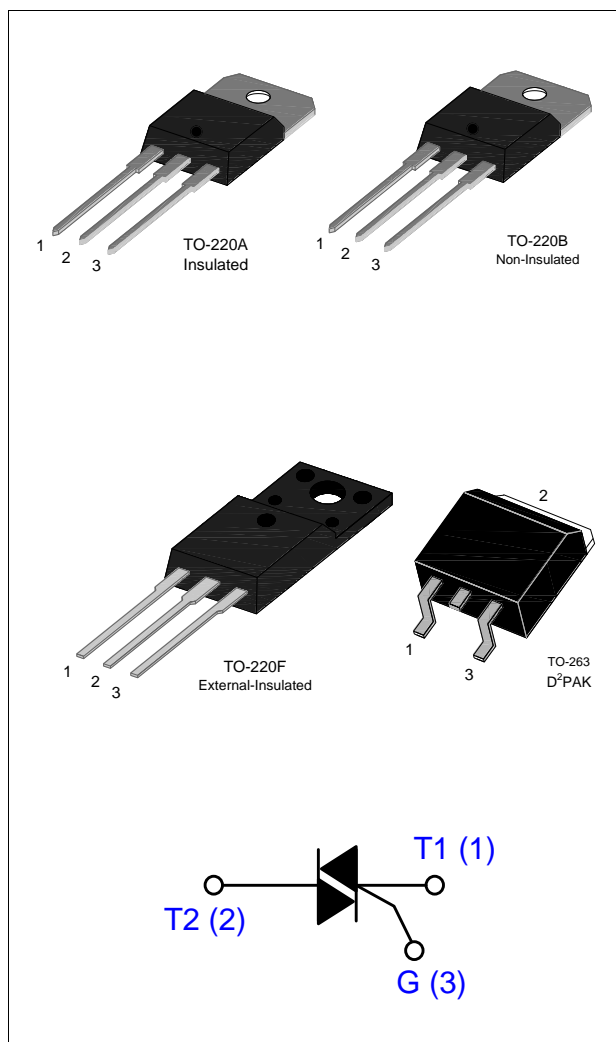


DESCRIPTION:

T16Hxx Series It is a high-voltage, high junction temperature, three-quadrant(3Q) triacs of high junction temperature with high dv/dt rate with strong resistance to electromagnetic interference provide high ability to withstand the shock loading of large current.

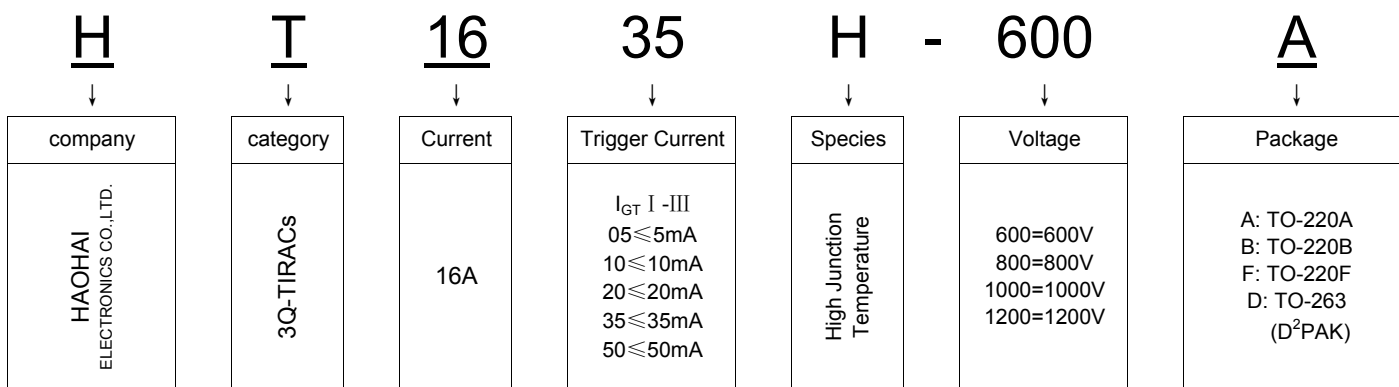
They are especially recommended for use on inductive load and high environment temperature condition.

