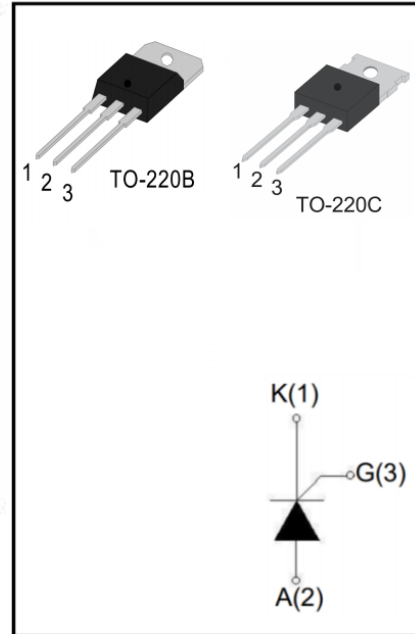


**S2025 Series 20A SCR**

Rev : 1.0

**MAINFEATURES**

Symbol	Value	Unit
$I_{T(RMS)}$	20	A
$V_{DRM}/V_{RRM}$	800	V
$I_{GT}$	25	mA



**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 ( $T = 25^{\circ}C$ )	$V_{DRM}$	800	V
Repetitive peak reverse voltage ( $T = 25^{\circ}C$ )	$V_{RRM}$	800	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
TO-220B $T_c = 100^{\circ}C$ TO-220C $T_c = 100^{\circ}C$ TO-220F $T_c = 100^{\circ}C$	$I_{T(RMS)}$	31	A
Non repetitive surge peak on-state current	$I_{TSM}$	300	A
Average on-state current (180° conduction angle)	$I_{T(AV)}$	20	A
$I^2t$ value for fusing ( $t_p=10ms$ )	$I^2t$	450	$A^2S$
Critical rate of rise of on-state current ( $I = 2 \times I_{GT}$ , $t_r \leq 100 ns$ )	$dI/dt$	50	$A/\mu S$
Peak gate current	$I_{GM}$	4	A
Average gate power dissipation	$P_{G(AV)}$	1	W

**ELECTRICAL CHARACTERISTICS (T=25°C unless otherwise specified)**

Symbol	Test Condition		Value	Unit
$I_{GT}$	$V = 12V$ $R = 140\Omega$	MAX.	25	mA
$V_{GT}$		MAX.	1.3	V
$V_{GD}$	$V_D = V_{DRM}$ $T_j = 125^\circ C$ $R = 1K\Omega$	MIN.	0.2	V
$I_L$	$I_G = 1.2I_{GT}$	MAX.	75	mA
$I_H$	$I_T = 50mA$	MAX.	50	mA
dV/dt	$V_D = 2/3V_{DRM}$ Gate Open $T_j = 125^\circ C$	MIN.	500	V/ $\mu s$

