

**RS1206x Series      12A TRIACS**
**DESCRIPTION:**

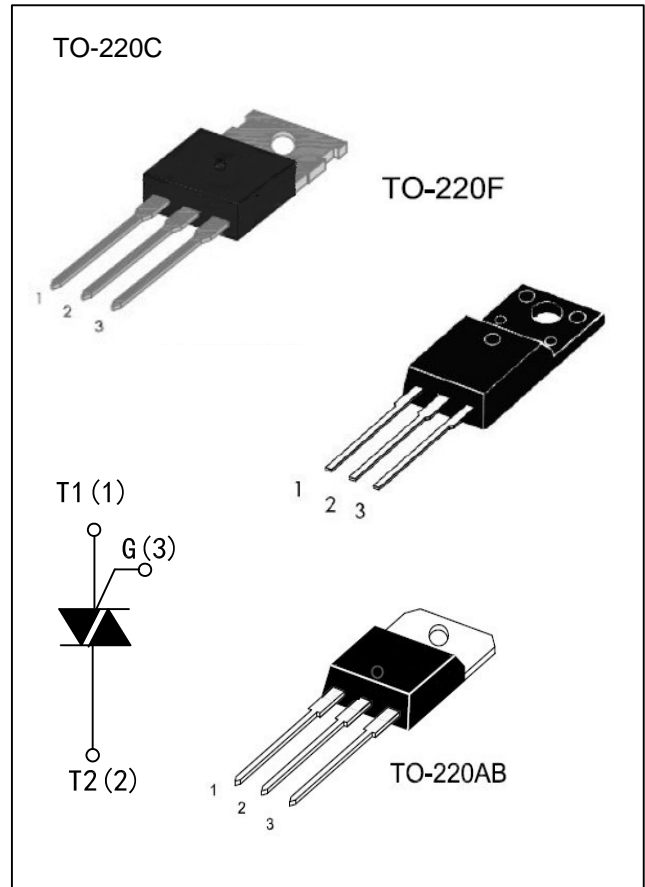
High current density due to double mesa technology, SIPOS and Glass Passivation.

RS1206x -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)	12	A
VDRM/VRRM	600 and 800	V
VTM	1.65	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)	Tc=99°C	IT(RMS)	12	A
Non repetitive surge peak on-state current (full cycle, Tj=25°C)	f = 60 Hz、t=16.7ms	ITSM	105	A
	f = 50 Hz、t=20ms		95	
I²t Value for fusing	tp=10ms	I²t	45	A²s
Critical rate of rise of on-state current IG=2×IGT, tr≤100 ns, f=120Hz, Tj=125°C	I-II-III IV	di /dt	50	A/μs
			10	
Peak gate current	tp=20us, Tj=125°C	IGM	2	A
Peak gate power	tp=20us, Tj=125°C	PGM	5	W
Average gate power dissipation	Tj=125°C	PG(AV)	0.5	W

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

Symbol	Test Condition	Quadrant		RS1206x				Unit
				D	E	F	G	
I <sub>GT</sub>	V <sub>D</sub> =12V R <sub>L</sub> =33Ω	I-II-III IV	MAX.	5 10	10 25	25 70	50 100	mA
V <sub>GT</sub>		ALL	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	ALL	MIN.	0.2				V
I <sub>L</sub>	I <sub>G</sub> =1.2I <sub>GT</sub>	I-III-IV	MAX.	15	30	40	60	mA
		II	MAX.	20	40	60	90	mA
I <sub>H</sub>	I <sub>T</sub> =100mA		MAX.	10	25	30	60	mA
dV/dt	V <sub>D</sub> =67%V <sub>DRM</sub> gate open T <sub>j</sub> =125°C		MIN.	5	10	50	200	V/μs
(dV/dt) <sub>c</sub>	(dI/dt) <sub>c</sub> =5.4A/ms T <sub>j</sub> =125°C		MIN.	1	2	5	10	V/μs

