

RS04x06 Series 4A TRIACS

**DESCRIPTION:**

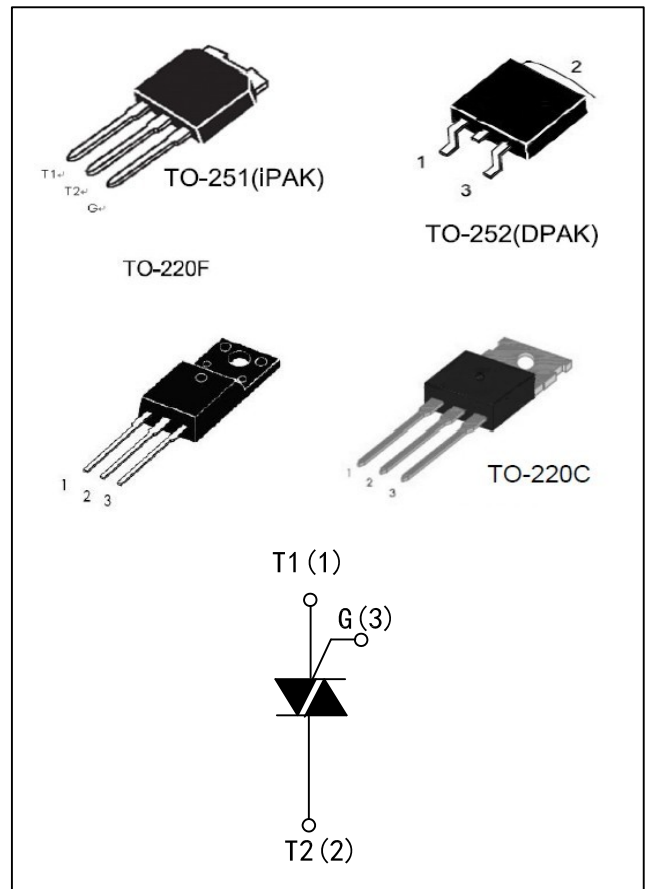
High current density due to double mesa technology, SIPOS and Glass Passivation.

RS04x06 -D -E -F -G series triacs is 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.

**MAIN FEATURES**

Symbol	Value	Unit
IT(RMS)	4	A
VDRM/VRRM	600 and 800	V
V <sub>TM</sub>	1.7	V



**ABSOLUTE MAXIMUM RATINGS**

Parameter		Symbol	Value	Unit
Storage junction temperature range		T <sub>stg</sub>	-40 to +150	°C
Operating junction temperature range		T <sub>j</sub>	-40 to +125	°C
Repetitive Peak Off-state Voltage	T <sub>j</sub> =25°C	V <sub>DRM</sub>	600 and 800	V
Repetitive Peak Reverse Voltage	T <sub>j</sub> =25°C	V <sub>RRM</sub>	600 and 800	
Non repetitive Surge Peak Off-state Voltage	tp=10ms, T <sub>j</sub> =25°C	V <sub>DSM</sub>	700 and 900	V
Non repetitive Peak Reverse Voltage		V <sub>RSM</sub>	700 and 900	
RMS on-state current (full sine wave)	T <sub>c</sub> =107°C	I <sub>T(RMS)</sub>	4	A
Non repetitive surge peak on-state current (full cycle, T <sub>j</sub> =25°C)	f = 60 Hz、t=16.7ms	I <sub>TSM</sub>	27	A
	f = 50 Hz、t=20ms		25	
I <sup>2</sup> t Value for fusing	tp=10ms	I <sup>2</sup> t	3.1	A <sup>2</sup> s
Critical rate of rise of on-state current I <sub>G</sub> =2×I <sub>GT</sub> , tr≤100 ns, f=120Hz, T <sub>j</sub> =125°C	I-II-III IV	di /dt	50	A/μs
			10	
Peak gate current	tp=20us, T <sub>j</sub> =125°C	I <sub>GM</sub>	2	A
Peak gate power	tp=20us, T <sub>j</sub> =125°C	P <sub>GM</sub>	5	W
Average gate power dissipation	T <sub>j</sub> =125°C	P <sub>G(AV)</sub>	0.5	W

ELECTRICAL CHARACTERISTICS(Tj=25°C unless otherwise specified)

Symbol	Test Condition	Quadrant		RS04x06				Unit
				D	E	F	G	
IGT	VD=12V RL=33Ω	I-II-III IV	MAX.	5 10	10 25	25 70	50 100	mA
VGT		ALL	MAX.	1.3				V
VGD	VD=VDRM RL=3.3KΩ Tj =125°C	ALL	MIN.	0.2				V
IL	IG=1.2IGT	I-III-IV	MAX.	15	30	40	60	mA
		II	MAX.	20	40	60	90	mA
IH	IT =100mA		MAX.	10	25	30	60	mA
dV/dt	VD=67%VDRM gate open Tj=125°C		MIN.	5	10	50	200	V/μs
(dV/dt)c	(dI/dt)c=1.8A/ms Tj=125°C		MIN.	1	2	5	10	V/μs

