

8 A MOLD ISOLATED SCR

DESCRIPTION

The 8P2SMA and 8P4SMA are P gate all diffused mold type thyristor granted 8 A on-state average current ($T_c = 88^\circ\text{C}$), with rated voltages up to 400 V.

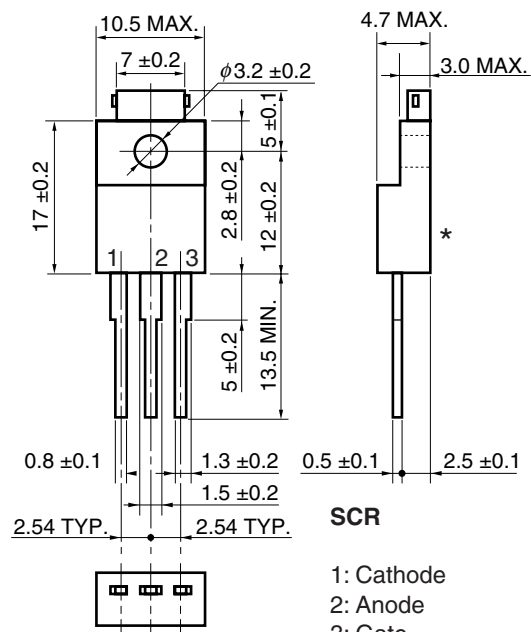
FEATURES

- Mold isolated plastic package
- 100 A surge current
- High voltage: V_{DRM} , $V_{RRM} = 200\text{ V}$ (8P2SMA)
 V_{DRM} , $V_{RRM} = 400\text{ V}$ (8P4SMA)

APPLICATIONS

- Motor speed control for household appliance
- Temperature control for heater and constant temperature box
- Constant voltage power source and battery charger
- Automotive application such as regulator
- Various solid state relay, etc.

★ PACKAGE DRAWING (Unit: mm)