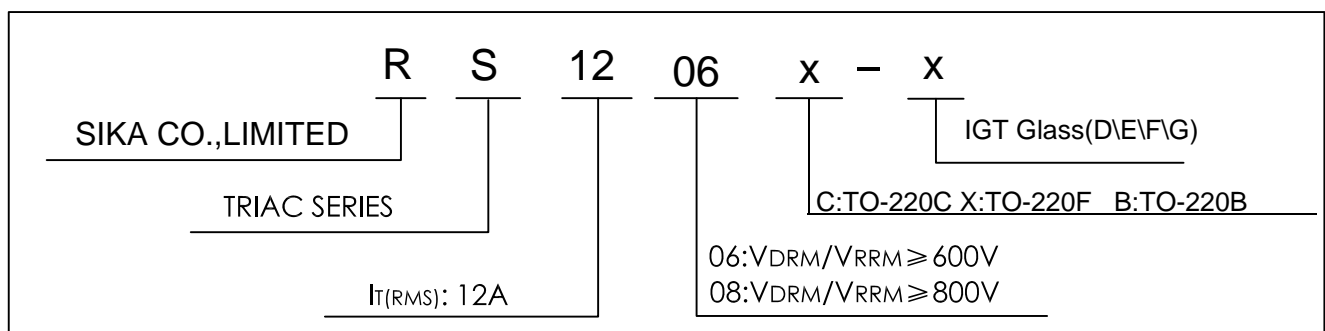
## STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX.)	Unit
V <sub>TM</sub>	I <sub>TM</sub> =15A, t <sub>p</sub> =380μs	T <sub>j</sub> =25°C	1.65	V
I <sub>DRM</sub> I <sub>RRM</sub>	V <sub>D</sub> =V <sub>DRM</sub> V <sub>R</sub> =V <sub>RRM</sub>	T <sub>j</sub> =25°C	5	μA
		T <sub>j</sub> =125°C	1	mA

## THERMAL RESISTANCES

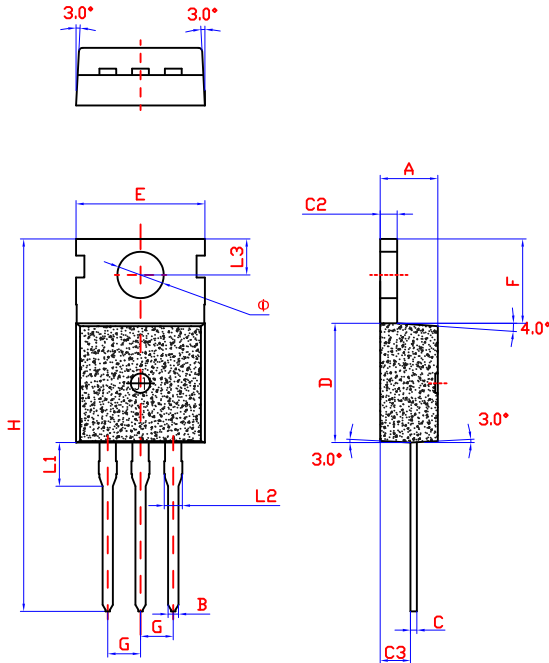
Symbol	Parameter	Value	Unit
R <sub>th</sub> (J-C)	Junction to Case(AC)	1.5	°C/W

## ORDERING INFORMATION

 <p>SIKA CO.,LIMITED</p> <p>TRIAC SERIES</p> <p>I<sub>T(RMS)</sub>: 12A</p>	<p><b>R S 12 06 x - x</b></p> <p>IGT Glass(DIE\F/G)</p> <p>C:TO-220C X:TO-220F B:TO-220B</p> <p>06:V<sub>DRM</sub>/V<sub>RRM</sub> ≥ 600V 08:V<sub>DRM</sub>/V<sub>RRM</sub> ≥ 800V</p>
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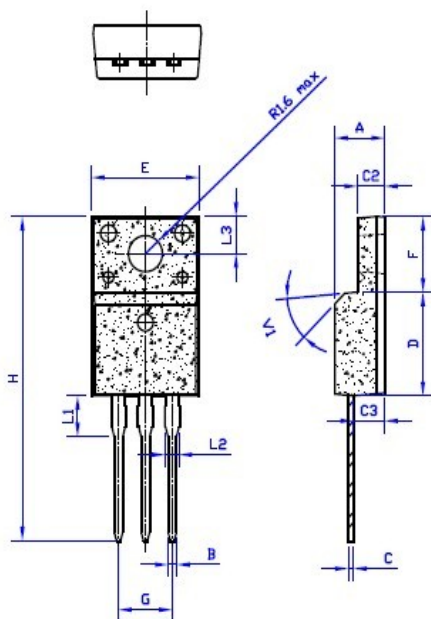
PACKAGE MECHANICAL DATA

