

RS04xx Series 4A TRIACS

DESCRIPTION:

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

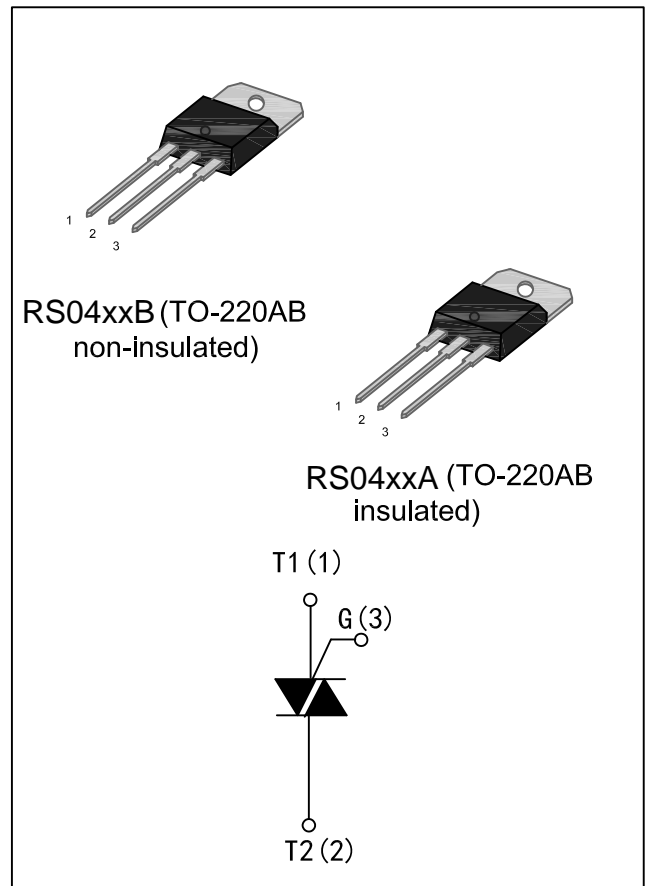
RS04xxA/B series triacs is suitable for general purpose AC switching, They can be used as an ON/OFF function in applications such as static relays, heating regulation, induction motor starting circuits...or for phase control operation, light dimmers, motor speed controllers.

RS04xxA/B-TW -SW -CW are 3 quadrants triacs, They are specially recommended for use on inductive loads.

RS04xxA are isolated in internal, they provide a 2500V RMS isolation voltage from all three terminals to external heat sink.

MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	4	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	600and800	V
Repetitive Peak Reverse Voltage	Tj=25°C	VRRM	600and800	
Non repetitive Surge Peak Off-state Voltage	tp=10ms, Tj=25°C	VDSM	700and900	V
Non repetitive Peak Reverse Voltage		VRSM	700and900	
RMS on-state current (full sine wave)	TO-220AB Tc=95°C	IT(RMS)	4	A
	TO-220AB insulated Tc=90°C			
Non repetitive surge peak on-state current (full cycle, Tj=25°C)	f = 60 Hz t=16.7ms	ITSM	42	A
	f = 50 Hz t=20ms		40	
I²t Value for fusing	tp=10ms	I²t	8	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
Average gate power dissipation	Tj=125°C	PG(AV)	1	W

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

● 3 Quadrants

Symbol	Test Condition	Quadrant		RS04xx				Unit
				TW	SW	CW	BW	
I _{GT}	V _D =12V R _L =33Ω	I-II-III	MAX.	5	10	35	50	mA
V _{GT}		I-II-III	MAX.	1.5				V
V _{GD}	V _D =V _{DRM} R _L =3.3KΩ T _j =125°C	I-II-III	MIN.	0.2				V
I _L	I _G =1.2I _{GT}	I-III	MAX.	15	20	50	70	mA
		II	MAX.	25	35	60	80	mA
I _H	I _T =100mA		MAX.	10	15	40	60	mA
dV/dt	V _D =67%V _{DRM} gate open T _j =125°C		MIN.	20	40	400	1000	V/μs
(dV/dt) _c	(dI/dt) _c =1.7A/ms T _j =125°C		MIN.	0.5	1	10	25	V/μs

● 4 Quadrants

Symbol	Test Condition	Quadrant		RS04xx				Unit
				T	D	S	A	
I _{GT}	V _D =12V R _L =33Ω	I-II-III IV	MAX.	5 5	5 10	10 10	10 25	mA
V _{GT}		ALL	MAX.	1.5				V
V _{GD}	V _D =V _{DRM} R _L =3.3KΩ T _j =125°C	ALL	MIN.	0.2				V
I _L	I _G =1.2I _{GT}	I-III-IV	MAX.	20	20	30	30	mA
		II	MAX.	35	35	45	45	mA
I _H	I _T =100mA		MAX.	15	15	25	25	mA
dV/dt	V _D =67%V _{DRM} gate open T _j =125°C		MIN.	5	5	10	10	V/μs
(dV/dt) _c	(dI/dt) _c =1.7A/ms T _j =125°C		MIN.	0.1	0.1	0.5	0.5	V/μs

