

CR5AS-12A

600V - 5A - Thyristor

Medium Power Use

R07DS0332EJ0301

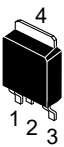
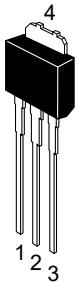
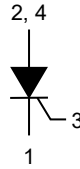
Rev.3.01

May. 10, 2019

Features

- $I_T(AV)$: 5 A
- V_{DRM} : 600 V
- I_{GT} : 100 μ A
- Planar Passivation Type
- RoHS Compliant

Outline

RENESAS Package code: PRSS0004ZG-A (Package name: MP-3A)	PRSS0004ZD-D (Package name: DPAK(L)-(3))
	
	
1. Cathode 2. Anode 3. Gate 4. Anode	

Application

Switching mode power supply, igniter, pulse generator, electric tools, etc.

Maximum Ratings

Parameter	Symbol	Voltage class	Unit
		12	
Repetitive peak reverse voltage	V_{RRM}	600	V
Non-repetitive peak reverse voltage	V_{RSM}	720	V
DC reverse voltage	$V_{R(DC)}$	480	V
Repetitive peak off-state voltage ^{Note1}	V_{DRM}	600	V
DC off-state voltage ^{Note1}	$V_{D(DC)}$	480	V

Notes: 1. With gate to cathode resistance $R_{GK}=220 \Omega$

Parameter	Symbol	Ratings	Unit	Conditions
RMS on-state current	$I_{T(RMS)}$	7.8	A	
Average on-state current	$I_{T(AV)}$	5	A	Commercial frequency, sine half wave 180°conduction, $T_a = 88^\circ\text{C}$
Surge on-state current	I_{TSM}	90	A	60 Hz sine half wave 1 full cycle, peak value, non-repetitive
I^2t for fusing	I^2t	33	A^2s	Value corresponding to 1 cycle of half wave 60 Hz, surge on-state current
Peak gate power dissipation	P_{GM}	0.5	W	
Average gate power dissipation	$P_{G(AV)}$	0.1	W	
Peak gate forward voltage	V_{FGM}	6	V	
Peak gate reverse voltage	V_{RGM}	6	V	
Peak gate forward current	I_{FGM}	0.3	A	
Junction temperature	T_j	-40 to +125	$^\circ\text{C}$	
Storage temperature	T_{stg}	-40 to +125	$^\circ\text{C}$	

