

# RS8xx Series 8A TRIACS

## DESCRIPTION:

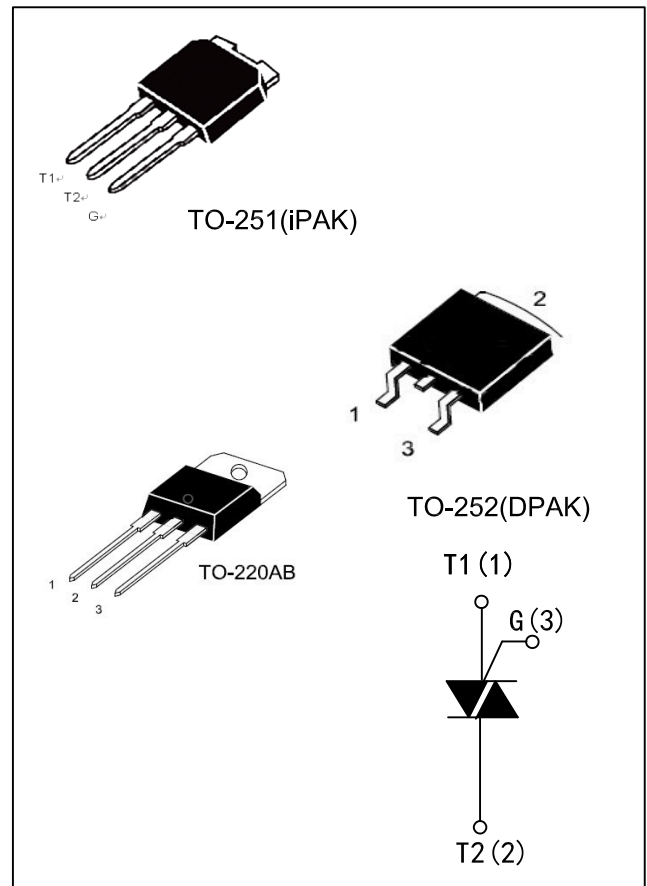
High current density due to double mesa technology, glass passivation.

RS8xx series triacs are suitable for general purpose AC switching, They can be used as an ON/OFF function in applications such as static relays, heating regulation, induction motor starting circuits...or for phase control operation, light dimmers, motor speed controllers.

RS8xx are 3 quadrants triacs, They are specially recommended for use on inductive loads.

## MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	8	A
$V_{DRM}/V_{RRM}$	600 and 800	V
$V_{TM}$	1.55	V



## ABSOLUTE MAXIMUM RATINGS

Parameter		Symbol	Value	Unit
Storage junction temperature range		Tstg	-40 to +150	°C
Operating junction temperature range		Tj	-40 to +125	°C
Repetitive Peak Off-state Voltage	Tj=25°C	VDRM	600 and 800	V
Repetitive Peak Reverse Voltage	Tj=25°C	VRRM	600 and 800	
Non repetitive Surge Peak Off-state Voltage	tp=10ms, Tj=25°C	VDSM	700 and 900	V
Non repetitive Peak Reverse Voltage		VRSM	700 and 900	
RMS on-state current (full sine wave)	JST08H Tc=110°C	IT(RMS)	8	A
	JST08K Tc=110°C			
Non repetitive surge peak on-state current (full cycle, Tj=25°C)	f = 60 Hz t=16.7ms	ITSM	84	A
	f = 50 Hz t=20ms		80	
I²t Value for fusing	tp=10ms	I²t	36	A²s
Critical rate of rise of on-state current (IG=2×IGT, tr≤100 ns, f=120Hz, Tj=125°C)		di / dt	50	A/μs
Peak gate current (tp=20us, Tj=125°C)		IGM	4	A
Peak Gate Power Dissipation (tp=20us, Tj=125°C)		PGM	10	W
Average gate power dissipation (Tj=125°C)		PG(AV)	1	W

ELECTRICAL CHARACTERISTICS (T<sub>j</sub>=25°C unless otherwise specified)