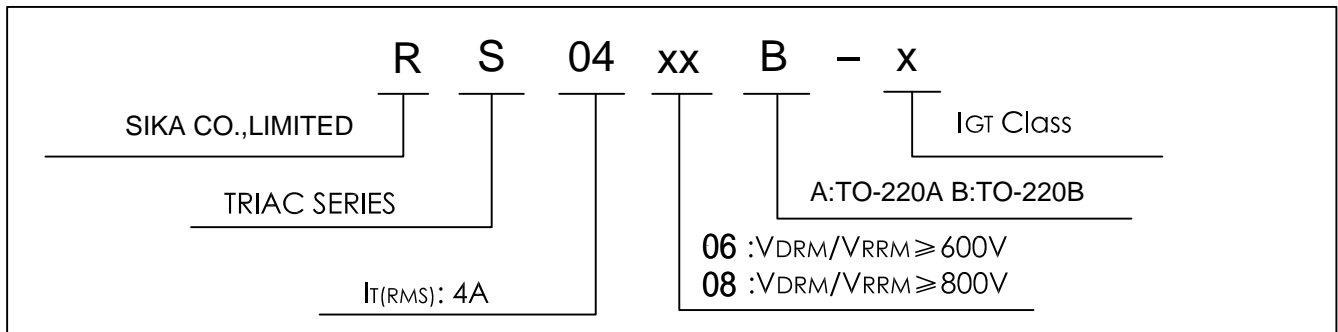
STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX.)	Unit
V _{TM}	I _{TM} =5.5A, t _p =380μs	T _j =25°C	1.55	V
I _{DRM} I _{RRM}	V _D =V _{DRM} V _R =V _{RRM}	T _j =25°C	5	μA
		T _j =125°C	1	mA

THERMAL RESISTANCES

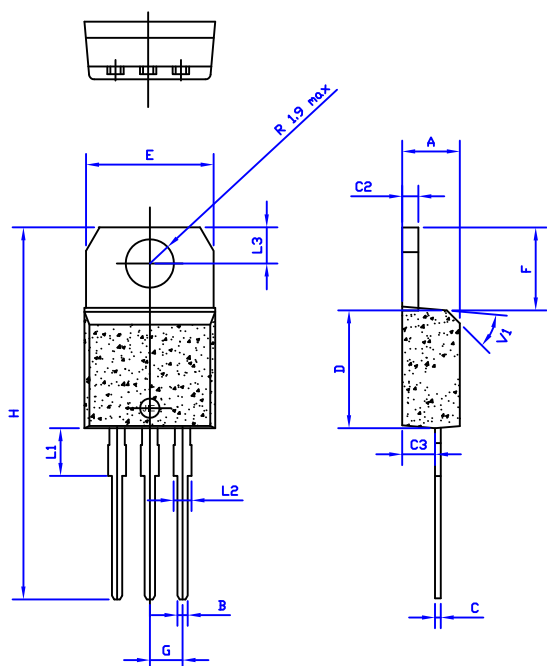
Symbol	Parameter		Value	Unit
R _{th} (J -C)	Junction to Case(AC)	TO-220AB	2.4	°C/W
		TO-220AB insulated	3.3	

ORDERING INFORMATION



PACKAGE MECHANICAL DATA

TO-220AB and TO-220AB insulated



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		2.54			0.1	
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)

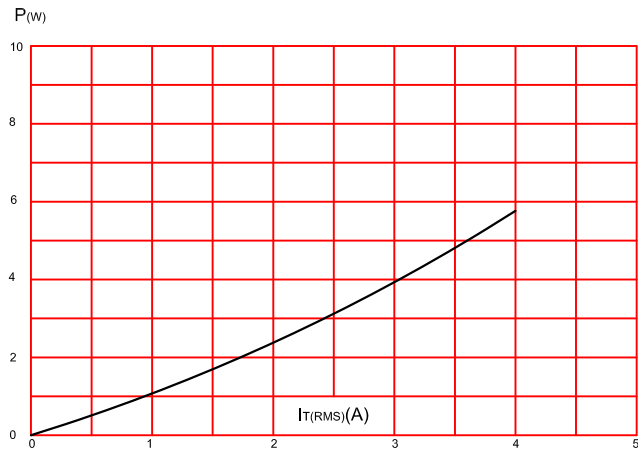


FIG.2:RMS on-state current versus case temperature(full cycle)

