



Jiangsu Weida Semiconductor Co., Ltd.

TN8 and TYNx08 Series 8A SCRs

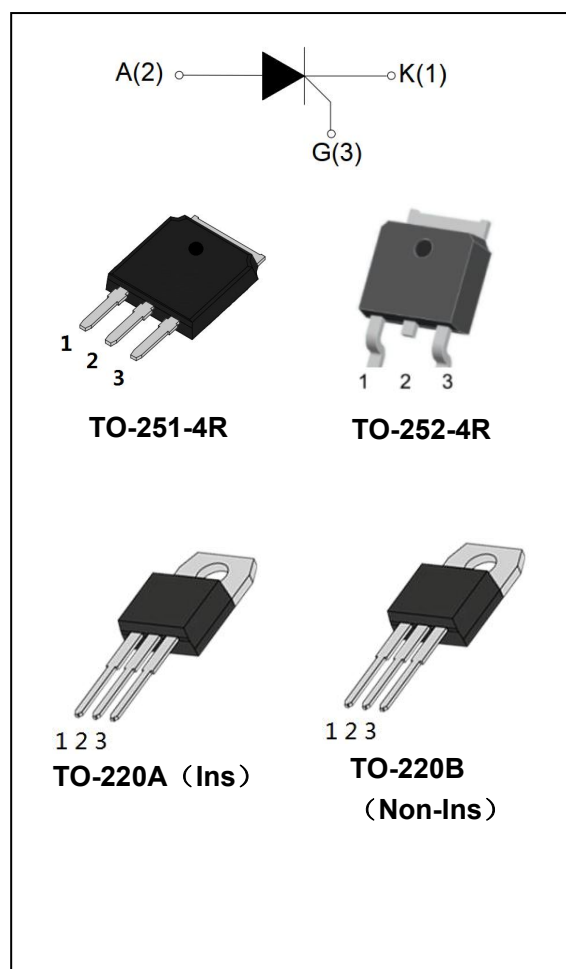
DESCRIPTION:

Available either in standard(TN8 / TYN) gate triggering levels, the 8A SCR series is suitable to fit all modes of control, found in applications such as overvoltage Crowbar protection, motor control circuits in power Tools and kitchen aids, inrush current limiting circuits, capacitive discharge ignition and voltage regulation circuits...

Available in through-hole or surface-mount packages, they provide an optimized performance in a limited space area.

MAIN FEATURES:

symbol	value	unit
$I_{T(RMS)}$	8	A
V_{DRM}/V_{RRM}	600/800	V
I_{GT}	15	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 ($T_j=25^\circ\text{C}$)	V_{DRM}	600/800	V
Repetitive peak reverse voltage ($T_j=25^\circ\text{C}$)	V_{RRM}	600/800	V
RMS on-state current	$I_{T(RMS)}$	8	A
Non repetitive surge peak on-state current (full cycle, $F=50\text{Hz}$)	I_{TSM}	80	A
I^2t value for fusing ($t_p=10\text{ms}$)	I^2t	45	A^2s
Critical rate of rise of on-state current($I_G=2\times I_{GT}$)	di/dt	50	$\text{A}/\mu\text{s}$



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Peak gate current	I_{GM}	4	A
Average gate power dissipation	$P_{G(AV)}$	1	W
Peak gate power	P_{GM}	5	W

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

Parameter	Test Condition		TN805	TN815	TYNx08	Unit
I_{GT}	$V_D=12\text{V}, R_L=33\Omega$	MAX	5	15	15	mA
V_{GT}		MAX	1.3			V
V_{GD}	$V_D=V_{DRM} T_j=125^\circ\text{C}$	MIN	0.2			V
I_H	$I_T=50\text{mA}$	MAX	25	40	40	mA
I_L	$I_G=1.2I_{GT}$	MAX	30	50	50	mA
dV/dt	$V_D=2/3 \times V_{DRM} T_j=125^\circ\text{C}$ Gate open	MIN	50	150	150	V/ μs