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	

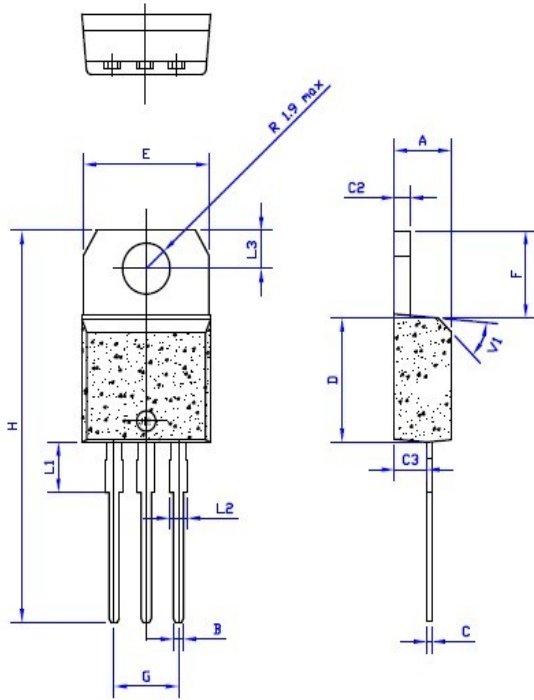
TO-220F



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-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°	

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

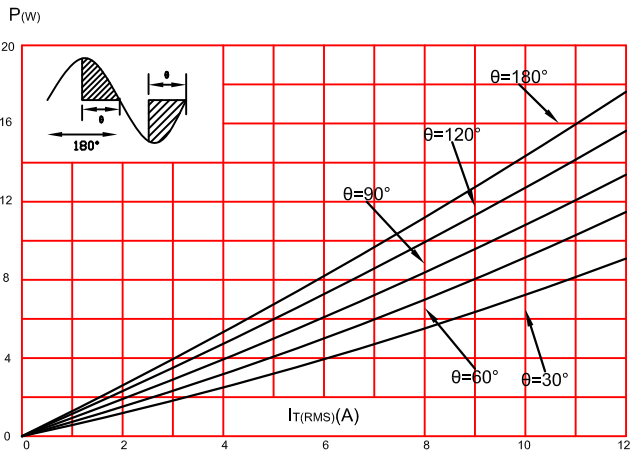


FIG.2:RMS on-state current versus case temperature(full cycle)

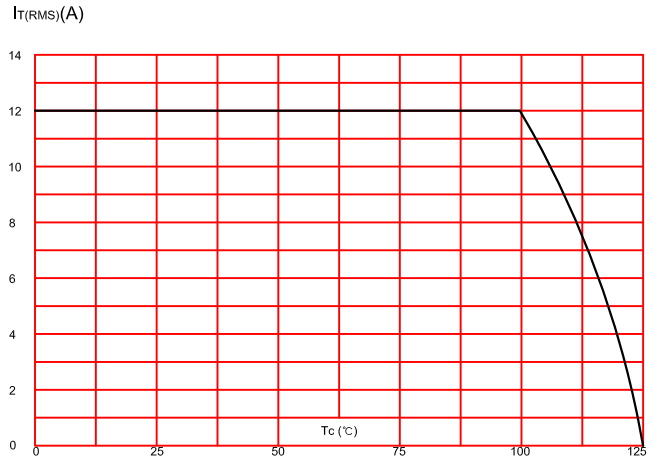


FIG.3:On-state characteristics (maximum values).