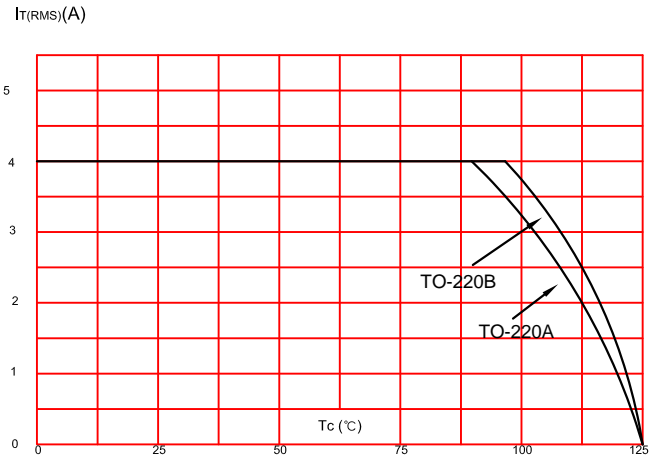


FIG.3:On-state characteristics (maximum values).

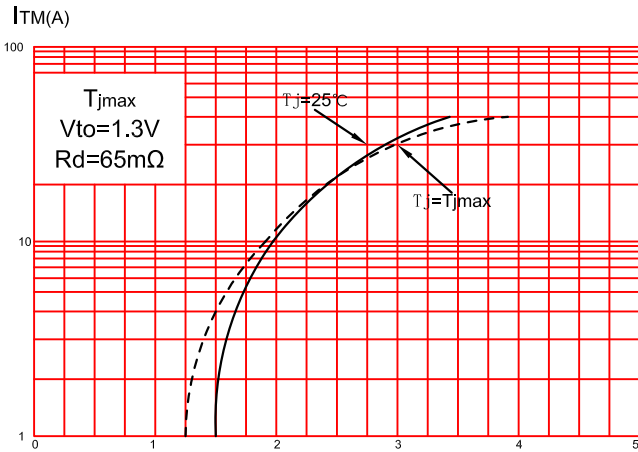


FIG.4:Surge peak on-state current versus number of cycles.

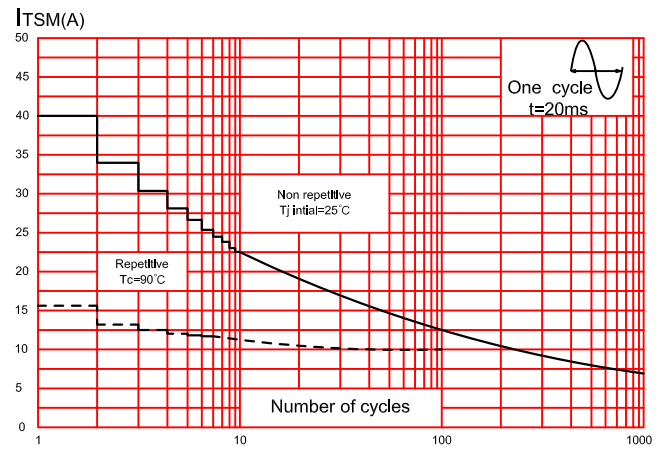


FIG.5:Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10ms$, and corresponding value of I^2t .

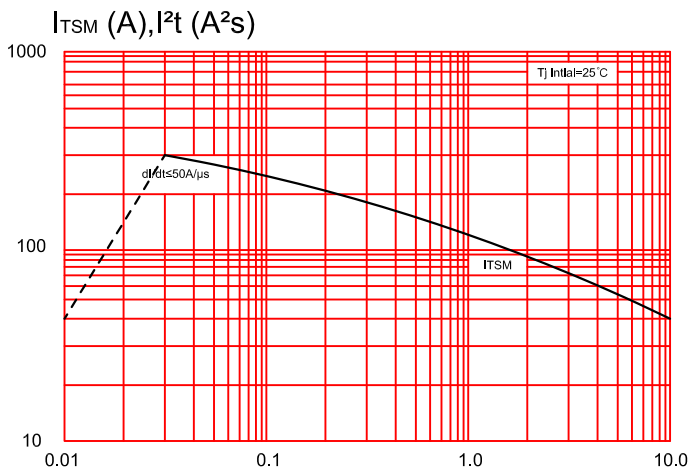


FIG.6:Relative variations of gate trigger current,holding current and latching current versus junction temperature(typical values)

