

CR12CS-16B

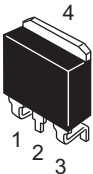
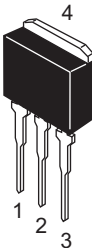
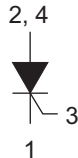

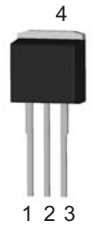
800V-12A-Thyristor
Medium Power Use

R07DS0414EJ0200
Rev.2.00
Oct 19, 2015

Features

- $I_{T(AV)}$: 12 A
- V_{DRM} : 800 V
- I_{GT} : 30 mA
- Non-Insulated Type
- Planar Type

Outline

<p>RENESAS Package code : PRSS0004AE-B (Package name: LDKPAK (S)-(1))</p> 	<p>RENESAS Package code : PRSS0004AE-A (Package name: LDKPAK (L))</p> 	 <p>1. Cathode 2. Anode 3. Gate 4. Anode</p>
<p>RENESAS Package code: PRSS0004AS-A (Package name: TO-263)</p> 	<p>RENESAS Package code: PRSS0004AR-A (Package name: TO-262)</p> 	

Applications

Switching mode power supply, motor control, heater control, and other general purpose control applications

Maximum Ratings

Parameter	Symbol	Voltage class	Unit
		16	
Repetitive peak reverse voltage	V_{RRM}	800	V
Non-repetitive peak reverse voltage	V_{RSM}	960	V
DC reverse voltage	$V_{R(DC)}$	640	V
Repetitive peak off-state voltage	V_{DRM}	800	V
DC off-state voltage	$V_{D(DC)}$	640	V

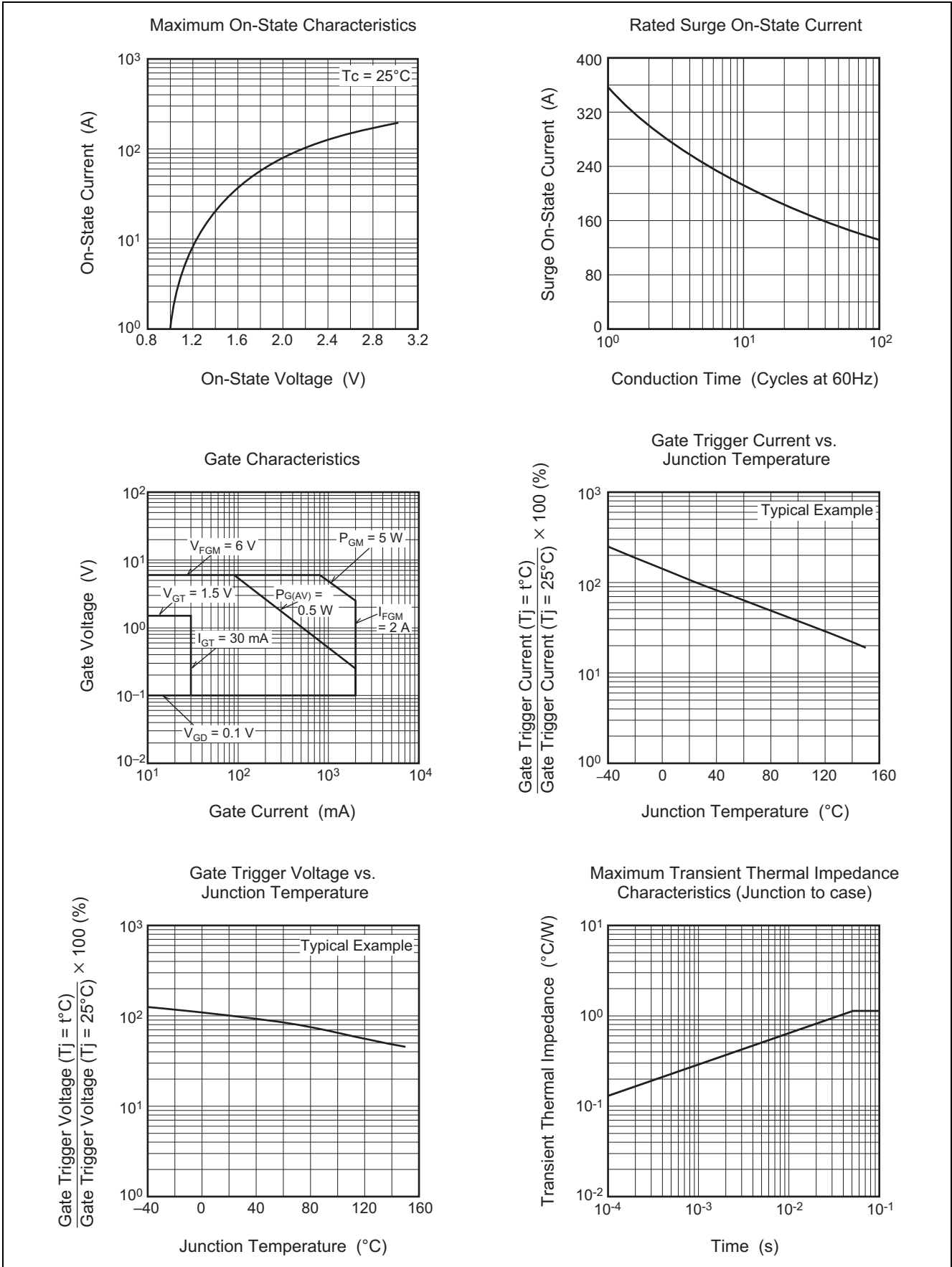
Parameter	Symbol	Ratings	Unit	Conditions
RMS on-state current	$I_{T(RMS)}$	18.8	A	
Average on-state current	$I_{T(AV)}$	12	A	Commercial frequency, sine half wave 180° conduction, $T_c = 116^\circ\text{C}$ ^{Note1}
Surge on-state current	I_{TSM}	360	A	60Hz sine half wave 1 full cycle, peak value, non-repetitive
I^2t for fusing	I^2t	544	A ² s	Value corresponding to 1 cycle of half wave 60Hz, surge on-state current
Peak gate power dissipation	P_{GM}	5	W	
Average gate power dissipation	$P_{G(AV)}$	0.5	W	
Peak gate forward voltage	V_{FGM}	6	V	
Peak gate reverse voltage	V_{RGM}	10	V	
Peak gate forward current	I_{FGM}	2	A	
Junction temperature	T_j	- 40 to +150	°C	
Storage temperature	T_{stg}	- 40 to +150	°C	
Mass	—	1.3	g	LDBPAK(S)-(1) , Typical value
		1.4	g	LDBPAK(L) , Typical value

