RJH60M3DPE

600V - 17A -绝缘栅双极晶体管
应用: 逆变器

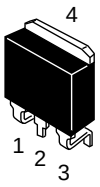
R07DS0533CJ0300
修订版本 3.00
Jul 26, 2012

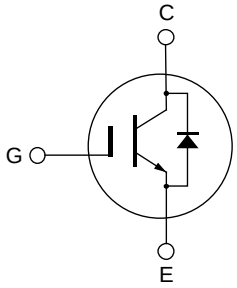
特点

- 短路承受时间(8 µs 典型值)
- 低集电极/发射极饱和电压
  $V_{CE(sat)}$ = 1.8 V 典型值 (I_C = 17 A, V_{GE} = 15 V, Ta = 25°C)
- 内置快速恢复二极管 (90 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 = 70 ns 典型值 (V_{CC} = 300 V, V_{GE} = 15 V, I_C = 17 A, Rg = 5 Ω, Ta = 25°C)

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

(Ta = 25°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	Tc = 25°C	I_C	35	A
	Tc = 100°C	I_C	17	A
集电极脉冲电流		ic(peak) 注 1	50	A
集电极/发射极二极管正向电流		i_{DF}	17	A
集电极/发射极二极管正向脉冲电流		i_{DF}(peak) 注 1	50	A
集电极最大容许功率损耗		P_C 注 2	113	W
结壳热阻 (绝缘栅双极晶体管)		θj-c 注 2	1.11	°C/ W
结壳热阻 (二极管)		θj-cd 注 2	2.8	°C/ W
结温		Tj	150	°C
储存温度		Tstg	–55 to +150	°C

注: 1. 在 PW ≤ 10 µs, 工作周期 ≤ 1% 的容许值
2. 在 Tc = 25°C 的容许值

电特性

(Ta = 25°C)

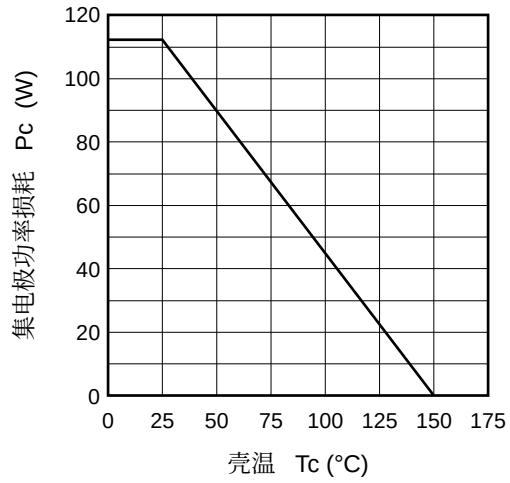
参数	符号	最小值	典型值	最大值	单位	测定条件
集电极/发射极破坏电压	$V_{(BR)CES}$	600	—	—	V	Iy = 10 μA, V_{GE} = 0
集电极/发射极断路电流 或 二极管反向电流	I_{CES} / I_R	—	—	5	μA	V_{CE} = 600 V, V_{GE} = 0
栅极/发射极漏泄电流	I_{GES}	—	—	±1	μA	V_{GE} = ±30 V, V_{CE} = 0
栅极/发射极截止电压	$V_{GE(off)}$	5	—	7	V	V_{CE} = 10 V, I_C = 1 mA
集电极/发射极饱和电压	$V_{CE(sat)}$	—	1.8	2.3	V	I_C = 17 A, V_{GE} = 15 V 注 3
	$V_{CE(sat)}$	—	2.2	—	V	I_C = 35 A, V_{GE} = 15 V 注 3
输入电容	Cies	—	900	—	pF	V_{CE} = 25 V V_{GE} = 0 f = 1 MHz
输出电容	Coes	—	60	—	pF	
反向传输电容	Cres	—	30	—	pF	
栅极充电电荷量	Qg	—	60	—	nC	V_{GE} = 15 V V_{CE} = 300 V I_C = 17 A
栅极/发射极充电电荷量	Qge	—	9	—	nC	
栅极/集电极充电电荷量	Qgc	—	35	—	nC	
接通延迟时间	$t_{d(on)}$	—	38	—	ns	V_{CC} = 300 V V_{GE} = 15 V I_C = 17 A Rg = 5 Ω 感性负载
上升时间	t_r	—	20	—	ns	
关断延迟时间	$t_{d(off)}$	—	90	—	ns	
下降时间	t_f	—	70	—	ns	
接通能量	E_{on}	—	0.29	—	mJ	
关断能量	E_{off}	—	0.29	—	mJ	
总开关能量	E_{total}	—	0.58	—	mJ	
短路承受时间	t_{sc}	6	8	—	μs	Tc = 100 °C V_{CC} ≤ 360 V, V_{GE} = 15 V

