

CR5AS-8UE

400V - 5A - Thyristor

Medium Power Use

R07DS1232EJ0200

Rev.2.00

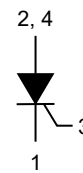
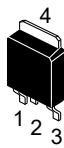
May. 10, 2019

Features

- $I_T(AV)$: 5 A
- V_{DRM} : 400 V
- I_{GT} : 100 μ A
- Planar Passivation Type
- RoHS Compliant

Outline

RENESAS Package code: PRSS0004ZG-A
(Package name: MP-3A)



- 1. Cathode
- 2. Anode
- 3. Gate
- 4. Anode

Application

Igniter, pulse generator, electric tools, etc.

Maximum Ratings

Parameter	Symbol	Voltage class	Unit
		8	
Repetitive peak reverse voltage	V_{RRM}	400	V
Non-repetitive peak reverse voltage	V_{RSM}	500	V
Repetitive peak off-state voltage ^{Note1}	V_{DRM}	400	V

Notes: 1. With gate to cathode resistance $R_{GK} = 1 \text{ k}\Omega$

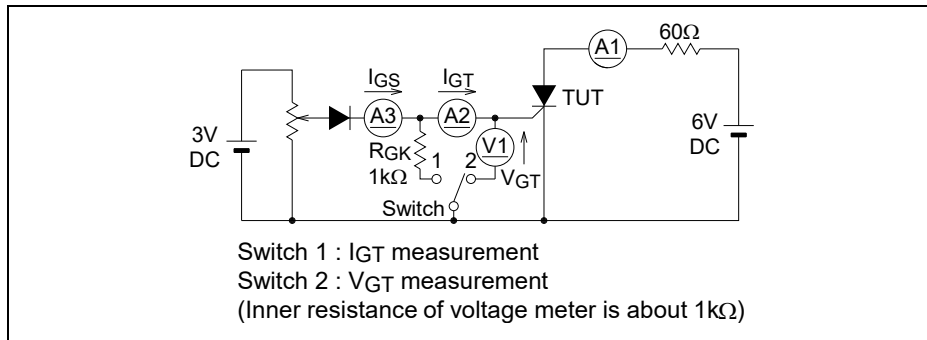
Parameter	Symbol	Ratings	Unit	Conditions
RMS on-state current	$I_T(RMS)$	8	A	
Average on-state current	$I_T(AV)$	5	A	Commercial frequency, sine half wave 180°conduction, $T_c = 95^\circ\text{C}$ ^{Note2}
Surge on-state current	I_{TSM}	70	A	60 Hz sine half wave 1 full cycle, peak value, non-repetitive
I^2t for fusing	I^2t	20	A^2s	Value corresponding to 1 cycle of half wave 60 Hz, surge on-state current
Peak gate power dissipation	P_{GM}	2	W	
Average gate power dissipation	$P_{G(AV)}$	0.2	W	
Peak gate forward voltage	V_{FGM}	6	V	
Peak gate reverse voltage	V_{RGM}	6	V	
Peak gate forward current	I_{FGM}	1	A	
Junction temperature	T_j	-40 to +125	$^\circ\text{C}$	
Storage temperature	T_{stg}	-40 to +125	$^\circ\text{C}$	