Electrical Characteristics

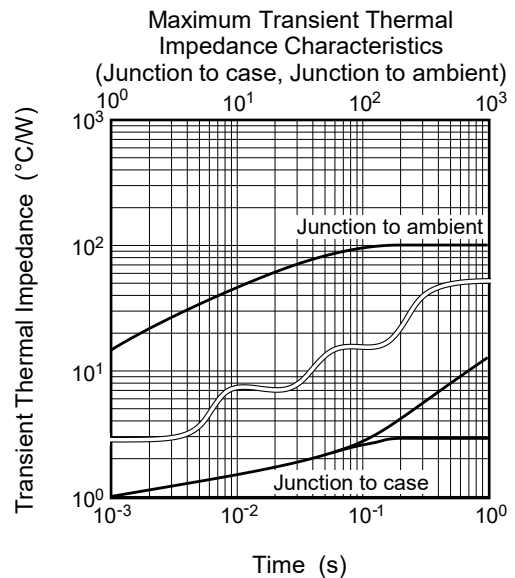
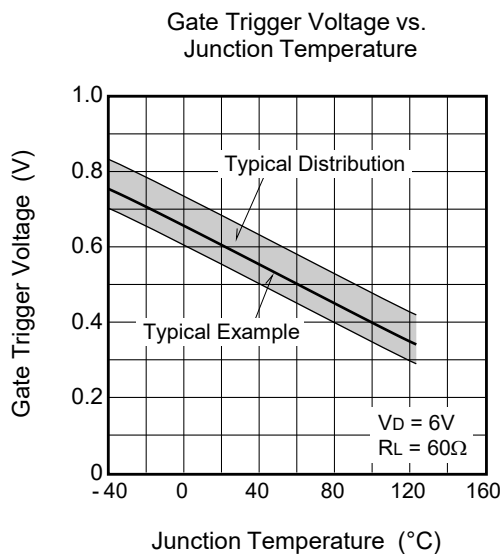
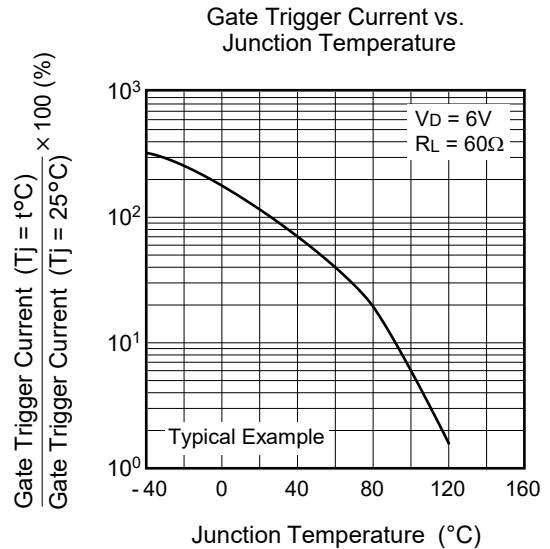
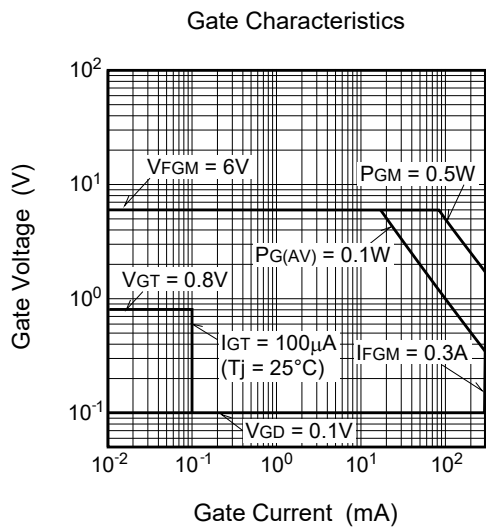
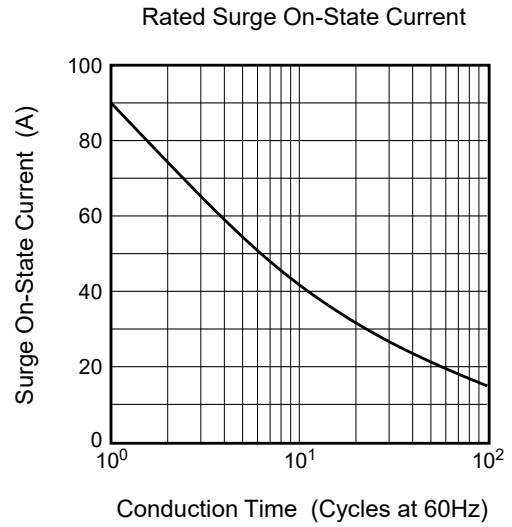
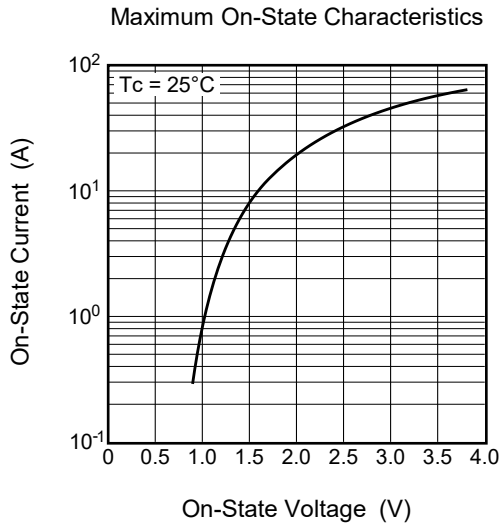
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test conditions
Repetitive peak reverse current	I_{RRM}	—	—	1.0	mA	$T_j = 125^\circ\text{C}$, V_{RRM} applied, $R_{GK} = 220\ \Omega$
Repetitive peak off-state current	I_{DRM}	—	—	1.0	mA	$T_j = 125^\circ\text{C}$, V_{DRM} applied, $R_{GK} = 220\ \Omega$
On-state voltage	V_{TM}	—	—	1.8	V	$T_c = 25^\circ\text{C}$, $I_{TM} = 15\ \text{A}$, 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}	0.1	—	—	V	$T_j = 125^\circ\text{C}$, $V_D = 1/2 V_{DRM}$, $R_{GK} = 220\ \Omega$
Gate trigger current	I_{GT}	1 ^{Note3}	—	100 ^{Note3}	μA	$T_j = 25^\circ\text{C}$, $V_D = 6\ \text{V}$, $I_T = 0.1\ \text{A}$
Holding current	I_H	—	3.5	—	mA	$T_j = 25^\circ\text{C}$, $V_D = 12\ \text{V}$, $R_{GK} = 220\ \Omega$
Thermal resistance	$R_{th(j-c)}$	—	—	3.0	$^\circ\text{C}/\text{W}$	Junction to case ^{Note2}

