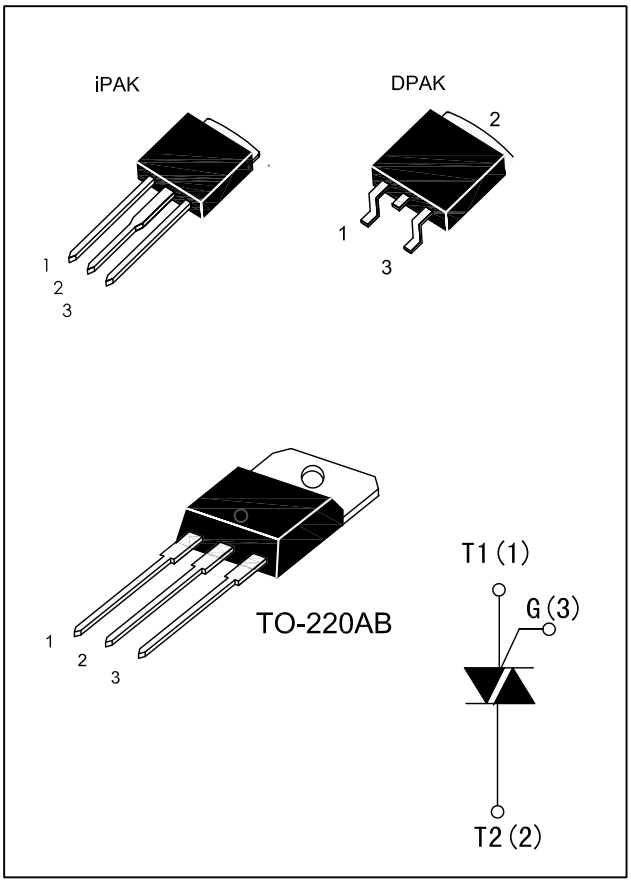
RS4xx Series 4A TRIACs

DESCRIPTION:

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

RS4xx 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 stating circuits...or for phase contol operation, light dimmers,motor speed controllers.

RS4xx are 3 quadrants triacs,They are specially recommerded for use on inductive loads.



MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	4	A
V_{DRM}/V_{RRM}	600 and 800	V
$I_{GT(Q1)}$	5 to 35	mA

ABSOLUTE MAXIMUM RATINGS

Parameter		Symbol	Value	Unit
Storage junction temperature range		Tstg	-40 to +150	℃
Operrating junction temperature range		Tj	-40 to +125	℃
Repetitive Peak Off-state Voltage	Tj=25℃	V_{DRM}	600and800	V
Repetitive Peak Reverse Voltage	Tj=25℃	V_{RRM}	600and800	
Non repetitive Surge Peak Off-state Voltage	tp=10ms,Tj=25℃	V_{DSM}	700and900	V
Non repetitive Peak Reverse Voltage		V_{RSM}	700and900	
RMS on-state current (full sine wave)	iPAK/DPAK/TO-220AB Tc=105℃	$I_{T(RMS)}$	4	A
	TO-220AB ins Tc=100℃			
Non repetitive surge peak on-state current (full cycle,Tj=25℃)	f = 60 Hz t=16.7ms	I_{TSM}	38	A
	f = 50 Hz t=20ms		35	
I²t Value for fusing	tp=10ms	I²t	6	A²s
Critical rate of rise of on-state current $I_G=2\times I_{GT}$, tr≤100 ns, f=120Hz, Tj=125℃		dI /dt	50	A/μs
Peak gate current	tp=20us,Tj=125℃	I_{GM}	4	A
Average gate power dissipation	Tj=125℃	$P_{G(AV)}$	1	W

ELECTRICAL CHARACTERISTICS(Tj=25℃ unless otherwise specified)

