

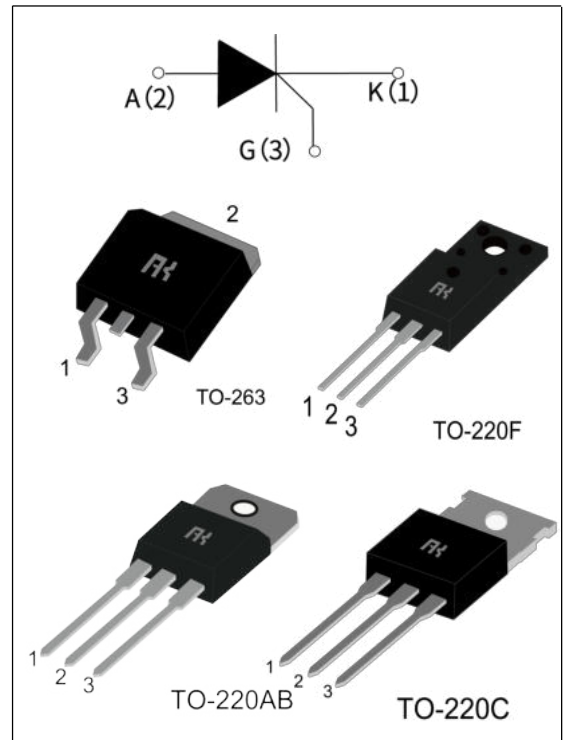
## TYN625/825/1225 Serial 25A SCRs

### GENERAL DESCRIPTION:

TYN625/825/1225 series of silicon controlled rectifiers, with high ability to withstand the shock loading of large current, provide high dv/dt rate with strong resistance to electromagnetic interference. They are especially recommended for use on solid state relay, motorcycle, power charger, T-tools, etc.

### Main Features:

$I_{T(RMS)}$	$V_{DRM}/V_{RRM}$	$I_{GT}$
25A	600V (TYN625) 800V (TYN825) 1200V (TYN1225)	$\leq 40mA$



### Absolute Ratings(limiting values) :

Symbol	Parameter	Value	Unit	
$T_{stg}$	Storage junction temperature range	- 40 to + 150	$^{\circ}C$	
$T_j$	Operating junction temperature range	- 40 to + 125	$^{\circ}C$	
$I_{T(RMS)}$	RMS on-state current	TO-220A/F(Ins) ( $T_C=85^{\circ}C$ )	25	A
		TO-220B/C(Non-Ins) ( $T_C=100^{\circ}C$ )		
		TO-263 ( $T_C=105^{\circ}C$ )		
$I_{TSM}$	Non repetitive surge peak on-state current ( $t_p=10ms$ )	300	A	
$V_{DRM}$	Repetitive peak off-state voltage( $T_j =25^{\circ}C$ )	600 and 800 and 1200	V	
$V_{RRM}$	Repetitive peak reverse voltage( $T_j =25^{\circ}C$ )	600 and 800 and 1200	V	
$V_{DSM}$	Non repetitive surge peak Off-state voltage	$V_{DRM} + 100$	V	
$V_{RSM}$	Non repetitive peak reverse voltage	$V_{RRM} + 100$	V	
$I^2t$	$I^2t$ value for fusing $t_p = 10 ms$	450	$A^2s$	

<b>dI/dt</b>	Critical rate of rise of on-state current ( $I_G = 2 \times I_{GT}$ )	50	A/ $\mu$ s
<b>I<sub>GM</sub></b>	Peak gate current	4	A
<b>P<sub>G(AV)</sub></b>	Average gate power dissipation	1	W
<b>P<sub>GM</sub></b>	Peak gate power	5	W

**Electrical Characteristics : (T<sub>j</sub>=25°C unless otherwise specified)**

Symbol	Test Condition	Value			Unit
		MIN	TYP	MAX	
<b>I<sub>GT</sub></b>	V <sub>D</sub> =12V R <sub>L</sub> =33 $\Omega$	--	-	40	mA
<b>V<sub>GT</sub></b>		--	-	1.3	V
<b>V<sub>GD</sub></b>	V <sub>D</sub> =V <sub>DRM</sub> R <sub>L</sub> =3.3k $\Omega$ T <sub>j</sub> =125°C	0.2	--	--	V
<b>I<sub>L</sub></b>	I <sub>G</sub> =1.2 I <sub>GT</sub>	--	--	90	mA
<b>I<sub>H</sub></b>	I <sub>T</sub> = 500mA	--	--	50	mA
<b>dV/dt</b>	V <sub>D</sub> =2/3V <sub>DRM</sub> Gate Open T <sub>j</sub> =125°C	1000	--	--	V/ $\mu$ s

