

# CR5AS-8UE

400V - 5A - Thyristor

Medium Power Use

R07DS1232EJ0200

Rev.2.00

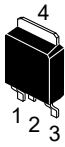
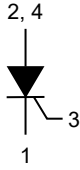
May. 10, 2019

## Features

- $I_T(AV)$  : 5 A
- $V_{DRM}$  : 400 V
- $I_{GT}$ : 100  $\mu$ 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 <sup>Note1</sup>	$V_{DRM}$	400	V

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

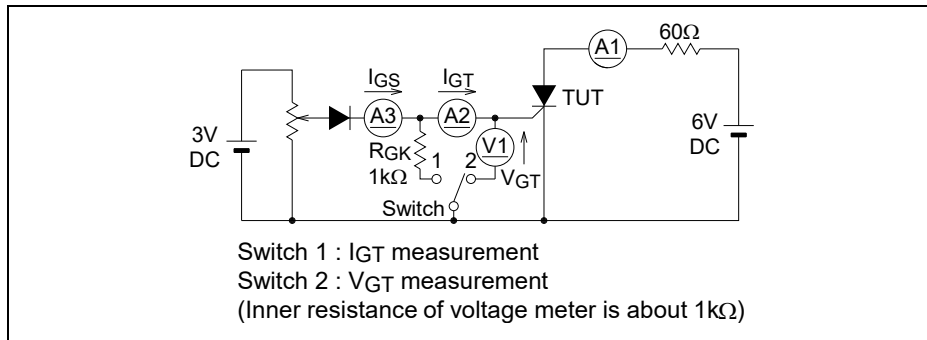
Parameter	Symbol	Ratings	Unit	Conditions
RMS on-state current	$I_T(RMS)$	8	A	
Average on-state current	$I_T(AV)$	5	A	Commercial frequency, sine half wave 180°conduction, $T_c = 95^\circ\text{C}$ <sup>Note2</sup>
Surge on-state current	$I_{TSM}$	70	A	60 Hz sine half wave 1 full cycle, peak value, non-repetitive
$I^2t$ for fusing	$I^2t$	20	$\text{A}^2\text{s}$	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**

