

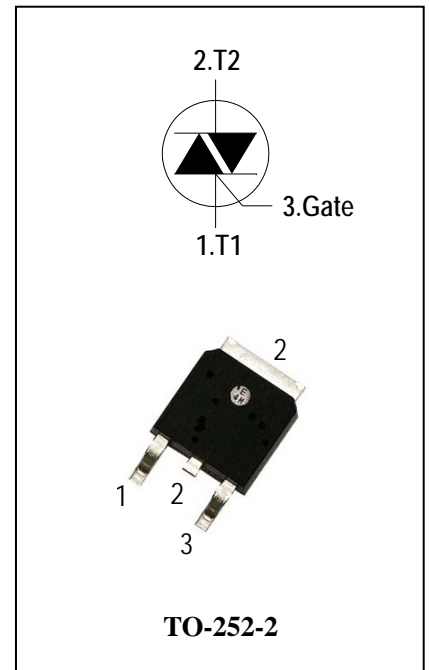
3Quadrants Triacs

General Description

High current density due to mesa technology . the T8 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: 800V
- ◆ R.M.S On-State Current ($I_{T(RMS)} = 8A$)
- ◆ 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	$T_j = 25^\circ C$	T810-800E	800	V
$I_{T(RMS)}$	R.M.S On-State Current	$T_C = 100^\circ C$		8	A
I_{TSM}	Surge On-State Current	$t_p = 20ms(50Hz) / t_p = 16.7ms(60Hz)$		60/63	A
I^2t	I^2t for fusing	$t_p = 10ms$		20	A^2s
di/dt	Critical rate of rise of on-state current	$F = 120 Hz$ $T_j = 125^\circ C$ $I_G = 2 \times I_{GT}$, $t_r \leq 100 ns$		50	$A/\mu s$
I_{GM}	Peak Gate Current	$t_p = 20 \mu s$ $T_j = 125^\circ C$		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		T810-800E	Unit
I_{DRM}	Peak Forward Reverse Blocking Current		$V_{DRM} = V_{RRM}, T_J = 25^\circ\text{C}$	Max.	5	μA
I_{RRM}			$V_{DRM} = V_{RRM}, T_J = 125^\circ\text{C}$		1	mA
V_{TM}	Peak On-State Voltage		$I_{TM} = 8.5\text{A}, t_p = 380 \mu\text{s}$	Max.	1.55	V
V_{GD}	Q1-Q2-Q3	Non - Trigger Gate Voltage	$V_D = V_{DRM} \quad R_L = 3.3 \text{ k}\Omega$ $T_J = 125^\circ\text{C}$	Min.	0.2	V
V_{GT}	Q1-Q2-Q3	Gate Trigger Voltage	$V_D = 12\text{V} \quad , \quad R_L = 33\Omega$	Max.	1.3	V
I_{GT}	Q1-Q2-Q3	Gate Trigger Current		Max.	10	mA
I_H	Q1-Q2-Q3	Holding Current	$I_T = 0.1\text{A}$	Max.	15	mA
I_L	Q1-Q3	Latching Current	$I_G = 1.2 I_{GT}$	Max.	20	mA
	Q2				35	
dV/dt	Critical Rate of Rise of Off-State Voltage		$V_D = 2/3V_{DRM}$ gate open $T_J = 125^\circ\text{C}$	Min.	40	$\text{V}/\mu\text{s}$
$(dV/dt)_c$	Rate of Change of Commutating Current,		$(dI/dt)_c = -2.7\text{A/ms}$ $T_J = 125^\circ\text{C}$	Min.	1	$\text{V}/\mu\text{s}$
$R_{th(j-c)}$	Junction to case (AC)			Max.	1.	$^\circ\text{C/W}$
$R_{th(j-a)}$	Junction to ambient(Copper surface under tab: $S=0.5\text{cm}^2$)			Max.	70	$^\circ\text{C/W}$