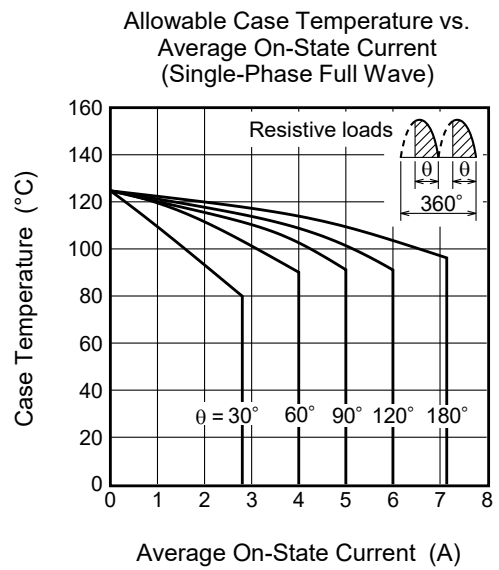
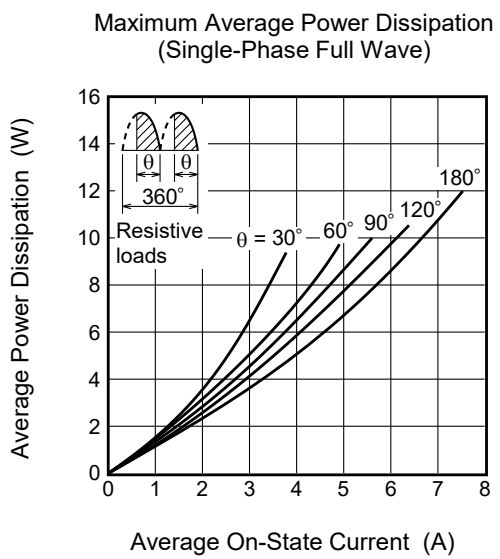
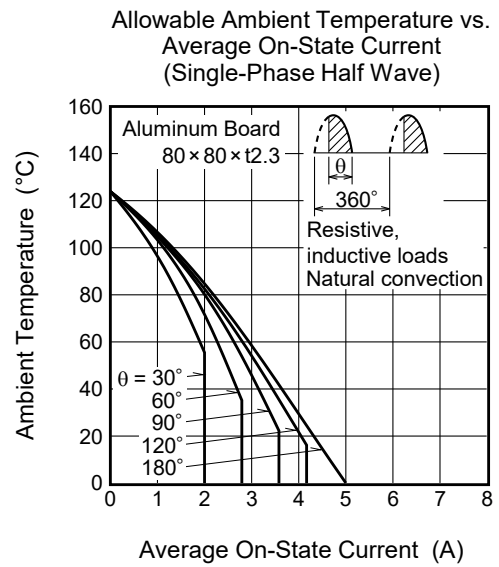
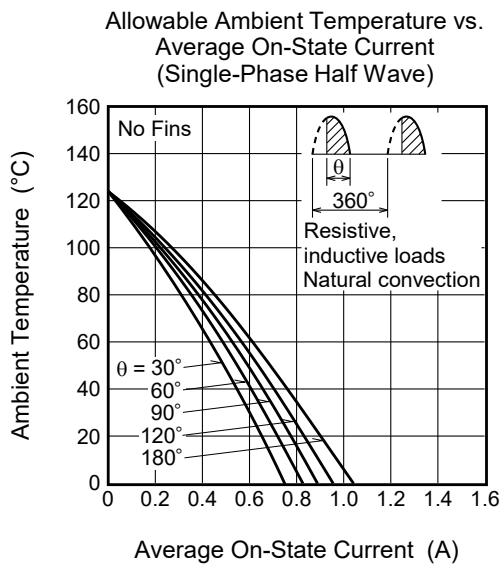
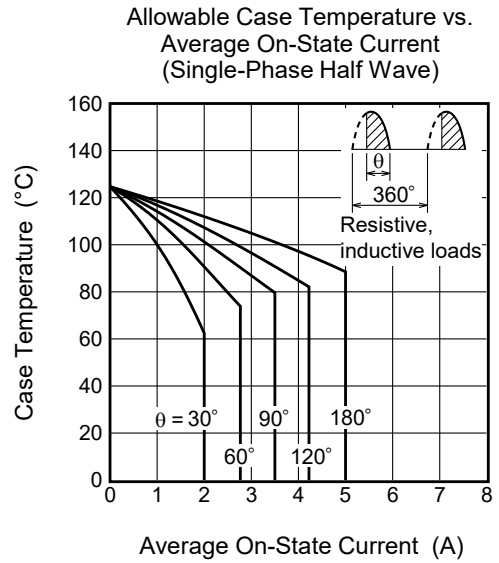
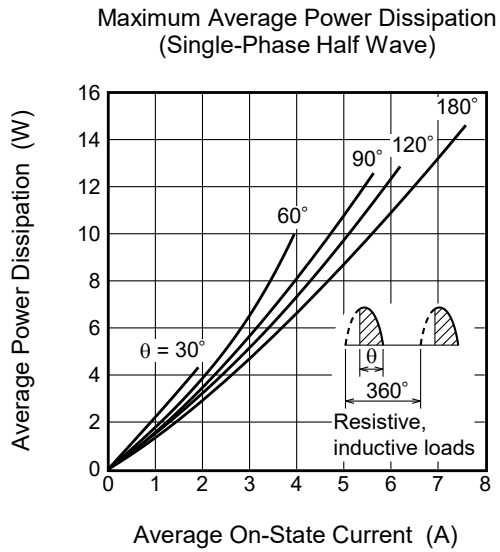
Notes: 2. The measurement point for case temperature is at anode tab.

