

RJH60V1BDPE

600 V - 8 A -绝缘栅双极晶体管

应用: 逆变器

R07DS0743CJ0200

修订版本 2.00

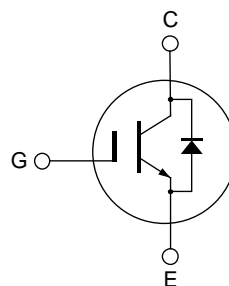
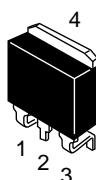
Jul 26, 2012

特点

- 短路承受时间 (6 μ s 典型值)
- 低集电极/发射极饱和电压
 $V_{CE(sat)} = 1.6$ V 典型值 ($I_C = 8$ A, $V_{GE} = 15$ V, $T_a = 25^\circ\text{C}$)
- 内置快速恢复二极管 (25 ns 典型值) 于一封装
- 沟槽栅与薄晶圆技术
- 快速开关时间
 $t_f = 110$ ns 典型值 ($V_{CC} = 300$ V, $V_{GE} = 15$ V, $I_C = 8$ A, $R_g = 5 \Omega$, 感性负载)

封装形式

RENESAS 封装代码: PRSS0004AE-B
 (封装名称: LDPAK (S)-(1))



1. 栅极
2. 集电极
3. 发射极
4. 集电极

绝对最大额定值

($T_a = 25^\circ\text{C}$)

参数	符号	额定值	单位
集电极/发射极电压 或 二极管反向电压	V_{CES} / V_R	600	V
栅极/发射极电压	V_{GES}	± 30	V
集电极电流	$T_c = 25^\circ\text{C}$	I_C	16 A
	$T_c = 100^\circ\text{C}$	I_C	8 A
集电极脉冲电流	$i_{c(peak)}$ ^{注1}	32	A
集电极/发射极二极管正向电流	i_{DF}	8	A
集电极/发射极二极管正向脉冲电流	$i_{DF(peak)}$ ^{注1}	32	A
集电极最大容许功率损耗	P_C ^{注2}	52	W
结壳热阻 (绝缘栅双极晶体管)	θ_{j-c} ^{注2}	2.38	$^\circ\text{C}/\text{W}$
结壳热阻 (二极管)	θ_{j-cd} ^{注2}	1.75	$^\circ\text{C}/\text{W}$
结温	T_j	150	$^\circ\text{C}$
储存温度	T_{stg}	-55 to +150	$^\circ\text{C}$

- 注: 1. 在 $PW \leq 10 \mu\text{s}$, 工作周期 $\leq 1\%$ 的容许值
 2. 在 $T_c = 25^\circ\text{C}$ 的容许值

电特性

(Ta = 25°C)

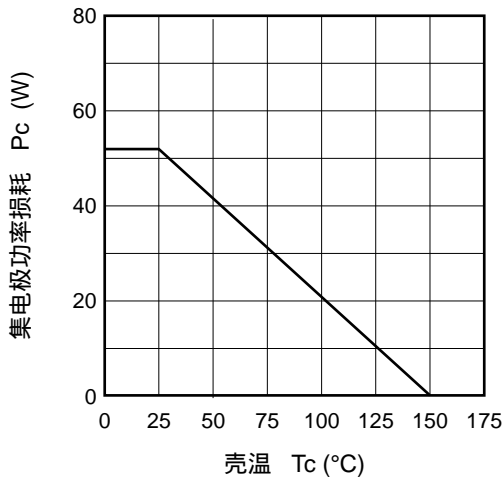
参数	符号	最小值	典型值	最大值	单位	测定条件
集电极/发射极破坏电压	$V_{(BR)CES}$	600	—	—	V	$I_C = 10 \mu A, V_{GE} = 0$
集电极/发射极断路电流 或 二极管反向电流	I_{CES} / I_R	—	—	5	μA	$V_{CE} = 600 V, V_{GE} = 0$
栅极/发射极漏泄电流	I_{GES}	—	—	± 1	μA	$V_{GE} = \pm 30 V, V_{CE} = 0$
栅极/发射极截止电压	$V_{GE(off)}$	5.5	—	7.5	V	$V_{CE} = 10 V, I_C = 1 mA$
集电极/发射极饱和电压	$V_{CE(sat)}$	—	1.6	2.2	V	$I_C = 8 A, V_{GE} = 15 V$ 注3
	$V_{CE(sat)}$	—	2.2	—	V	$I_C = 16 A, V_{GE} = 15 V$ 注3
输入电容	C_{ies}	—	300	—	pF	$V_{CE} = 25 V$
输出电容	C_{oes}	—	27	—	pF	$V_{GE} = 0$
反向传输电容	C_{res}	—	12	—	pF	$f = 1 MHz$
栅极充电电荷量	Q_g	—	19	—	nC	$V_{GE} = 15 V$
栅极/发射极充电电荷量	Q_{ge}	—	3.5	—	nC	$V_{CE} = 300 V$
栅极/集电极充电电荷量	Q_{gc}	—	11	—	nC	$I_C = 8 A$
接通延迟时间	$t_{d(on)}$	—	30	—	ns	$V_{CC} = 300 V$
上升时间	t_r	—	12	—	ns	$V_{GE} = 15 V$
关断延迟时间	$t_{d(off)}$	—	55	—	ns	$I_C = 8 A$
下降时间	t_f	—	110	—	ns	$R_g = 5 \Omega$ (感性负载)
接通能量	E_{on}	—	0.017	—	mJ	
关断能量	E_{off}	—	0.11	—	mJ	
总开关能量	E_{total}	—	0.13	—	mJ	
短路承受时间	t_{sc}	3	6	—	μs	$T_C = 100^\circ C$ $V_{GE} \leq 360 V, V_{GE} = 15 V$