Electrical Characteristics

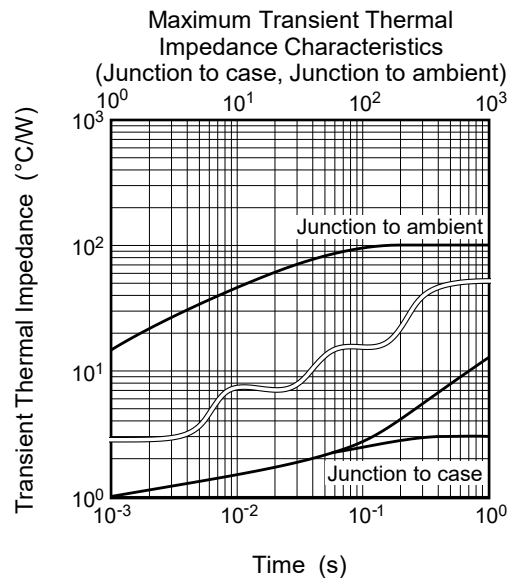
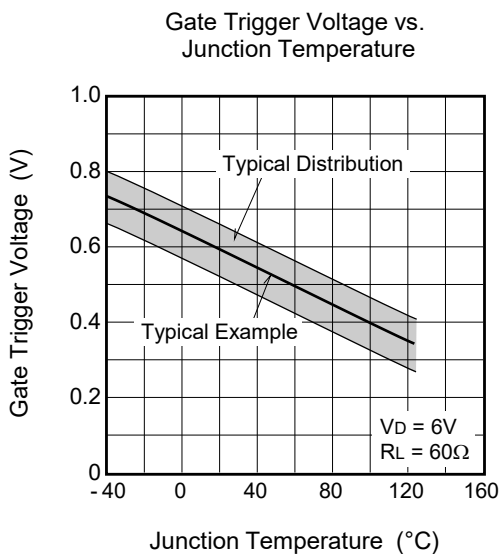
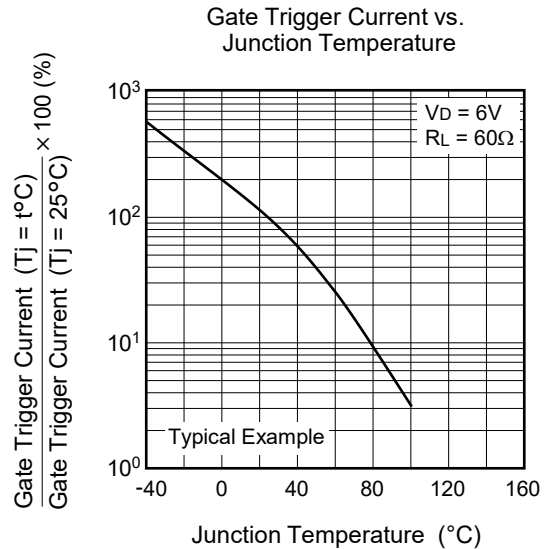
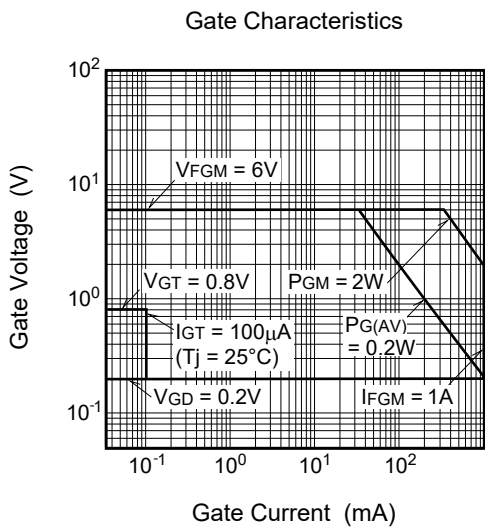
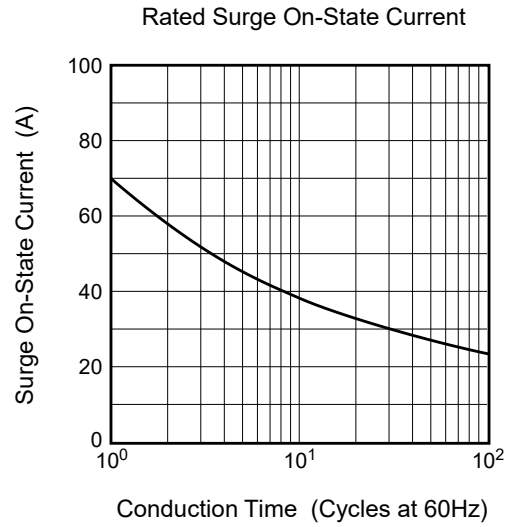
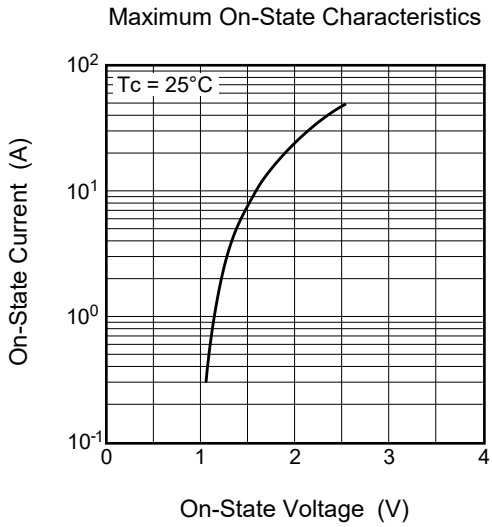
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test conditions
Repetitive peak reverse current	I_{RRM}	—	—	2.0	mA	$T_j = 125^\circ\text{C}$, V_{RRM} applied, $R_{GK} = 1\text{ k}\Omega$
Repetitive peak off-state current	I_{DRM}	—	—	2.0	mA	$T_j = 125^\circ\text{C}$, V_{DRM} applied, $R_{GK} = 1\text{ k}\Omega$
On-state voltage	V_{TM}	—	—	1.6	V	$T_c = 25^\circ\text{C}$, $I_{TM} = 10\text{ A}$, instantaneous value
Gate trigger voltage	V_{GT}	—	—	0.8	V	$T_j = 25^\circ\text{C}$, $V_D = 6\text{ V}$, $I_T = 0.1\text{ A}$ ^{Note3}
Gate non-trigger voltage	V_{GD}	0.2	—	—	V	$T_j = 125^\circ\text{C}$, $V_D = 1/2 V_{DRM}$, $R_{GK} = 1\text{ k}\Omega$
Gate trigger current	I_{GT}	1	—	100	μA	$T_j = 25^\circ\text{C}$, $V_D = 6\text{ V}$, $I_T = 0.1\text{ A}$ ^{Note3}
Holding current	I_H	—	1.0	—	mA	$T_j = 25^\circ\text{C}$, $V_D = 12\text{ V}$, $R_{GK} = 1\text{ k}\Omega$
Thermal resistance	$R_{th(j-c)}$	—	—	3.0	$^\circ\text{C/W}$	Junction to case ^{Note2}