3. If special values of I_{GT} are required, please refer to the ordering information.

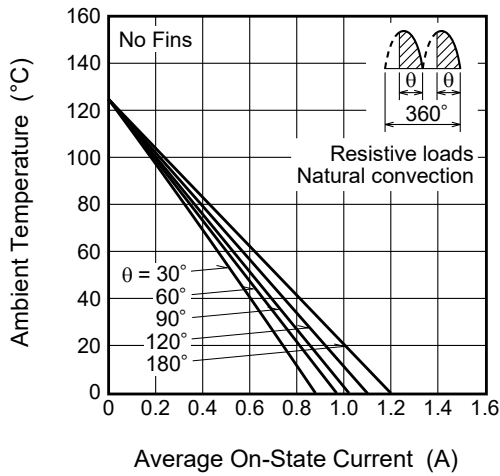
The above values do not include the current flowing through the $220\ \Omega$ resistance between the gate and cathode.

Performance Curves

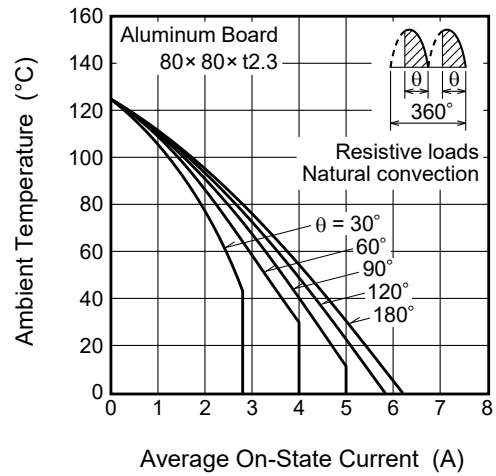




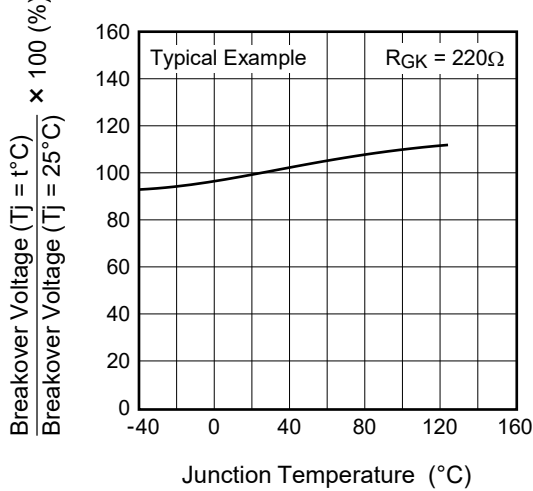
Allowable Ambient Temperature vs. Average On-State Current (Single-Phase Full Wave)



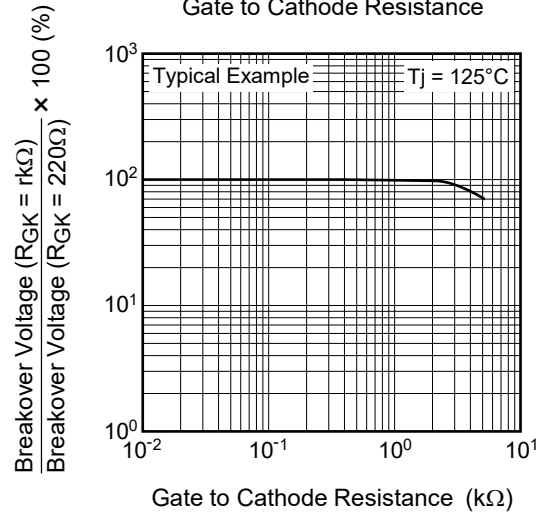
Allowable Ambient Temperature vs. Average On-State Current (Single-Phase Full Wave)



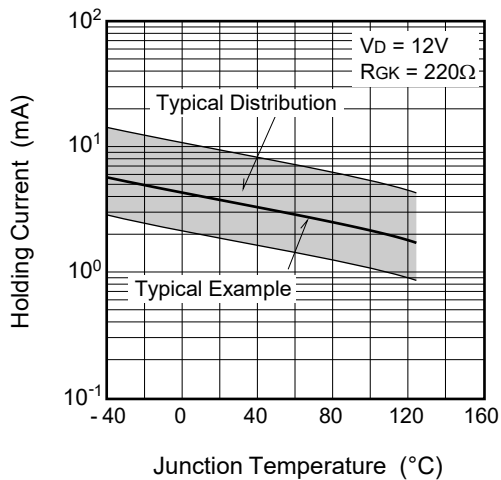
Breakover Voltage vs. Junction Temperature



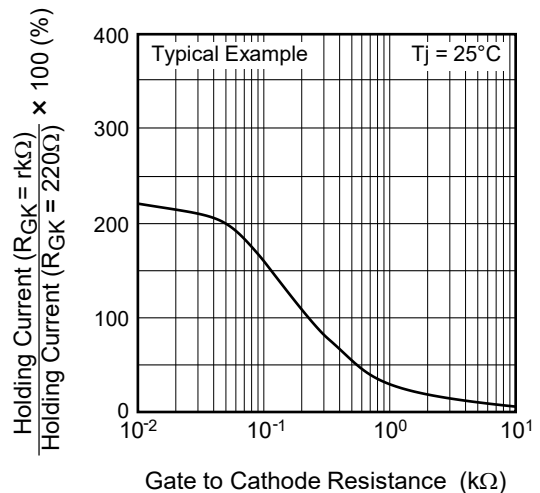
Breakover Voltage vs. Gate to Cathode Resistance