快速恢复二极管正向电压	V_F	—	2.5	—	V	$I_F = 8 A$ 注3
快速恢复二极管反向恢复时间	t_{rr}	—	25	—	ns	$I_F = 8 A$
快速恢复二极管反向恢复电荷	Q_{rr}	—	0.01	—	μC	$di_F/dt = 100 A/\mu s$
快速恢复二极管反向恢复电流	I_{rr}	—	1.0	—	A	

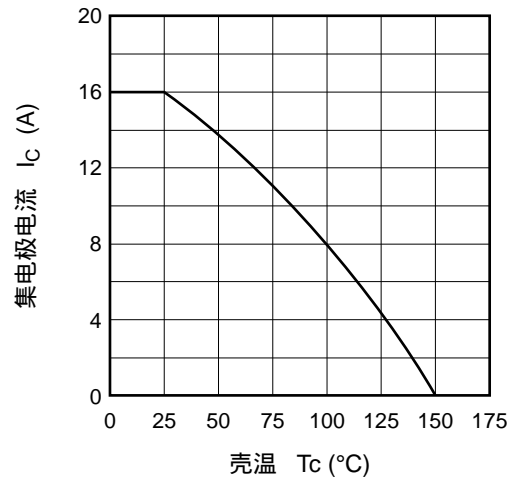
注: 3. 脉冲测试

主要特性

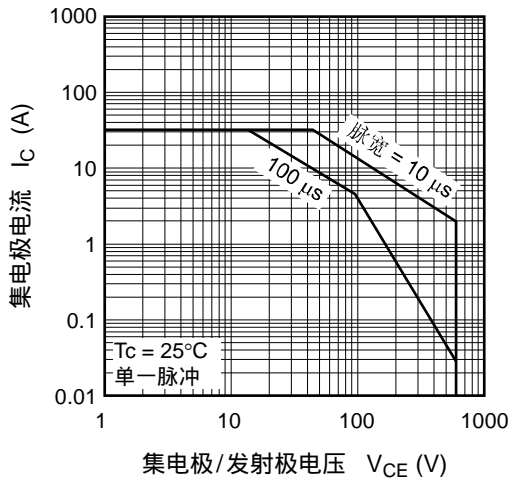
集电极功率损耗-壳温



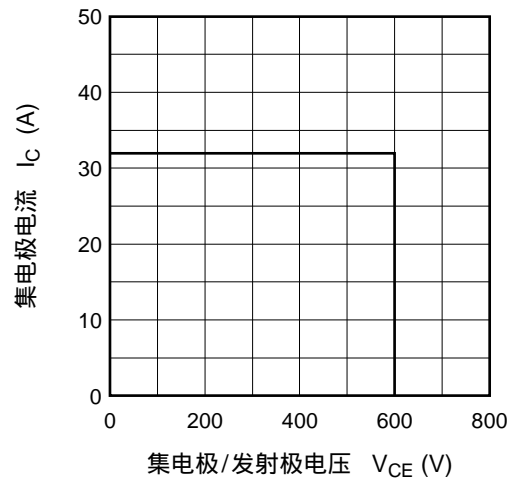
集电极最大直流电流-壳温