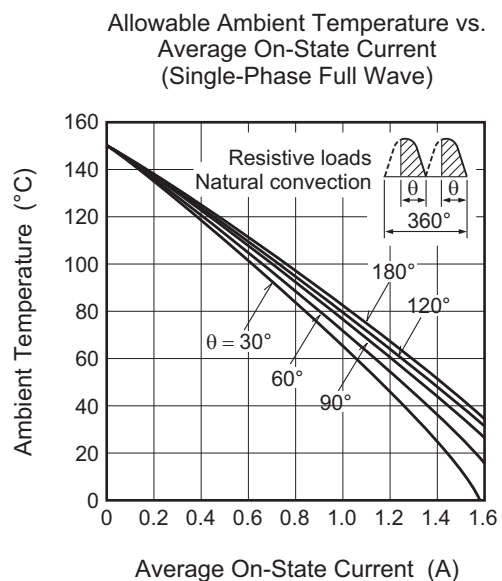
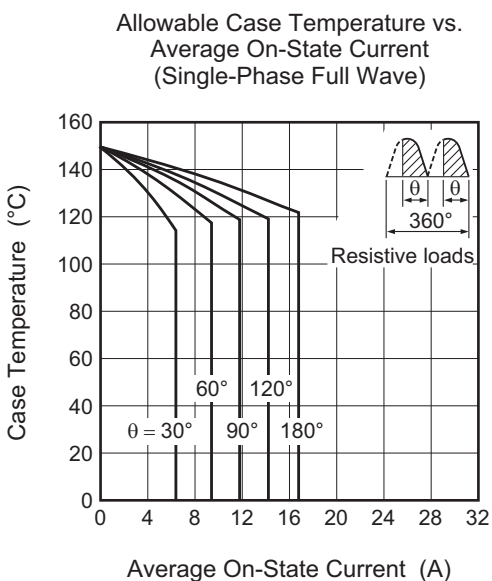
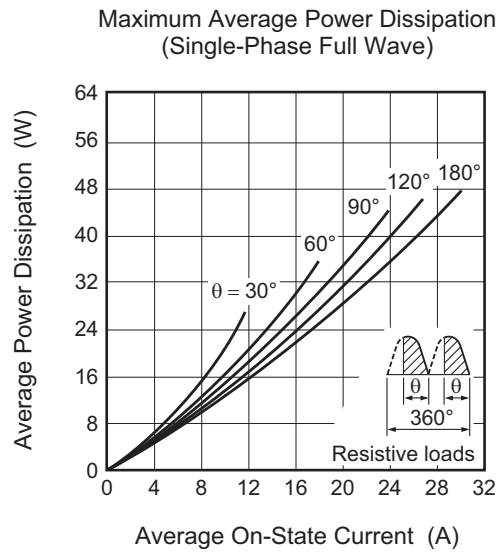
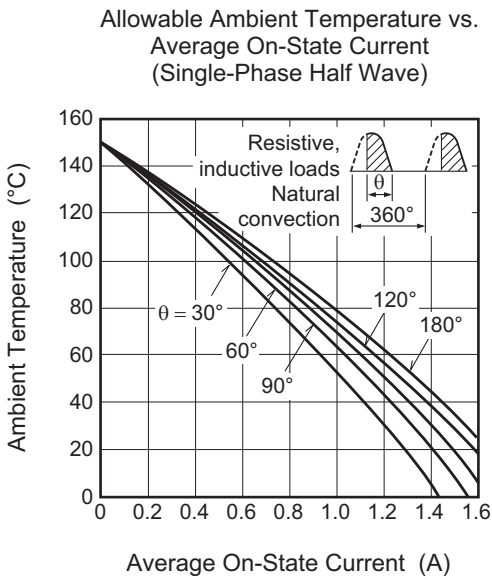
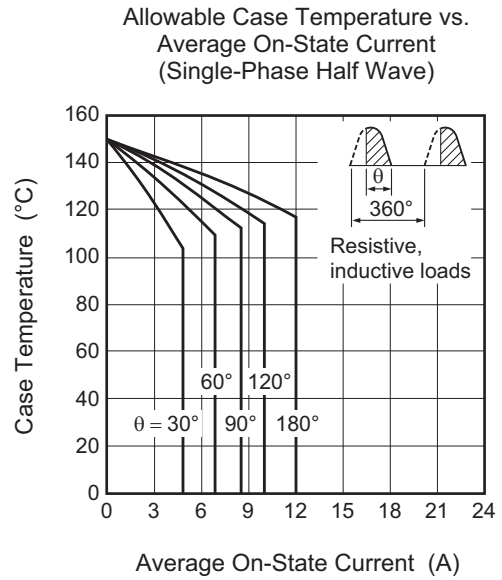
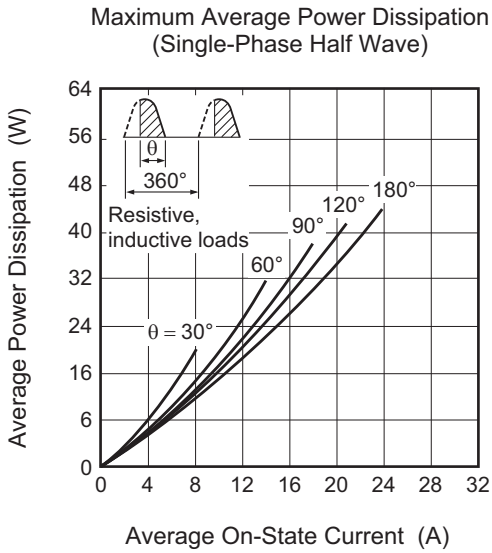
Electrical Characteristics