快速恢复二极管正向电压	V_F	—	1.3	1.7	V	I_F = 17 A 注 3
快速恢复二极管反向恢复时间	t_{rr}	—	90	—	ns	I_F = 17 A di_F/dt = 100 A/μs
快速恢复二极管反向恢复电荷	Q_{rr}	—	0.15	—	μC	
快速恢复二极管反向恢复电流	I_{rr}	—	4.5	—	A	

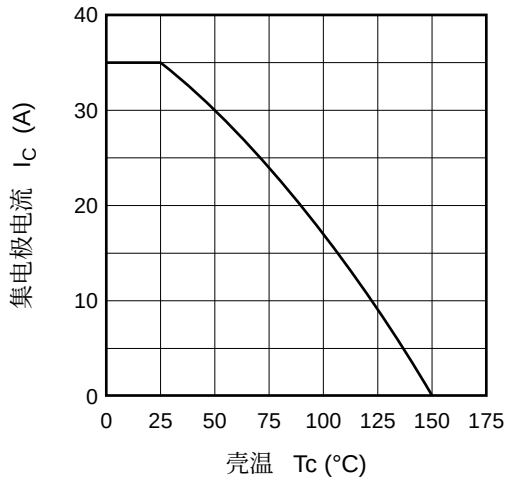
注: 3. 脉冲测试

主要特性

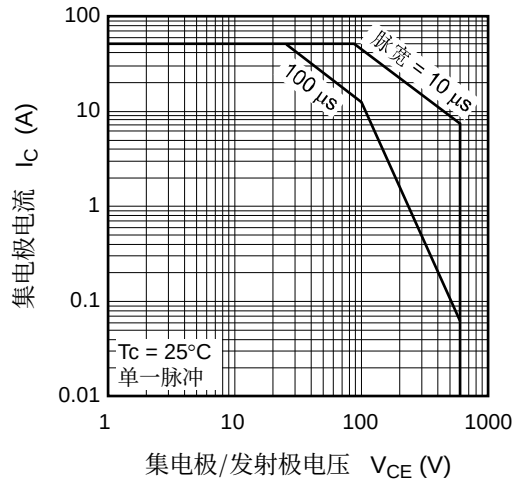
集电极功率损耗-壳温



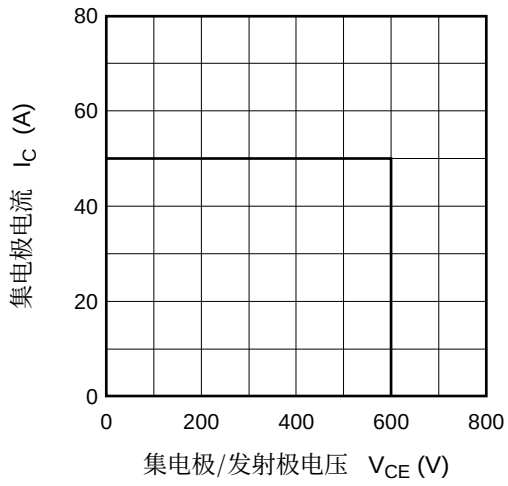
集电极最大直流电流-壳温



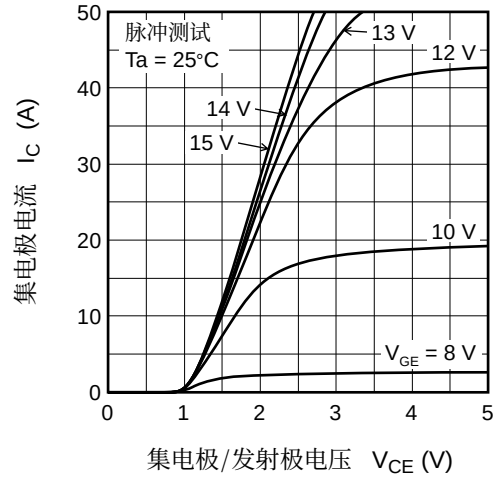