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

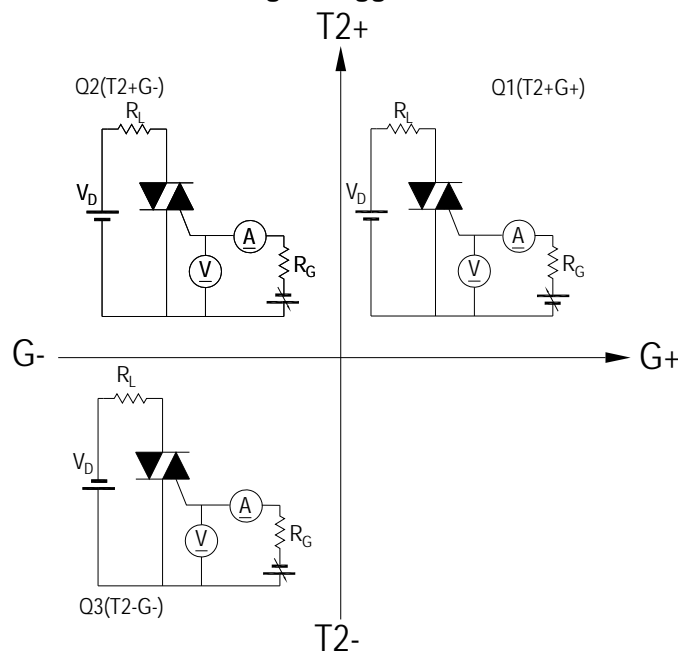


FIG.2: Maximum on-state power dissipation

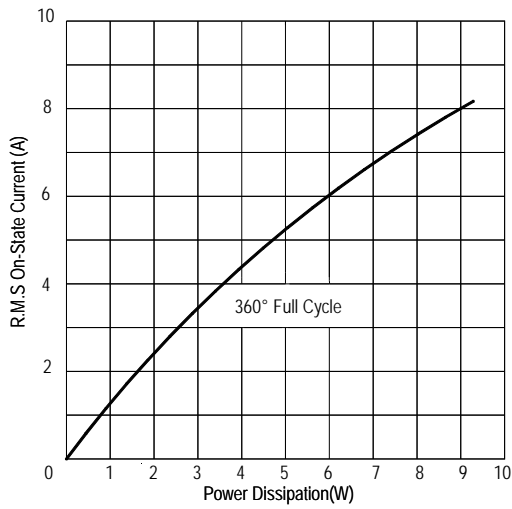


FIG.3: Typical RMS on-state current VS Allowable case Temperature

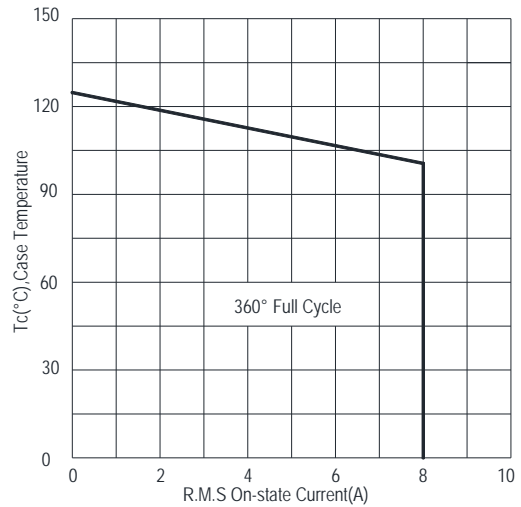


FIG.4: Maximum transient thermal impedance

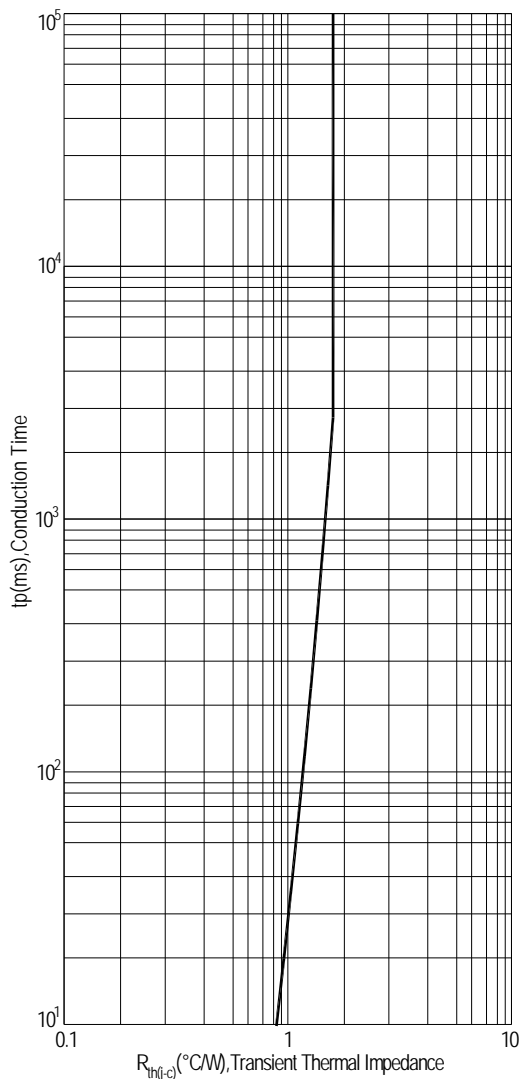


FIG.5: Rated surge on-state current (Non-Repetitive)