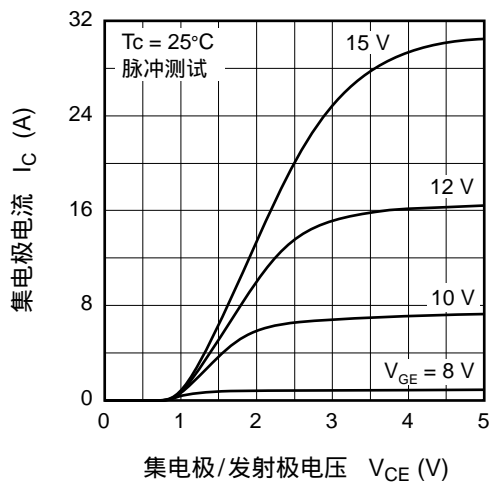
最大安全工作区域



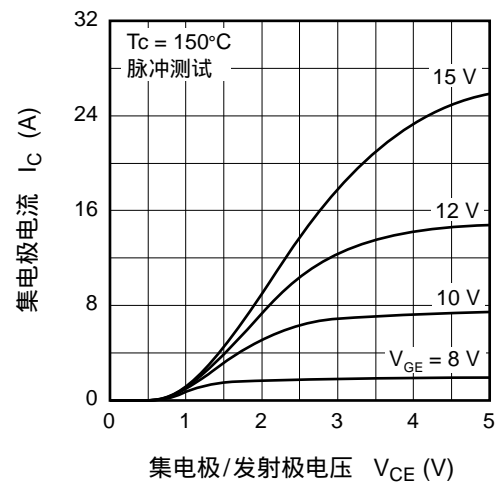
关断安全工作区域



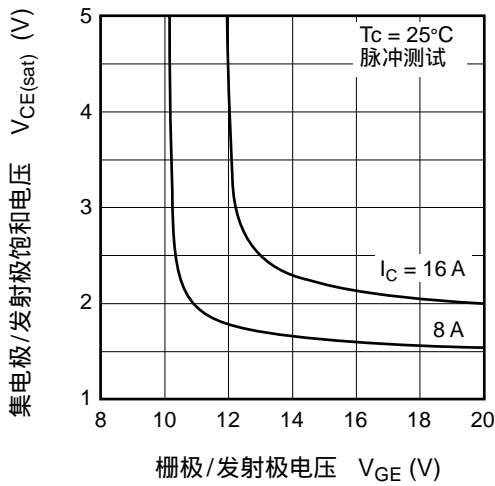
典型输出特性



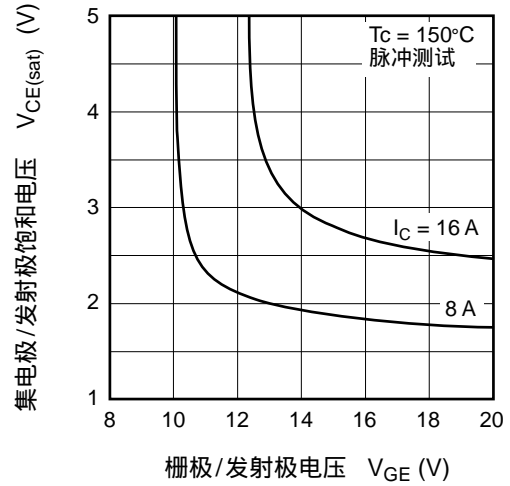
典型输出特性



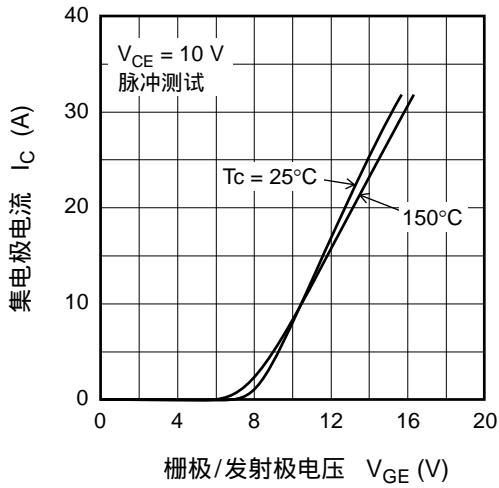
集电极/发射极饱和电压-栅极/发射极电压 (典型)



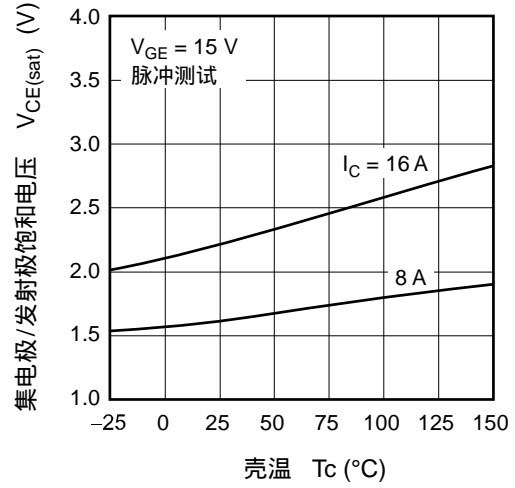
集电极/发射极饱和电压-栅极/发射极电压 (典型)