SCR

- 1: Cathode
 2: Anode
 3: Gate

★: T_c test bench-mark

Standard weight: 2 g

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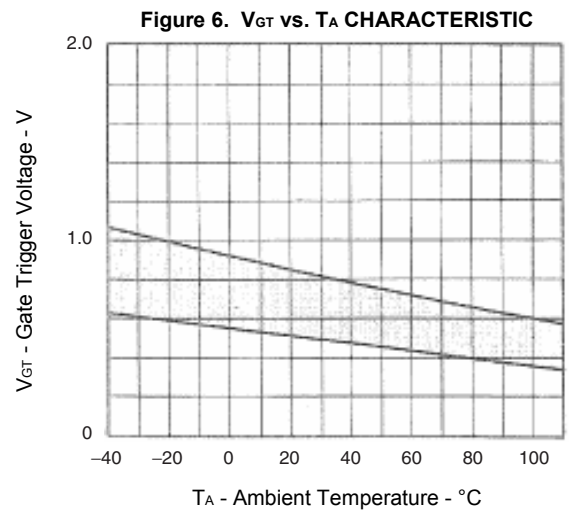
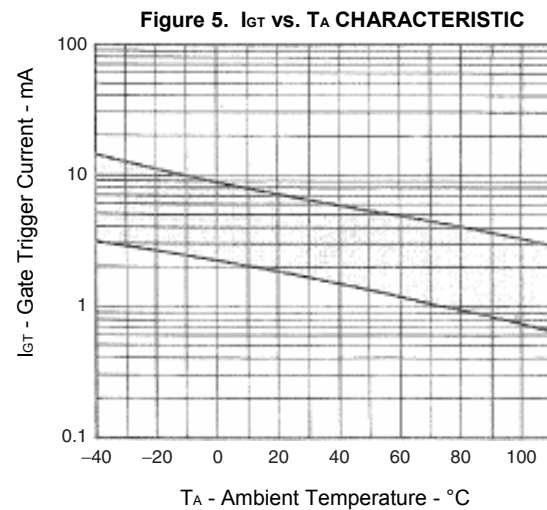
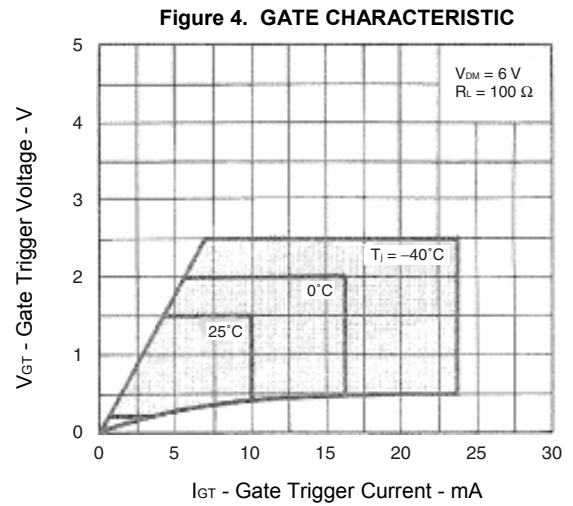
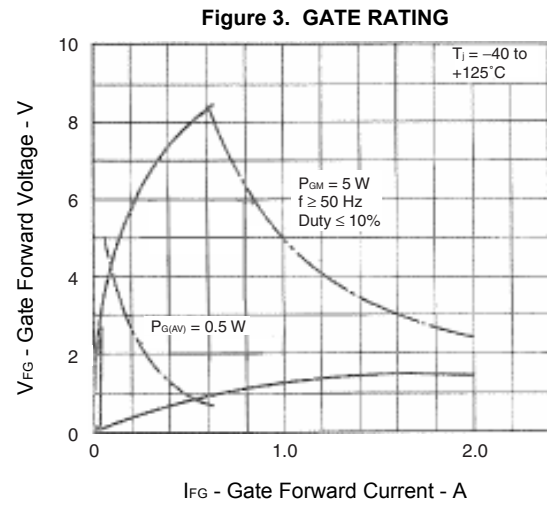
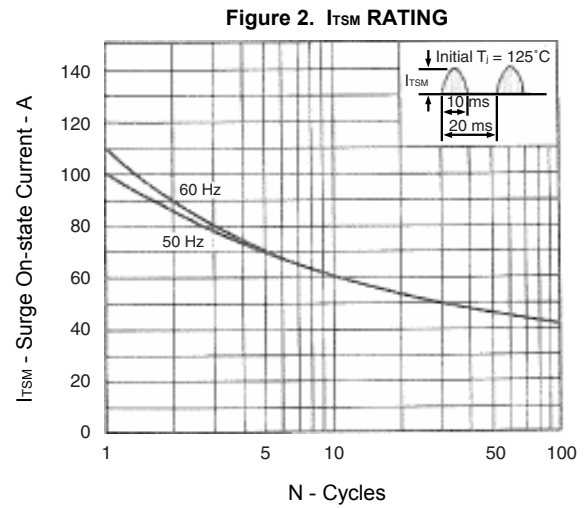
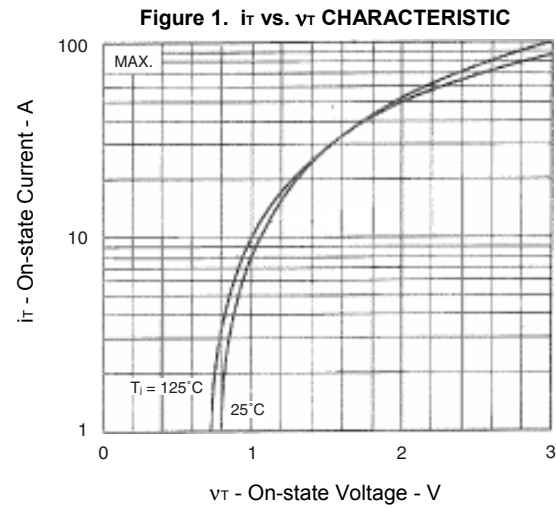
★ MAXIMUM RATINGS