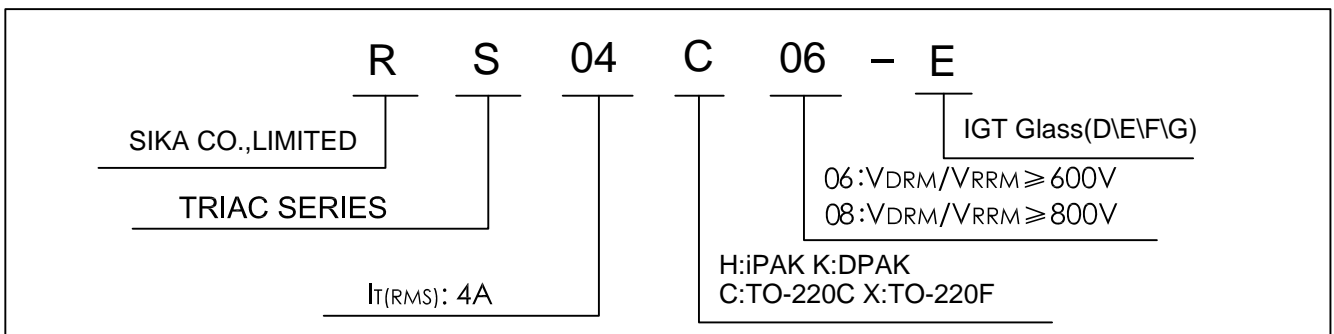
STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX.)	Unit
V <sub>TM</sub>	ITM=5A, tp=380μs	Tj=25°C	1.7	V
IDRM IRRM	VD=VDRM VR=VRRM	Tj=25°C	5	μA
		Tj=125°C	1	mA

THERMAL RESISTANCES

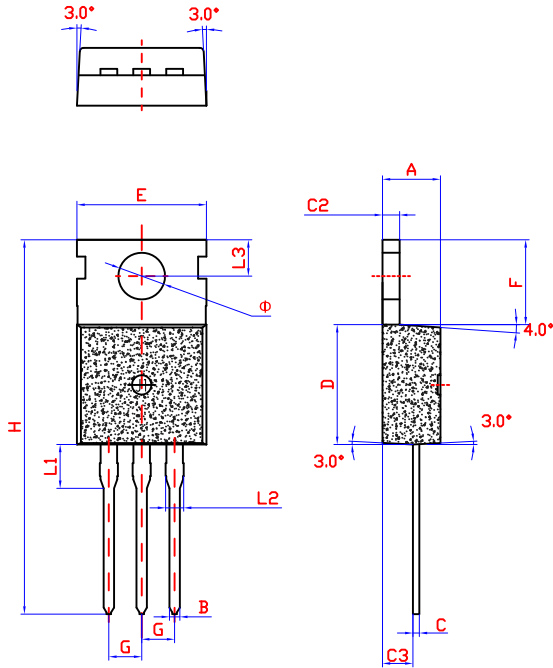
Symbol	Parameter	Value	Unit
R <sub>th(j-c)</sub>	Junction to Case(AC)	3.0	°C/W