3 Quanrants

Symbol	Test Condition	Quadrant		RS4xx			Unit
				RS405	RS410	RS435	
I_{GT}	V_D=12V R_L=33Ω	I-II-III	MAX.	5	10	35	mA
V_{GT}		I-II-III	MAX.	1.3			V
V_{GD}	V_D=V_{DRM} R_L=3.3KΩ Tj =125℃	I-II-III	MIN.	0.2			V
I_L	I_G=1.2I_{GT}	I-III	MAX.	10	25	50	mA
		II	MAX.	15	30	60	mA
I_H	I_T =500mA		MAX.	10	15	35	mA
dV/dt	V_D=67%V_{DRM} gate open Tj=125℃		MIN.	20	40	400	V/μs
(dI/dt)c	(dV/dt)c=0.1V/μs Tj=125℃		MIN.	1.8	2.7	---	A/mS
	(dV/dt)c=10V/μs Tj=125℃			0.9	2.0	---	
	Without snubber Tj=125℃			---	---	2.5	

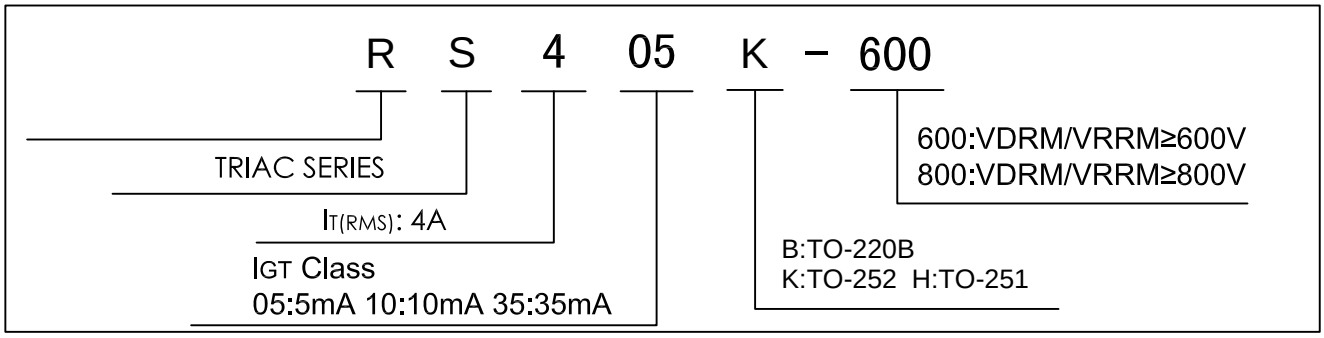
STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX.)	Unit
V_{TM}	I_{TM}=5.5A,tp=380μs	Tj=25℃	1.6	V
I_{DRM} I_{RRM}	V_D=V_{DRM} V_R=V_{RRM}	Tj=25℃	5	μA
		Tj=125℃	1	mA

THERMAL RESISTANCES

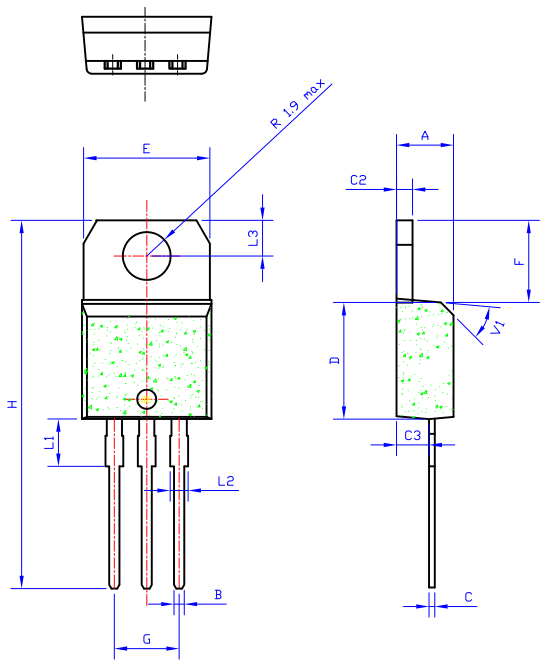
Symbol	Parameter		Value	Unit
$R_{th(J-C)}$	Junction to Case(AC)	iAPK/DPAK/TO-220AB	2.6	℃/W
		TO-220AB ins	4.0	