T16Hxx-A provides insulation voltage rated at 2500V RMS and T16Hxx-F provides insulation voltage rated at 2000V RMS from all three terminals to external heatsink complying with UL standards (File ref: E252906).



Symbol	Value	Unit
$I_{T(RMS)}$	16	A
V_{DRM} / V_{RRM}	600 and 800	V
$T_j \text{ max}$	150	°C

Device Naming Conventions



■ Product Model Reference & Naming

8A (Amperes)	Package Marking	Model list, packaging distinguished model control voltage values				
		600V	800V	1000V	1200V	I _{GT}
TO-220A Insulated	A	T1610H-600A	T1610H-800A	T1610H-1000A	T1610H-1200A	≤10mA
		T1620H-600A	T1620H-800A	T1620H-1000A	T1620H-1200A	≤20mA
		T1635H-600A	T1635H-800A	T1635H-1000A	T1635H-1200A	≤35mA
		T1650H-600A	T1650H-800A	T1650H-1000A	T1650H-1200A	≤50mA
TO-220B Non-Insulated	B	T1610H-600B	T1610H-800B	T1610H-1000B	T1610H-1200B	≤10mA
		T1620H-600B	T1620H-800B	T1620H-1000B	T1620H-1200B	≤20mA
		T1635H-600B	T1635H-800B	T1635H-1000B	T1635H-1200B	≤35mA
		T1650H-600B	T1650H-800B	T1650H-1000B	T1650H-1200B	≤50mA
TO-220F External Insulated	F	T1610H-600F	T1610H-800F	T1610H-1000F	T1610H-1200F	≤10mA
		T1620H-600F	T1620H-800F	T1620H-1000F	T1620H-1200F	≤20mA
		T1635H-600F	T1635H-800F	T1635H-1000F	T1635H-1200F	≤35mA
		T1650H-600F	T1650H-800F	T1650H-1000F	T1650H-1200F	≤50mA
D ² PAK TO-263 (SMD)	D	T1610H-600D	T1610H-800D	T1610H-1000D	T1610H-1200D	≤10mA
		T1620H-600D	T1620H-800D	T1620H-1000D	T1620H-1200D	≤20mA
		T1635H-600D	T1635H-800D	T1635H-1000D	T1635H-1200D	≤35mA
		T1650H-600D	T1650H-800D	T1650H-1000D	T1650H-1200D	≤50mA
Remarks	General standard voltage		Special high-voltage Products to be customized			

■ ABSOLUTE RATINGS (Limiting Values)

SYMBOL	Parameter & Test Conditions		Value	Unit
$I_{T(RMS)}$	RMS on-state current	TO-220A(Insulated), $T_C=96^\circ\text{C}$	16	A
		TO-220B(Non-Insulated), $T_C=110^\circ\text{C}$		
		TO-220F(External-Insulated), $T_C=96^\circ\text{C}$		
		TO-263 (D ² PAK), $T_C=115^\circ\text{C}$		
I_{TSM}	Non repetitive surge peak on-state current	full cycle, F=50Hz	160	
I_{GM}	Peak gate current	$T_J=110^\circ\text{C}$, $t_p=20\mu\text{S}$	4	
I^2t	I^2t for fusing	$t=10\text{mS}$	144	A ² S
di/dt	Critical rate of rise of on-state current	$I_G=2\times I_{GT}$	50	A/ μs
$P_{G(AV)}$	Average gate power dissipation		1	W
P_{GM}	Peak gate power		5	
V_{DRM}	Peak Repetitive Off-State Voltage	$T_J=25^\circ\text{C}$	600~1200	V
V_{RRM}	Peak Repetitive Peak Reverse Voltage			
V_{DSM}	Non repetitive surge peak Off-state voltage	$T_J=25^\circ\text{C}$	$V_{DRM}+100$	
V_{RSM}	Non repetitive peak reverse voltage		$V_{RRM}+100$	
T_J	Operating Junction Temperature Range		-40~+150	°C
T_{stg}	Storage Temperature Range		-40~+150	
T_L	Maximum Lead Temperature for Soldering Purposes 1/8,from Case for 10 Seconds		260	

■ ELECTRICAL CHARACTERISTICS ($T_J=25^\circ\text{C}$ unless otherwise specified)

