

RK12xx Series 12A TRIACs

DESCRIPTION:

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

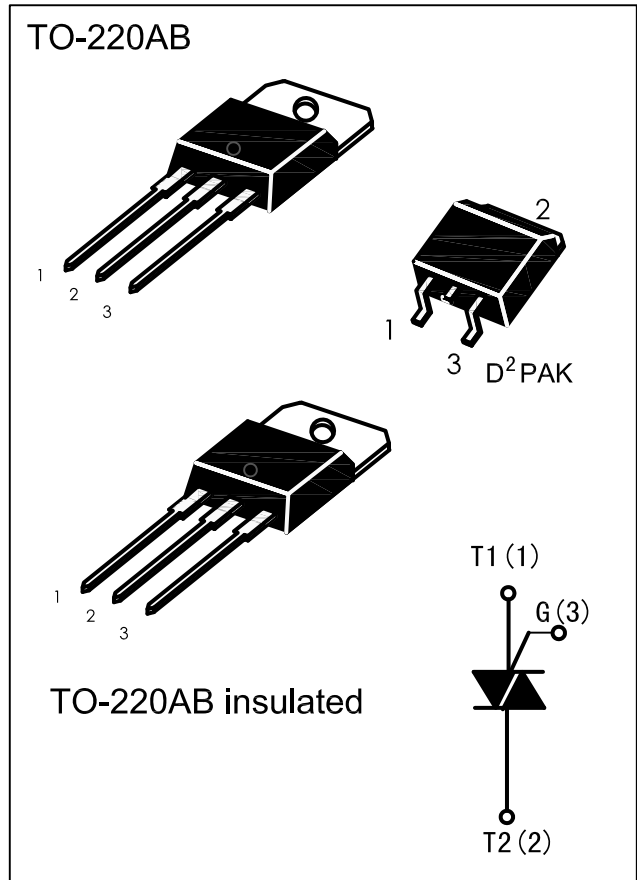
RK12xx series triacs is suitable for or for phase control operation, light dimmers, motor speed ON/OFF function in applications such as static relays, general purpose AC switching, They can be used as an heating regulation, induction motor starting circuits...controllers.

RK12xx-600/800 - are 3 quadrants triacs, They are specially recommended for use on inductive loads.

RK12xxA are isolated in internally. they provide a 2500V RMS isolation voltage from all three terminals to external heat sink.

MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	12	A
V_{DRM}/V_{RRM}	600and800	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 Repetitive Peak Reverse Voltage	V_{DRM} V_{RRM}	600and800 600and800	V
Non repetitive Surge Peak Off-state Voltage Non repetitive Peak Reverse Voltage	V_{DSM} V_{RSM}	700and900 700and900	V
RMS on-state current (full sine wave)	$I_{T(RMS)}$	D ² PAK / TO-220AB Tc=105°C	12 A
		TO-220AB Ins Tc=90°C	
Non repetitive surge peak on-state current (full cycle, Tj=25°C)	I_{TSM}	f = 50 Hz t=20ms	120 A
		f = 60 Hz t=16.7ms	
I ² t Value for fusing tp=10ms	I ² t	78	A ² s
Critical rate of rise of on-state current IG=2×IGT, tr≤100 ns, f=120Hz, Tj=125°C	di / dt	50	A/us
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		IGT Class				Unit
				5	10	35	50	
IGT	V _D =12V R _L =30Ω	I - II - III	MAX.	5	10	35	50	mA
V _{GT}		I - II - III	MAX.	1.3				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.	10	25	50	70	mA
		II		15	30	60	80	
I _H	I _T =100mA		MAX.	10	15	35	50	mA
dV/dt	V _D =67%V _{DRM} gate open T _j =125°C		MIN.	20	40	500	1000	V/μs
(di/dt) _c	(dV/dt) c=0.1V/μs T _j =125°C		MIN.	3.5	6.5	----	----	A/ms
	(dV/dt) c=10V/μs T _j =125°C			1.0	2.9	----	----	
	Without snubber T _j =125°C			----	----	6.5	12	