Parameter	Symbol	8P2SMA	8P4SMA	Unit	Remarks
Non-repetitive Peak Reverse Voltage	V_{RSM}	300	500	V	—
Non-repetitive Peak Off-state Voltage	V_{DSM}	300	500	V	—
Repetitive Peak Reverse Voltage	V_{RRM}	200	400	V	—
Repetitive Peak Off-state Voltage	V_{DRM}	200	400	V	—
Average On-state Current	$I_{T(AV)}$	8 ($T_C = 88^\circ\text{C}$, single phase half wave, $\theta = 180^\circ$)		A	Refer to Figure 11 and 12 .
Effective On-state Current	$I_{T(RMS)}$	12.6		A	
Surge On-state Current	I_{TSM}	100 (f = 50 Hz, sine half wave, 1 cycle) 110 (f = 60 Hz, sine half wave, 1 cycle)		A	Refer to Figure 2 .
Fusing Current	$\int i^2 dt$	45 (1 ms ≤ t ≤ 10 ms)		A ² s	—
Critical Rate Rise of On-state Current	di/dt	50		A/μs	—
Peak Gate Power Dissipation	P_{GM}	5 (f ≥ 50 Hz, Duty ≤ 10%)		W	Refer to Figure 3 .
Average Gate Power Dissipation	$P_{G(AV)}$	0.5		W	
Peak Gate Forward Current	I_{FGM}	2 (f ≥ 50 Hz, Duty ≤ 10%)		A	—
Peak Gate Reverse Voltage	V_{RGM}	10		V	—
Junction Temperature	T_j	-40~+125		°C	—
Storage Temperature	T_{stg}	-55~+150		°C	—

★ ELECTRICAL CHARACTERISTICS ($T_j = 25^\circ\text{C}$)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit	Remarks
Repetitive Peak Reverse Current	I_{RRM}	$V_{RM} = V_{RRM}$	—	—	100	μA	—
					2	mA	—
Repetitive Peak Off-state Current	I_{DRM}	$V_{DM} = V_{DRM}$	—	—	100	μA	—
					2	mA	—
On-state Voltage	V_{TM}	$I_{TM} = 25\text{ A}$	—	—	1.4	V	Refer to Figure 1 .
Gate Trigger Current	I_{GT}	$V_{DM} = 6\text{ V}$, $R_L = 100\ \Omega$	—	—	10	mA	Refer to Figure 4 .
Gate Trigger Voltage	V_{GT}	$V_{DM} = 6\text{ V}$, $R_L = 100\ \Omega$	—	—	1.5	V	
Gate Non-trigger Voltage	V_{GD}	$T_j = 125^\circ\text{C}$, $V_{DM} = \frac{1}{2} V_{DRM}$	0.2	—	—	V	—
Holding Current	I_H	$V_{DM} = 24\text{ V}$, $I_{TM} = 25\text{ A}$	—	6	—	mA	—
Critical Rate Rise of Off-state Voltage	dv/dt	$T_j = 125^\circ\text{C}$, $V_{DM} = \frac{2}{3} V_{DRM}$	—	40	—	V/μs	—
Circuit Commuted Turn-off Time	t_q	$T_j = 125^\circ\text{C}$, $I_{TM} = 8\text{ A}$ $di/dt = 15\text{ A}/\mu\text{s}$, $V_R \geq 25\text{ V}$, $V_{DM} = \frac{2}{3} V_{DRM}$, $dV_D/dt = 10\text{ V}/\mu\text{s}$	—	100	—	μs	—
Thermal Resistance ^{Note}	$R_{th(j-c)}$	Junction to case DC	—	—	3.7	°C/W	Refer to Figure 13 .
	$R_{th(j-a)}$	Junction to ambient DC	—	—	60	°C/W	

