

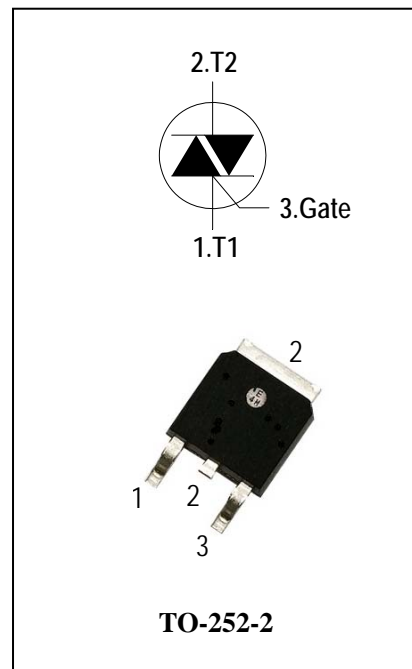
4Quadrants Triacs

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

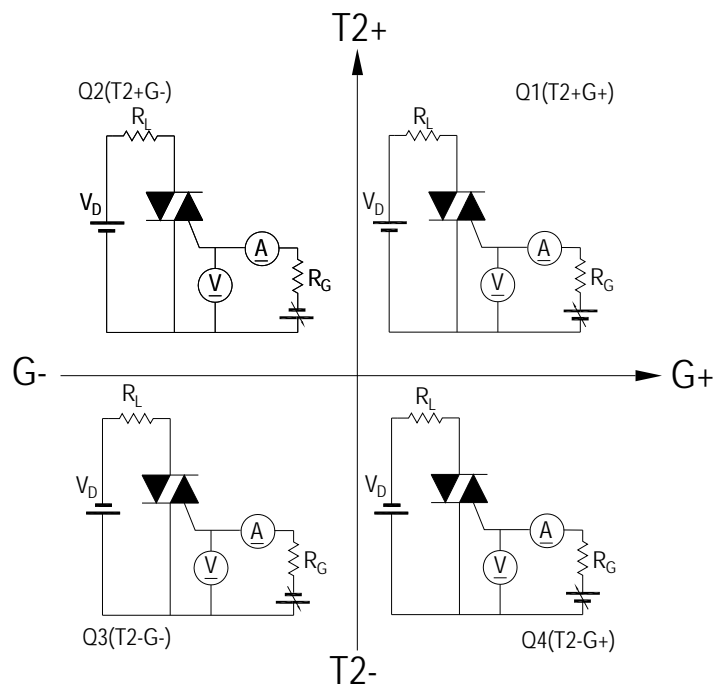
Symbol	Items	Conditions		Ratings	Unit
V_{DRM} V_{RRM}	Repetitive Peak Off-State Voltage	$T_j = 25^{\circ}C$	T12XXD-6E	600	V
			T12XXD-8E	800	
$I_{T(RMS)}$	R.M.S On-State Current	$T_C = 100^{\circ}C$		12	A
I_{TSM}	Surge On-State Current	$t_p=20ms(50Hz)/t_p=16.7ms(60Hz)$		95/99	A
I^2t	I^2t for fusing	$t_p=10ms$		45	A^2s
di/dt	Critical rate of rise of on-state current	$F = 120\text{ Hz}$ $T_j = 125^{\circ}C$ $I_G = 2 \times I_{GT}$, $t_r \leq 100\text{ ns}$	Q1-Q2-Q3	50	$A/\mu s$
			Q4	10	
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)

