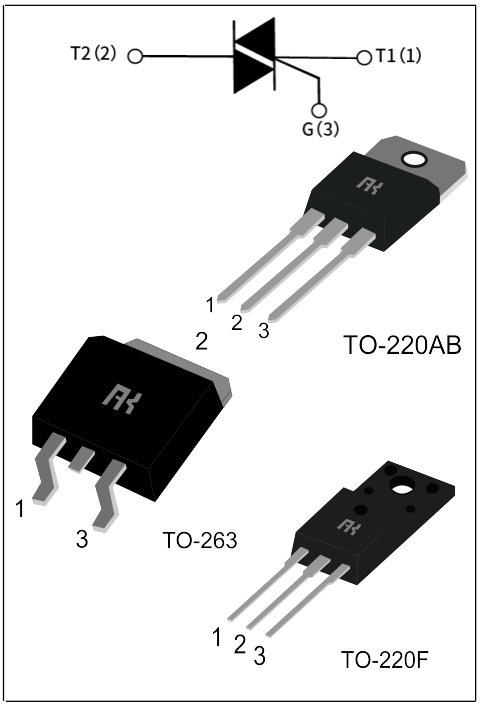
T16xxH Series High Junction Temperature TRIACS

GENERAL DESCRIPTION

High current density due to single mesa technology; Glass Passivation; Guaranteed maximum junction temperature150°C. T16xxH 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, motor stating circuits... or for phase control operation light dimmers, motor speed controllers.T16xxH series are 3 quadrants triacs. They are specially recommended for use on inductive loads .



Main Features:

$I_{T(RMS)}$	V_{DRM}/V_{RRM}	V_{TM}
16 A	600V and 800 V	≤1.55 V

Absolute Ratings(limiting values) :

Symbol	Parameter		Value	Unit
T_{stg}	Storage junction temperature range		- 40 to + 150	°C
T_j	Operating junction temperature range		- 40 to +150	°C
$I_{T(RMS)}$	RMS on-state current	TO-220A/F(Ins) (TC=96℃)	16	A
		TO-220B (TC=110℃)		
		TO-263 (TC=115℃)		
I_{TSM}	Non repetitive surge peak on-state current (full cycle, F=50Hz)		160	A
V_{DRM}	Repetitive peak off-state voltage(Tj =25℃)		600 and 800	V
V_{RRM}	Repetitive peak reverse voltage(Tj =25℃)		600 and 800	V
V_{DSM}	Non repetitive surge peak Off-state voltage		V_{DRM} + 100	V
V_{RSM}	Non repetitive peak reverse voltage		V_{RRM} + 100	V
I^2t	I^2t value for fusing tp = 10 ms		144	A^2s

dI/dt	Critical rate of rise of on-state current (I_G =2×I_{GT})	50	A/μs
I_{GM}	Peak gate current	4	A
$P_{G(AV)}$	Average gate power dissipation	1	W
P_{GM}	Peak gate power	5	W

Electrical Characteristics : (Tj=25℃ unless otherwise specified)

Symbol	Test Condition	Quadrant	Range	Value				Unit
				T1610H	T1620H	T1635H	T1650H	
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=1.2 I_{GT}	I-III	MAX	20	40	50	80	mA
		II		35	55	70	100	
I_H	I_{TM}= 100mA		MAX	20	30	45	70	mA
dV/dt	V_D=2/3V_{DRM} R_{GK}=1kΩ T_j=150°C		MIN	200	500	1000	1500	V/μs
(dV/dt)c	(dI/dt)c=-5.3A/ms Tj=150℃		MIN	1	5	15	25	V/μs

Static Characteristics

Symbol	Parameter		Value(MAX)	Unit
V_{TM}	I_{TM}=22.5A tp= 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	mA

Thermal Resistances :

Symbol	Parameter		Value	Unit
Rth(j-c)	Junction to case for AC	TO-220A/F(Ins) (TC=96℃)	2.3	°C/W
		TO-220B (TC=110℃)	1.2	
		TO-263 (TC=115℃)	0.97	

