

# CR3AS-8UE

400V - 3A - Thyristor

Medium Power Use

R07DS1116EJ0100

Rev.1.00

Sep 05, 2013

## Features

- $I_{T(AV)}$  : 3 A
- $V_{DRM}$  : 400 V
- $I_{GT}$ : 100  $\mu$ A
- Non-Insulated Type
- Planar Type

## Outline

RENESAS Package code: PRSS0004ZG-A

(Package name: MP-3A)



## Maximum Ratings

Parameter	Symbol	Voltage class	
		8	Unit
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  $R_{GK} = 1 \text{ k}\Omega$

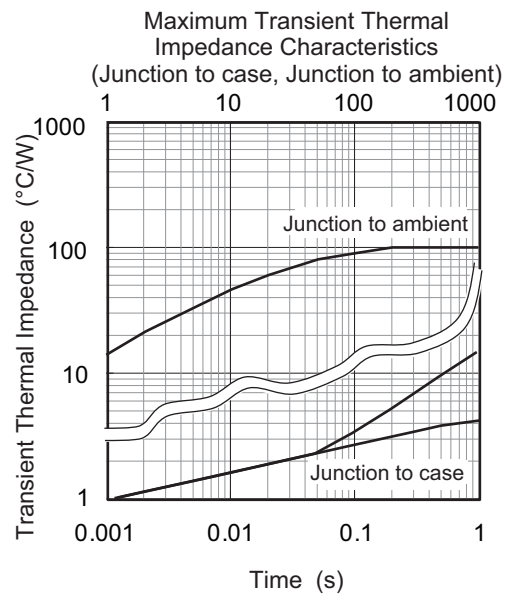
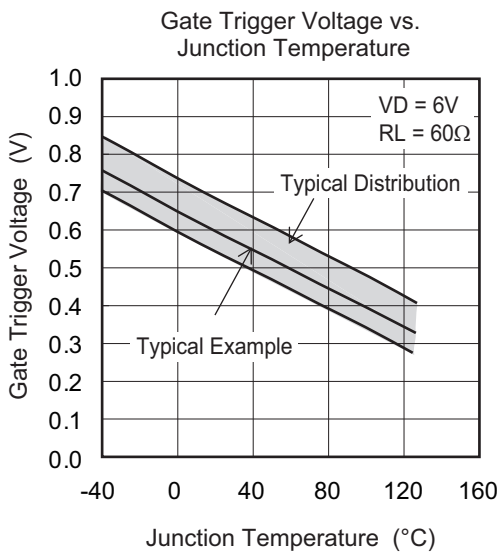
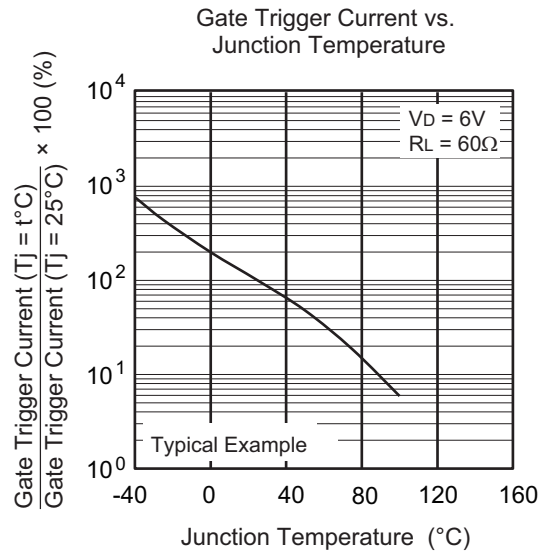
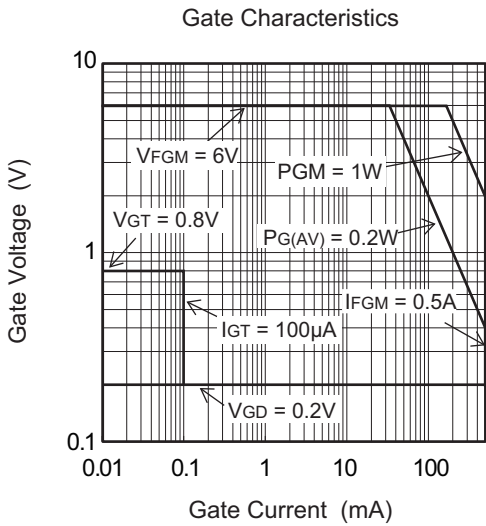
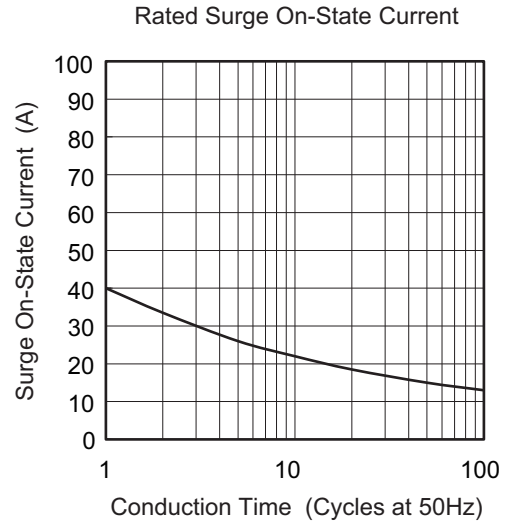
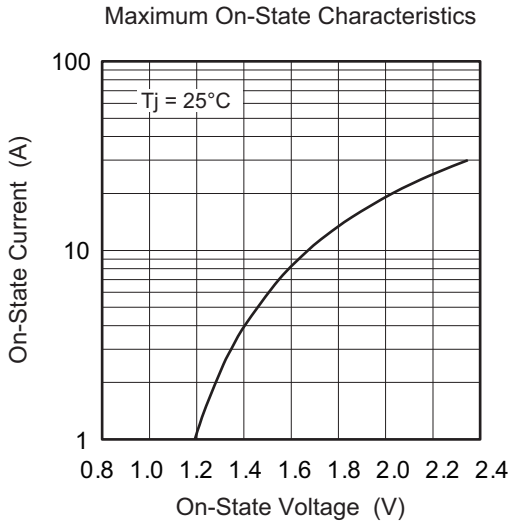
Parameter	Symbol	Ratings	Unit	Conditions
RMS on-state current	$I_{T(RMS)}$	4	A	
Average on-state current	$I_{T(AV)}$	3	A	Commercial frequency, sine half wave 180° conduction, $T_c = 100^\circ\text{C}$
Surge on-state current	$I_{TSM}$	40	A	50Hz sine half wave, 1full cycle, peak value, non-repetitive
$I^2t$ for fusing	$I^2t$	8	$\text{A}^2\text{s}$	Value corresponding to 1cycle of half wave 50Hz, surge on-state current
Peak gate power dissipation	$P_{GM}$	1	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	$I_{FGM}$	0.5	A	
Junction temperature	$T_j$	- 40 to +125	$^\circ\text{C}$	
Storage temperature	$T_{stg}$	- 40 to +125	$^\circ\text{C}$	
Mass	—	0.32	g	Typical value