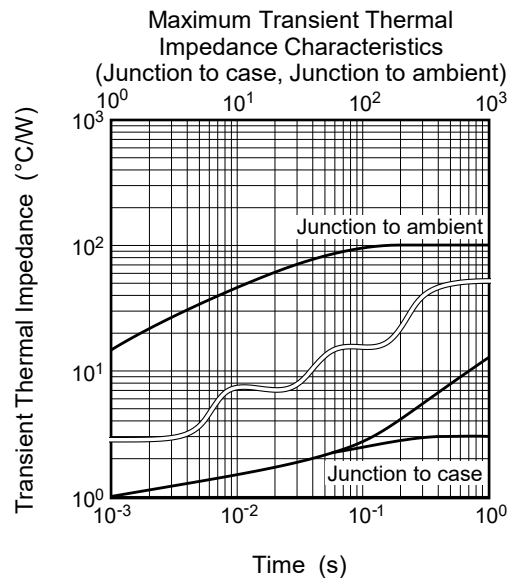
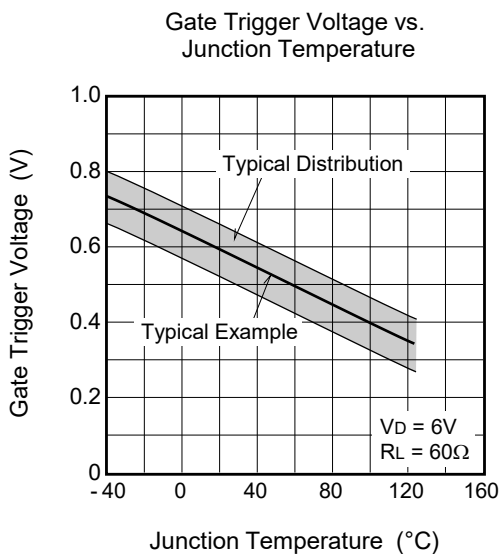
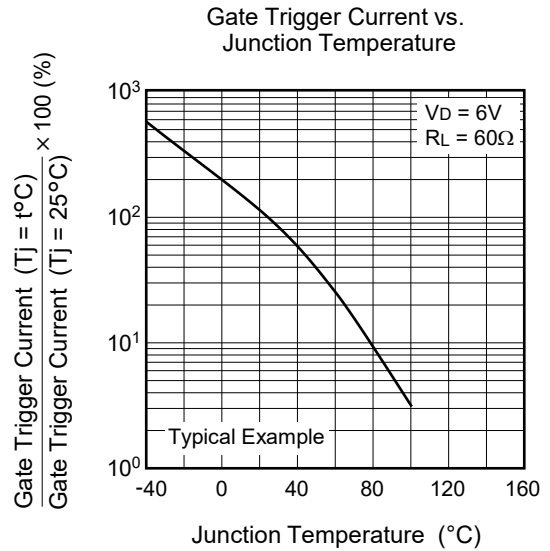
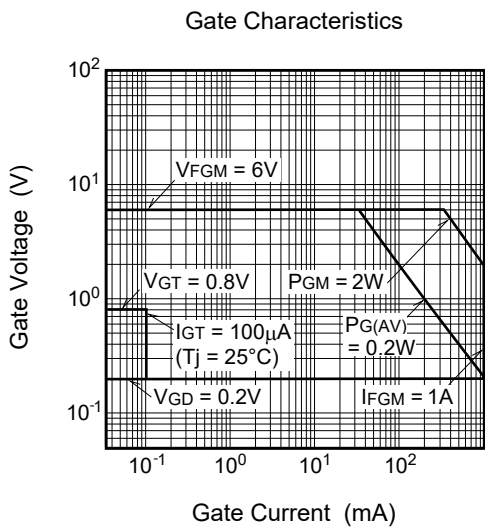
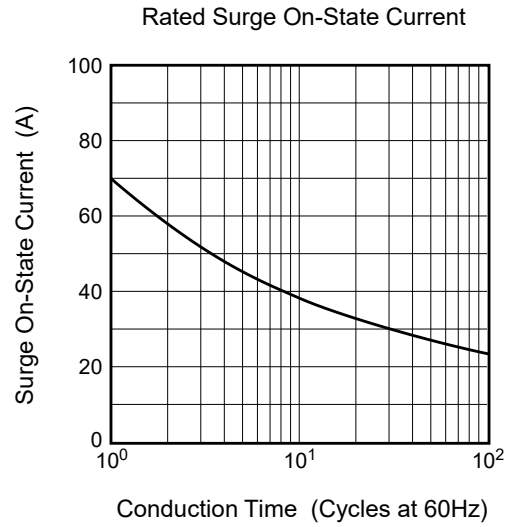
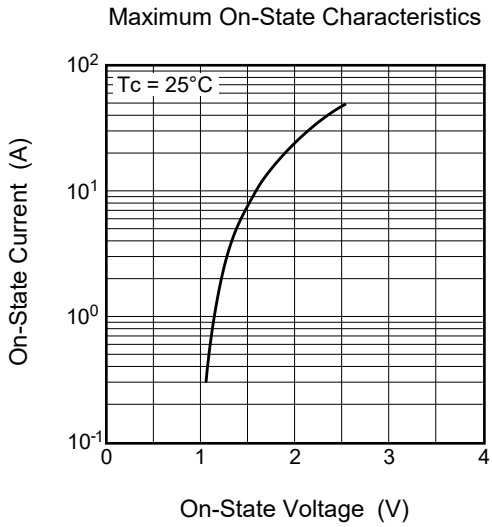
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test conditions
Repetitive peak reverse current	$I_{RRM}$	—	—	2.0	mA	$T_j = 125^\circ\text{C}$ , $V_{RRM}$ applied, $R_{GK} = 1\text{ k}\Omega$
Repetitive peak off-state current	$I_{DRM}$	—	—	2.0	mA	$T_j = 125^\circ\text{C}$ , $V_{DRM}$ applied, $R_{GK} = 1\text{ k}\Omega$
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	$T_j = 25^\circ\text{C}$ , $V_D = 6\text{ V}$ , $I_T = 0.1\text{ A}$ <sup>Note3</sup>
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	$\mu\text{A}$	$T_j = 25^\circ\text{C}$ , $V_D = 6\text{ V}$ , $I_T = 0.1\text{ A}$ <sup>Note3</sup>
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 <sup>Note2</sup>