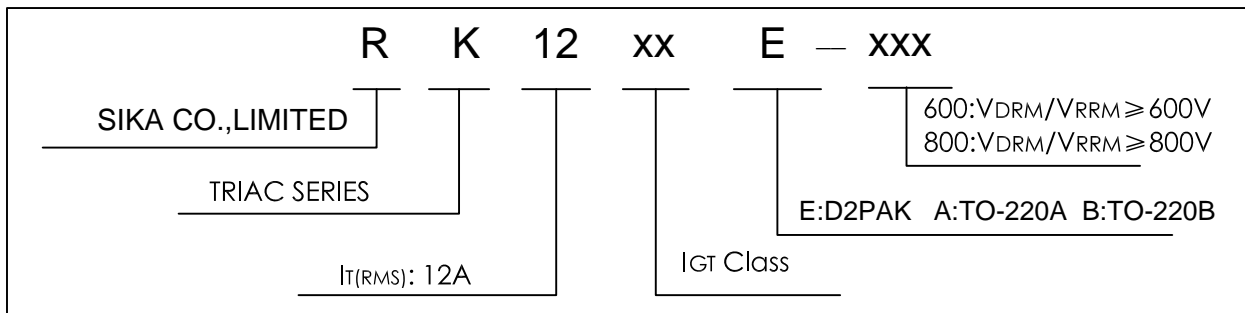
STATIC CHARACTERISTICS

Symbol	Test Conditions		Value (MAX)	Unit
V _{TM}	I _{TM} =17A, t _p =380μs	T _j =25°C	1.55	V
I _{DRM}	V _D =V _{DRM}	T _j =25°C	5	μA
I _{RRM}	V _R =V _{RRM}	T _j =125°C	1	mA

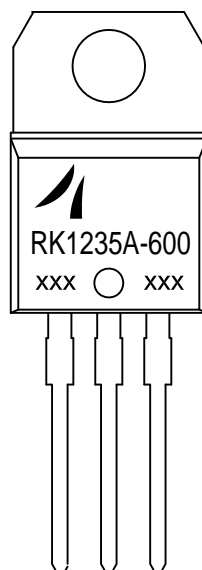
THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
R _{th(j-c)}	Junction to case (AC)	D ² PAK/TO-220AB	1.4
		TO-220AB Insulated	2.3

ORDERING INFORMATION

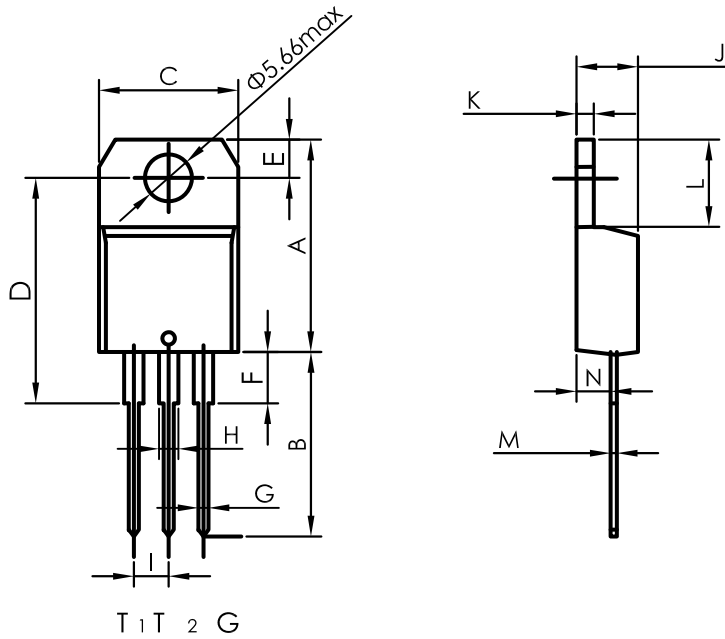


Marking:



PACKAGE MECHANICAL DATA

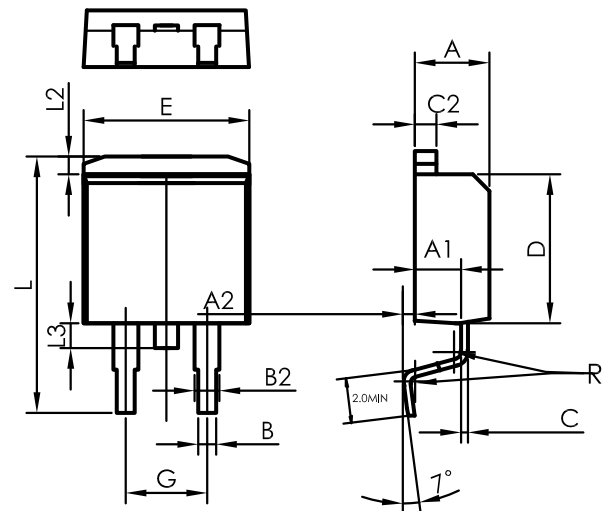
TO-220AB



DIMENSIONS (mm)

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
MAX	15.9	14.0	10.4	16.8	2.95		0.88	1.70	2.70	4.60	1.32	6.60	0.70	2.72
TYP				16.4		3.75								
MIN	15.2	13.0	10.0	15.8	2.65		0.61	1.14	2.40	4.40	1.23	6.20	0.49	2.40

D² PAK



DIMENSIONS (mm)

	A	A1	A2	B	B2	C	C2	D	E	G	L	L2	L3	R
MIN	4.30	2.49	0.03	0.70	1.25	0.45	1.21	8.95	10.0	4.88	15.0	1.27	1.40	
TYP					1.40									0.40
MAX	4.60	2.69	0.23	0.93		0.60	1.36	9.35	10.28	5.28	15.85	1.40	1.75	