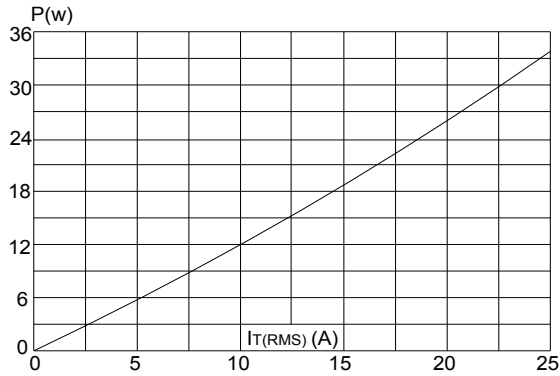
**STATIC CHARACTERISTICS**

Symbol	Parameter		Value(MAX)	Unit
<b>V<sub>TM</sub></b>	I <sub>TM</sub> = 32A tp= 380 $\mu$ s	T <sub>j</sub> =25°C	1.6	V
<b>I<sub>DRM</sub></b> <b>I<sub>RRM</sub></b>	V <sub>D</sub> =V <sub>DRM</sub> , V <sub>R</sub> =V <sub>R</sub> RM	T <sub>j</sub> =25°C	10	$\mu$ A
		T <sub>j</sub> =125°C	4	mA

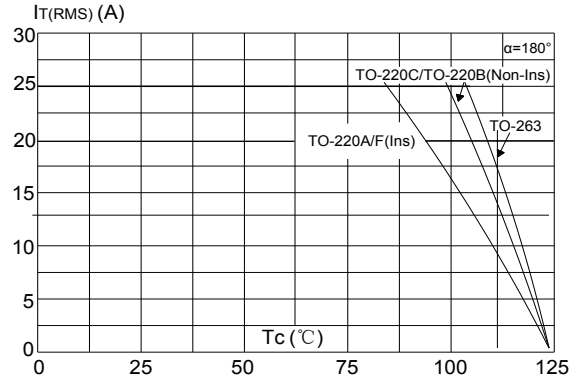
**Thermal Resistances :**

Symbol	Parameter		Value	Unit
<b>R<sub>th(j-c)</sub></b>	junction to base(AC)	TO-220B/C (no-Ins)	0.85	°C/W
		TO-220A (Ins)	1.4	
		TO-220F (Ins)	1.5	
		TO-263 (no-Ins)	0.75	

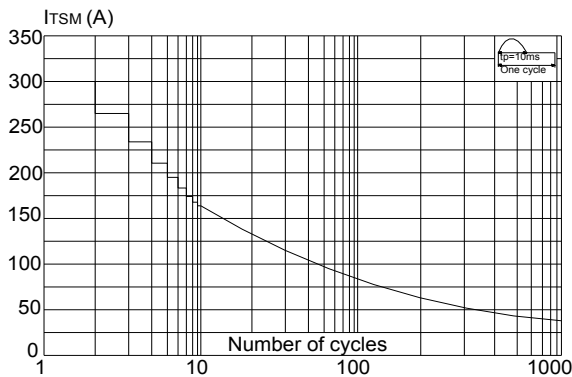
**FIG.1:** Maximum power dissipation versus RMS on-state current



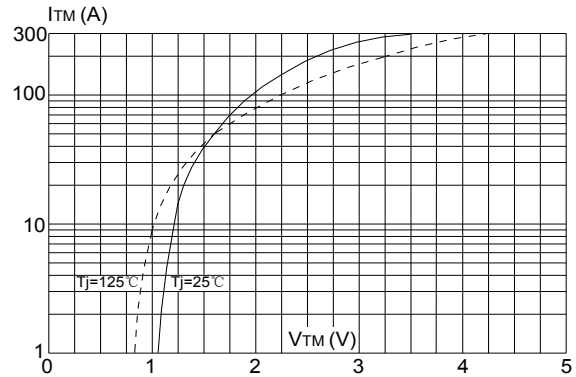
**FIG.2:** RMS on-state current versus case temperature