Notes: 2. The measurement point for case temperature is at anode tab.

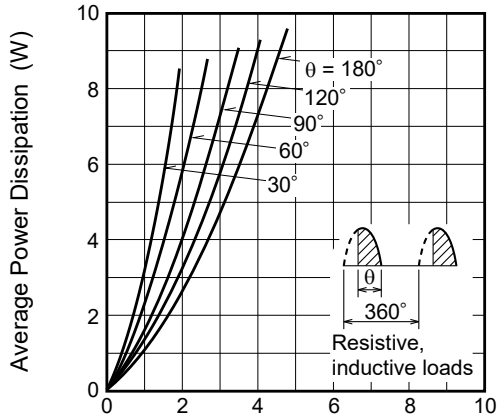
3. I_{GT} , V_{GT} measurement circuit.



Performance Curves

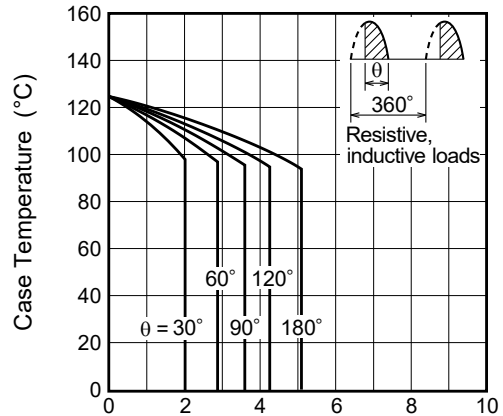


Maximum Average Power Dissipation (Single-Phase Half Wave)



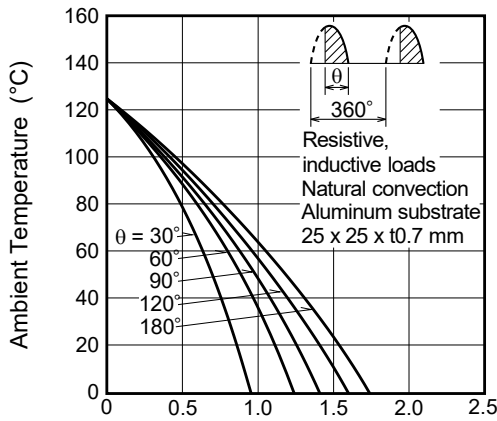
Average On-State Current (A)

Allowable Case Temperature vs. Average On-State Current (Single-Phase Half Wave)



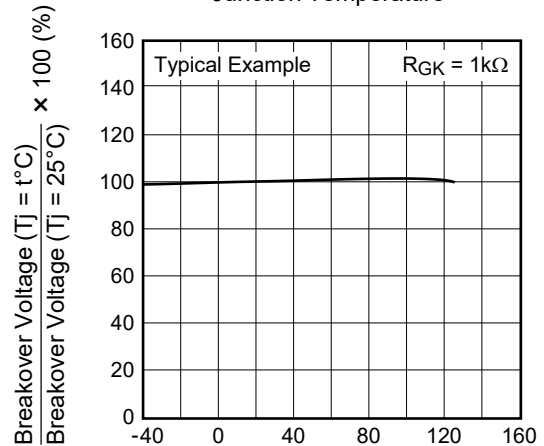
Average On-State Current (A)