SYMBOL	Parameter & Test Conditions	Quadrant		Value				Unit
				T1610H	T1620H	T1635H	T1650H	
I_{GT}	$V_D=12\text{V}$, $R_L=33\Omega$	I - II -III	MAX.	10	20	35	50	mA
I_H	$I_T=100\text{mA}$	I - II -III	MAX.	20	30	45	70	
I_L	$I_G=1.2 I_{GT}$	I - III	MAX.	20	40	50	80	
		II		35	55	70	100	
V_{GT}	$V_D=12\text{V}$, $R_L=33\Omega$	I - II -III	MAX.	1.5				V
V_{GD}	$V_D=V_{DRM}$, $T_J=150^\circ\text{C}$, $R_L=3.3\text{K}\Omega$	I - II -III	MIN.	0.2				
dV/dt	$V_D=2/3V_{DRM}$, $R_{GK}=1\text{K}\Omega$, $T_J=150^\circ\text{C}$		MIN.	200	500	1000	1500	V/ μs
$(dV/dt)_c$	$(di/dt)_c=-2.6\text{A/ms}$, $T_J=150^\circ\text{C}$		MIN.	1	5	15	25	

■ STATIC CHARACTERISTICS

SYMBOL	Parameter		Value (MAX)	Unit
V_{TM}	$I_{TM}=22.5A, t_p=380\mu s$	$T_j=25^\circ C$	1.55	V
I_{DRM}	$V_D=V_{DRM}, V_R=V_{RRM}$	$T_j=25^\circ C$	10	μA
I_{RRM}		$T_j=150^\circ C$	4	mA

■ THERMAL CHARACTERISTICS

SYMBOL	Parameter & Test Conditions		Value	Unit
$R_{th(j-c)}$	junction to case (AC)	TO-220A (Ins)	2.0	$^\circ C/W$
		TO-220B (Non-Ins)	2.3	
		TO-220F (Ins)	2.0	
		TO-263 (D ² PAK)	1.7	