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,
		—	—	5.0	mA	$T_j = 150^\circ\text{C}$, V_{RRM} applied,
Repetitive peak off-state current	I_{DRM}	—	—	2.0	mA	$T_j = 125^\circ\text{C}$, V_{DRM} applied,
		—	—	5.0	mA	$T_j = 150^\circ\text{C}$, V_{DRM} applied,
On-state voltage	V_{TM}	—	—	1.6	V	$T_c = 25^\circ\text{C}$, $I_{TM} = 40\text{ A}$, Instantaneous value
Gate trigger voltage	V_{GT}	—	—	1.5	V	$T_j = 25^\circ\text{C}$, $V_D = 6\text{ V}$, $I_T = 1\text{ A}$,
Gate non-trigger voltage	V_{GD}	0.2	—	—	V	$T_j = 125^\circ\text{C}$, $V_D = 1/2 V_{DRM}$,
		0.1	—	—	V	$T_j = 150^\circ\text{C}$, $V_D = 1/2 V_{DRM}$,
Gate trigger current	I_{GT}	—	—	30	mA	$T_j = 25^\circ\text{C}$, $V_D = 6\text{ V}$, $I_T = 1\text{ A}$,
Thermal resistance	$R_{th(j-c)}$	—	—	1.2	°C/W	Junction to case ^{Note1}