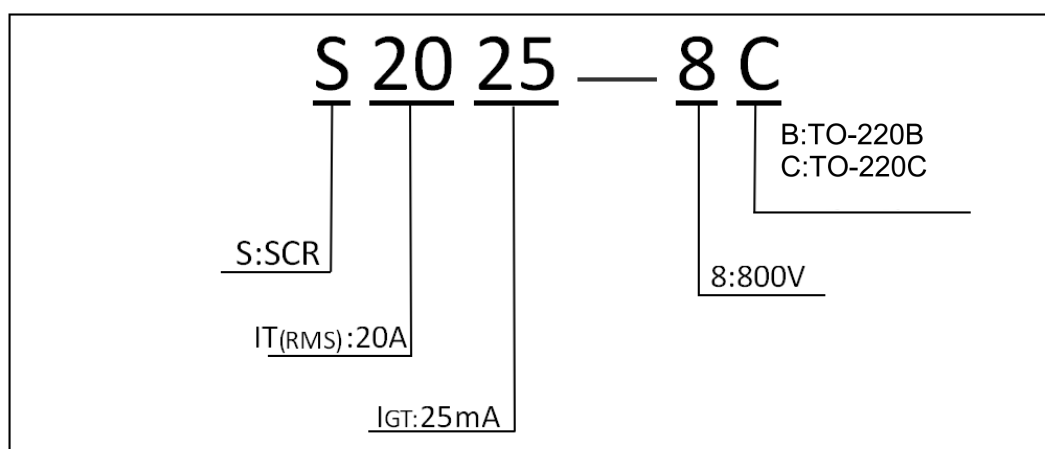
**STATIC CHARACTERISTICS**

Symbol	Parameter		Value	Unit
$V_{TM}$	$I_{TM} = 40A$ $t_p = 380\mu s$	$T_j = 25^\circ C$	1.65	V
$I_{DRM}$	$V_D = V_{DRM}$ $V_R = V_{RRM}$	$T_j = 25^\circ C$	20	$\mu A$
$I_{RRM}$		$T_j = 125^\circ C$	4	mA

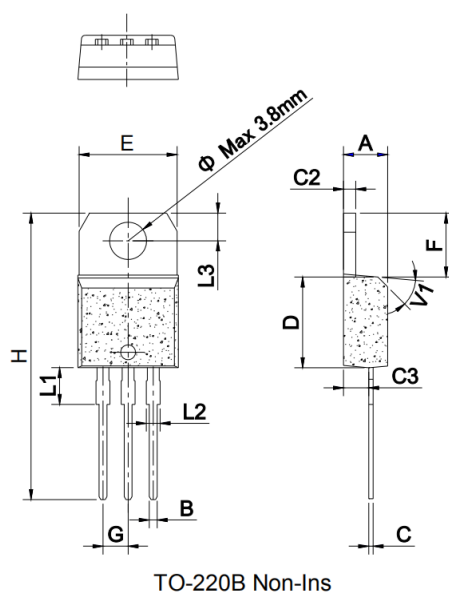
**Thermal Resistances**

Symbol	Parameter	Value	Unit
$R_{th(j-a)}$	junction to ambient(DC)	60	$^\circ C/W$
$R_{th(j-c)}$	Junction to case (DC)	1.0	

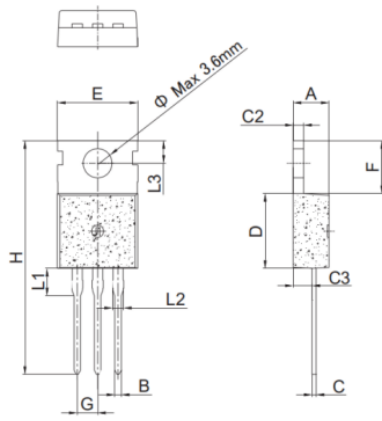
### Ordering information scheme



### Package Mechanical Data



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	0.61		0.88	0.024		0.035
C	0.46		0.70	0.018		0.028
C2	1.21		1.32	0.048		0.052
C3	2.40		2.72	0.094		0.107
D	8.60		9.70	0.339		0.382
E	9.60		10.4	0.378		0.409
F	6.20		6.60	0.244		0.260
G		2.54			0.1	
H	28.0		29.8	1.102		1.173
L1		3.75			0.148	
L2	1.14		1.70	0.045		0.067
L3	2.65		2.95	0.104		0.116
V1		45°			45°	



TO-220C

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	0.70		0.90	0.028		0.035
C	0.45		0.60	0.018		0.024
C2	1.30		1.48	0.048		0.052
C3	2.20		2.60	0.087		0.102
D	8.90		9.90	0.350		0.390
E	9.90		10.3	0.390		0.406
F	6.30		6.90	0.248		0.272
G		2.54			0.1	
H	28.0		29.8	1.102		1.173
L1		3.39			0.133	
L2	1.14		1.70	0.045		0.067
L3	2.65		2.95	0.104		0.116
Φ		3.6			0.142	

FIG.1:Maximum power dissipation versus RMS on-state current(full cycle)