## ● 3 Quadrants

Symbol	Test Condition	Quadrant		RS8xx				Unit
				RS805	RS810	RS835	RS850	
I <sub>GT</sub>	V <sub>D</sub> =12V R <sub>L</sub> =33Ω	I-II-III	MAX.	5	10	35	50	mA
V <sub>GT</sub>		I-II-III	MAX.	1.3				V
V <sub>GD</sub>	V <sub>D</sub> =V <sub>DRM</sub> R <sub>L</sub> =3.3KΩ T <sub>j</sub> =125°C	I-II-III	MIN.	0.2				V
I <sub>L</sub>	I <sub>G</sub> =1.2I <sub>GT</sub>	I-III	MAX.	15	20	50	70	mA
		II	MAX.	25	35	60	80	mA
I <sub>H</sub>	I <sub>T</sub> =100mA		MAX.	10	15	40	60	mA
dV/dt	V <sub>D</sub> =67%V <sub>DRM</sub> gate open T <sub>j</sub> =125°C		MIN.	20	40	400	1000	V/μs
(dV/dt) <sub>c</sub>	(dI/dt) <sub>c</sub> =3.5A/ms T <sub>j</sub> =125°C		MIN.	0.5	1	10	25	V/μs

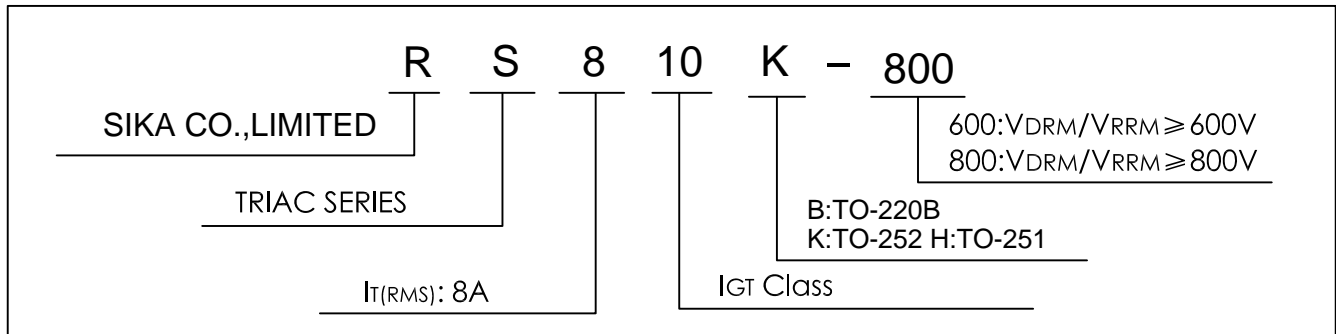
## STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX.)	Unit
V <sub>TM</sub>	I <sub>TM</sub> =11A, t <sub>p</sub> =380μs	T <sub>j</sub> =25°C	1.55	V
I <sub>DRM</sub> I <sub>RRM</sub>	V <sub>D</sub> =V <sub>DRM</sub> V <sub>R</sub> =V <sub>R<sub>RRM</sub></sub>	T <sub>j</sub> =25°C	5	μA
		T <sub>j</sub> =125°C	1	mA

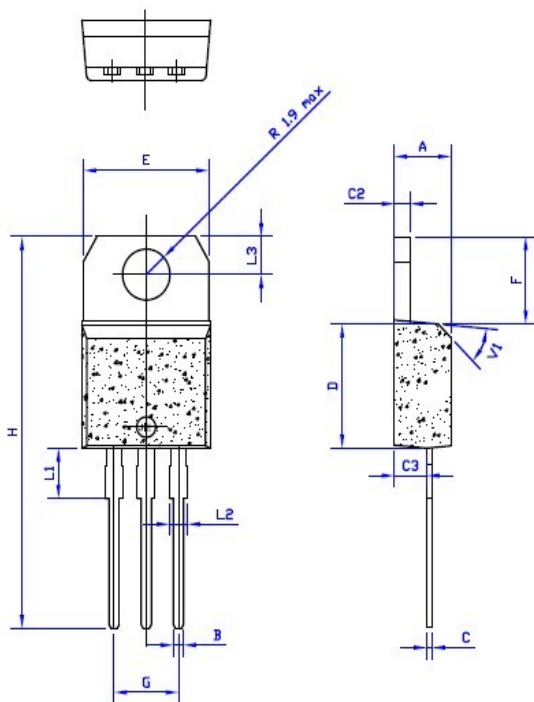
## THERMAL RESISTANCES

Symbol	Parameter		Value	Unit	
R <sub>th</sub> (J-C)	Junction to Case(AC)		RK810H/RK810K	1.6	°C/W
R <sub>th</sub> (j-a)	Junction to ambient	S=0.5cm <sup>2</sup>	RK810K	70	°C/W
			RK810H	100	