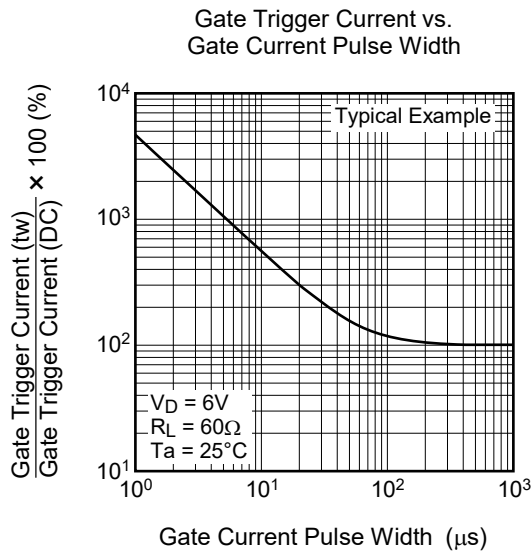
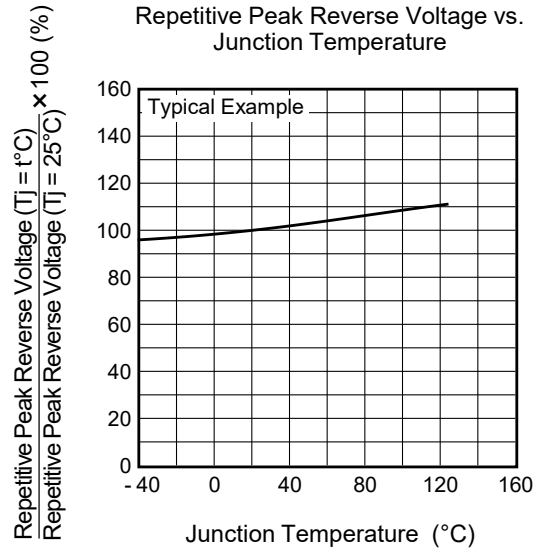
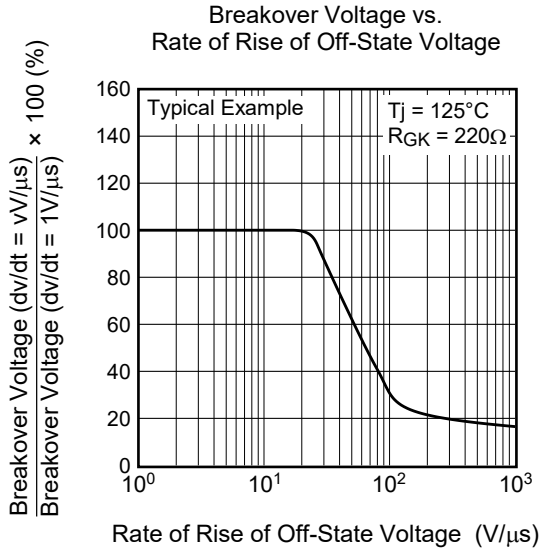


Holding Current vs. Junction Temperature



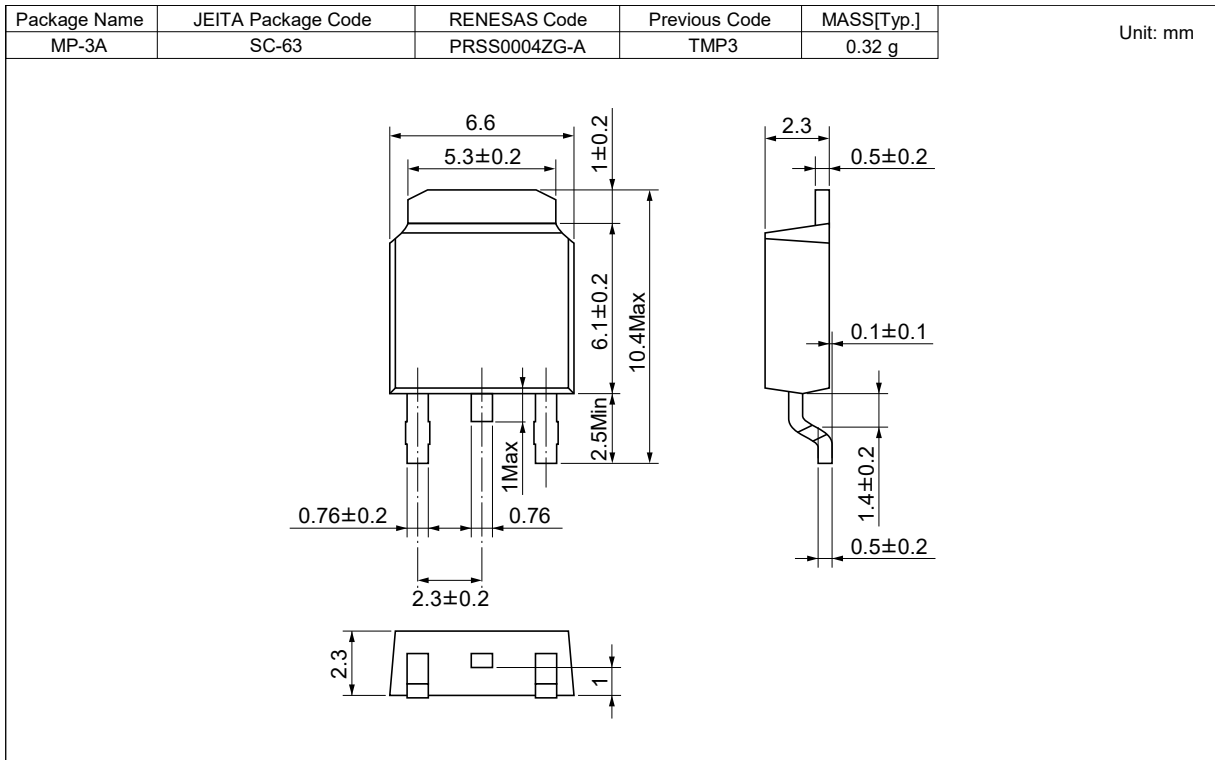
Holding Current vs. Gate to Cathode Resistance