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

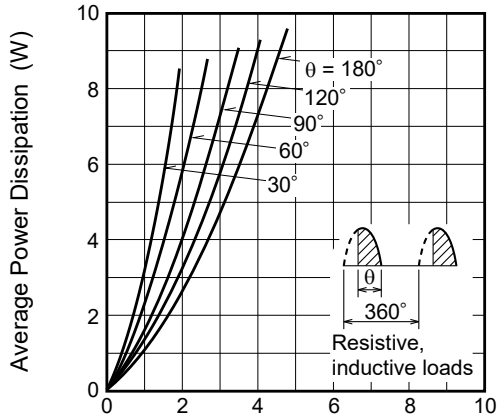
3.  $I_{GT}$ ,  $V_{GT}$  measurement circuit.



Performance Curves

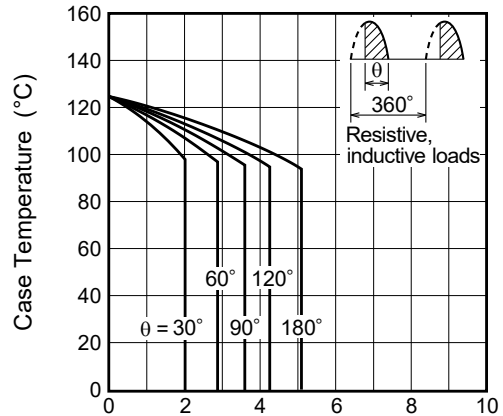


Maximum Average Power Dissipation  
(Single-Phase Half Wave)



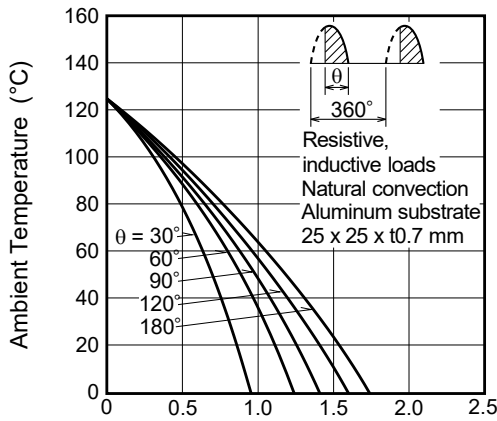
Average On-State Current (A)

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



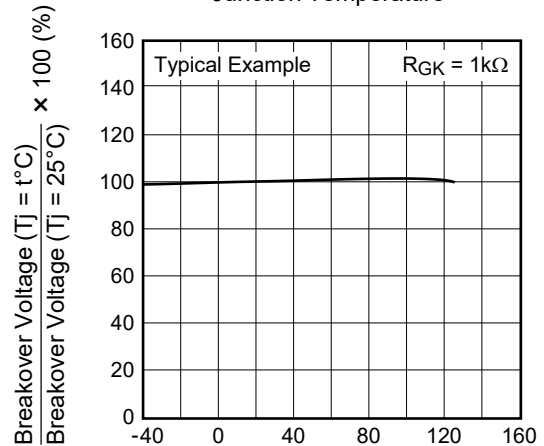
Average On-State Current (A)

