

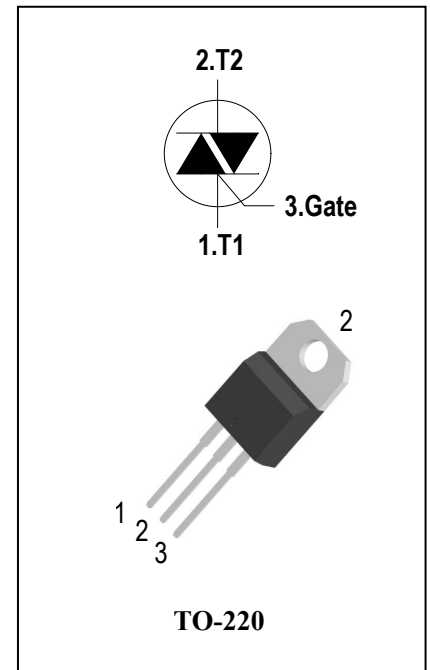
### 3 Quadrants Triacs

#### General Description

High current density due to mesa technology . the T12XX triac series is suitable for general purpose AC switching. They can be used as an ON/OFF function in applications such as static relays, heating regulation, High power motor controls e.g. washing machines and vacuum cleaners, Rectifier-fed DC inductive loads e.g. DC motors and solenoids , motor speed controllers.

#### Features

- ◆ Repetitive Peak Off-State Voltage: 600V/800V
- ◆ R.M.S On-State Current (  $I_{T(RMS)}=12A$  )
- ◆ High Commutation  $dv/dt$
- ◆ These Devices are Pb-Free and are RoHS Compliant



#### Absolute Maximum Ratings

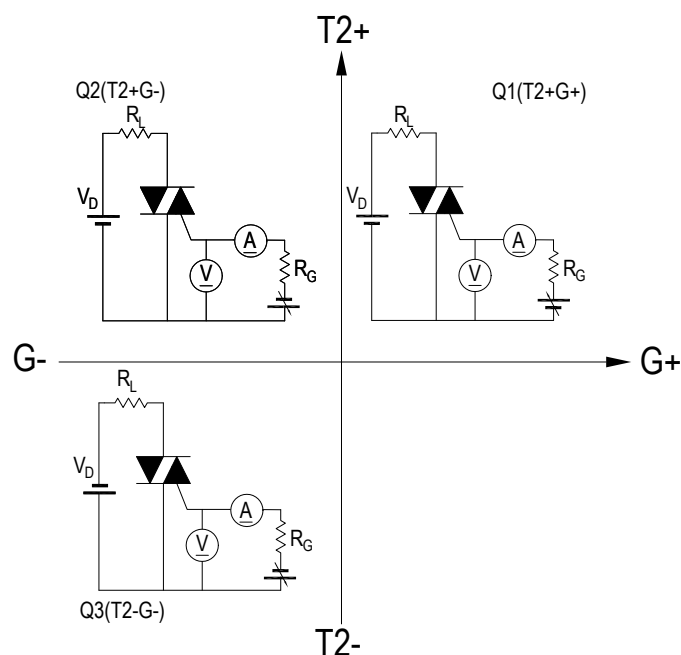
Symbol	Items	Conditions		Ratings	Unit
$V_{DRM}$ $V_{RRM}$	Repetitive Peak Off-State Voltage	$T_j = 25^{\circ}C$	T12XXC-6B	600	V
			T12XXC-8B	800	
$I_{T(RMS)}$	R.M.S On-State Current	$T_C = 100^{\circ}C$		12	A
$I_{TSM}$	Surge On-State Current	$t_p=20ms(50Hz)/t_p=16.7ms(60Hz)$		120/126	A
$I^2t$	$I^2t$ for fusing	$t_p=10ms$		78	$A^2s$
$dI/dt$	Critical rate of rise of on-state current	$F = 120\text{ Hz}$ $T_j = 125^{\circ}C$ $I_G = 2 \times I_{GT}$ , $t_r \leq 100\text{ ns}$		50	$A/\mu s$
$I_{GM}$	Peak Gate Current	$t_p = 20\text{ }\mu s$ $T_j = 125^{\circ}C$		4	A
$P_{G(AV)}$	Average Gate Power Dissipation( $T_j=125^{\circ}C$ )			1	W
$P_{GM}$	Peak Gate Power Dissipation( $t_p=20\mu s, T_j=125^{\circ}C$ )			5	W
$T_j$	Operating Junction Temperature			- 40 ~ 125	$^{\circ}C$
$T_{STG}$	Storage Temperature			- 40 ~ 150	$^{\circ}C$