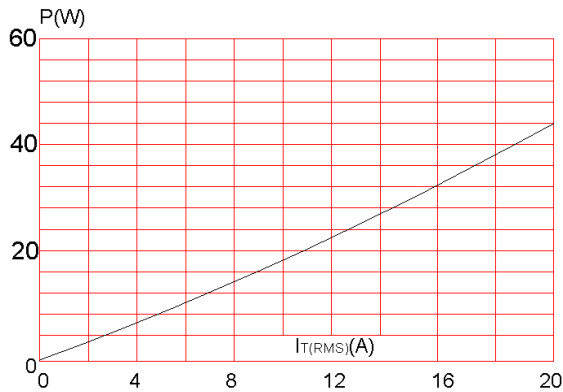


FIG.3:Surge peak on-state current versus number of cycles.

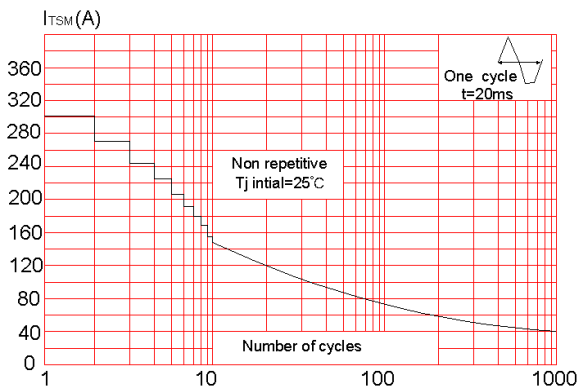


FIG.5:Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 10ms$ , and corresponding value of  $I^2t$ .

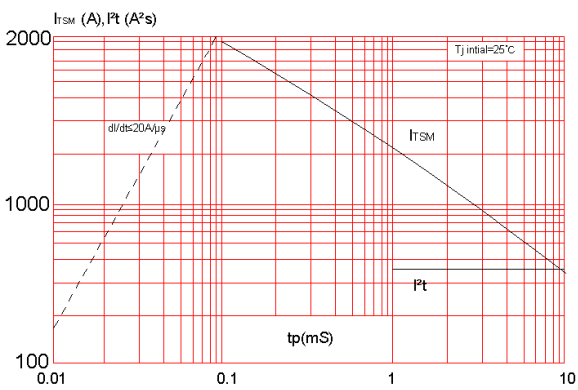


FIG.2:RMS on-state current versus mounting base temperature(full cycle)

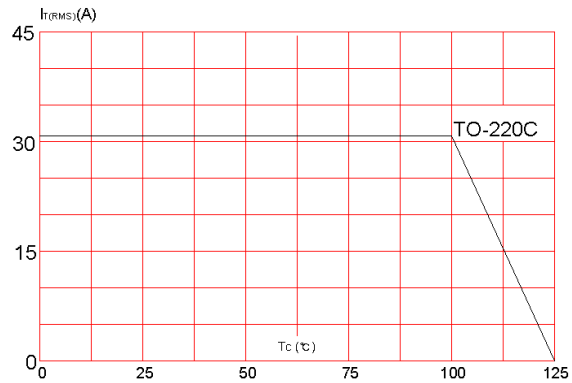


FIG.4:On-state characteristics (maximum values).

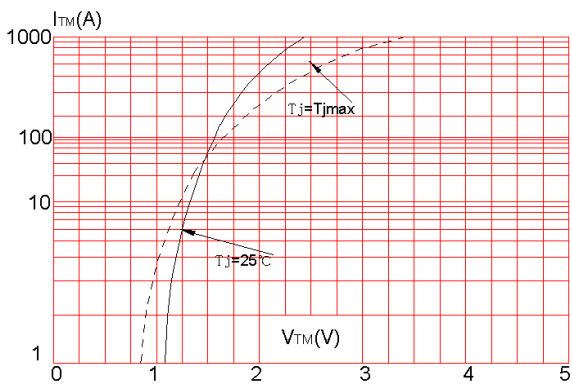


FIG.6:Relative variations of gate trigger current,holding current and latching current versus junction temperature(typical values)