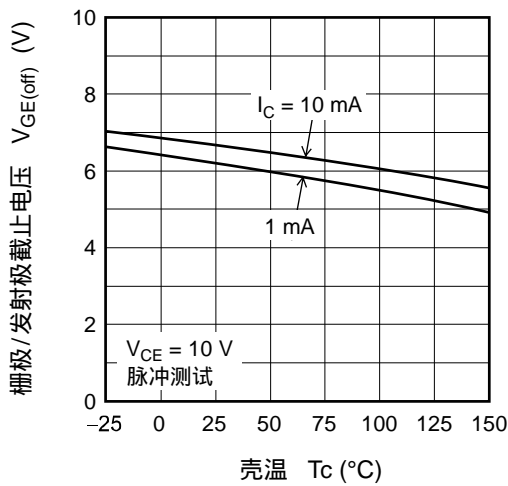
典型传输特性



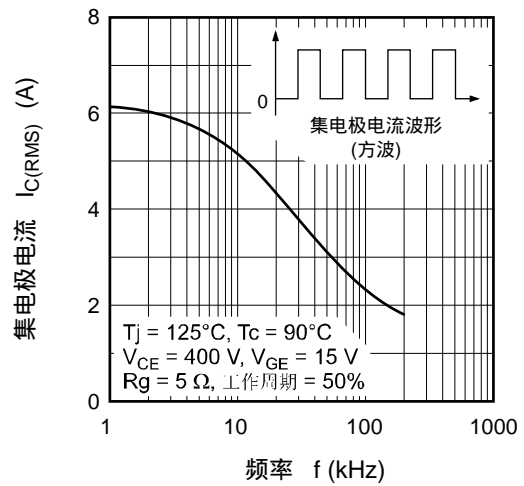
集电极/发射极饱和电压-壳温 (典型)



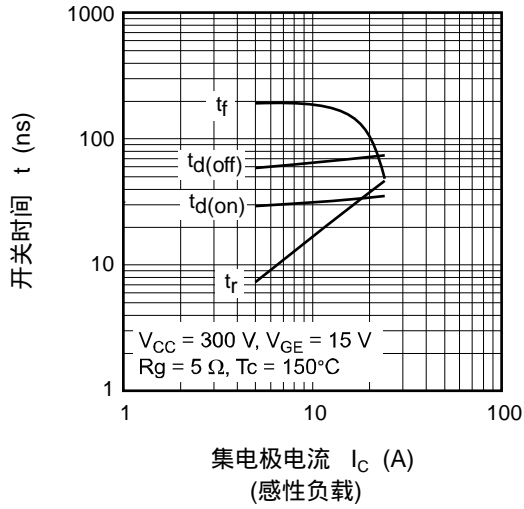
栅极/发射极截止电压-壳温 (典型)



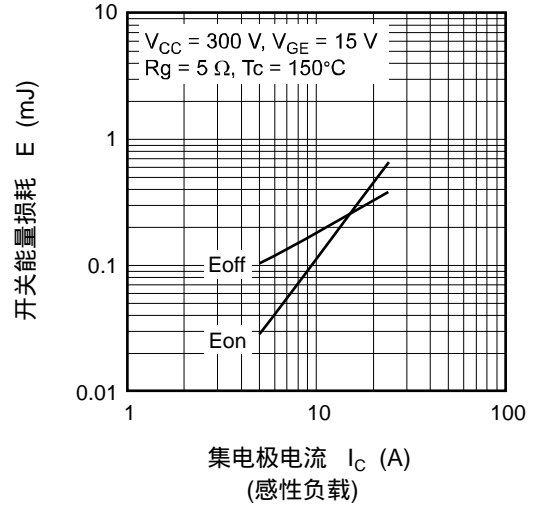
频率特性 (典型)



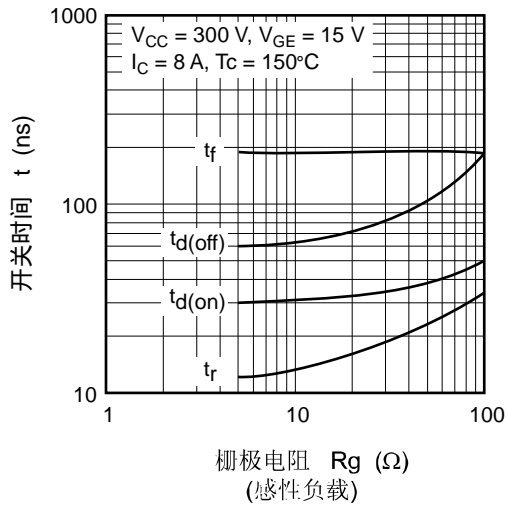
开关特性 (典型) (1)



