

RS16xxHxF Series 16A TRIACS

DESCRIPTION:

High current density due to double mesa technology, glass passivation, guaranteed maximum junction temperature 150° C.

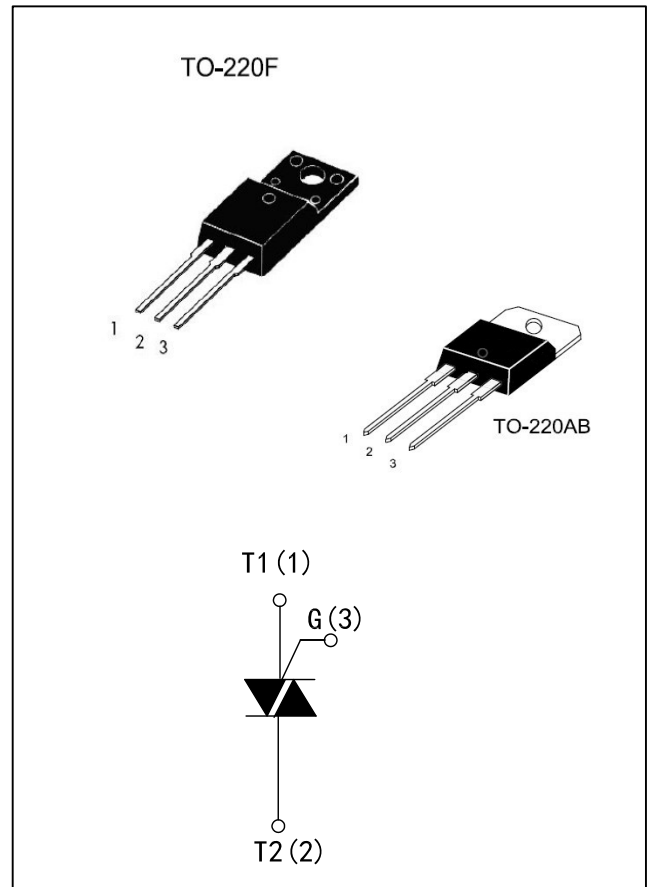
RS16xxH series triacs are suitable for general purpose AC switching, They can be used as an ON/OFF function in applications such as static relays, washing machine, soymlk maker, flush toilet, hair drier, induction motor staing circuits...or for phase contol operation light dimmers, motor speed controllers.

RS1610H-1620H-1635H-1650H are 3 quadrants triacs, They are specially recommended for use on inductive loads.

RS16xxHxF series are full pack plastic e, they provide a 2000V RMS isolation voltage from all three terminals to external heat sink.

MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	16	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		T_{stg}	-40 to +150	°C
Operating junction temperature range		T_j	-40 to +150	°C
Repetitive Peak Off-state Voltage	$T_j=25^\circ\text{C}$	V_{DRM}	600and800	V
Repetitive Peak Reverse Voltage	$T_j=25^\circ\text{C}$	V_{RRM}	600and800	
Non repetitive Surge Peak Off-state Voltage	$t_p=10\text{ms}, T_j=25^\circ\text{C}$	V_{DSM}	700and900	V
Non repetitive Peak Reverse Voltage		V_{RSM}	700and900	
RMS on-state current (full sine wave)	TO-220F $T_c=71^\circ\text{C}$	$I_{T(RMS)}$	16	A
Non repetitive surge peak on-state current (full cycle, $T_j=25^\circ\text{C}$)	$f = 60\text{ Hz}$ $t=16.7\text{ms}$	I_{TSM}	168	A
	$f = 50\text{ Hz}$ $t=20\text{ms}$		160	
I^2t Value for fusing	$t_p=10\text{ms}$	I^2t	144	A^2s
Critical rate of rise of on-state current $I_G=2 \times I_{GT}$, $t_r \leq 100\text{ ns}$, $f=120\text{Hz}$, $T_j=150^\circ\text{C}$		di/dt	50	$\text{A}/\mu\text{s}$
Peak gate current	$t_p=20\mu\text{s}, T_j=150^\circ\text{C}$	I_{GM}	4	A
Peak gate power	$t_p=20\mu\text{s}, T_j=150^\circ\text{C}$	P_{GM}	5	W
Average gate power dissipation	$T_j=150^\circ\text{C}$	$P_{G(AV)}$	1	W

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

Symbol	Test Condition	Quadrant		Limits				Unit
				RS1610H	RS1620H	RS1635H	RS1650H	
I _{GT}	V _D =12V R _L =33Ω	I-II-III	MAX.	10	20	35	50	mA
V _{GT}		I-II-III	MAX.	1.5				V
V _{GD}	V _D =V _{DRM} R _L =3.3KΩ T _j =150°C	I-II-III	MIN.	0.2				V
I _L	I _G =1.2I _{GT}	I-III	MAX.	20	40	50	70	mA
		II	MAX.	35	55	70	100	mA
I _H	I _T =100mA		MAX.	20	30	45	60	mA
dV/dt	V _D =67%V _{DRM} gate open T _j =150°C		MIN.	200	500	1000	1500	V/μs
(dV/dt) _c	V _D =400V (dI/dt) _c =-7A/ms T _j =150°C		MIN.	1	5	15	20	V/μs

STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX.)	Unit
V _{TM}	I _{TM} =22.5A, 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	10	μA
		T _j =150°C	4.0	mA

THERMAL RESISTANCES

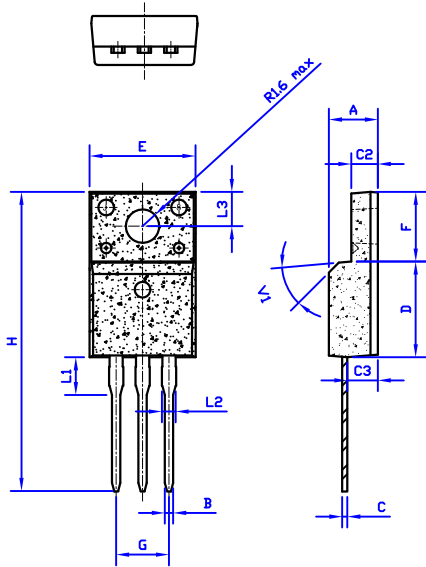
Symbol	Parameter		Value	Unit
R _{th(J-C)}	Junction to Case(AC)	TO-220F	3.0	°C/W

ORDERING INFORMATION

R	S	16	xx	H	x	F
SIKA CO.,LIMITED		TRIAC SERIES				F:TO-220F A:TO-220A B:TO-220B E:D ² PAK
I _{T(RMS)} : 16A						6:V _{DRM} /V _{RRM} ≥ 600V 8:V _{DRM} /V _{RRM} ≥ 800V
10:I _{GT} 123 ≤ 10mA 20:I _{GT} 123 ≤ 20mA 35:I _{GT} 123 ≤ 35mA 50:I _{GT} 123 ≤ 50mA						High junction temperature

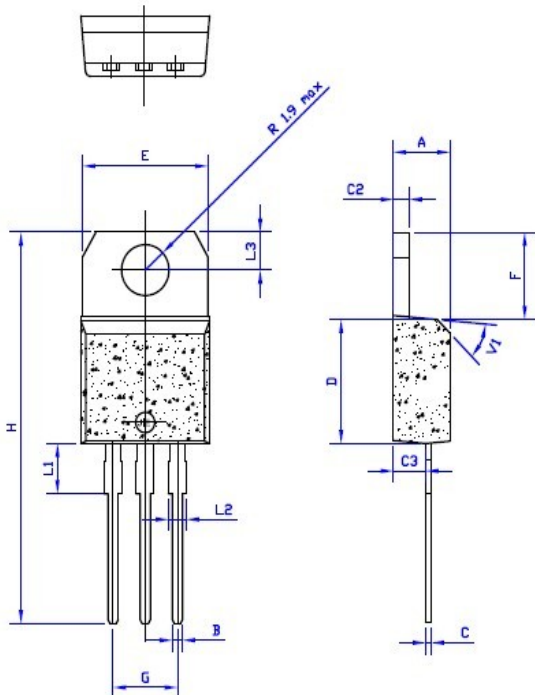
PACKAGE MECHANICAL DATA

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°	

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)

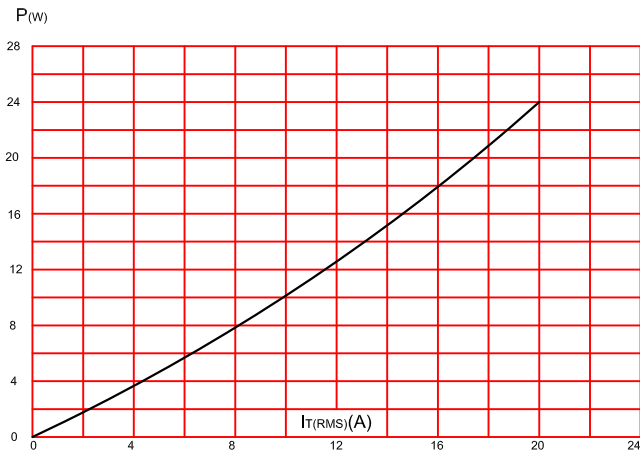


FIG.2:RMS on-state current versus case temperature(full cycle)

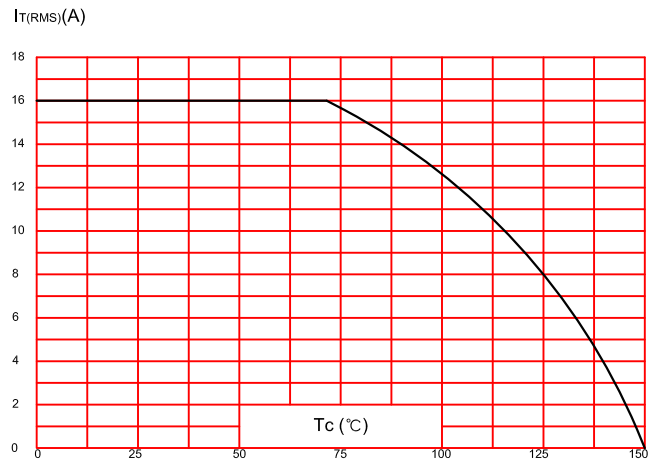


FIG.3:On-state characteristics (maximum values).