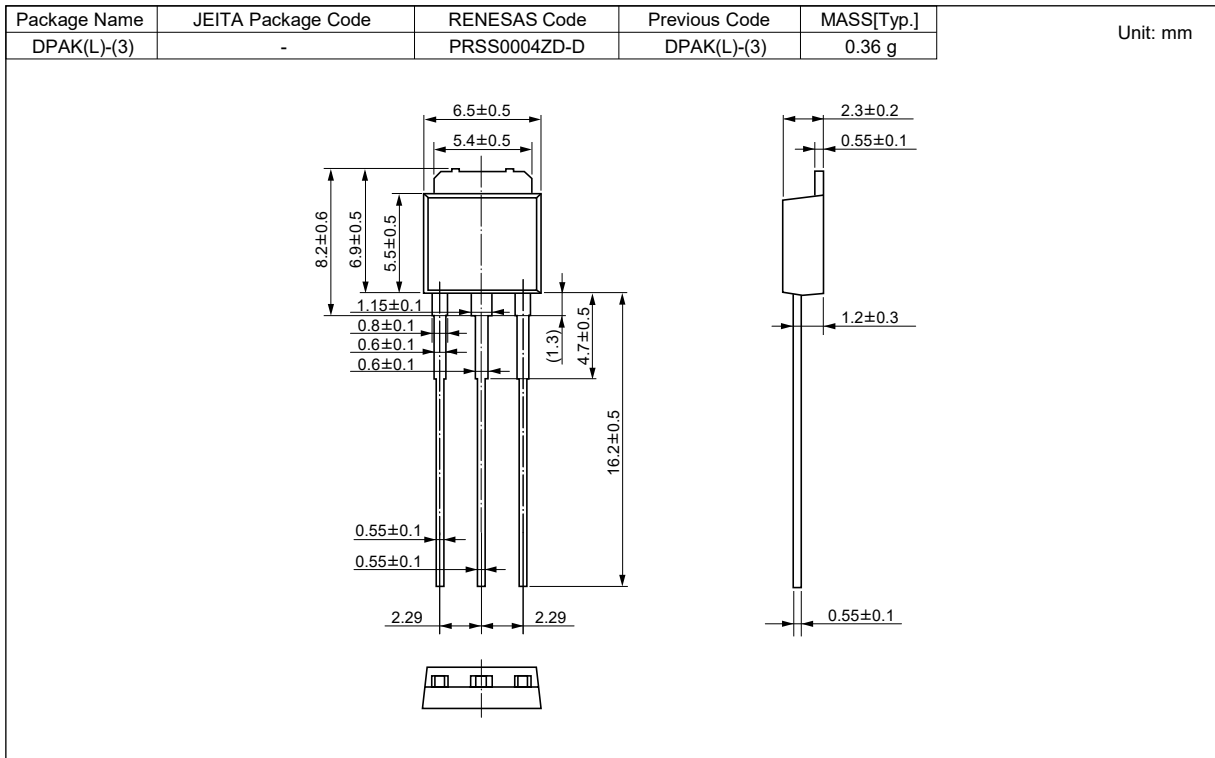


Package Dimensions

Package Name: MP-3A



Package Name: DPAK(L)-(3)