ORDERING INFORMATION



PACKAGE MECHANICAL DATA

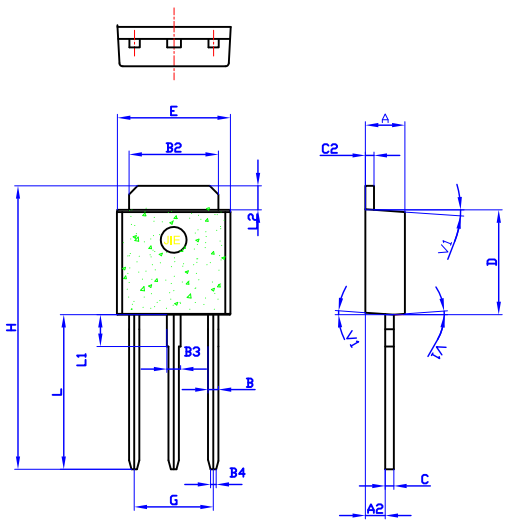
TO-220AB



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°	

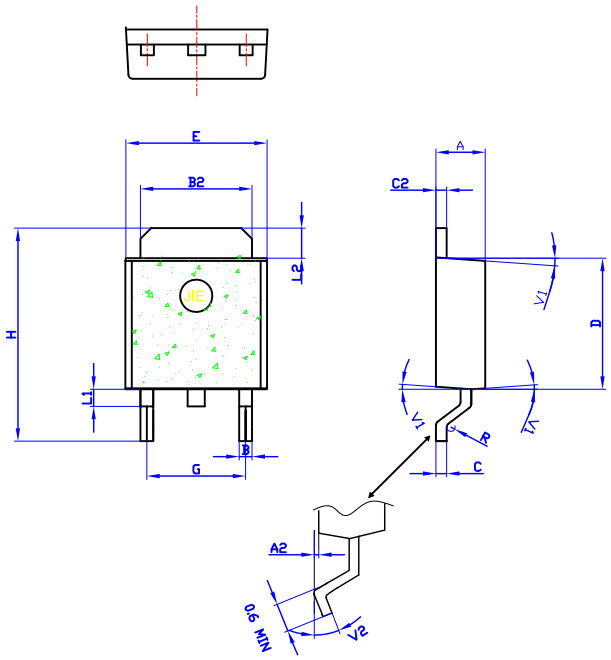
PACKAGE MECHANICAL DATA

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°	

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°

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

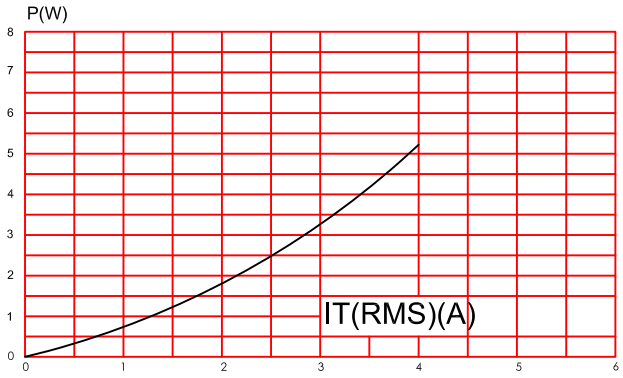


FIG.2: RMS on-state current versus case temperature(full cycle)