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



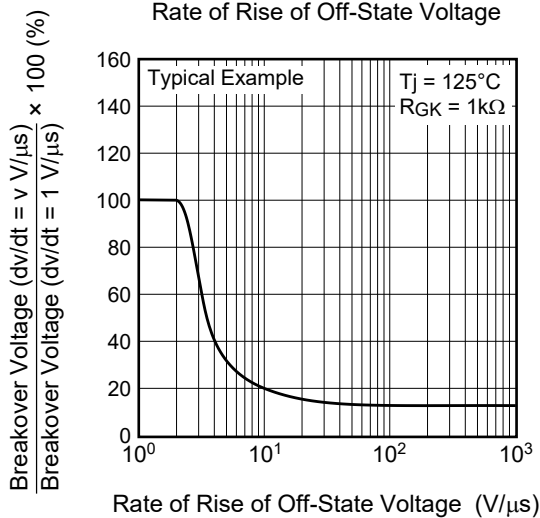
Average On-State Current (A)

Breakover Voltage vs.  
Junction Temperature



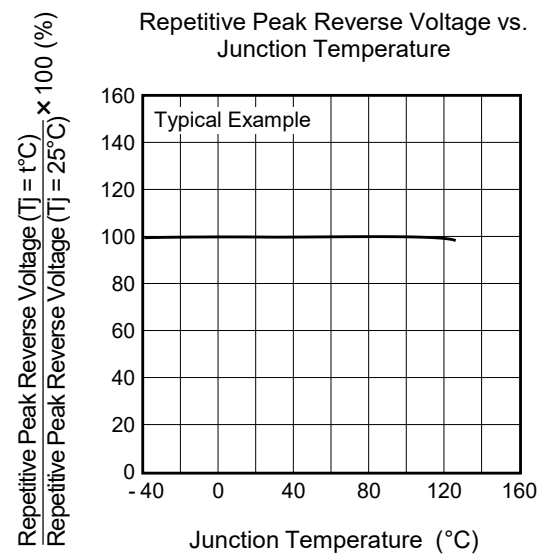
Junction Temperature ( $^\circ\text{C}$ )