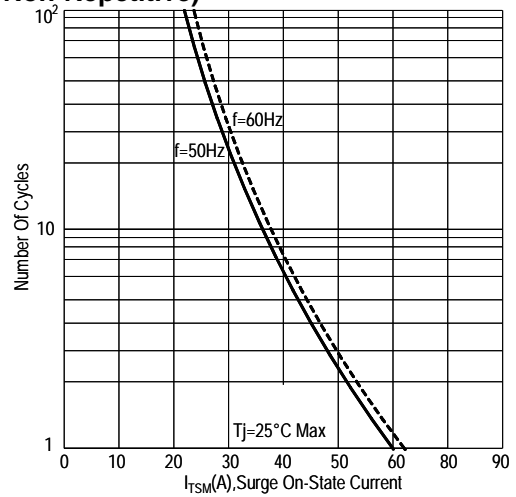


FIG.6: Gate trigger current VS Junction temperature

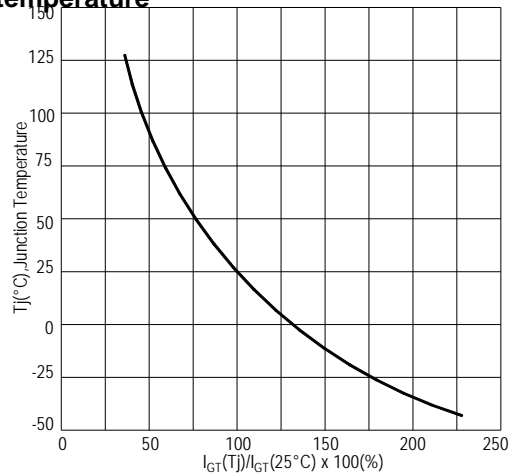


FIG.7: Holding current and Latching current VS Junction temperature