ORDERING INFORMATION



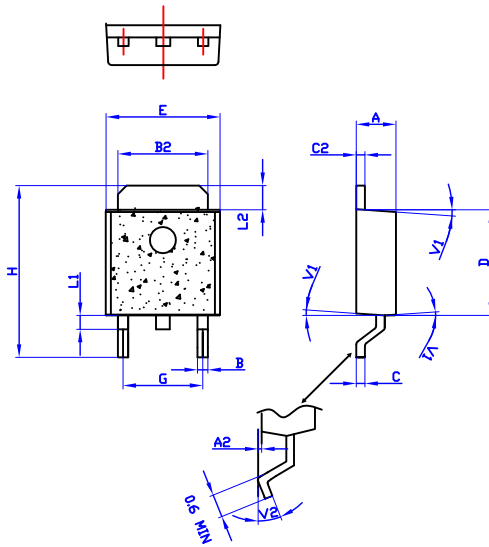
TO-220A insulated package and TO-220B non-insulated package



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.4		4.6	0.173		1.181
B	0.61		0.88	0.024		0.034
C	0.46		0.70	0.018		0.027
C2	1.23		1.32	0.048		0.051
C3	2.4		2.72	0.094		0.107
D	8.6		9.7	0.338		0.382
E	9.8		10.4	0.386		0.409
F	6.2		6.6	0.244		0.259
G	4.8		5.4	0.189		0.213
H	28.0		29.8	11.0		11.7
L1		3.75			0.147	
L2	1.14		1.7	0.044		0.066
L3	2.65		2.95	0.104		0.116
V1		40°			40°	

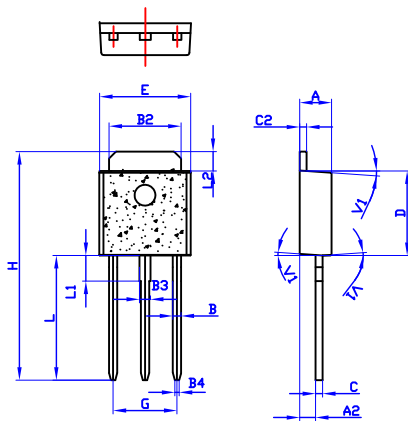
PACKAGE MECHANICAL DATA

TO-252(DPAK)



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.2		2.4	0.086		0.095
A2	0.03		0.23	0.001		0.009
B	0.55		0.65	0.021		0.026
B2	5.1		5.4	0.200		0.212
C	0.45		0.62	0.017		0.024
C2	0.48		0.62	0.019		0.024
D	6		6.2	0.236		0.244
E	6.4		6.7	0.252		0.264
G	4.40		4.70	0.173		0.185
H	9.35		10.1	0.368		0.397
L1		0.8			0.031	
L2	1.37		1.5	0.054		0.059
V1		4°			4°	
V2	0°		8°	0°		8°

TO-251(IPAK)



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.2		2.4	0.086		0.095
A2	0.9		1.1	0.035		0.043
B	0.55		0.65	0.021		0.026
B2	5.1		5.4	0.200		0.212
B3	0.76		0.85	0.030		0.033
B4		0.32			0.013	
C	0.45		0.62	0.017		0.024
C2	0.48		0.62	0.019		0.024
D	6		6.2	0.236		0.244
E	6.4		6.7	0.252		0.264
G	4.4		4.7	0.173		0.185
H	16.0		16.7	0.630		0.658
L	8.9		9.4	0.350		0.370
L1	1.8		1.9	0.071		0.075
L2	1.37		1.5	0.054		0.059
V1		4°			4°	

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

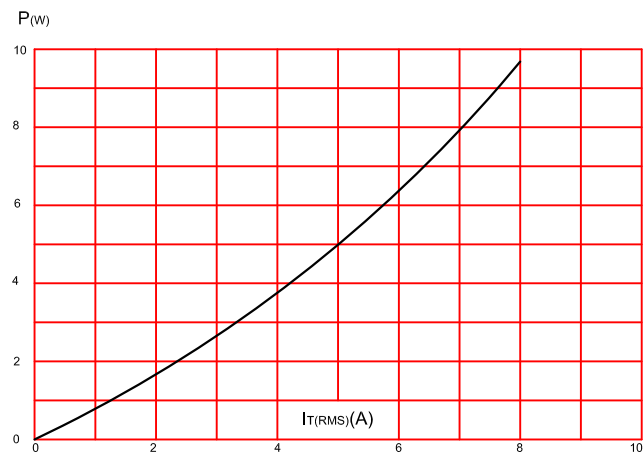


FIG.2: RMS on-state current versus case temperature (full cycle)