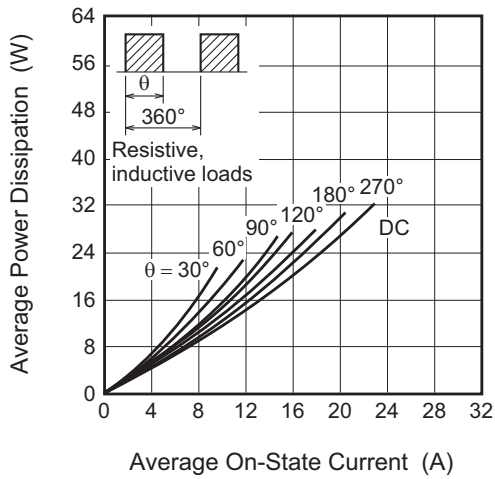
Notes: 1. Case temperature is measured on the anode tab

Performance Curves

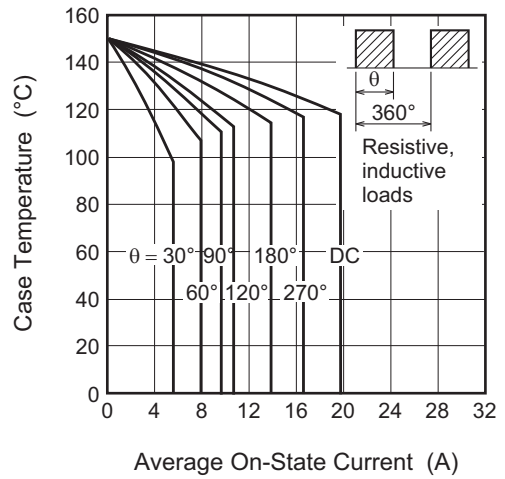




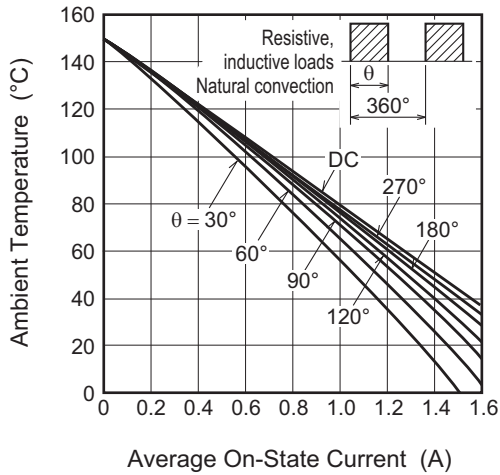
Maximum Average Power Dissipation (Rectangular Wave)