Allowable Ambient Temperature vs. Average On-State Current (Single-Phase Half Wave)



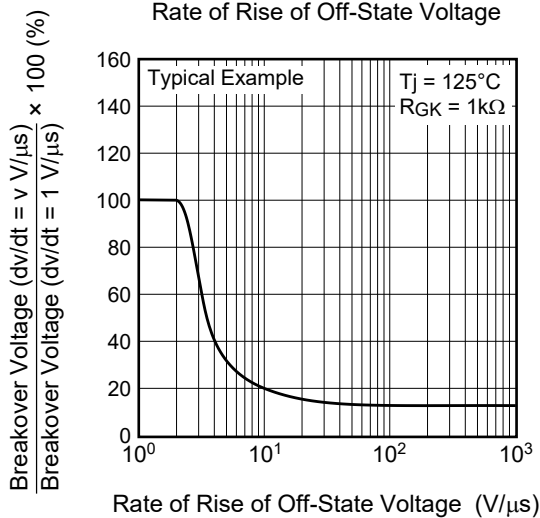
Average On-State Current (A)

Breakover Voltage vs. Junction Temperature



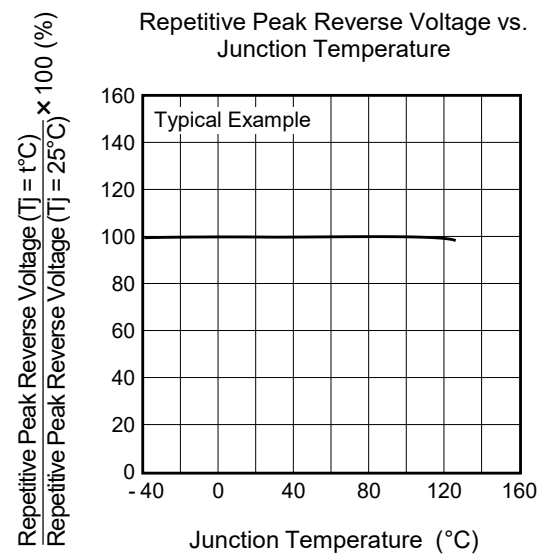
Junction Temperature ($^\circ\text{C}$)