### Electrical Characteristics ( $T_j = 25^\circ\text{C}$ unless otherwise specified )

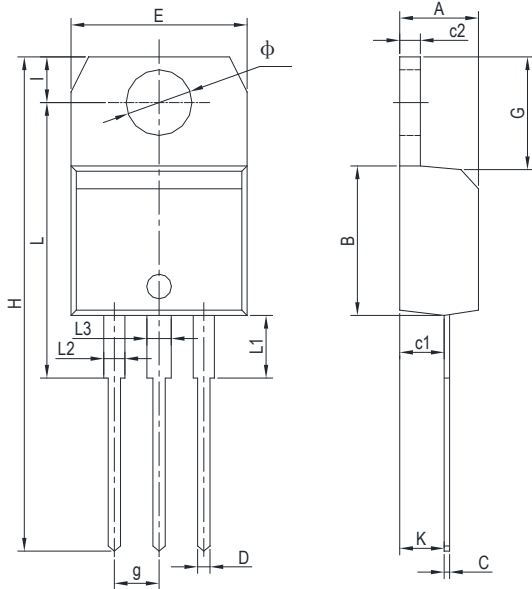
Symbol	Items		Conditions		T12XXC-6B/8B				Unit
					T1205	T1210	T1235	T1250	
I <sub>DRM</sub>	Peak Forward Reverse Blocking Current		V <sub>DRM</sub> = V <sub>RRM</sub> , T <sub>j</sub> = 25°C	Max.	5				uA
I <sub>RRM</sub>			V <sub>DRM</sub> = V <sub>RRM</sub> , T <sub>j</sub> = 125°C		1				mA
V <sub>TM</sub>	Peak On-State Voltage		I <sub>TM</sub> = 17A, t <sub>p</sub> = 380 μs	Max.	1.55				V
V <sub>GD</sub>	Q1-Q2-Q3	Non-Trigger Gate Voltage	V <sub>D</sub> = V <sub>DRM</sub> R <sub>L</sub> = 3.3 kΩ T <sub>j</sub> = 125°C	Min.	0.2				V
V <sub>GT</sub>	Q1-Q2-Q3	Gate Trigger Voltage	V <sub>D</sub> = 12V ,   R <sub>L</sub> = 33Ω	Max.	1.3				V
I <sub>GT</sub>	Q1-Q2-Q3	Gate Trigger Current		Max.	5	10	35	50	mA
I <sub>H</sub>	Q1-Q2-Q3	Holding Current	I <sub>T</sub> = 0.1A	Max.	10	15	40	60	mA
I <sub>L</sub>	Q1-Q3	Latching Current	I <sub>G</sub> = 1.2 I <sub>GT</sub>	Max.	15	20	50	70	mA
	Q2				25	35	60	80	
dV/dt	Critical Rate of Rise of Off-State Voltage		V <sub>D</sub> = 2/3V <sub>DRM</sub> gate open T <sub>j</sub> = 125°C	Min.	20	40	500	1000	V/μs
(dV/dt) <sub>c</sub>	Critical Rate of Change of Commutating Voltage		(dI/dt) <sub>c</sub> = -5.3A/ms T <sub>j</sub> = 125°C	Min.	0.5	1	10	25	V/μs
R <sub>th(j-c)</sub>	Junction to case (AC)			Max.	1.4				°C/W
R <sub>th(j-a)</sub>	Junction to ambient			Max.	60				°C/W

FIG.1: Triac quadrant are defined and the gate trigger test circuit



### PACKAGE MECHANICAL DATA

#### TO-220 Package Dimension



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	4.40	4.60	0.173	0.181
B	9.00	9.30	0.354	0.366
C	0.40	0.60	0.015	0.023
c1	2.00	2.60	0.078	0.102
c2	1.23	1.32	0.048	0.051
D	0.70	1.00	0.027	0.039
E	10.00	10.40	0.393	0.409
g	2.40	2.70	0.094	0.106
G	6.20	6.80	0.244	0.267
H	28.00	29.85	1.102	1.175
I	2.65	2.95	0.104	0.116
L	15.80	16.80	0.622	0.661
L1	3.75		0.147	
L2	1.14	1.70	0.044	0.066
L3	1.14	1.70	0.044	0.066
Φ	3.60	3.90	0.141	0.153
K	2.60TYP		0.102TYP	

### Making Diagram

ADV:Logo  
T1235C-8B:Part number  
X:Internal control code  
H:Halogen Free

**T 12 XX C - 8 B**

T series thyristor

Current:12=12A

Gate trigger current:05=5mA  
10=10mA,35=35mA,50=50mA

Package explain:  
B=TO-220

Voltage:6=600V,8=800V

Quadrant:C=3Q

### Ordering information

Part number	Package	Marking	Packing	Quantity
T1235C-8B	TO-220	T1235C-8B	Tube	50pcs

Note: Gate Trigger Current Sensitivity and type05=5mA, 10=10mA, 35=35mA, 50=50mA

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