ORDERING INFORMATION



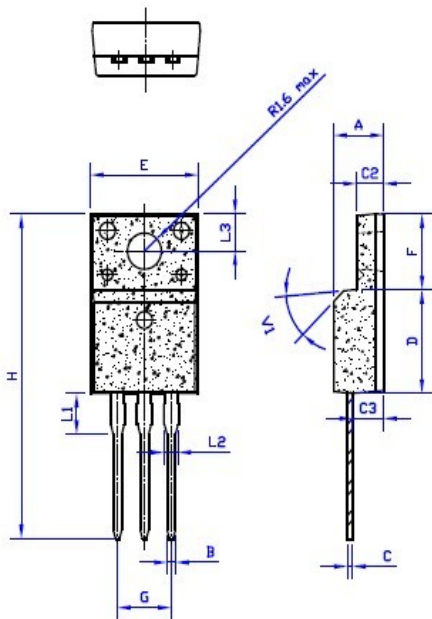
PACKAGE MECHANICAL DATA

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	

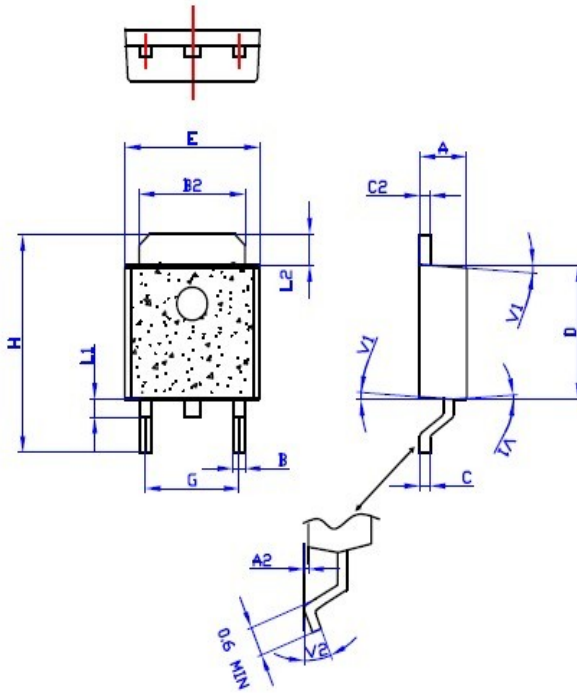
TO-220F



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.4		4.8	0.173		0.189
B	0.74	0.8	0.83	0.029	0.031	0.033
C	0.5		0.75	0.020		0.030
C2	2.4		2.7	0.094		0.106
C3	2.6		3.0	0.102		0.118
D	8.8		9.3	0.346		0.367
E	9.7		10.3	0.382		0.406
F	6.4		6.8	0.252		0.268
G	5.0		5.2	0.197		0.205
H	28.0		29.8	11.0		11.7
L1		3.63			0.143	
L2	1.14		1.7	0.044		0.067
L3		3.3			0.130	
V1		40°			40°	

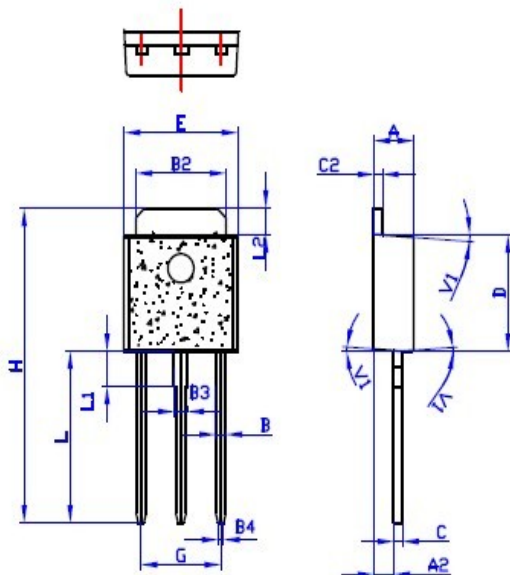
PACKAGE MECHANICAL DATA

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)

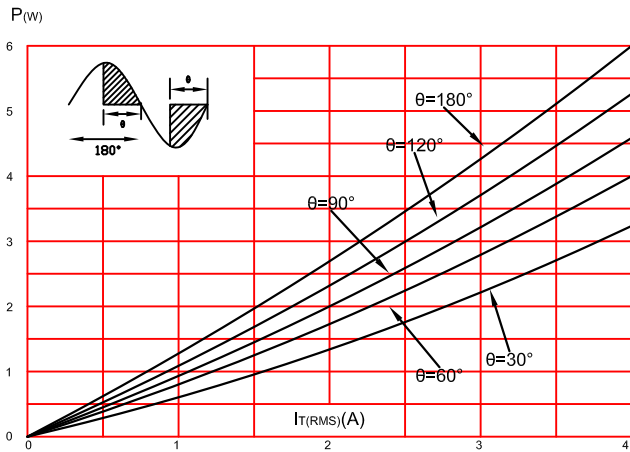


FIG.2: RMS on-state current versus case temperature (full cycle)

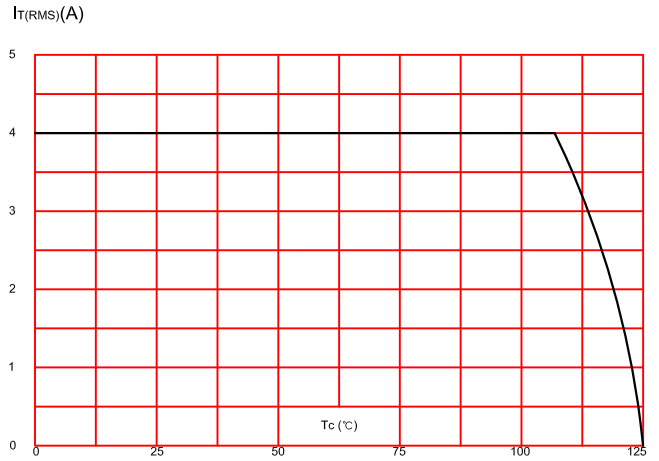


FIG.3: On-state characteristics (maximum values).