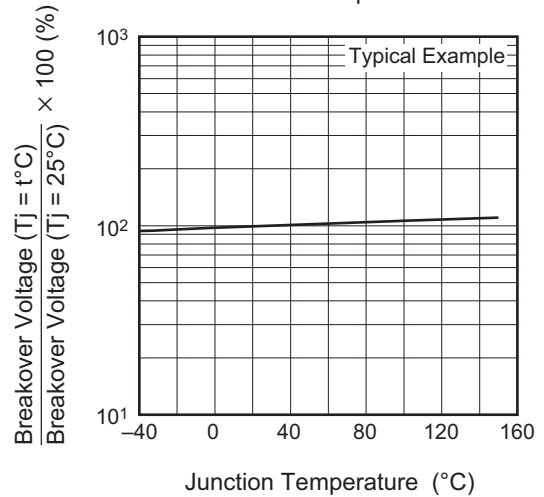
Allowable Case Temperature vs. Average On-State Current (Rectangular Wave)



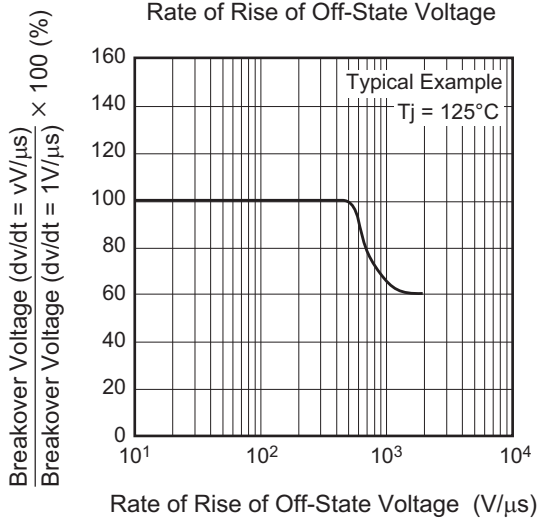
Allowable Ambient Temperature vs. Average On-State Current (Rectangular Wave)



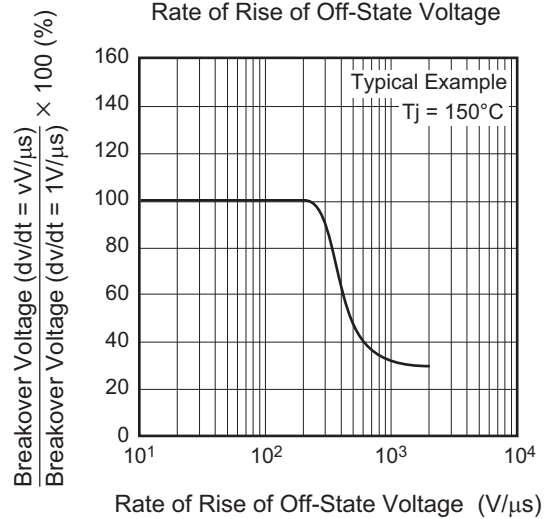
Breakover Voltage vs. Junction Temperature

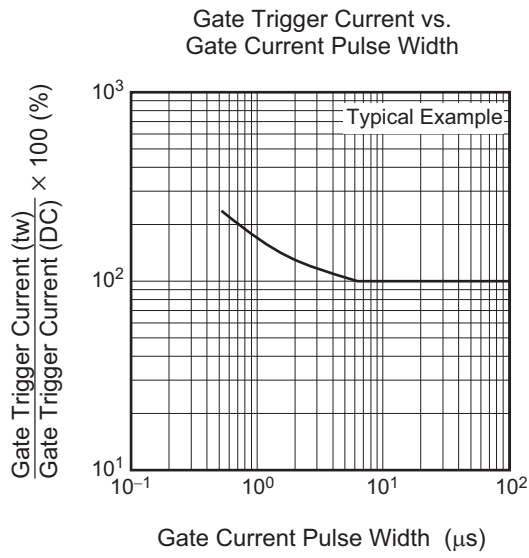
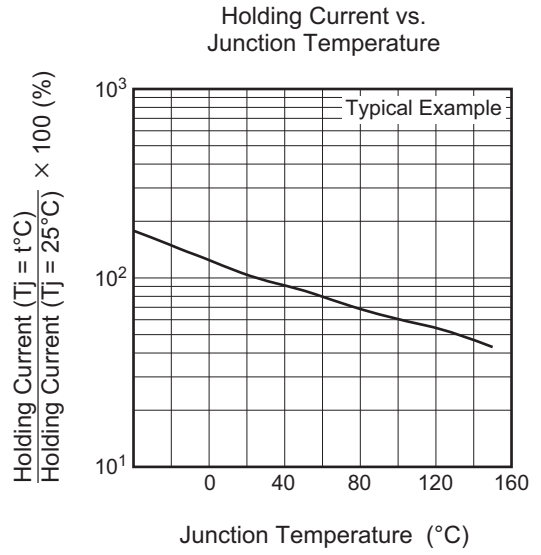
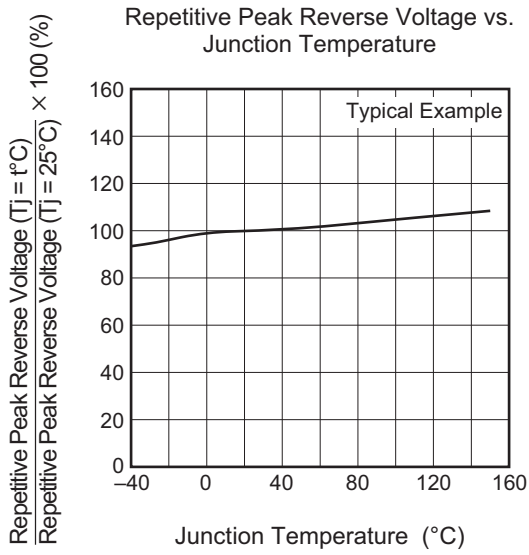