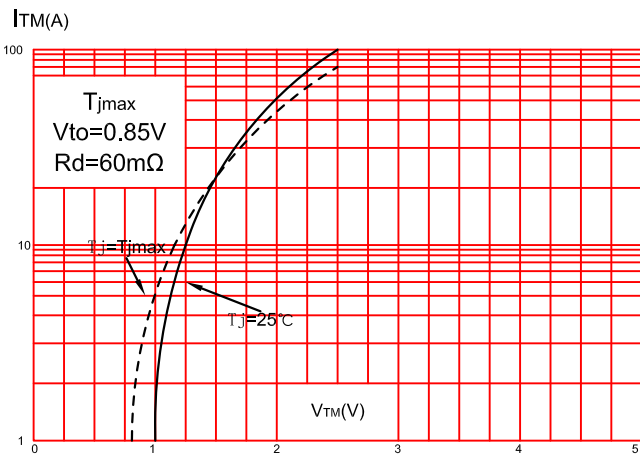


FIG.4:Surge peak on-state current versus number of cycles.

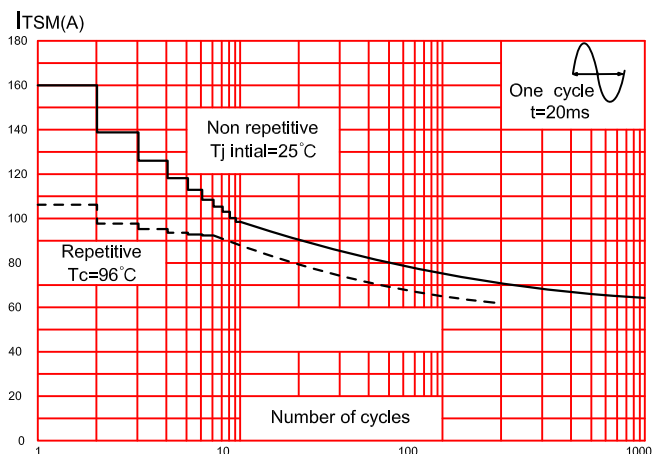


FIG.5:Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$, and corresponding value of I^2t .

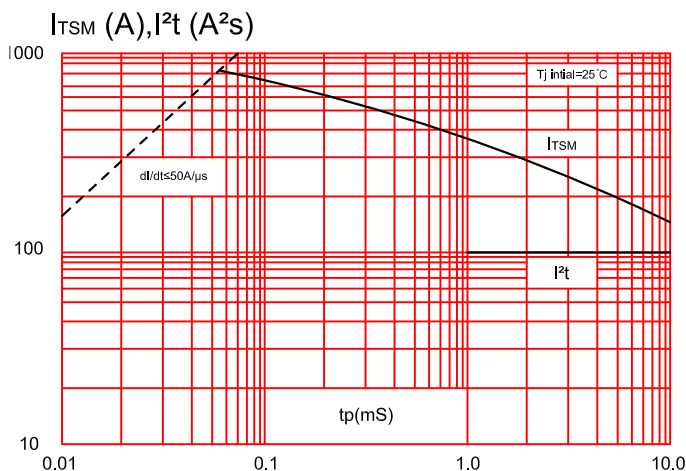
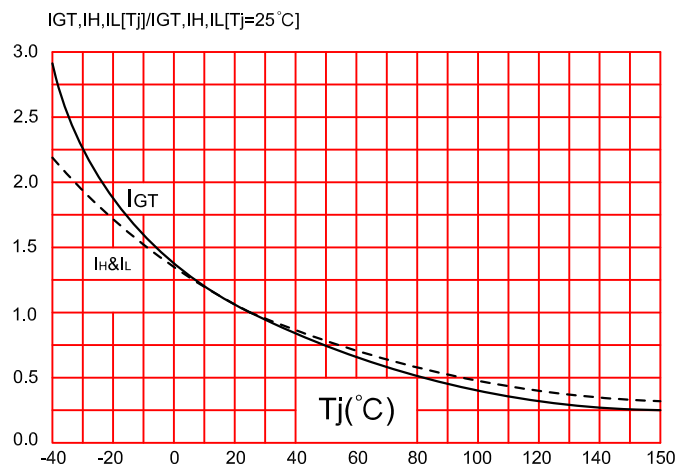


FIG.6:Relative variations of gate trigger current, holding current and latching current versus junction temperature(typical values)



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