TYPICAL CHARACTERISTICS



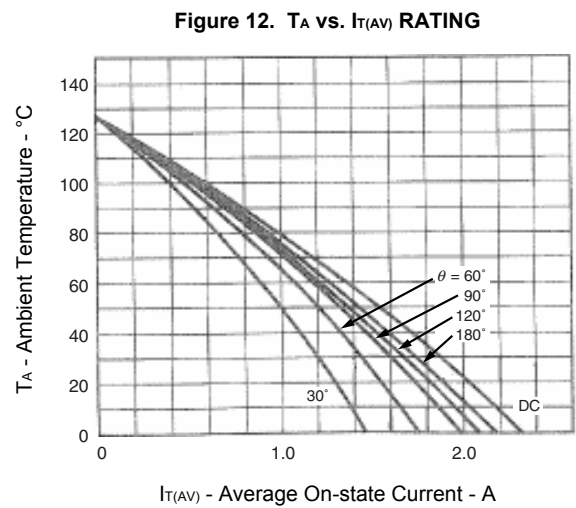
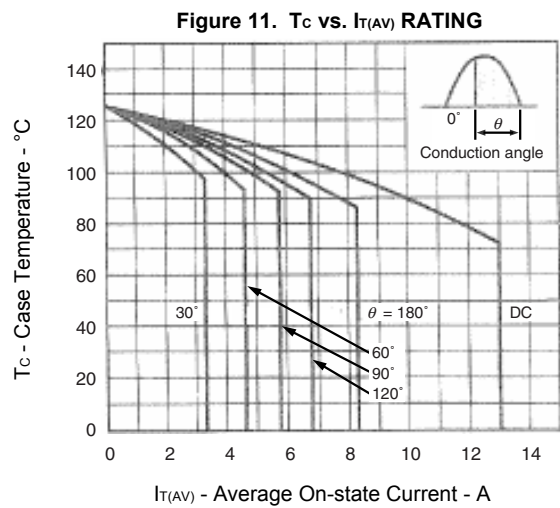
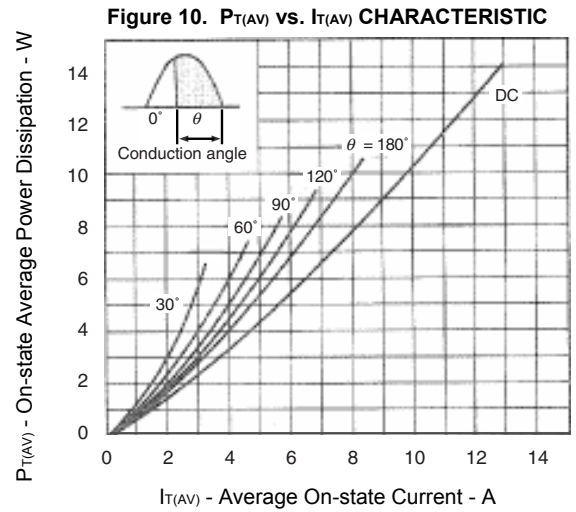
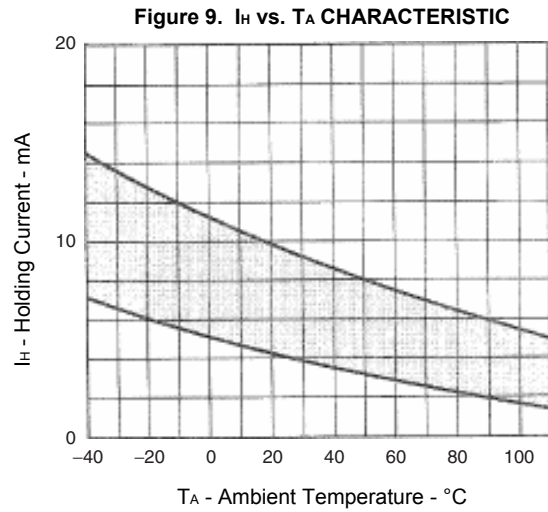