STATIC CHARACTERISTICS

Symbol	Test Condition			Value	Unit
V_{TM}	$I_{TM}=16\text{A}$	$t_p=380\mu\text{s}$	$T_j=25^\circ\text{C}$	MAX	1.5 V
I_{DRM} I_{RRM}	$V_D=V_{DRM}=V_{RRM}$		$T_j=25^\circ\text{C}$	MAX	5 μA
			$T_j=125^\circ\text{C}$		0.5 mA

THERMAL RESISTANCES

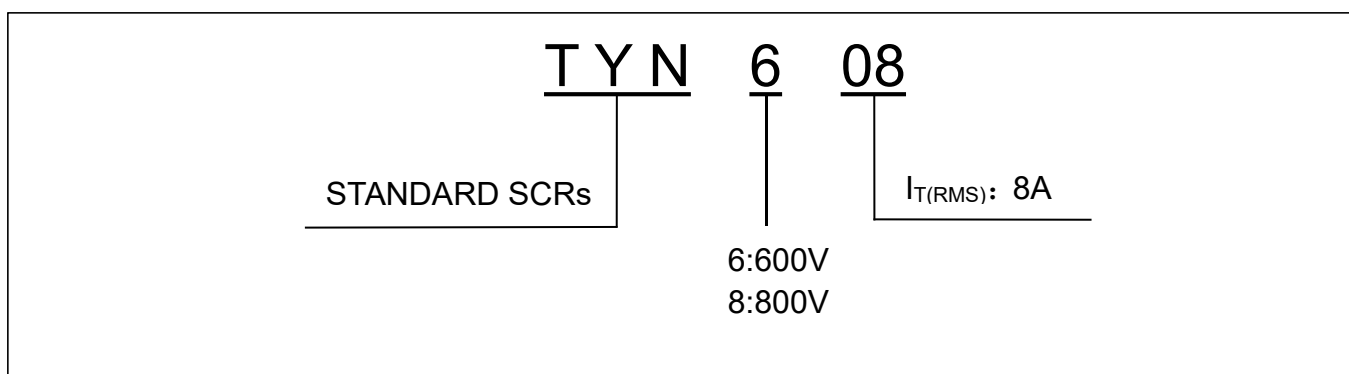
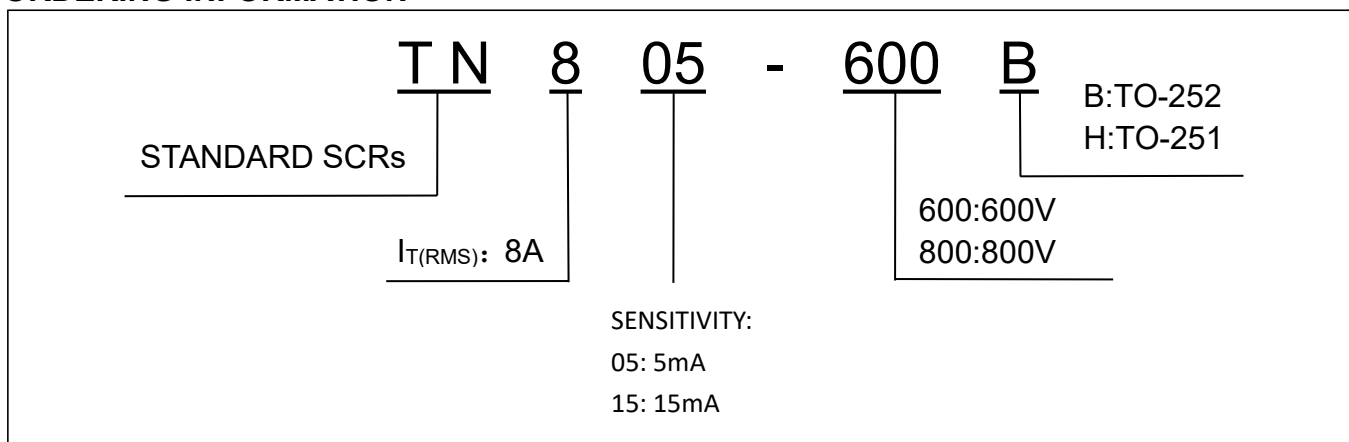
Symbol	Test Condition		Value	Unit
$R_{th(j-c)}$	junction to case(AC)	TO-251-4R/TO-252-4R TO-220A/TO-220B	20	$^\circ\text{C}/\text{W}$