## Electrical Characteristics

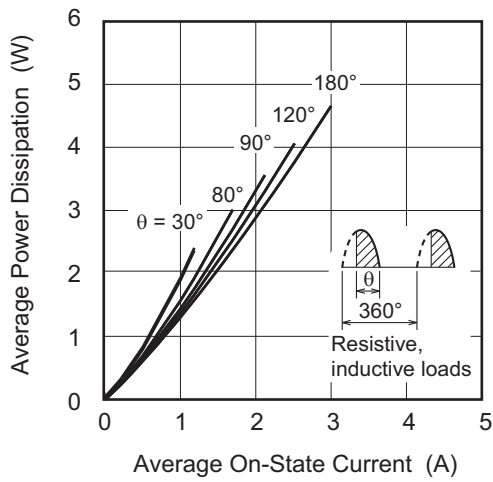
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test conditions
Repetitive peak reverse current	$I_{RRM}$	—	—	1.0	mA	$T_j = 125^\circ\text{C}$ , $V_{RRM}$ applied $R_{GK} = 1\text{ k}\Omega$
Repetitive peak off-state current	$I_{DRM}$	—	—	1.0	mA	$T_j = 125^\circ\text{C}$ , $V_{DRM}$ applied $R_{GK} = 1\text{ k}\Omega$
On-state voltage	$V_{TM}$	—	—	1.4	V	$T_j = 25^\circ\text{C}$ , $I_{TM} = 4\text{ A}$ instantaneous value
Gate trigger voltage	$V_{GT}$	—	—	0.8	V	$T_j = 25^\circ\text{C}$ , $V_D = 6\text{ V}$ , $I_T = 0.1\text{ A}$
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	$\mu\text{A}$	$T_j = 25^\circ\text{C}$ , $V_D = 6\text{ V}$ , $I_T = 0.1\text{ A}$
Holding current	$I_H$	—	—	5.0	mA	$T_j = 25^\circ\text{C}$ , $V_D = 12\text{ V}$ $R_{GK} = 1\text{ k}\Omega$
Thermal resistance	$R_{th(j-c)}$	—	—	4.0	$^\circ\text{C}/\text{W}$	Junction to case <sup>Note2</sup>