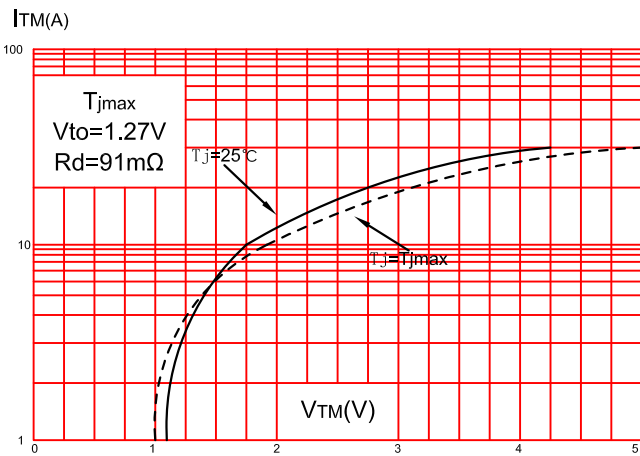


FIG.4: Surge peak on-state current versus number of cycles.

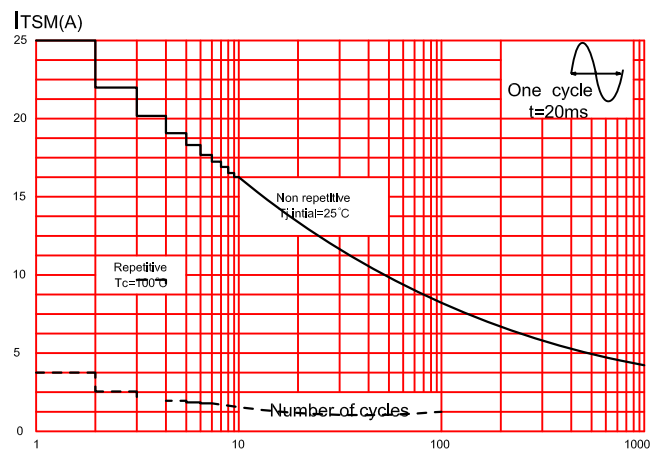


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 10\text{ms}$ , and corresponding value of  $I^2t$ .

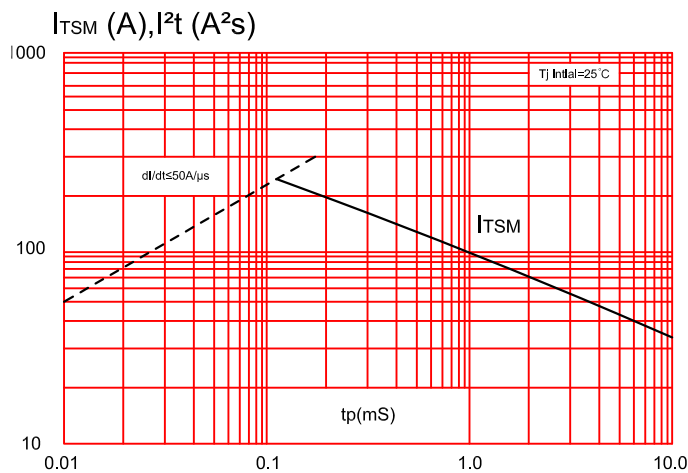
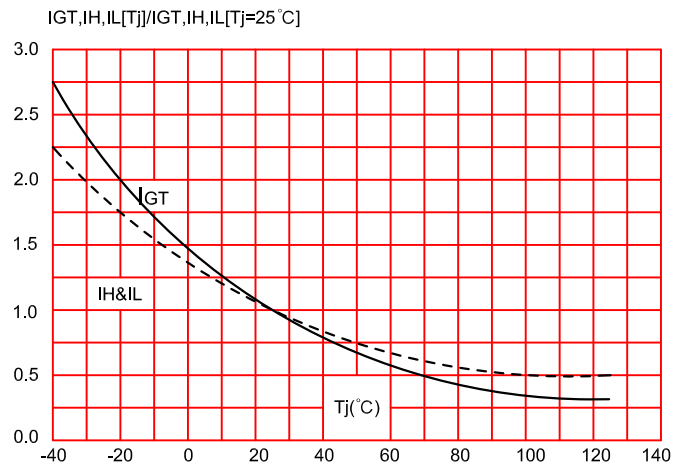


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature (typical values)



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