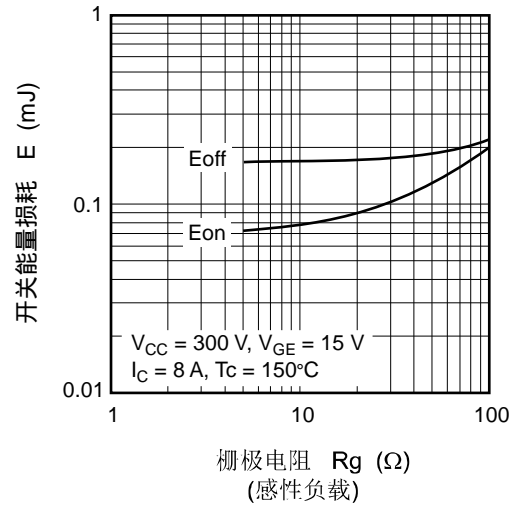
开关特性 (典型) (2)



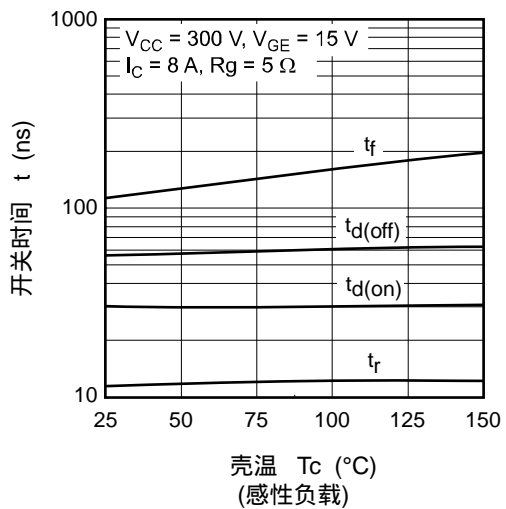
开关特性 (典型) (3)



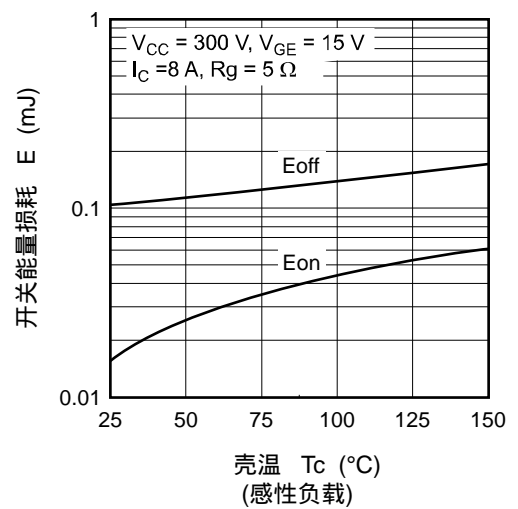
开关特性 (典型) (4)



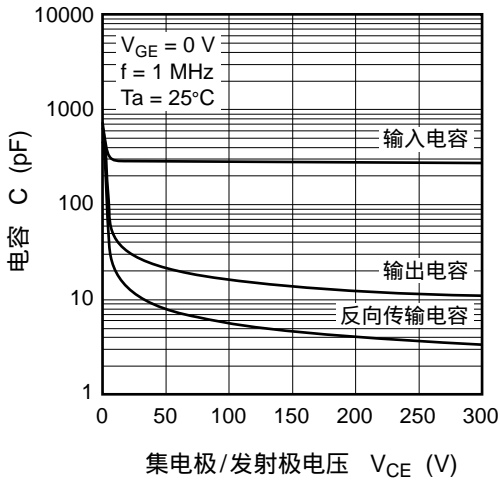
开关特性 (典型) (5)



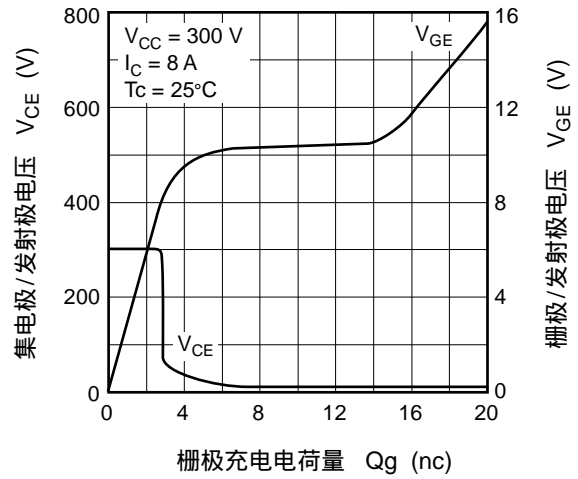
开关特性 (典型) (6)