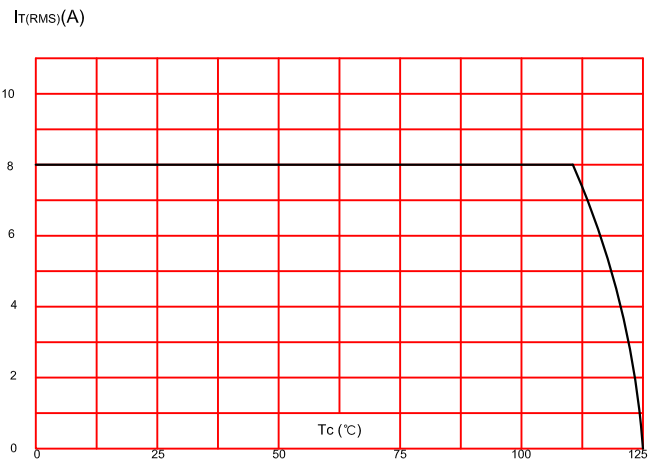


FIG.3: On-state characteristics (maximum values).

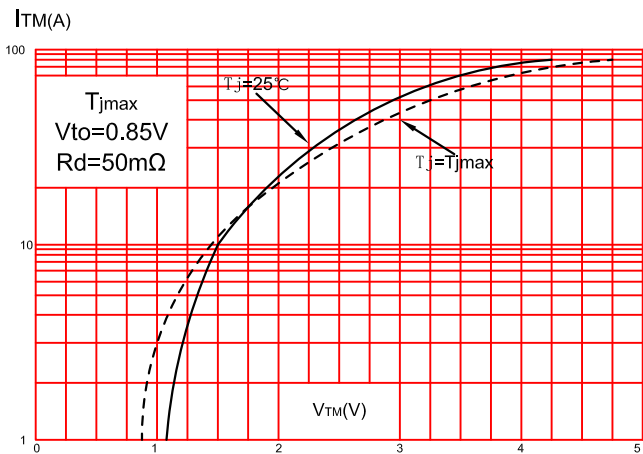


FIG.4: Surge peak on-state current versus number of cycles.

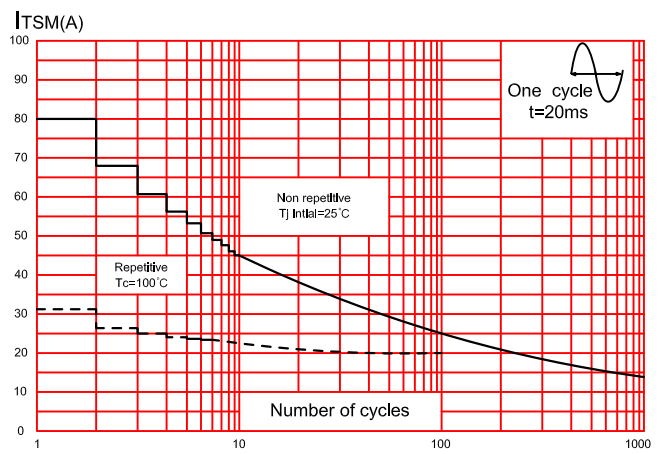


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 10\text{ms}$ , and corresponding value of  $I^2t$ .

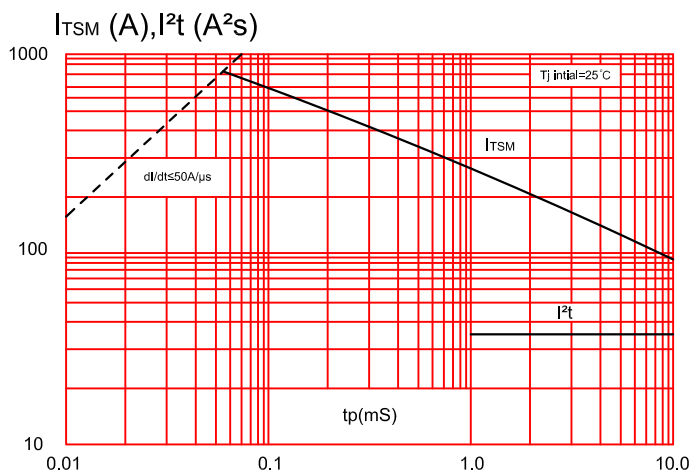


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature (typical values)