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

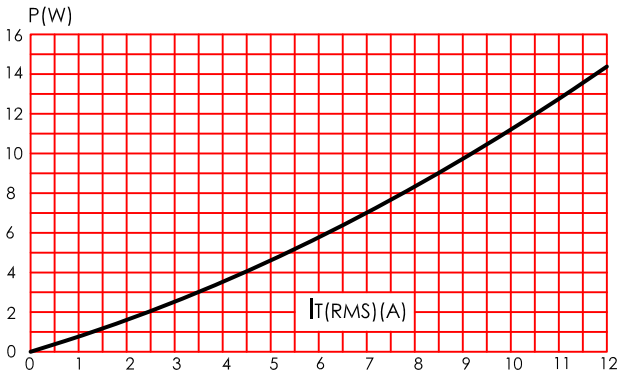


Fig. 2: RMS on-state current versus case temperature(full cycle)

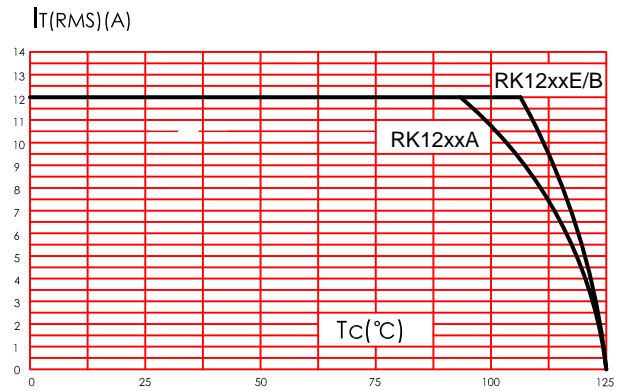


Fig. 3: on-state characteristics (maximum values)

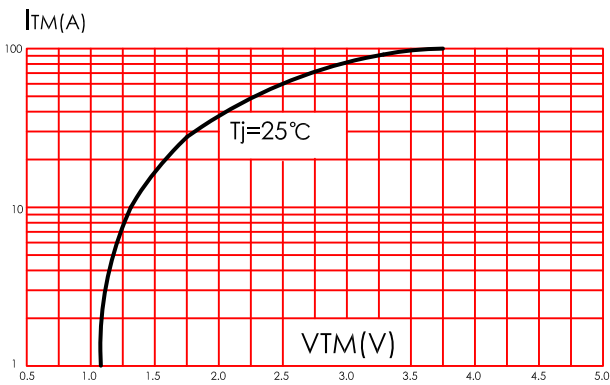


Fig. 4: Surge peak on-state current versus number of cycles

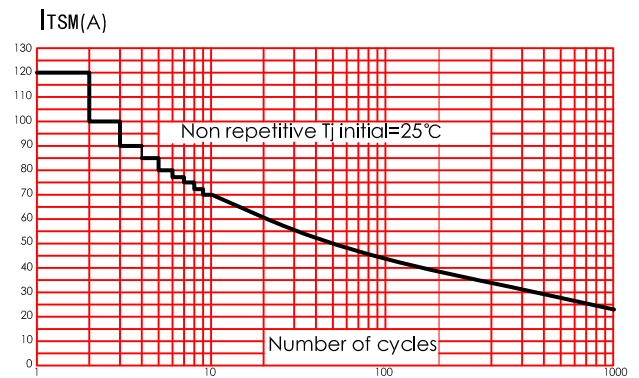


Fig. 5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$

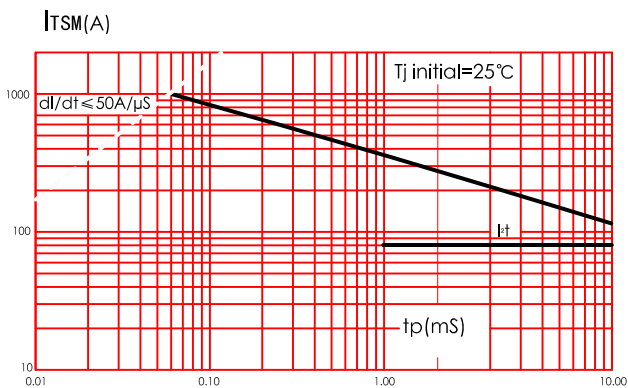
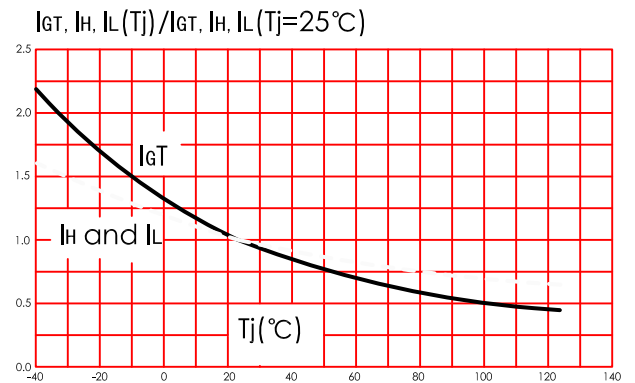


Fig. 6: Relative variation of gate trigger current, holding current and latching current versus junction temperature(typical values)



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