200	V
Repetitive peak reverse voltage ($T_j=25^{\circ}C$)		V_{RRM}	600/800/1200	V
Non repetitive surge peak Off-state voltage		V_{DSM}	$V_{DRM} + 100$	V
Non repetitive peak reverse voltage		V_{RSM}	$V_{RRM} + 100$	V
RMS on-state current	TO-220A(Ins) ($T_c=70^{\circ}C$)	$I_{T(RMS)}$	20	A
	TO-220B(Non-Ins) ($T_c=90^{\circ}C$)			
	TO-220F(Ins) ($T_c=65^{\circ}C$)			
	TO-3P(Ins) ($T_c=105^{\circ}C$)			

Non repetitive surge peak on-state current (full cycle, F=50Hz)	I_{TSM}	200	A
I^2t value for fusing ($t_p=10ms$)	I^2t	200	A^2s
Critical rate of rise of on-state current ($I_G=2 \times I_{GT}$)	di/dt	100	$A/\mu s$
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 ($T_j=25^\circ C$ unless otherwise specified)

3 Quadrants

Symbol	Test Condition	Quadrant		Value		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}	$V_D=V_{DRM}$ $T_j=125^\circ C$ $R_L=3.3K\Omega$	I - II -III	MIN	0.2		V
I_L	$I_G=1.2I_{GT}$	I -III	MAX	70	60	mA
		II		90	70	
I_H	$I_T=100mA$		MAX	60	50	mA
dV/dt	$V_D=2/3V_{DRM}$ Gate Open $T_j=125^\circ C$		MIN	1000	500	$V/\mu s$

4 Quadrants

Symbol	Test Condition	Quadrant		Value	Unit
I_{GT}	$V_D=12V$ $R_L=33\Omega$	I - II -III	MAX	50	mA
		IV		70	
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	70	mA
		II		90	
I_H	$I_T=100mA$		MAX	60	mA
dV/dt	$V_D=2/3V_{DRM}$ Gate Open $T_j=125^\circ C$		MIN	500	$V/\mu s$

STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX)	Unit
V_{TM}	$I_{TM}=28A$ $t_p=380\mu s$	$T_j=25^{\circ}C$	1.5	V
I_{DRM}	$V_D=V_{DRM}$ $V_R=V_{RRM}$	$T_j=25^{\circ}C$	5	μA
I_{RRM}		$T_j=125^{\circ}C$	2.5	mA

THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	junction to case(AC)	TO-220A(Ins)	1.9	$^{\circ}C/W$
		TO-220B(Non-Ins)	1.1	
		TO-220F(Ins)	2.1	
		TO-3P	0.7	

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

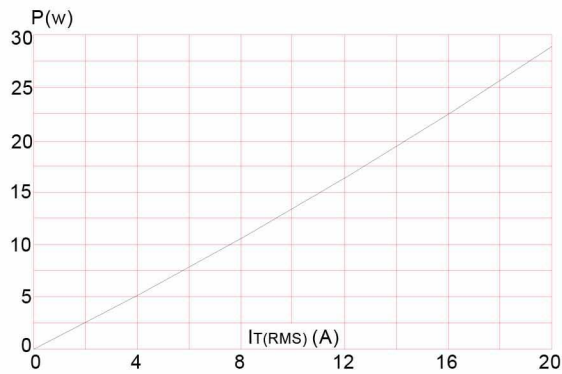


FIG.3: Surge peak on-state current versus number of cycles

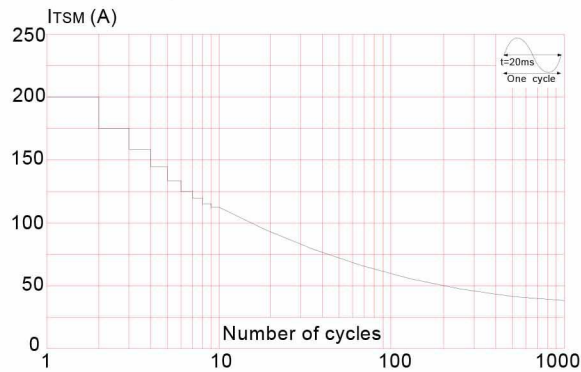


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20\text{ms}$, and corresponding value of I^2t ($dI/dt < 100\text{A}/\mu\text{s}$)

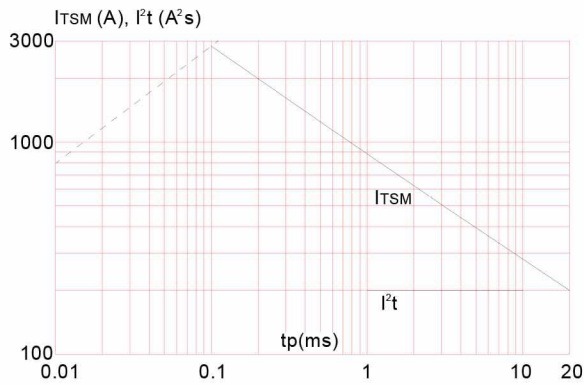


FIG.2: RMS on-state current versus case temperature

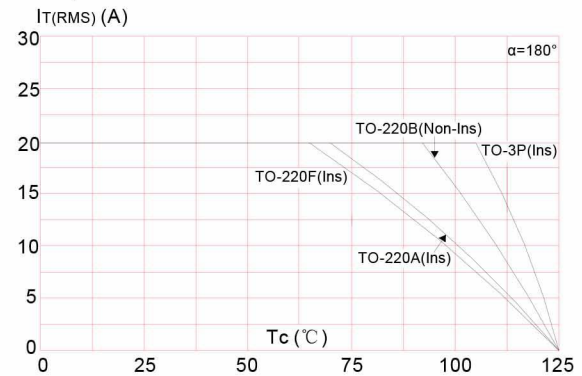


FIG.4: On-state characteristics (maximum values)

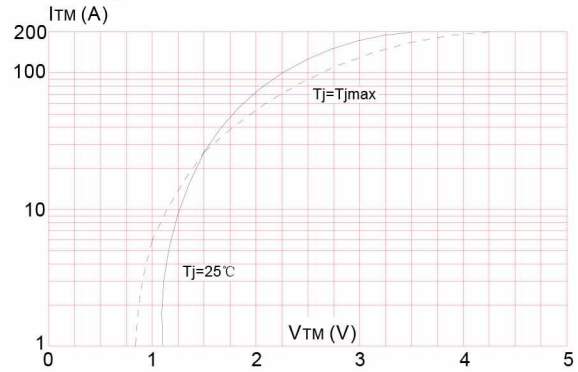


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature