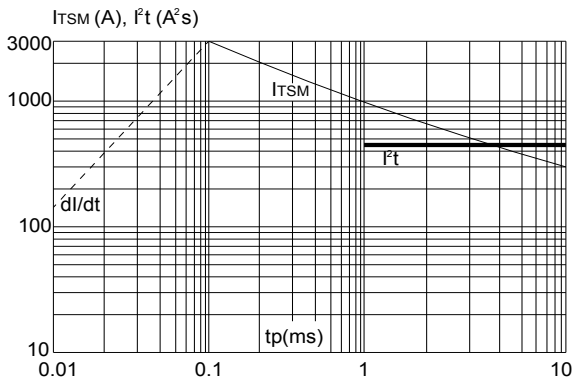
**FIG.3:** Surge peak on-state current versus number of cycles



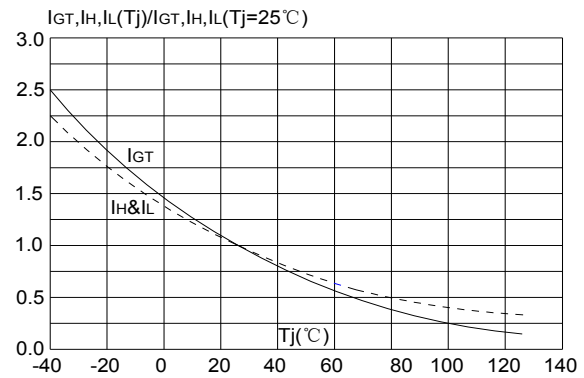
**FIG.4:** On-state characteristics (maximum values)



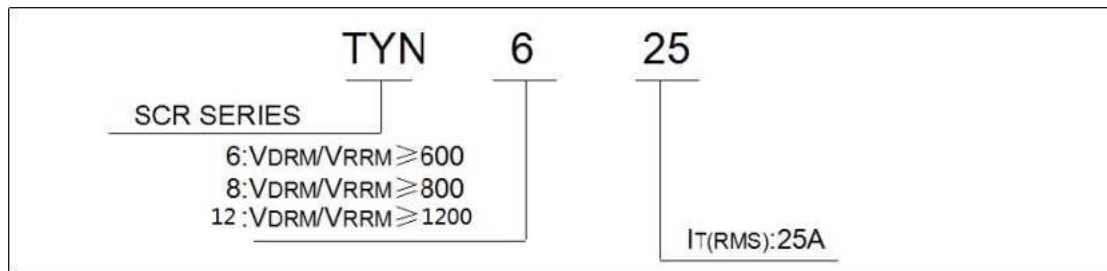
**FIG.5:** Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 10\text{ms}$ , and corresponding value of  $I^2t$  ( $dI/dt < 150\text{A}/\mu\text{s}$ )



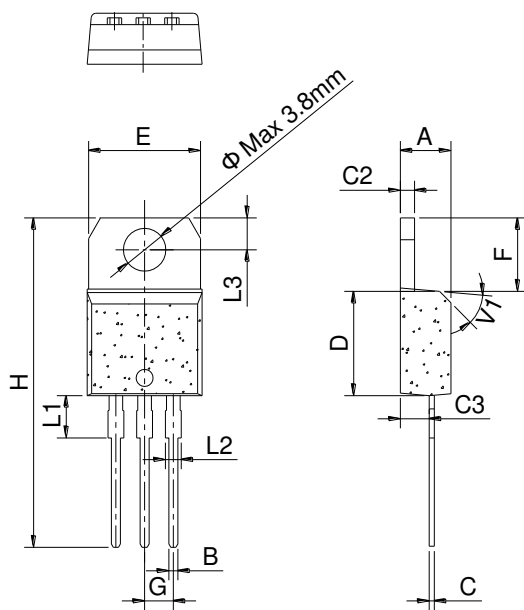
**FIG.6:** Relative variations of gate trigger current, holding current and latching current versus junction temperature