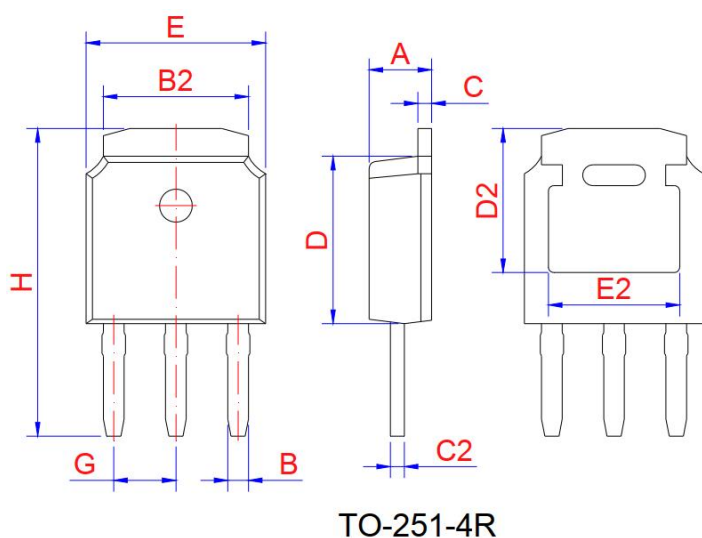
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ORDERING INFORMATION