Voltage Current Characteristic of SCR

FIG.1 Maximum power dissipation versus RMS on-state current

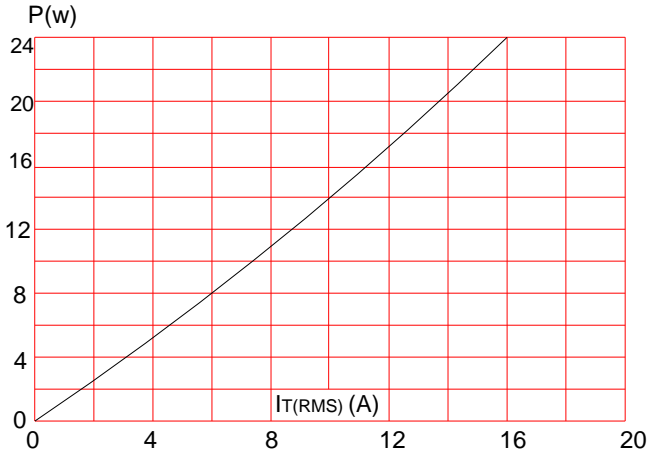


FIG.2: RMS on-state current versus case temperature

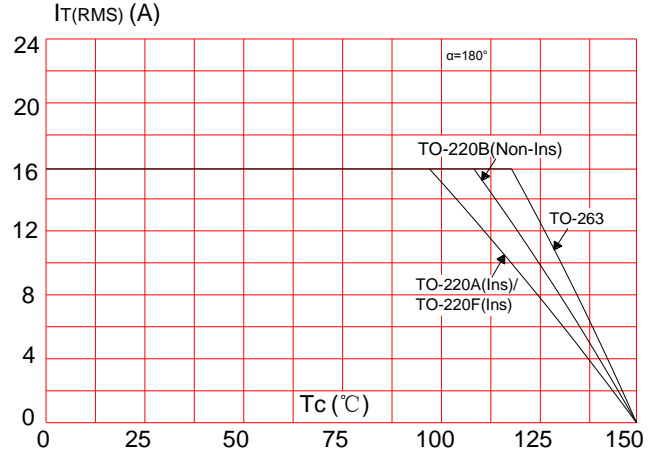


FIG.3: Surge peak on-state current versus number of cycles

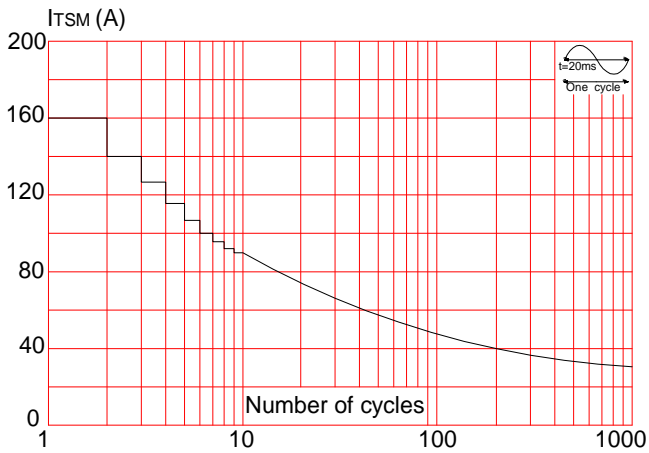


FIG.4: On-state characteristics (maximum values)

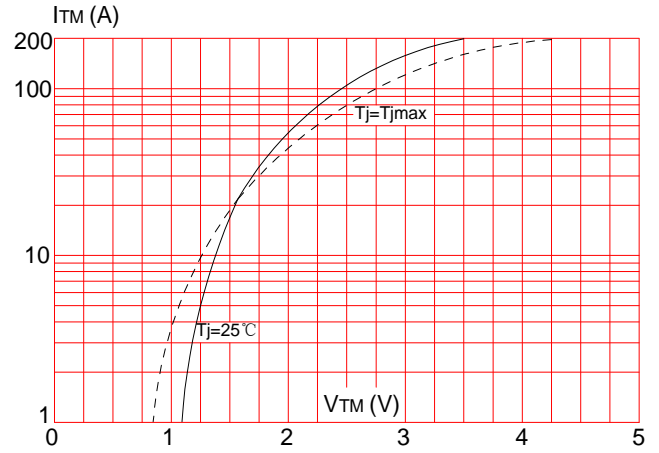


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20ms$, and corresponding value of I^2t ($di/dt < 50A/\mu s$)

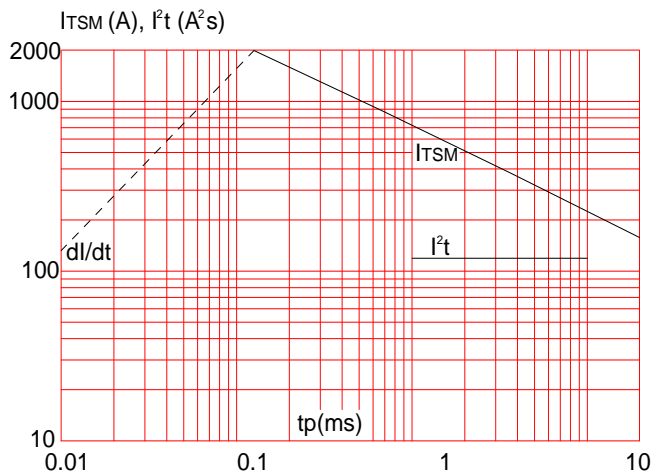
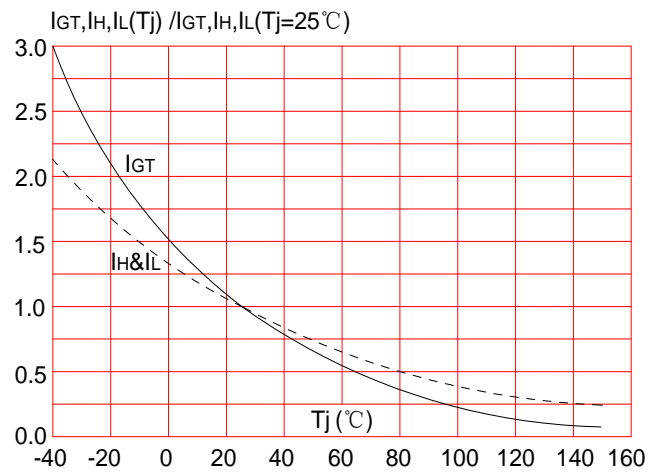
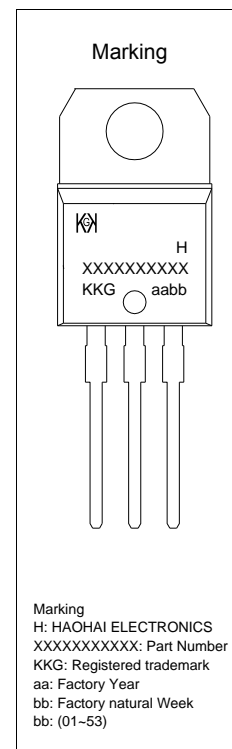