**Ordering Information:**

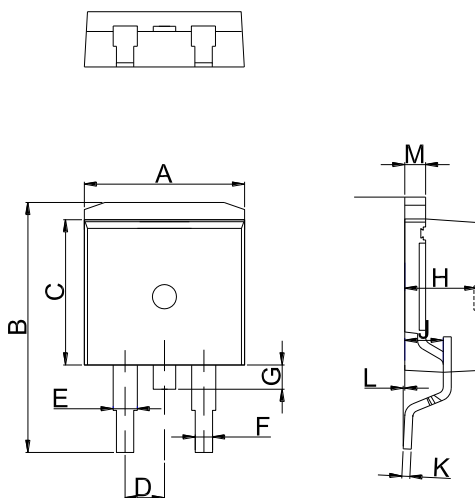


**Package Mechanical Data :**



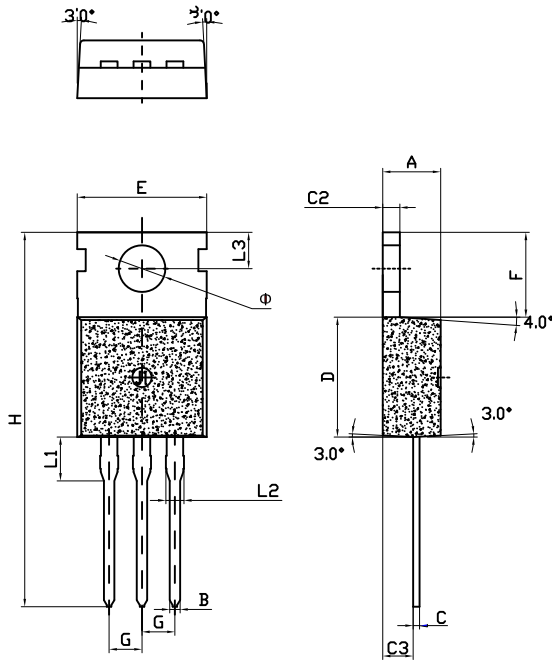
TO-220A/B

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	9.80		10.4	0.386		0.409
F	6.55		6.95	0.258		0.274
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°	



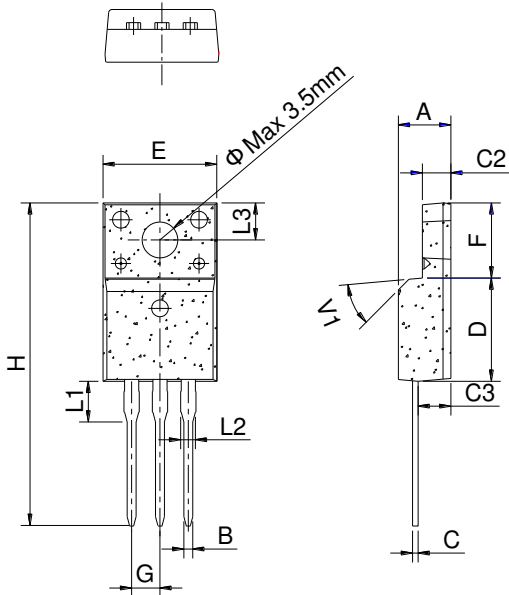
TO-263

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	9.90		10.20	0.390		0.402
B	14.70		15.80	0.579		0.622
C	9.4		9.6	0.37		0.378
D		2.54			0.100	
E	1.20		1.40	0.047		0.055
F	0.75		0.85	0.029		0.033
G			1.75			0.069
H	4.40		4.70	0.173		0.185
J	2.30		2.70	0.091		0.106
K	0.38		0.55	0.015		0.022
L	0	0.10	0.25	0	0.004	0.010
M	1.25		1.35	0.049		0.053



TO-220C

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.4		4.6	0.173		1.181
B	0.7		0.9	0.027		0.035
C	0.45		0.6	0.018		0.024
C2	1.23		1.32	0.048		0.052
C3	2.2		2.6	0.086		0.102
D	8.9		9.9	0.350		0.390
E	9.9		10.3	0.390		0.406
F	6.3		6.9	0.248		0.272
G		2.54			0.1	
H	28.0		29.8	11.0		11.7
L1		3.2			0.126	
L2	1.14		1.7	0.045		0.067
L3	2.65		2.95	0.104		0.116
Φ		3.6			0.142	



TO-220F Ins

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.80	0.173		0.189
B	0.74	0.80	0.83	0.029	0.031	0.033
C	0.48		0.75	0.019		0.030
C2	2.40		2.70	0.094		0.106
C3	2.60		3.00	0.102		0.118
D	8.80		9.30	0.346		0.366
E	9.70		10.3	0.382		0.406
F	6.40		7.00	0.252		0.276
G		2.54			0.1	
H	28.0		29.8	1.102		1.173
L1		3.63			0.143	
L2	1.14		1.70	0.045		0.067
L3		3.30			0.130	
V1		45°			45°	