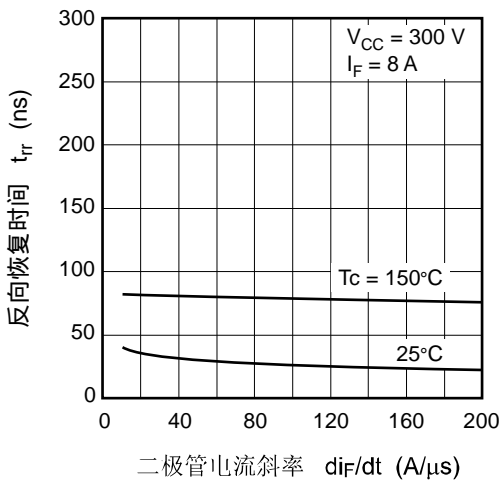
典型电容-集电极/发射极电压



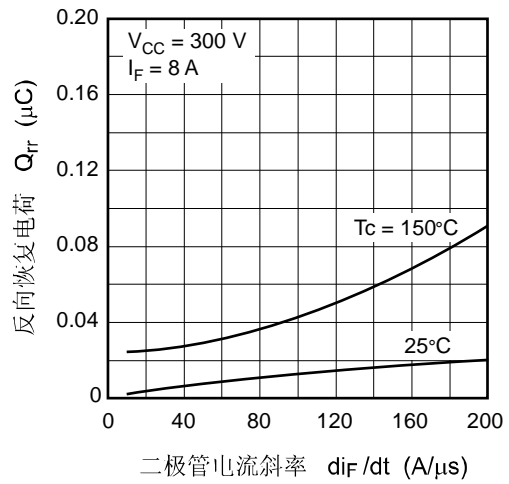
输入时序特性 (典型)



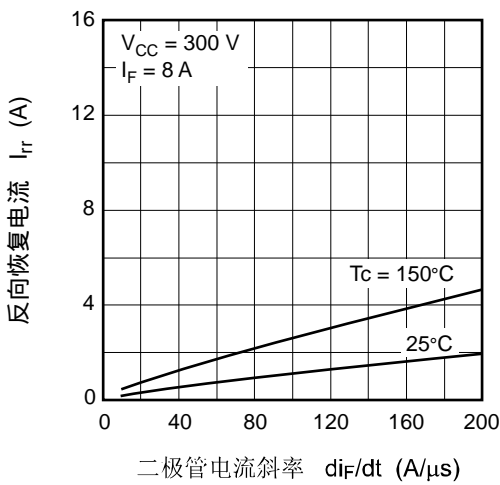
反向恢复时间-二极管电流斜率 (典型)



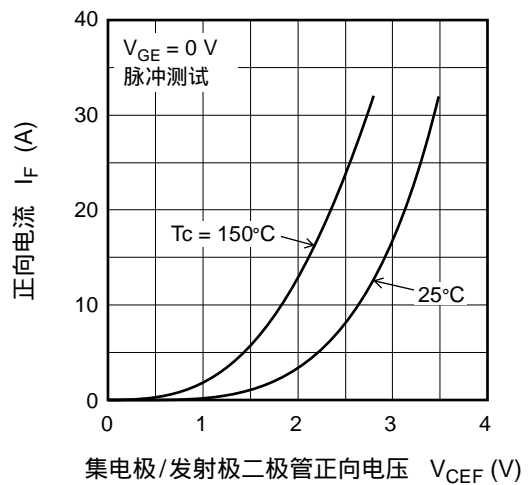
反向恢复电荷-二极管电流斜率 (典型)