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

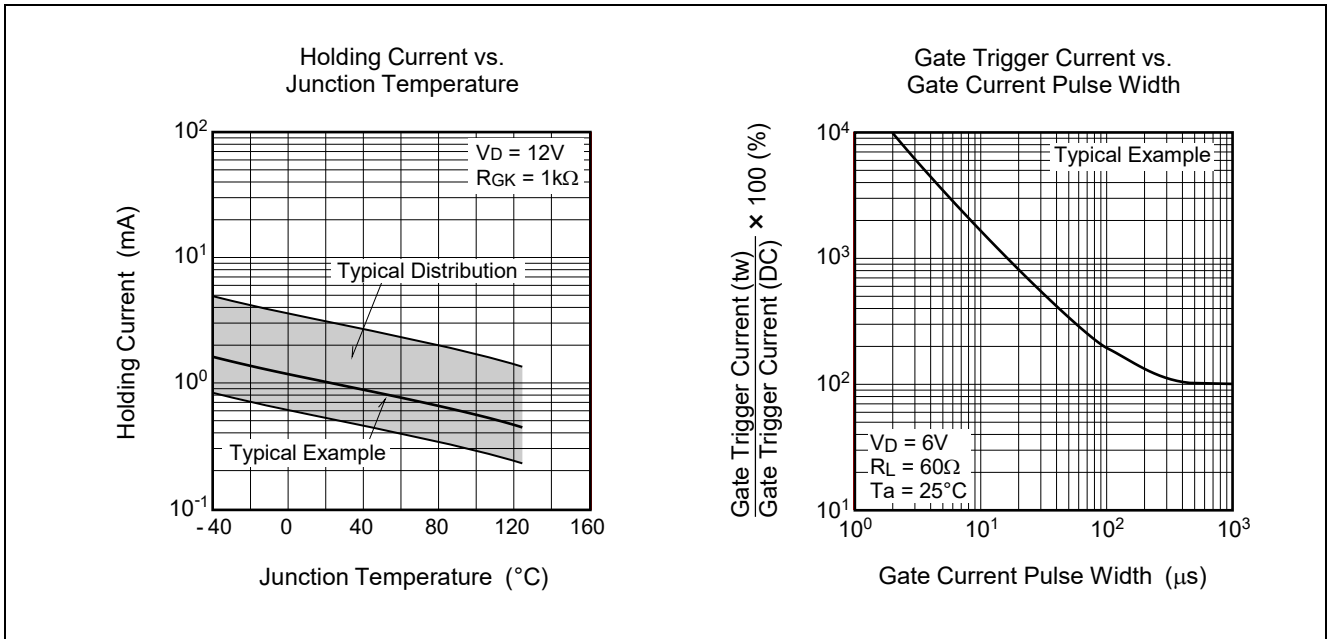


Rate of Rise of Off-State Voltage ( $V/\mu\text{s}$ )

Repetitive Peak Reverse Voltage vs.  
Junction Temperature

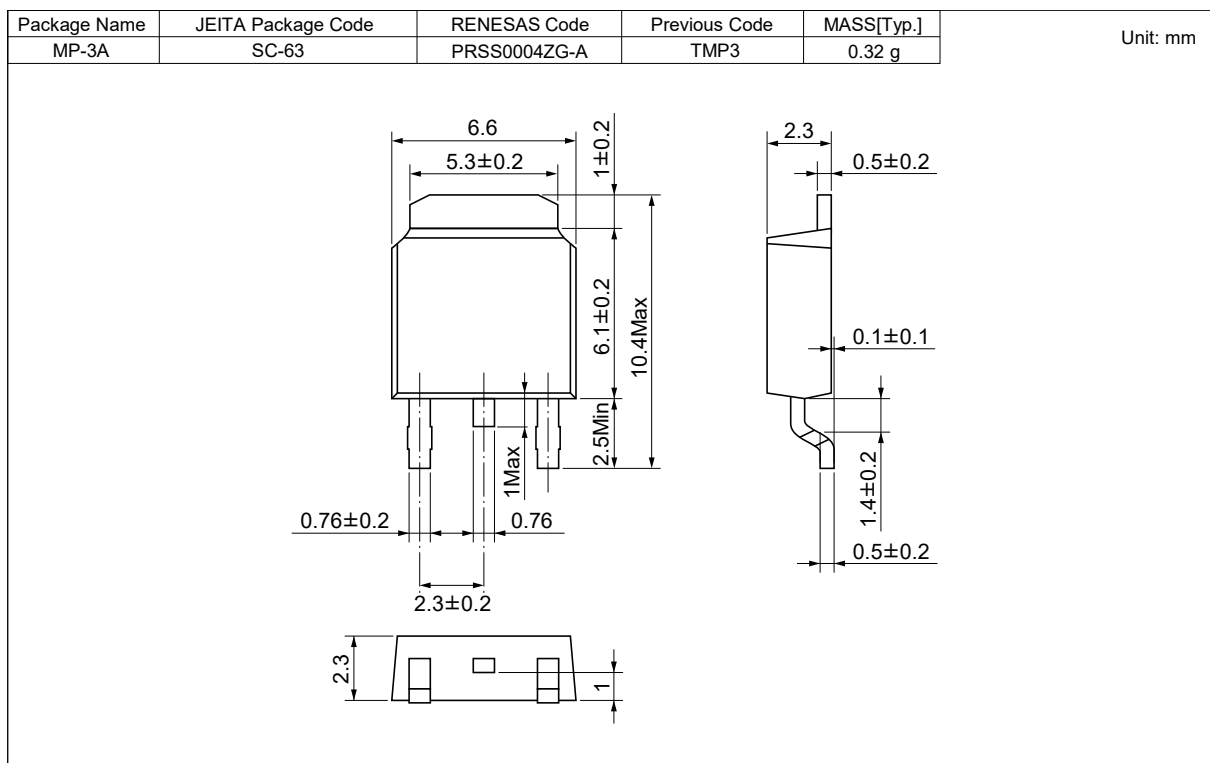


Junction Temperature ( $^\circ\text{C}$ )



### Package Dimensions

Package Name: MP-3A



### Ordering Information

Orderable Part Number	Package	Packing <sup>Note4</sup>	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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