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

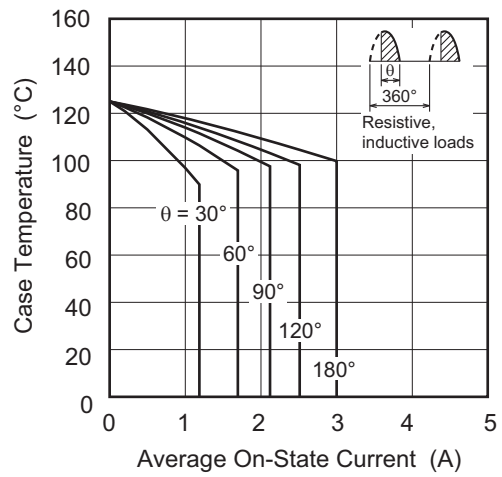
Performance Curves



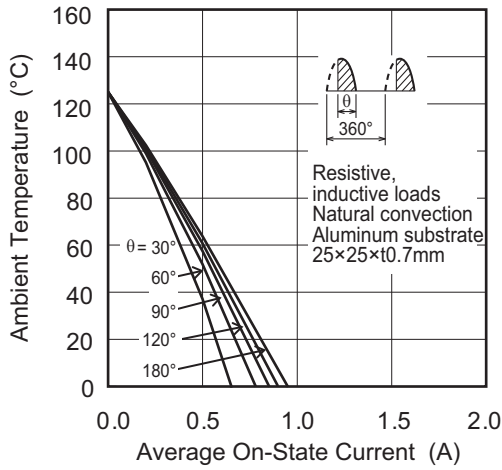
Maximum Average Power Dissipation  
(Single-Phase Half Wave)



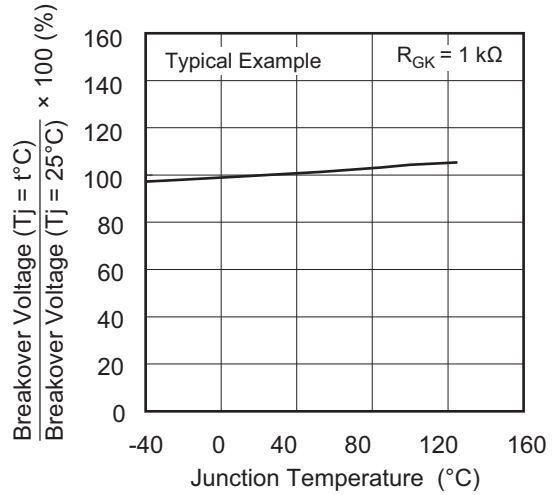
Allowable Case Temperature vs.  
Average On-State Current  
(Single-Phase Half Wave)



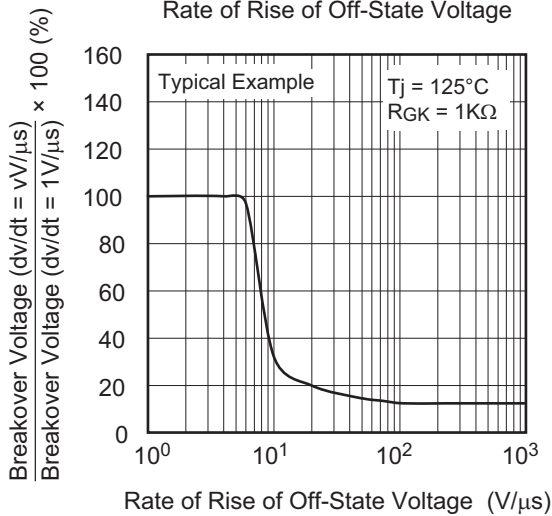
Allowable Ambient Temperature vs.  
Average On-State Current  
(Single-Phase Half Wave)



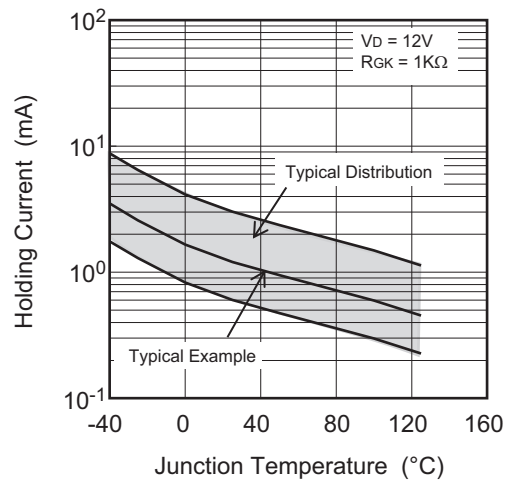
Breakover Voltage vs.  
Junction Temperature