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

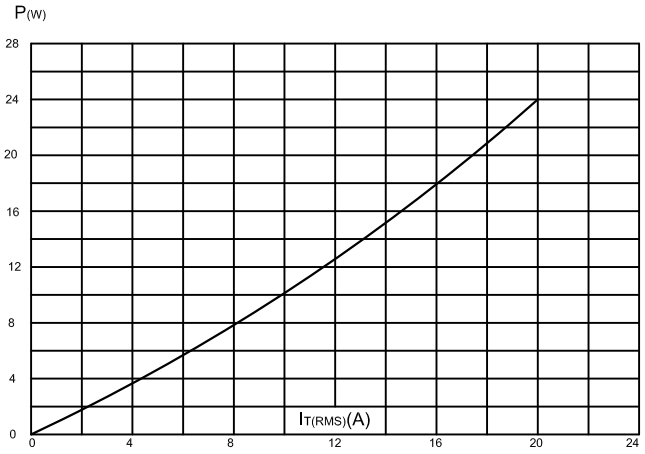


FIG.2:RMS on-state current versus case temperature(full cycle)

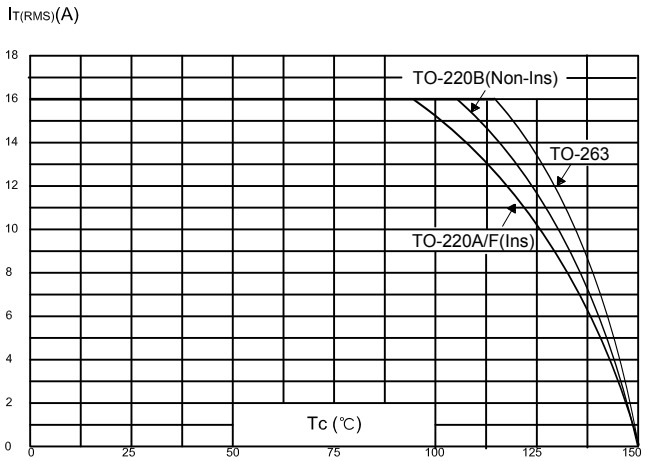


FIG.3:On-state characteristics (maximum values).

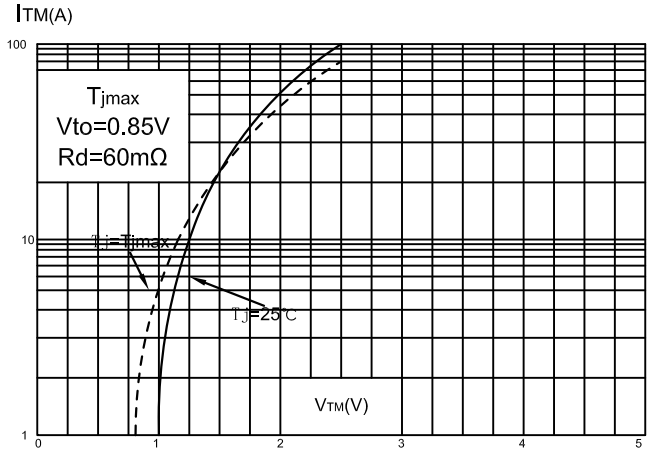


FIG.4:Surge peak on-state current versus number of cycles.

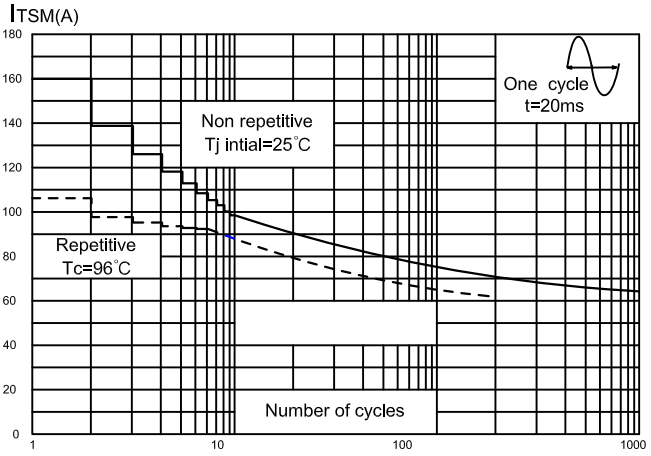


FIG.5:Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp<10ms,and corresponding value of I²t.