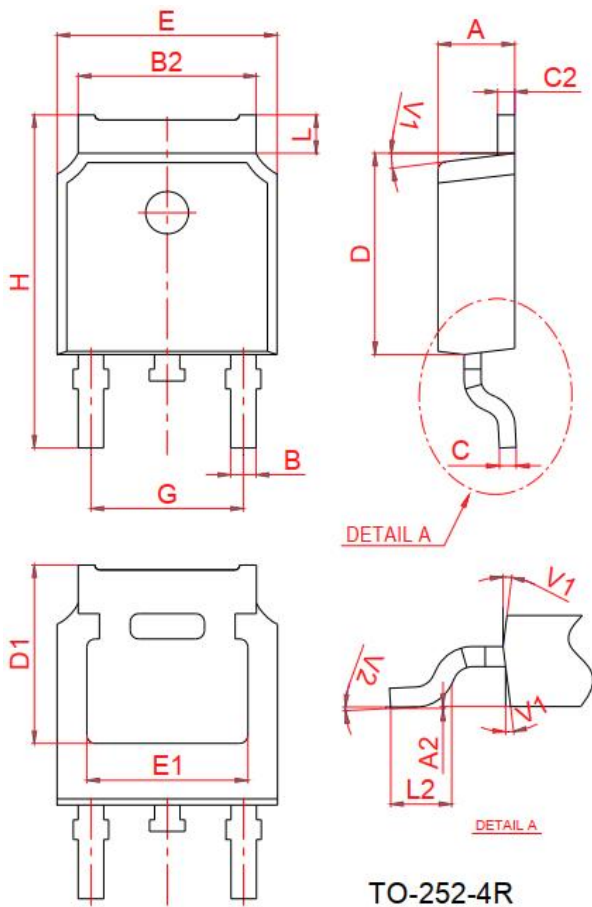
PACKAGE MECHANICAL DATA



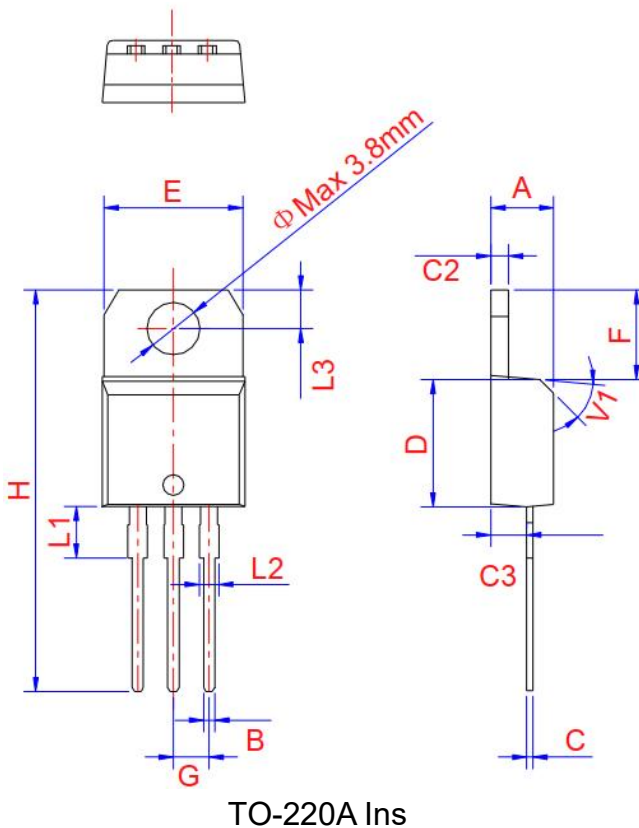
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.10	2.30	2.50	0.083	0.091	0.098
B	0.66	0.76	0.86	0.026	0.030	0.034
B2	5.15	5.33	5.48	0.203	0.210	0.216
C	0.44	0.51	0.58	0.017	0.020	0.023
C2	0.44	0.51	0.58	0.017	0.020	0.023
D	5.90	6.10	6.30	0.232	0.240	0.248
D2	5.30REF			0.209REF		
E	6.40	6.60	6.80	0.252	0.260	0.268
E2	4.83REF			0.190REF		
G	2.19	2.29	2.39	0.086	0.090	0.094
H	10.60	11.20	11.80	0.417	0.441	0.465



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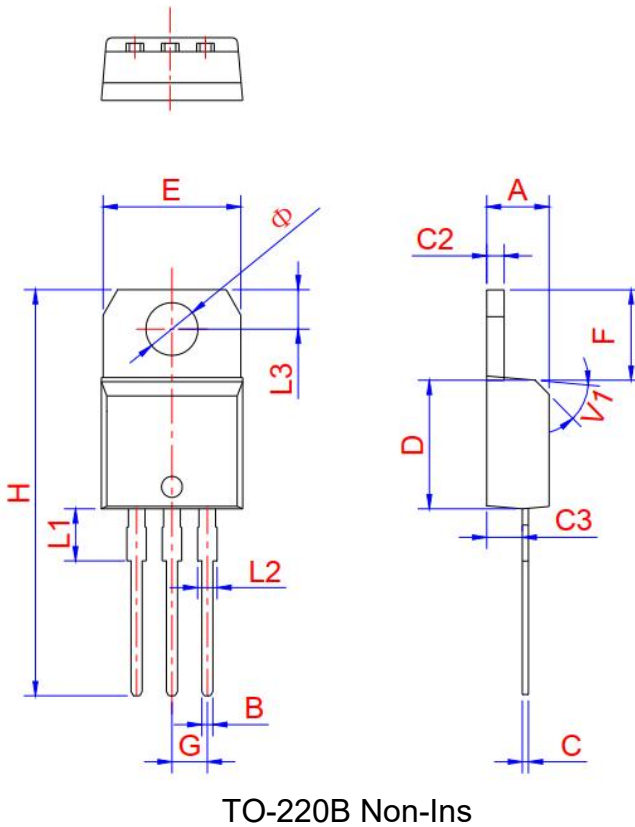
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.2		2.4	0.087		0.094
A2	0		0.1	0		0.004
B	0.66		0.86	0.026		0.034
B2	5.1		5.46	0.201		0.215
C	0.46		0.58	0.018		0.023
C2	0.44		0.58	0.017		0.023
D	5.9		6.3	0.232		0.248
D1	5.30REF			0.211REF		
E	6.4		6.8	0.252		0.268
E1	4.63			0.182		
G	4.372		4.772	0.172		0.188
H	9.8		10.4	0.386		0.409
L	1.09		1.21	0.043		0.048
L2	1.35		1.65	0.053		0.065
V1		7°			7°	
V2	0°		6°	0°		6°