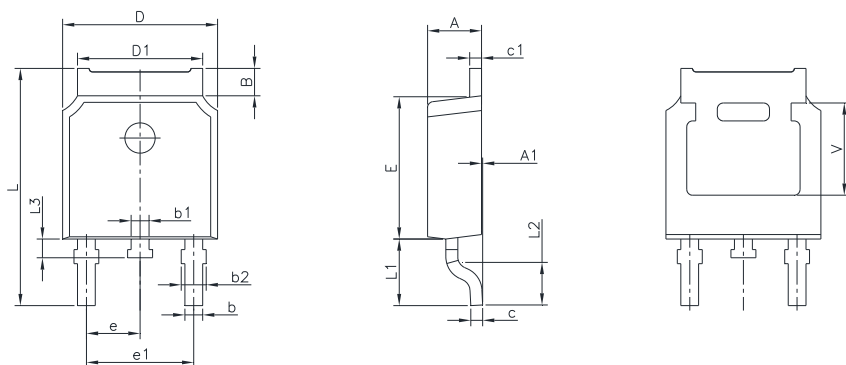
Symbol	Items		Conditions		T12XXD-6/8E				Unit
					T1205	T1210	T 1225	T 1235	
I _{DRM}	Peak Forward Reverse Blocking Current		V _{DRM} = V _{RRM} , T _j = 25°C	Max.	5				uA
I _{RRM}			V _{DRM} = V _{RRM} , T _j = 125°C		1				mA
V _{TM}	Peak On-State Voltage		I _{TM} = 15A, t _p = 380 μs	Max.	1.55				V
V _{GD}	Q1-Q2-Q3-Q4	Non – Trigger Gate Voltage	V _D = V _{DRM} R _L = 3.3 kΩ T _j = 125°C	Min.	0.2				V
V _{GT}	Q1-Q2-Q3-Q4	GateTrigger Voltage	V _D = 12V , R _L = 33Ω	Max.	1.5				V
I _{GT}	Q1-Q2-Q3	GateTrigger Current		Max.	5	10	25	35	mA
	Q4				10	25	70	100	
I _H	Q1-Q2-Q3-Q4	Holding Current	I _T = 0.1A	Max.	10	25	30	40	mA
I _L	Q1-Q3-Q4	Latching Current	I _G = 1.2 I _{GT}	Max.	15	30	40	50	mA
	Q2				20	40	80	85	
dV/dt	Critical Rate of Rise of Off-State Voltage		V _D = 2/3V _{DRM} gate open T _j = 125°C	Min.	20	50	50	60	V/μs
(dV/dt) _c	Rate of Change of Commutating Current,		(dI/dt) _c =-5.3A/ms T _j = 125°C	Min.	0.5	1	5	5.5	V/μs
R _{th(j-c)}	Junction to case (AC)			Max.	1.7				°C/W
R _{th(j-a)}	Junction to ambient			Max.	60				°C/W

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



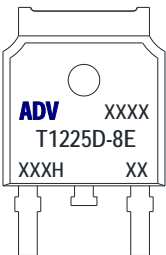
PACKAGE MECHANICAL DATA

TO-252-2 Package Dimension



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.100	2.500	0.083	0.098
A1	0.000	0.127	0.000	0.005
B	1.070	1.220	0.042	0.048
b	0.660	0.860	0.026	0.034
b1	0.720	0.850	0.028	0.033
c	0.400	0.620	0.016	0.024
c1	0.440	0.620	0.017	0.024
D	6.350	6.800	0.250	0.268
D1	5.180	5.480	0.202	0.216
E	5.900	6.300	0.232	0.248
e	2.300 TYP.		0.091 TYP.	
e1	4.500	4.700	0.177	0.185
L	9.500	10.70	0.374	0.421
L1	2.550	2.900	0.100	0.114
L2	1.350	1.780	0.053	0.070
L3	0.600	0.900	0.024	0.035
V	3.950 REF.		0.155 REF.	

Making Diagram



ADV: Logo
T1225D-8E: Part number
X: Internal control code
H: Halogen Free

T 12 XX D - 8 E

T series thyristor

Current: 12=12A

Gate trigger current: 05=5mA
10=10mA, 25=25mA, 35=35mA

Package explain:
E=TO-252-2

Voltage: 6=600V, 8=800V

Quadrant: C=4Q

Ordering information

Part number	Package	Marking	Packing	Quantity
T1225D-6E	TO-252-2	T1225D-6E	Tube	80pcs
			Embossed tape	2500pcs
T1225D-8E	TO-252-2	T1225D-8E	Tube	80pcs
			Embossed tape	2500pcs

Note: Gate Trigger Current Sensitivity and type 05=5mA, 10=10mA, 35=35mA, 50=50mA

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