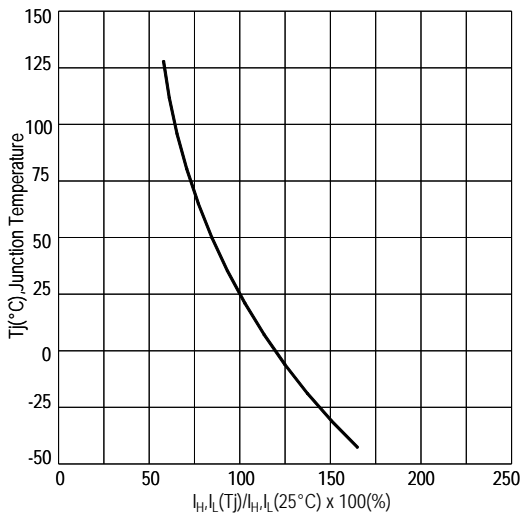


FIG.8: Gate trigger voltage VS Junction temperature

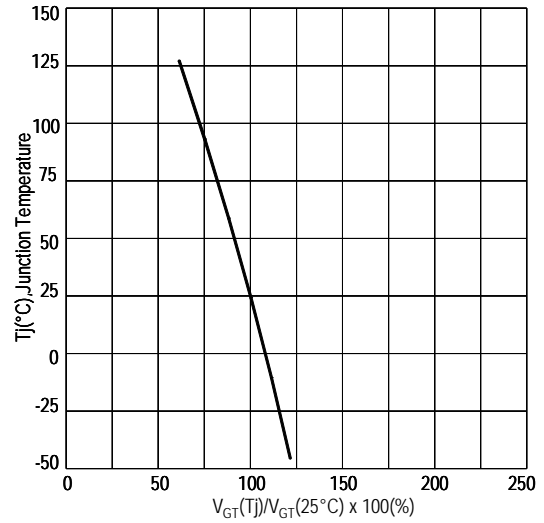
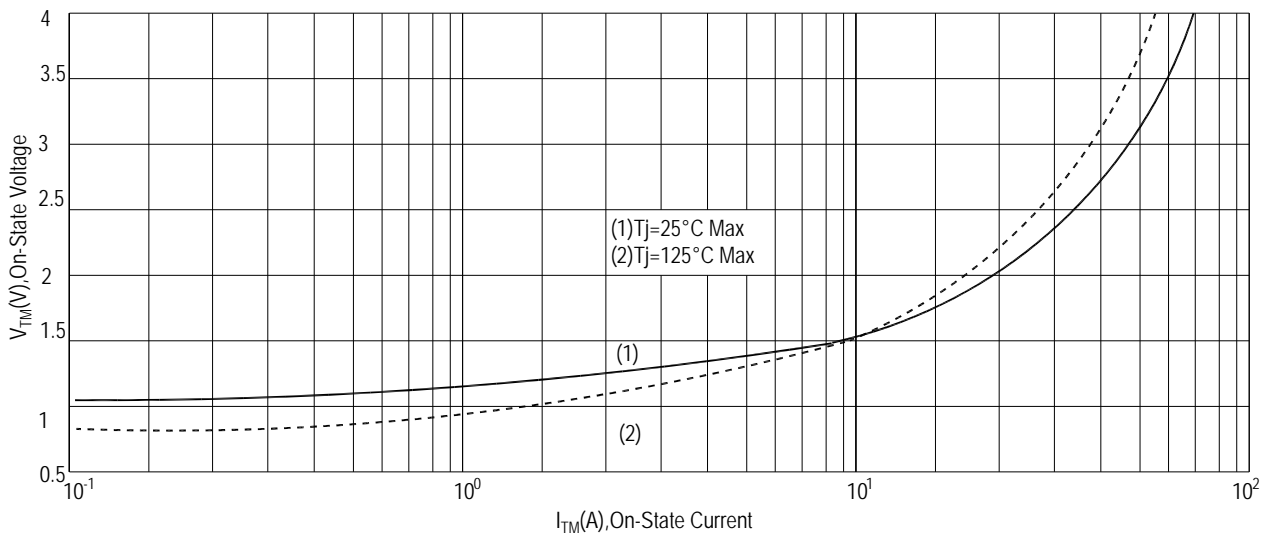
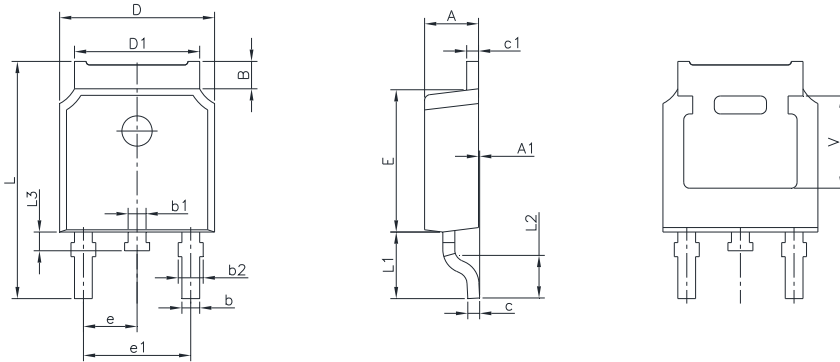