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.4	4.47	4.6	0.173	0.176	0.181
B	0.61		0.88	0.024		0.035
C	0.46	0.50	0.7	0.018	0.02	0.028
C2	1.21	1.27	1.32	0.048	0.050	0.052
C3	2.4		2.72	0.094		0.107
D	8.6		9.7	0.339		0.382
E	9.8		10.4	0.386		0.409
F	6.55		6.95	0.258		0.274
G		2.54			0.1	
H	28		29.8	1.102		1.173
L1		3.75			0.148	
L2	1.14		1.7	0.045		0.067
L3	2.65		2.95	0.104		0.116
V1		45°			45°	



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	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.4	4.47	4.6	0.173	0.176	0.181
B	0.61		0.88	0.024		0.035
C	0.46	0.50	0.7	0.018	0.02	0.028
C2	1.21	1.27	1.32	0.048	0.050	0.052
C3	2.4		2.72	0.094		0.107
D	8.6		9.7	0.339		0.382
E	9.8		10.4	0.386		0.409
F	6.55		6.95	0.258		0.274
G		2.54			0.1	
H	28		29.8	1.102		1.173
L1		3.75			0.148	
L2	1.14		1.7	0.045		0.067
L3	2.65		2.95	0.104		0.116
V1		45°			45°	
Φ	3.7	3.75	3.8	0.145	0.147	0.149

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

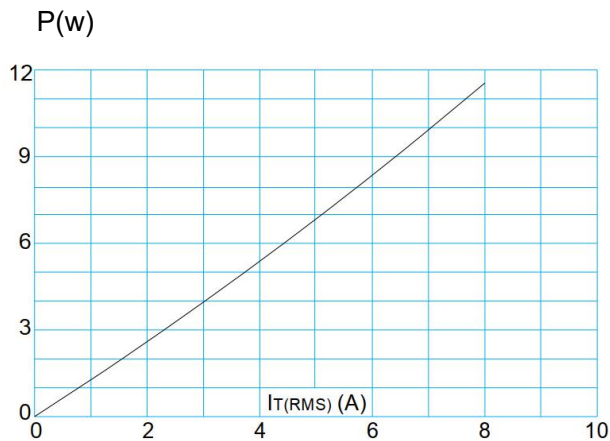
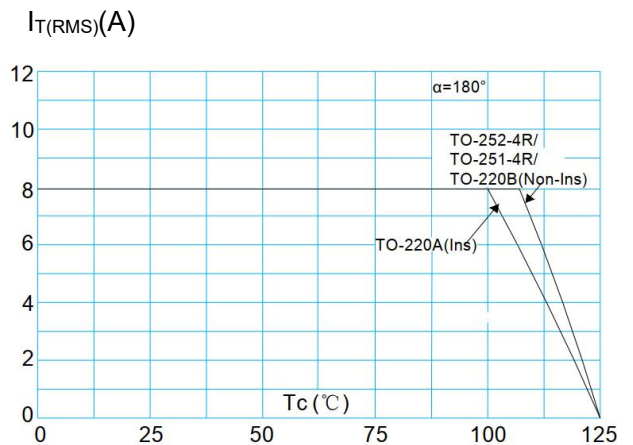