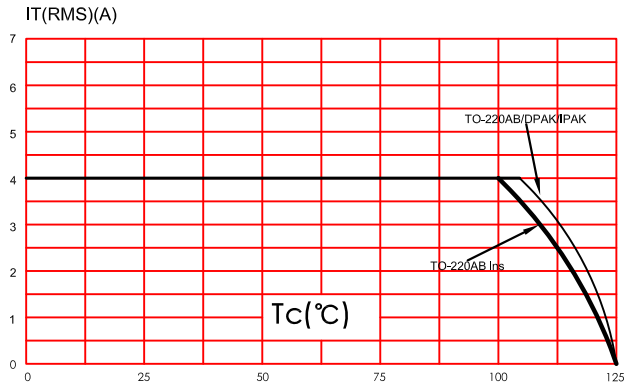


FIG.3: On-state characteristics (maximum values)

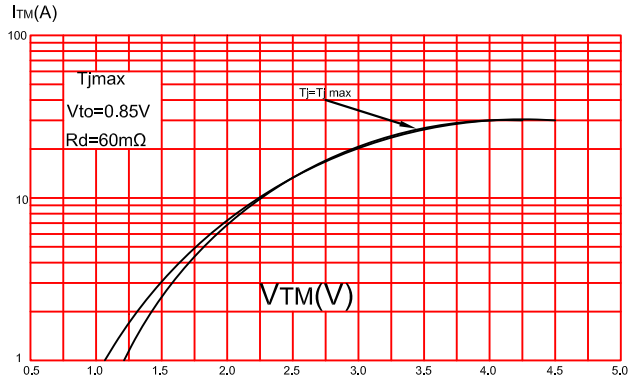


FIG.4:Surge peak on-state current versus number of cycles

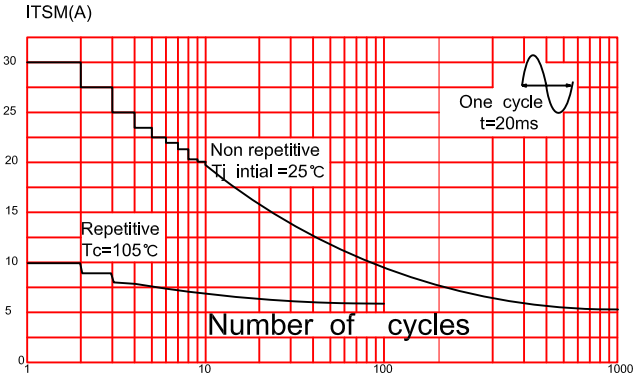


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp < 10ms.

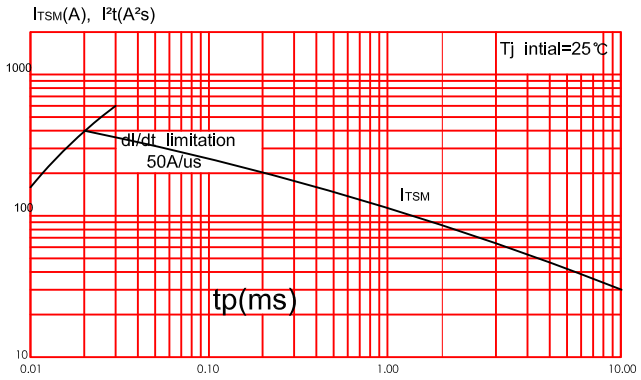
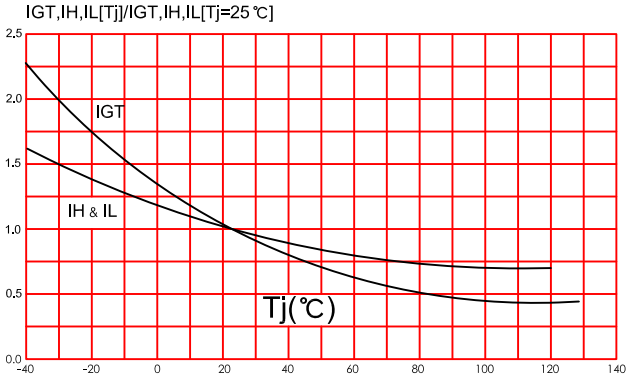


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature(typical values)



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