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature

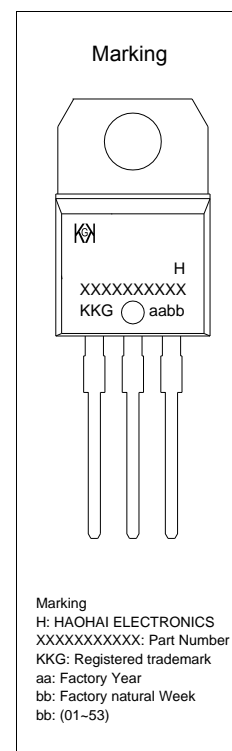


PACKAGE MECHANICAL DATA (mm & inch)

REF	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	4.40	4.60	0.173	1.181
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	9.80	10.4	0.386	0.409
F	6.55	6.95	0.258	0.274
G	2.54		0.100	
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°	



REF	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	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		0.100	
H	28.0	29.80	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°	

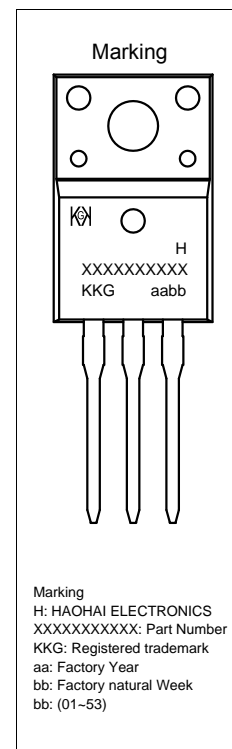


■ Packaging Specifications

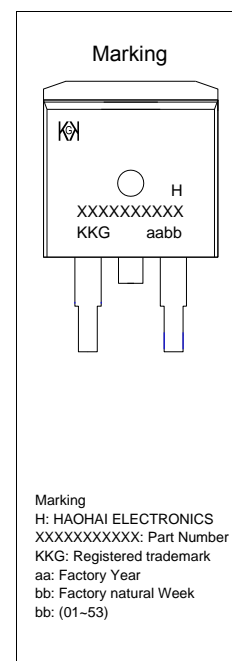
TO-220A				TO-220B		
REF.	Tube.	BOX	Carton	Tube.	BOX	Carton
QTY	50 Pcs	1,000 Pcs	5,000 Pcs	50 Pcs	1,000 Pcs	5,000 Pcs
Size						
G.W.						

PACKAGE MECHANICAL DATA (mm & inch)

REF	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	4.40	4.80	0.173	0.189
B	0.74	0.83	0.029	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		0.100	
H	28.0	29.8	0.102	0.173
L1	3.63		0.143	
L2	1.14	1.70	0.045	0.067
L3	3.30		0.130	
V1	45°		45°	



REF	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	9.90	10.20	0.390	0.402
B	14.70	15.80	0.579	0.622
C	9.40	9.60	0.370	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	0.25	0	0.010
M	1.25	1.35	0.049	0.053



■ Packaging Specifications

REF.	TO-220F			TO-263 (D²PAK)		
	Tube.	BOX	Carton	Tube.	BOX	Carton
QTY	50 Pcs	1,000 Pcs	5,000 Pcs	50 Pcs	1,000 Pcs	5,000 Pcs
Size						
G.W.						

Manufacturers version information
2012-08-10, KKG™ Product Data-1.0
2015-06-10, KKG™ Product Data-1.1
2017-08-16, KKG™ Product Data-1.2



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