FIG.2: RMS on-state current versus case temperature





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

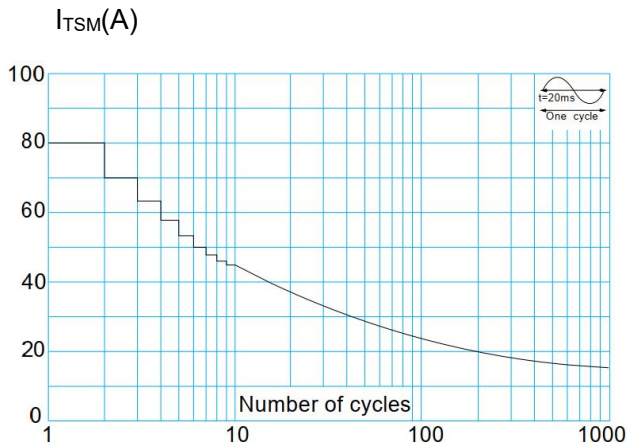


FIG.4: On-state characteristics (maximum values)

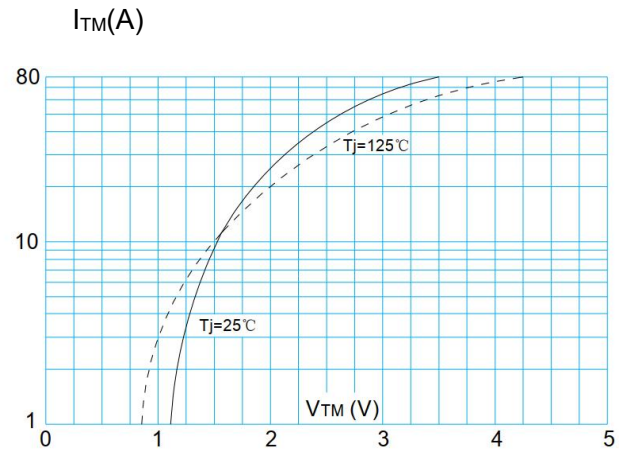


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20\text{ms}$, and corresponding value of I^2t (I - II -III: $dI/dt < 50\text{A}/\mu\text{s}$; IV: $dI/dt < 10\text{A}/\mu\text{s}$)

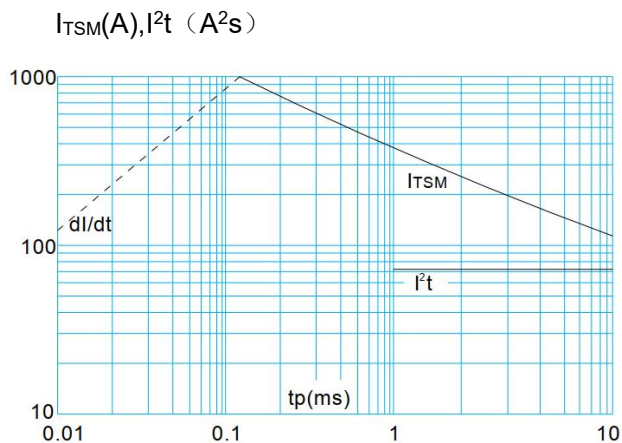
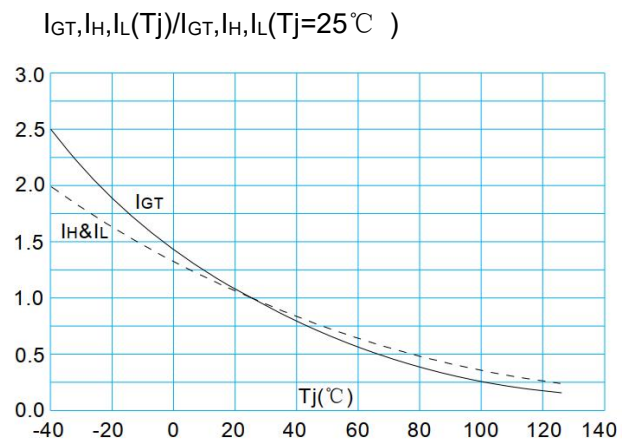


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature





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