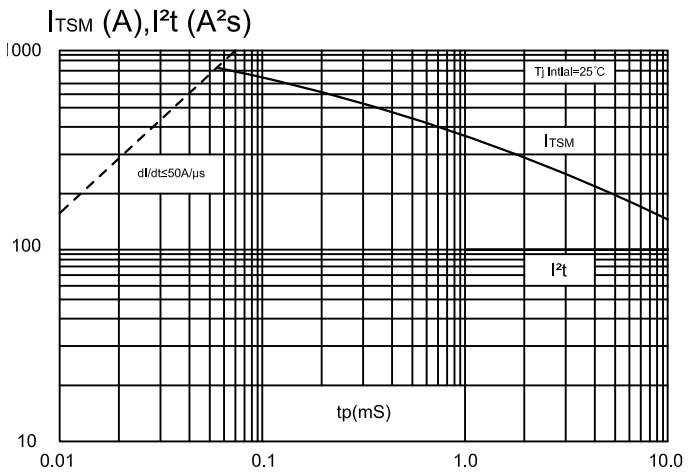
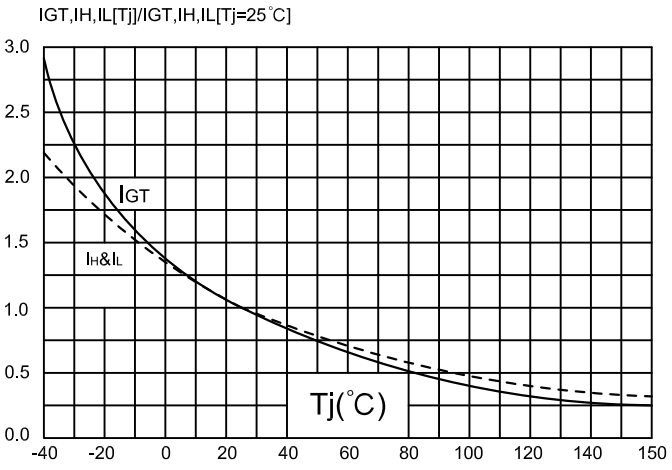
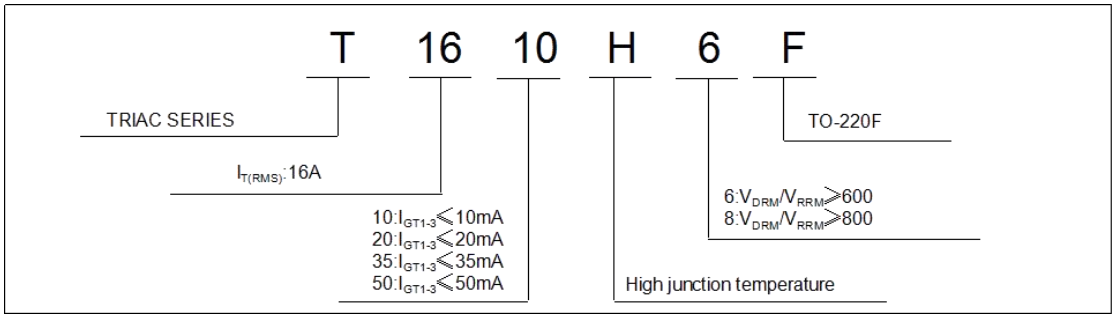


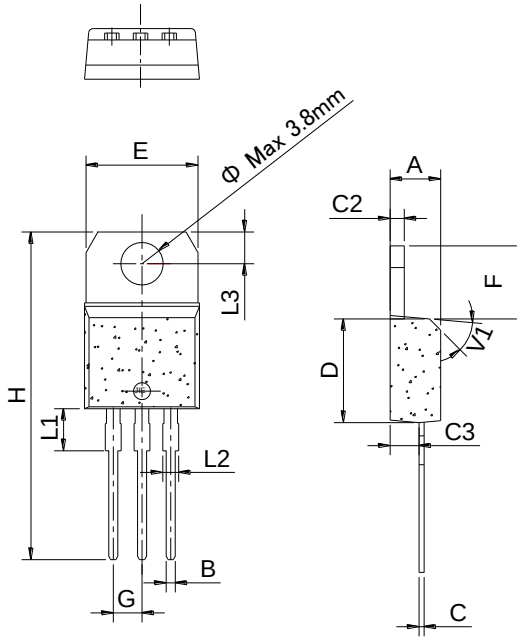
FIG.6:Relative variations of gate trigger current,holding current and latching current versus junction temperature(typical values)