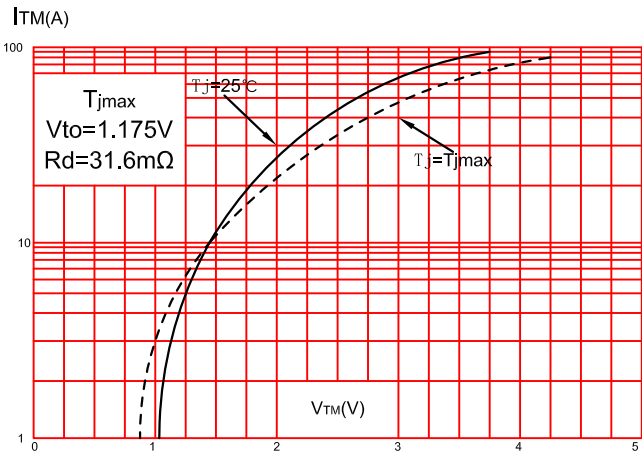


FIG.4:Surge peak on-state current versus number of cycles.

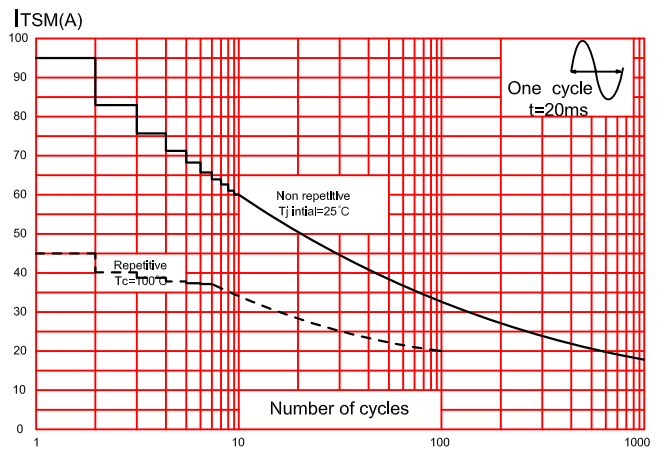


FIG.5:Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 10ms$ , and corresponding value of  $I^2t$ .

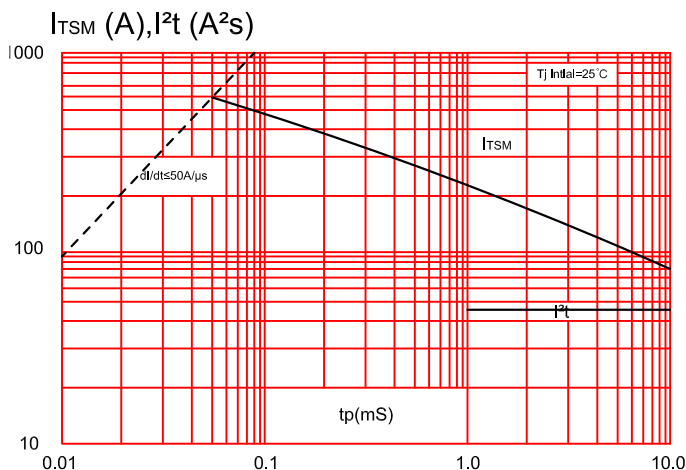
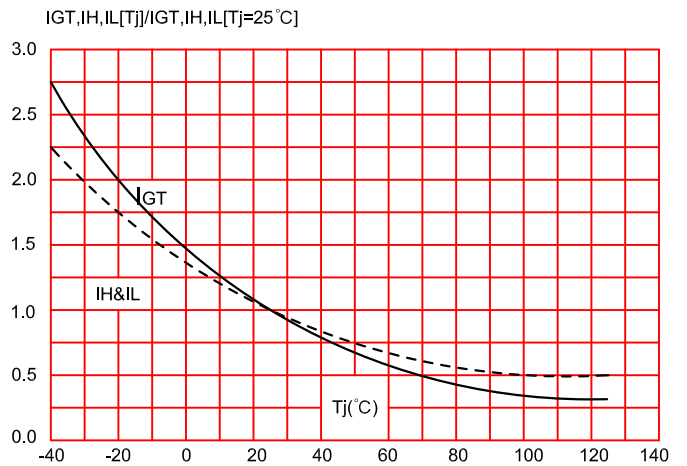


FIG.6:Relative variations of gate trigger current, holding current and latching current versus junction temperature(typical values)



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