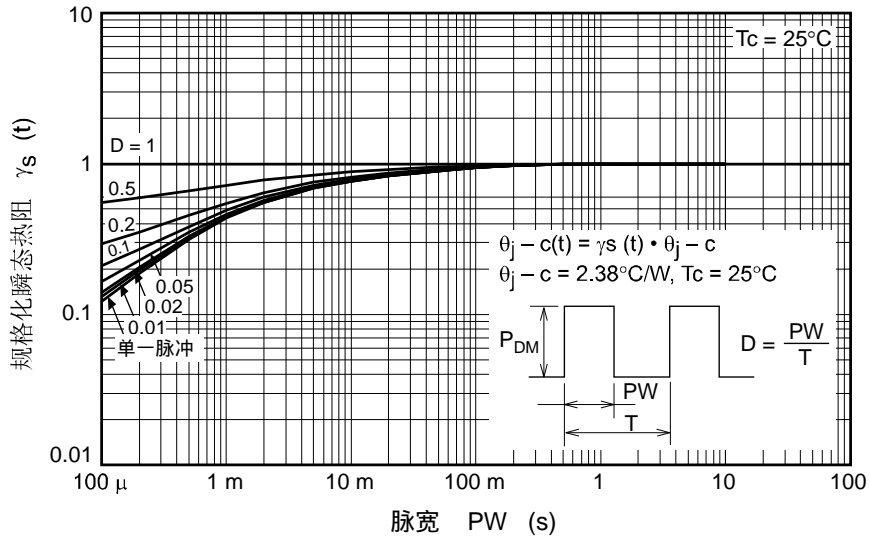
反向恢复电流-二极管电流斜率 (典型)



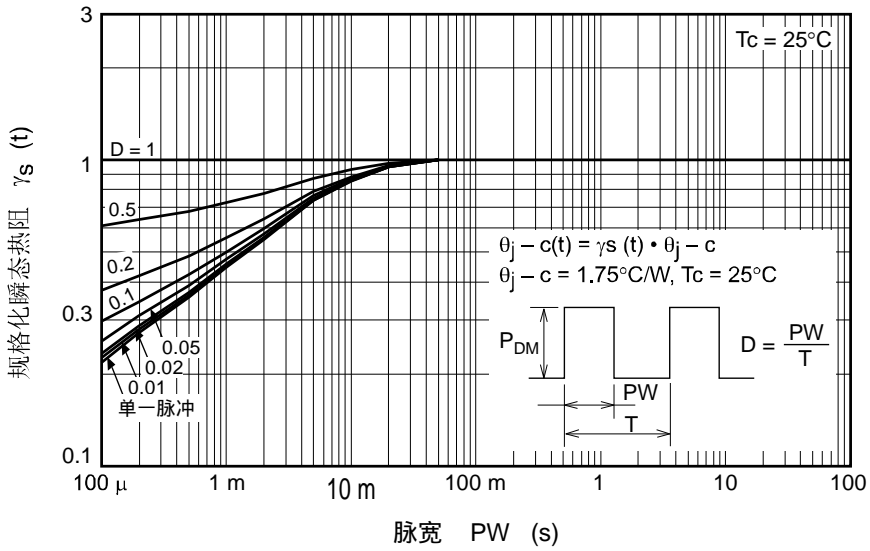
正向电流-正向电压 (典型)



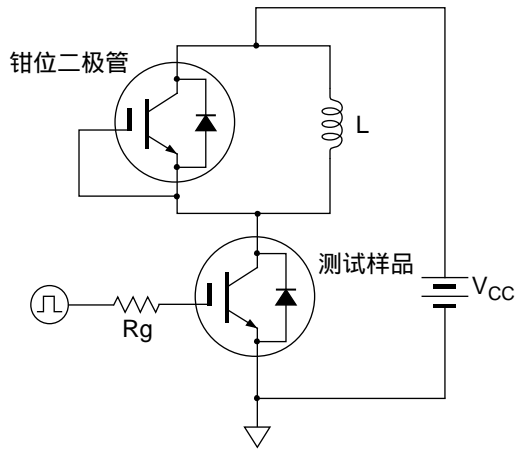
瞬态热阻特性规格化 (绝缘栅双极晶体管)



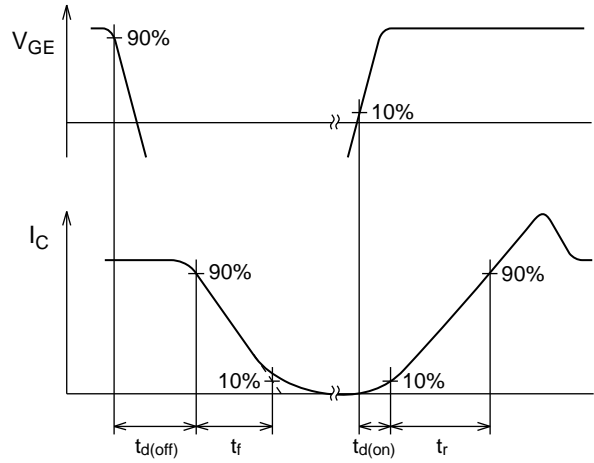
瞬态热阻特性规格化 (二极管)