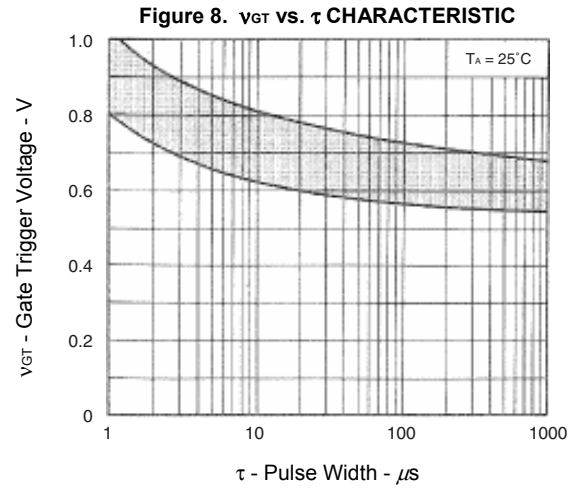
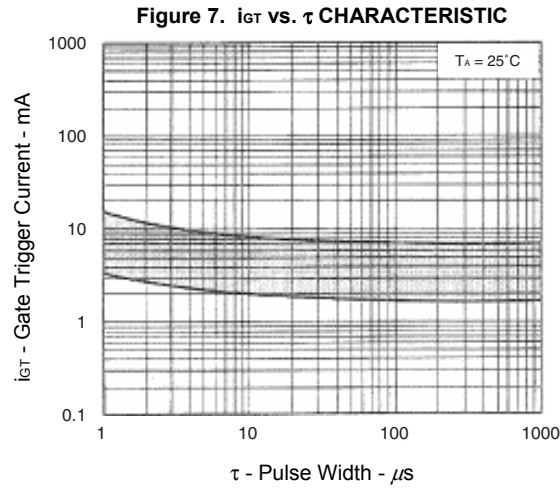
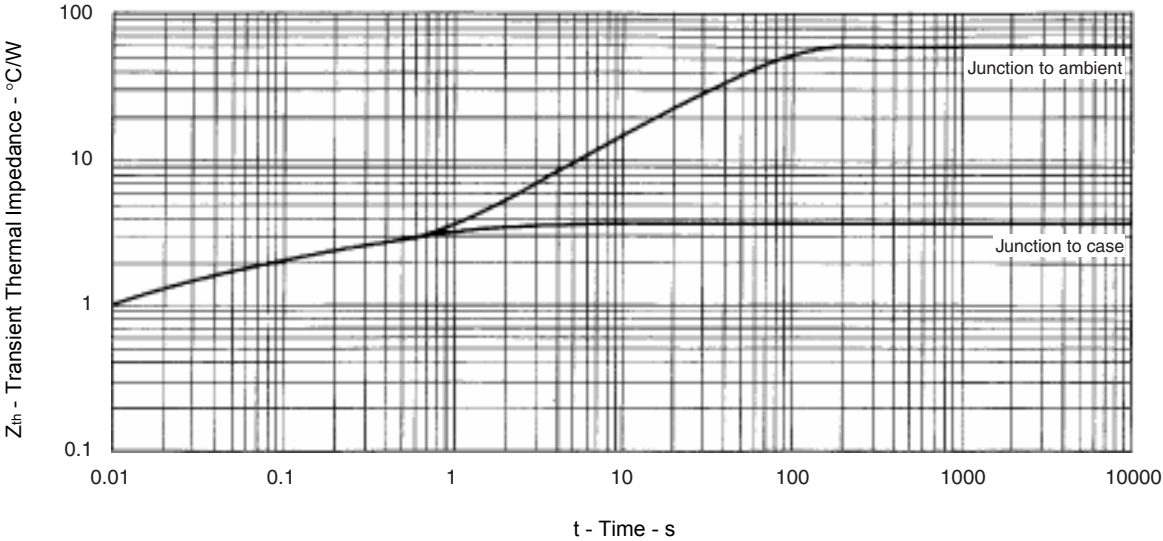


Figure 13. Z_{th} CHARACTERISTIC



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