Breakover Voltage vs. Rate of Rise of Off-State Voltage



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

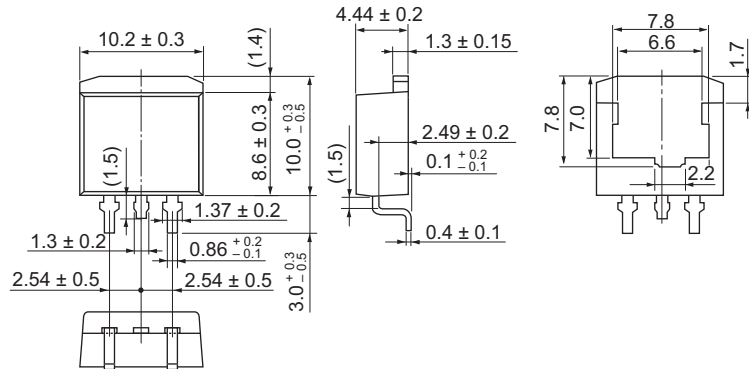




Package Dimensions

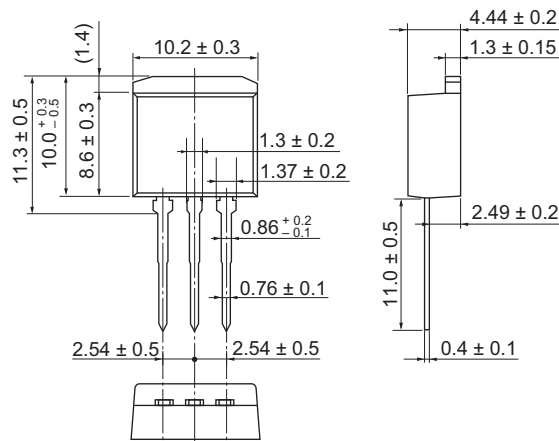
Package Name	JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]
LDBPAK(S)-(1)	SC-83	PRSS0004AE-B	LDBPAK(S)-(1) / LDBPAK(S)-(1)V	1.30g

Unit: mm



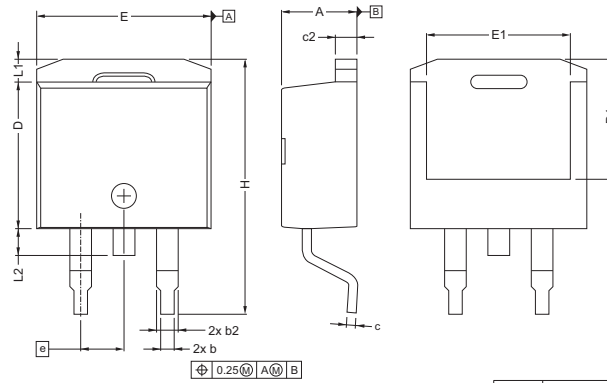
Package Name	JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]
LDBPAK(L)	—	PRSS0004AE-A	LDBPAK(L) / LDBPAK(L)V	1.40g