FIG.9: On-state characteristics(Max)



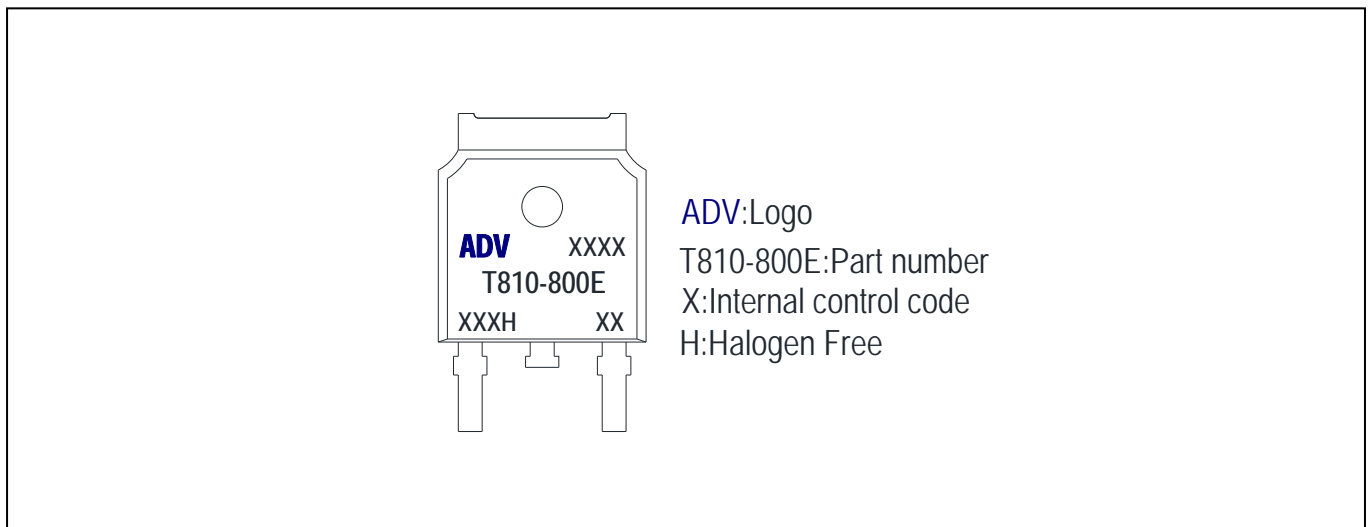
PACKAGE MECHANICAL DATA

TO-252-2 Package Dimension



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.400	0.087	0.094
A1	0.000	0.127	0.000	0.005
B	1.070	1.220	0.042	0.048
b	0.720	0.850	0.028	0.033
b1	0.720	0.850	0.028	0.033
c	0.450	0.620	0.017	0.024
c1	0.450	0.620	0.017	0.024
D	6.350	6.650	0.250	0.262
D1	5.200	5.400	0.205	0.213
E	5.900	6.200	0.232	0.244
e	2.300 TYP.		0.091 TYP.	
e1	4.500	4.700	0.177	0.185
L	9.500	10.60	0.374	0.396
L1	2.550	2.900	0.100	0.114
L2	1.400	1.780	0.055	0.070
L3	0.600	0.900	0.024	0.035
V	3.950 REF.		0.155 REF.	

Making Diagram



Ordering information

Part number	Package	Marking	Packing	Quantity
T810-800E	TO-252-2	T810-800E	Tube	80pcs
			Embossed tape	2500pcs
T810-800E	TO-252-2	T810-800E	Tube	80pcs
			Embossed tape	2500pcs

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