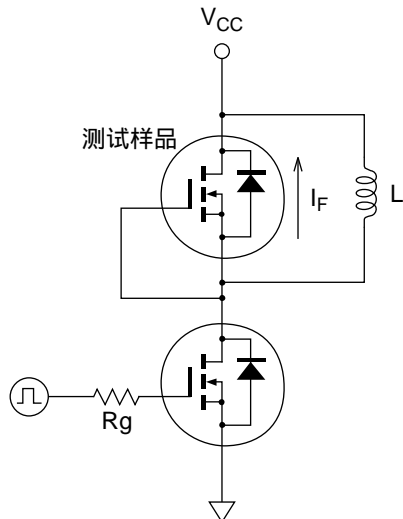
开关时间测定电路



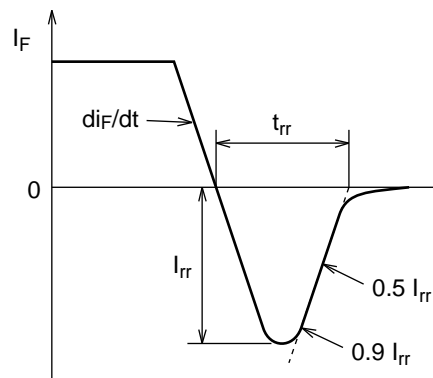
波形



二极管反向恢复时间测定电路



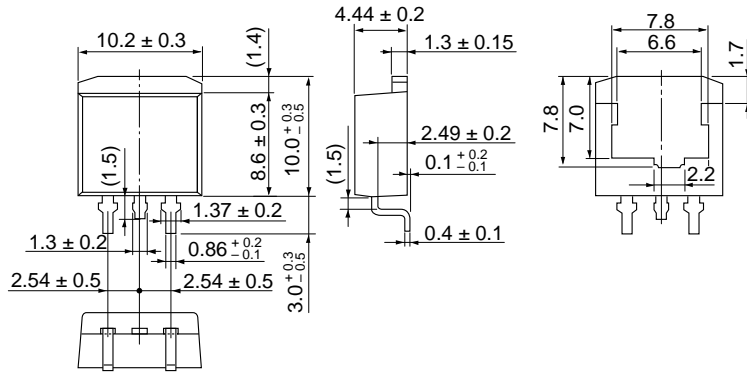
波形



封装尺寸

封装名称	JEITA 封装代码	RENESAS 代码	旧代码	重量[典型]
LDBPAK(S)-(1)	SC-83	PRSS0004AE-B	LDBPAK(S)-(1) / LDBPAK(S)-(1)V	1.30g

单位: mm



订购信息

订购型号	数量	运输包装
RJH60V1BDPE-00#J3	1000 枚	带卷包装

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Renesas Electronics America Inc.
2880 Scott Boulevard Santa Clara, CA 95050-2554, U.S.A.
Tel: +1-408-588-6000, Fax: +1-408-588-6130

Renesas Electronics Canada Limited
1101 Nicholson Road, Newmarket, Ontario L3Y 9C3, Canada
Tel: +1-905-898-5441, Fax: +1-905-898-3220

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: +49-211-65030, Fax: +49-211-6503-1327

Renesas Electronics (China) Co., Ltd.
7th Floor, Quantum Plaza, No.27 ZhiChunLu Haidian District, Beijing 100083, P.R.China
Tel: +86-10-8235-1155, Fax: +86-10-8235-7679

Renesas Electronics (Shanghai) Co., Ltd.
Unit 204, 205, AZIA Center, No.1233 Lujiazui Ring Rd., Pudong District, Shanghai 200120, China
Tel: +86-21-5877-1818, Fax: +86-21-6887-7858 / -7898

Renesas Electronics Hong Kong Limited
Unit 1601-1613, 16/F., Tower 2, Grand Century Place, 193 Prince Edward Road West, Mongkok, Kowloon, Hong Kong
Tel: +852-2886-9318, Fax: +852 2886-9022/9044

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

Renesas Electronics Singapore Pte. Ltd.
1 HarbourFront Avenue, #06-10, Keppel Bay Tower, Singapore 098632
Tel: +65-6213-0200, Fax: +65-6278-8001

Renesas Electronics Malaysia Sdn.Bhd.
Unit 906, Block B, Menara Amcorp, Amcorp Trade Centre, No. 18, Jln Persiaran Barat, 46050 Petaling Jaya, Selangor Darul Ehsan, Malaysia
Tel: +60-3-7955-3390, Fax: +60-3-7955-9510

Renesas Electronics Korea Co., Ltd.
11F., Samik Laved' or Bldg., 720-2 Yeoksam-Dong, Kangnam-Ku, Seoul 135-080, Korea
Tel: +82-2-558-3737, Fax: +82-2-558-5141