Unit: mm



Package Name	JEITA Package Code	RENESAS Code	Previous Code	MASS (Typ) [g]
TO-263	—	PRSS0004AS-A	TO-263A	1.4

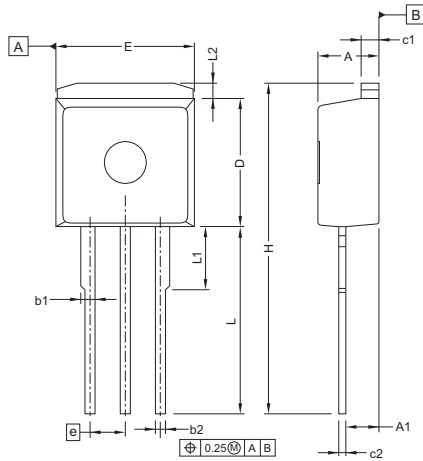
Unit: mm



Reference Symbol	Dimensions in millimeters		
	Min	Nom	Max
A	4.20	—	4.60
A ₁	0.00	—	0.255
b	0.65	—	0.95
b ₂	1.12	—	1.42
c	0.381	—	0.737
c ₂	1.15	—	1.40
D	8.50	—	9.10
D ₁	6.90	—	7.50
E	10.05	—	10.65
E ₁	8.00	—	8.80
e	2.54 BSC		
H	15.00	—	15.60
L	1.90	—	2.50
L ₁	—	—	1.70
L ₂	—	—	1.78
L ₃	0.25 BSC		
L ₄	4.78	—	5.28

Package Name	JEITA Package Code	RENESAS Code	Previous Code	MASS (Typ) [g]
TO-262	—	PRSS0004AR-A	TO-262A	1.4

Unit: mm



Reference Symbol	Dimensions in millimeters		
	Min	Nom	Max
A	4.200	4.400	4.600
A ₁	2.050	2.400	2.750
b ₁	0.635	1.050	1.400
b ₂	0.640	0.750	0.880
c ₁	1.140	1.300	1.400
c ₂	0.330	0.500	0.600
D	8.500	9.250	9.650
E	9.650	10.000	10.370
e	2.54 BSC		
H	—	23.850	—
L	12.900	13.500	14.100
L ₁	—	4.550	4.800
L ₂	—	1.100	1.727

Ordering Information

Orderable Part Number	Package	Packing	Quantity	Remark
CR12CS-16B#BH0	TO-263	Tube	50 pcs.	
CR12CS-16B-T1#BH0	TO-263	Embossed Tape	800 pcs.	Taping direction "T1"
CR12CS-16B-T2#BH0	TO-263	Embossed Tape	800 pcs.	Taping direction "T2"
CR12CS-16B-A1#BH0	TO-262	Tube	50 pcs.	
CR12CS-16B#B00	LDBAK(S)-(1)	Tube	50 pcs.	Not Recommend for New Design
CR12CS-16B-T11#B00	LDBAK(S)-(1)	Embossed Tape	1000 pcs.	Not Recommend for New Design
CR12CS-16B-T21#B00	LDBAK(S)-(1)	Embossed Tape	1000 pcs.	Not Recommend for New Design
CR12CS-16B-A1#B00	LDBAK(L)	Tube	50 pcs.	Not Recommend for New Design

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

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Renesas Electronics America Inc.
2801 Scott Boulevard Santa Clara, CA 95050-2549, U.S.A.
Tel: +1-408-588-6000, Fax: +1-408-588-6130

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: +44-1628-585-100, Fax: +44-1628-585-900

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, P. R. China 200333
Tel: +86-21-2226-0888, Fax: +86-21-2226-0899

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: +852-2265-8688, 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, Jin 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 II Stage, Indiranagar, Bangalore, India
Tel: +91-80-67208700, Fax: +91-80-67208777

Renesas Electronics Korea Co., Ltd.
12F., 234 Teheran-ro, Gangnam-Gu, Seoul, 135-080, Korea
Tel: +82-2-558-3737, Fax: +82-2-558-5141