Ordering Information:

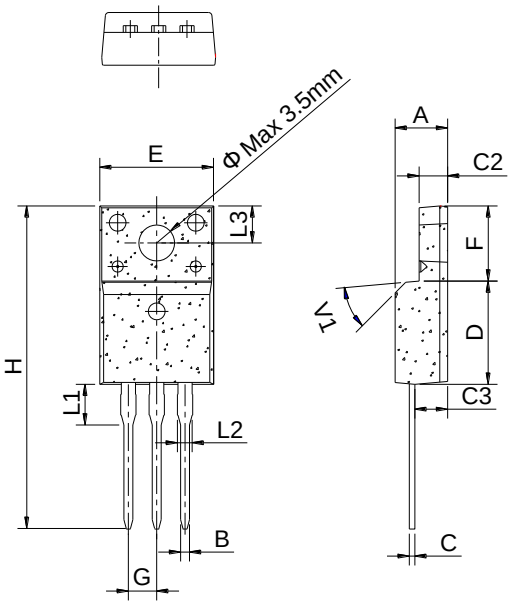


Package Mechanical Data :



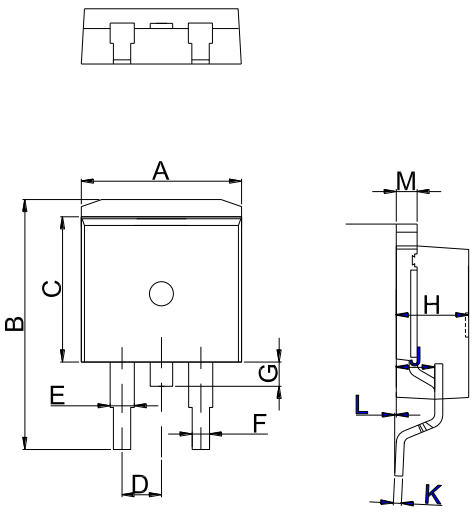
TO-220A/B

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	0.61		0.88	0.024		0.035
C	0.46		0.70	0.018		0.028
C2	1.21		1.32	0.048		0.052
C3	2.40		2.72	0.094		0.107
D	8.60		9.70	0.339		0.382
E	9.60		10.4	0.378		0.409
F	6.20		6.60	0.244		0.260
G		2.54			0.1	
H	28.0		29.8	1.102		1.173
L1		3.75			0.148	
L2	1.14		1.70	0.045		0.067
L3	2.65		2.95	0.104		0.116
V1		45°			45°	



TO-220F Ins

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.80	0.173		0.189
B	0.74	0.80	0.83	0.029	0.031	0.033
C	0.48		0.75	0.019		0.030
C2	2.40		2.70	0.094		0.106
C3	2.60		3.00	0.102		0.118
D	8.80		9.30	0.346		0.366
E	9.70		10.3	0.382		0.406
F	6.40		7.00	0.252		0.276
G		2.54			0.1	
H	28.0		29.8	1.102		1.173
L1		3.63			0.143	
L2	1.14		1.70	0.045		0.067
L3		3.30			0.130	
V1		45°			45°	



TO-263

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	9.90		10.20	0.390		0.402
B	14.70		15.80	0.579		0.622
C	9.4		9.6	0.37		0.378
D		2.54			0.100	
E	1.20		1.40	0.047		0.055
F	0.75		0.85	0.029		0.033
G			1.75			0.069
H	4.40		4.70	0.173		0.185
J	2.30		2.70	0.091		0.106
K	0.38		0.55	0.015		0.022
L	0	0.10	0.25	0	0.004	0.010
M	1.25		1.35	0.049		0.053