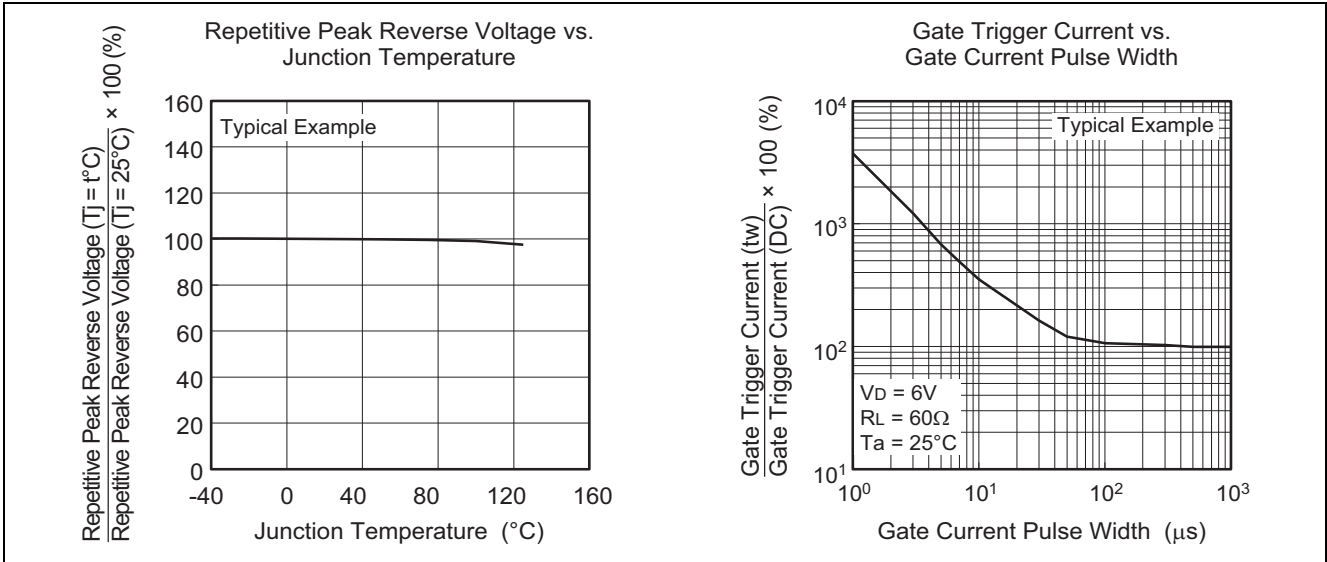


Breakover Voltage vs.  
Rate of Rise of Off-State Voltage



Holding Current vs.  
Junction Temperature





## Package dimensions

Package Name	JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]	Unit: mm
MP-3A	SC-63	PRSS0004ZG-A	TMP3	0.32g	

The drawing shows three views of the CR3AS-8UE package:

- Top View:** Shows a square body with a width of 6.6 mm and a height of 10.4 mm (maximum). The top surface has a width of 5.3 ± 0.2 mm and a height of 1 ± 0.2 mm. The bottom surface has a width of 2.3 ± 0.2 mm and a height of 1 mm. The distance between the two leads is 2.3 ± 0.2 mm, with each lead having a width of 0.76 ± 0.2 mm. The lead height is 1 mm (maximum).
- Side View:** Shows the package height of 10.4 mm (maximum). The top surface has a width of 2.3 mm and a height of 0.5 ± 0.2 mm. The bottom surface has a width of 2.3 mm and a height of 0.5 ± 0.2 mm. The distance between the two leads is 1.4 ± 0.2 mm, with each lead having a width of 0.1 ± 0.1 mm.
- Bottom View:** Shows the package width of 2.3 mm and a height of 1 mm.

## Ordering Information

Orderable Part Number	Packing	Quantity	Remark
CR3AS-8UE-#B00	Tube	75 pcs.	
CR3AS-8UE-T13#B00	Embossed Tape	3000 pcs.	Taping direction "T1"
CR3AS-8UE-T23#B00	Embossed Tape	3000 pcs.	Taping direction "T2"

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

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