Breakover Voltage vs. Rate of Rise of Off-State Voltage

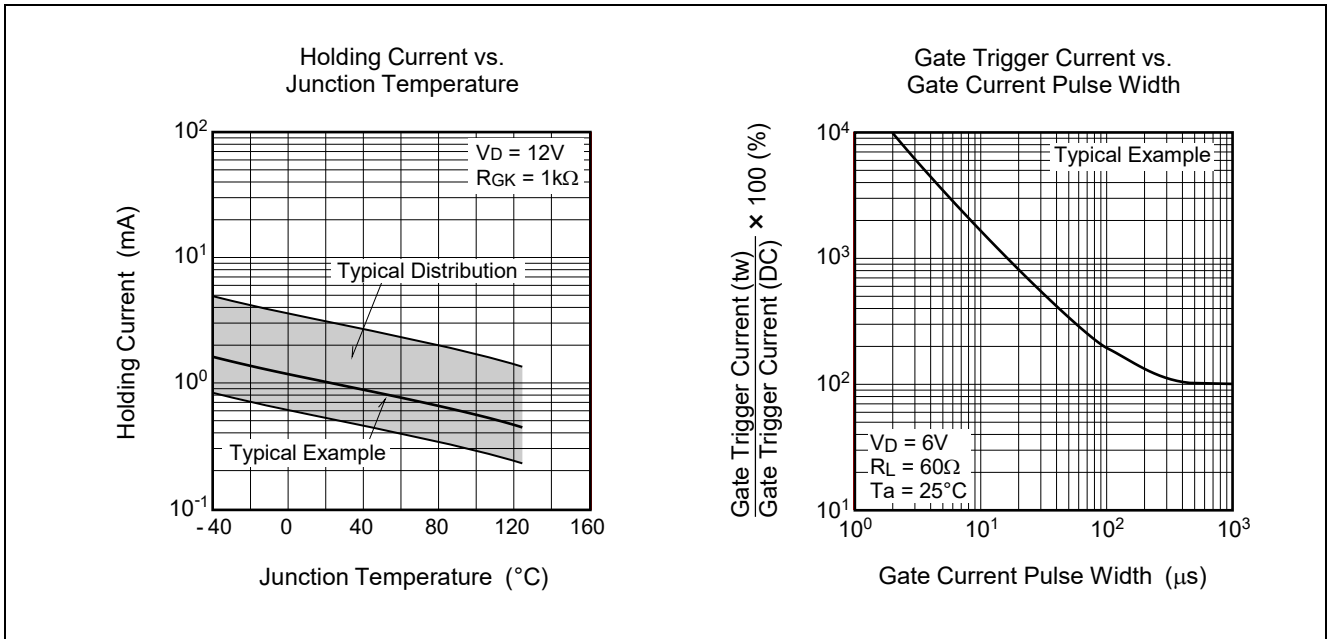


Rate of Rise of Off-State Voltage ($\text{V}/\mu\text{s}$)

Repetitive Peak Reverse Voltage vs. Junction Temperature

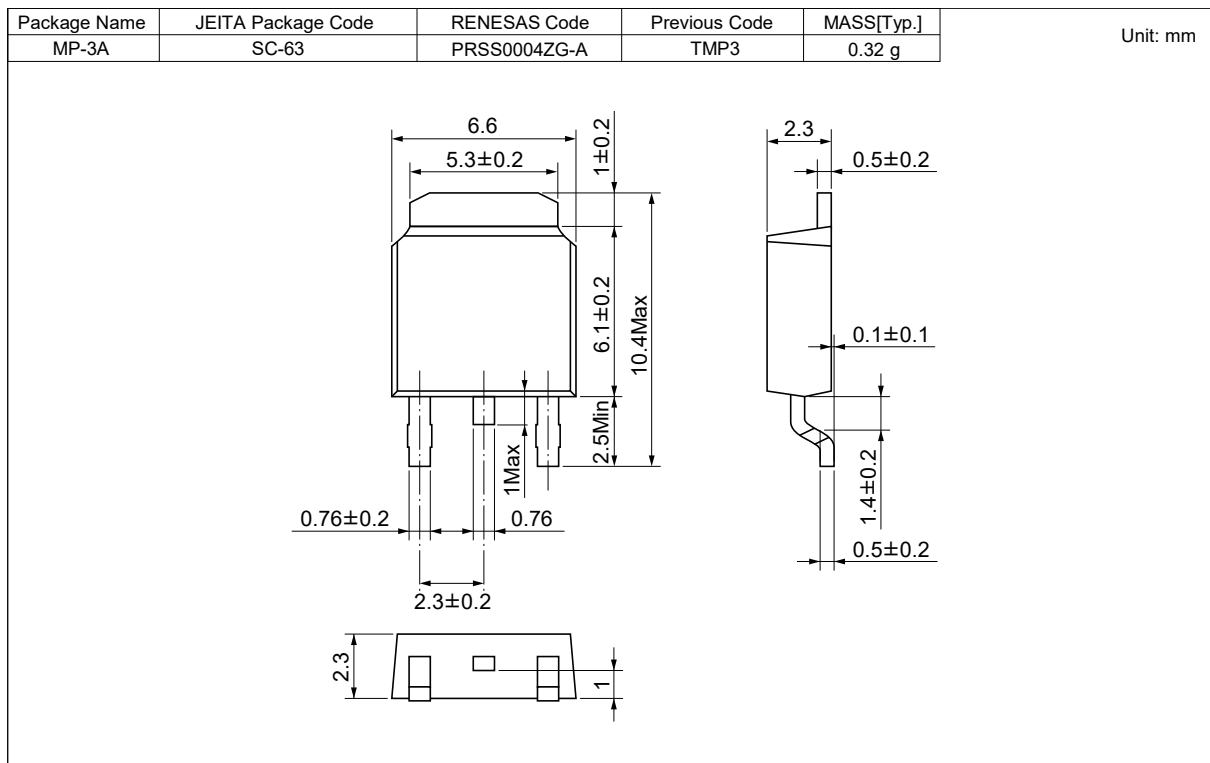


Junction Temperature ($^\circ\text{C}$)



Package Dimensions

Package Name: MP-3A



Ordering Information

Orderable Part Number	Package	Packing ^{Note4}	Quantity	Remark
CR5AS-8UE-T13#B00	MP-3A	Embossed tape	3000 pcs.	
CR5AS-8UE#B00	MP-3A	Tube	75 pcs.	Tube packing is to be abolished.

Note: 4. Please confirm the specification about the shipping in detail.

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