Ordering Information

Orderable Part Number	Package	Packing ^{Note4}	Quantity	Remark	I _{GT} ^{Note3}
CR5AS-12A-T13#B01	MP-3A	Embossed tape	3000 pcs.		1-100 μ A
CR5AS-12A-T13#C04	MP-3A	Embossed tape	3000 pcs.		20-50 μ A
CR5AS-12A-T13#C05	MP-3A	Embossed tape	3000 pcs.		20-100 μ A
CR5AS-12A#B01	MP-3A	Tube	75 pcs.	Tube packing is to be abolished.	1-100 μ A
CR5AS-12A#C04	MP-3A	Tube	75 pcs.	Tube packing is to be abolished.	20-50 μ A
CR5AS-12A#C05	MP-3A	Tube	75 pcs.	Tube packing is to be abolished.	20-100 μ A
CR5AS-12A-A1#B00	DPAK(L)-(3)	Tube	80 pcs.		1-100 μ A
CR5AS-12A-BA1#B00	DPAK(L)-(3)	Tube	80 pcs.		20-50 μ A
CR5AS-12A-EA1#B00	DPAK(L)-(3)	Tube	80 pcs.		20-100 μ A

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

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Renesas Electronics Corporation

TOYOSU FORESIA, 3-2-24 Toyosu, Koto-ku, Tokyo 135-0061, Japan

Renesas Electronics America Inc.

1001 Murphy Ranch Road, Milpitas, CA 95035, U.S.A.
Tel: +1-408-432-8888, Fax: +1-408-434-5351

Renesas Electronics Canada Limited

9251 Yonge Street, Suite 8309 Richmond Hill, Ontario Canada L4C 9T3
Tel: +1-905-237-2004

Renesas Electronics Europe Limited

Dukes Meadow, Millboard Road, Bourne End, Buckinghamshire, SL8 5FH, U.K.
Tel: +44-1628-651-700

Renesas Electronics Europe GmbH

Arcadiastrasse 10, 40472 Düsseldorf, Germany
Tel: +49-211-6503-0, Fax: +49-211-6503-1327

Renesas Electronics (China) Co., Ltd.

Room 1709 Quantum Plaza, No.27 ZhichunLu, Haidian District, Beijing, 100191 P. R. China
Tel: +86-10-8235-1155, Fax: +86-10-8235-7679

Renesas Electronics (Shanghai) Co., Ltd.

Unit 301, Tower A, Central Towers, 555 Langao Road, Putuo District, Shanghai, 200333 P. R. China
Tel: +86-21-2226-0888, Fax: +86-21-2226-0999

Renesas Electronics Hong Kong Limited

Unit 1601-1611, 16/F., Tower 2, Grand Century Place, 193 Prince Edward Road West, Mongkok, Kowloon, Hong Kong
Tel: +852-2265-6688, Fax: +852 2886-9022

Renesas Electronics Taiwan Co., Ltd.

13F, No. 363, Fu Shing North Road, Taipei 10543, Taiwan
Tel: +886-2-8175-9600, Fax: +886 2-8175-9670

Renesas Electronics Singapore Pte. Ltd.

80 Bendemeer Road, Unit #06-02 Hyflux Innovation Centre, Singapore 339949
Tel: +65-6213-0200, Fax: +65-6213-0300

Renesas Electronics Malaysia Sdn.Bhd.

Unit 1207, Block B, Menara Amcorp, Amcorp Trade Centre, No. 18, Jln Persiaran Barat, 46050 Petaling Jaya, Selangor Darul Ehsan, Malaysia
Tel: +60-3-7955-9390, Fax: +60-3-7955-9510

Renesas Electronics India Pvt. Ltd.

No.777C, 100 Feet Road, HAL 2nd Stage, Indiranagar, Bangalore 560 038, India
Tel: +91-80-67208700, Fax: +91-80-67208777

Renesas Electronics Korea Co., Ltd.

17F, KAMCO Yangjae Tower, 262, Gangnam-daero, Gangnam-gu, Seoul, 06265 Korea
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