最大安全工作区域



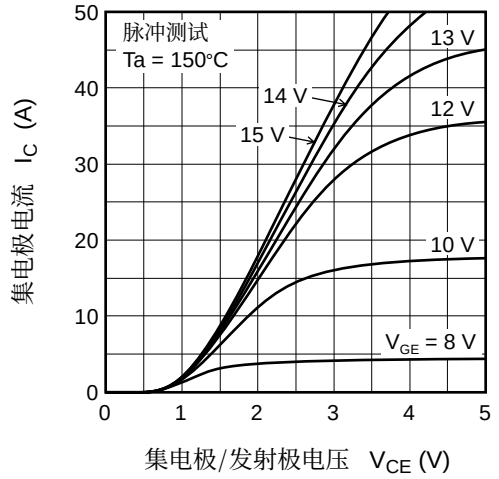
关断安全工作区域



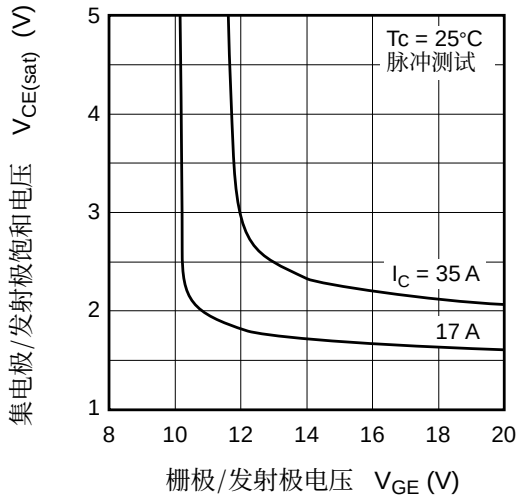
典型输出特性



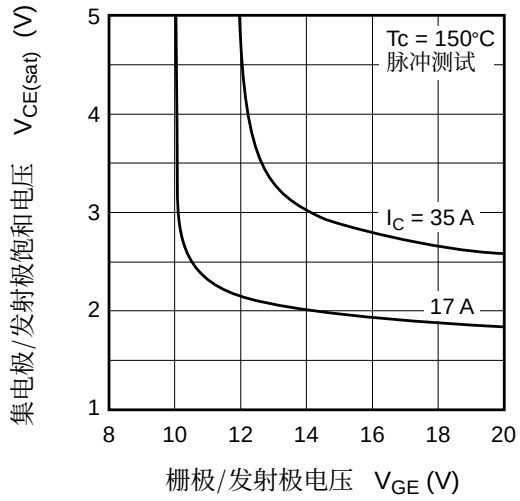
典型输出特性



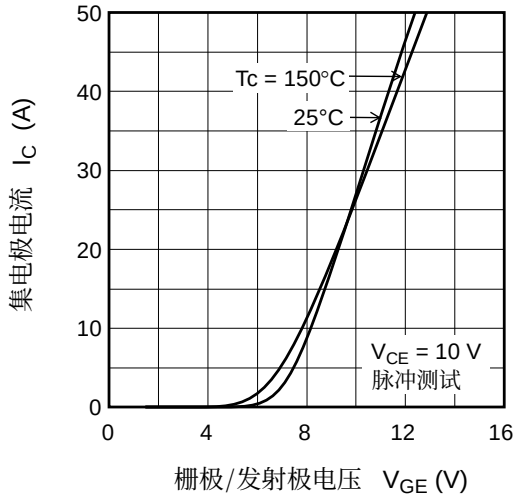
集电极/发射极饱和电压-
栅极/发射极电压 (典型)



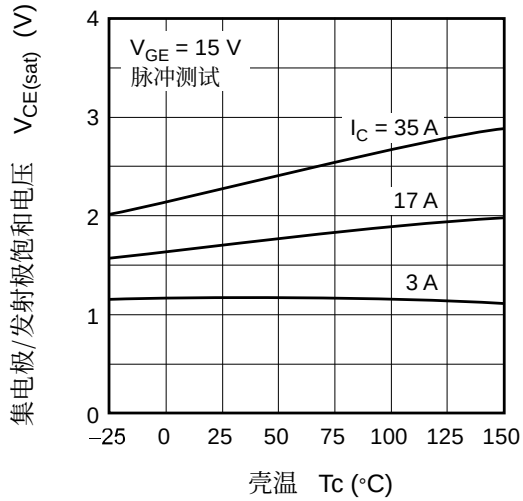
集电极/发射极饱和电压-
栅极/发射极电压 (典型)



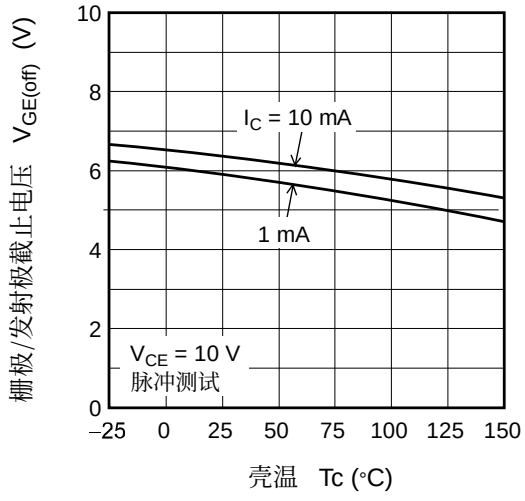
典型传输特性



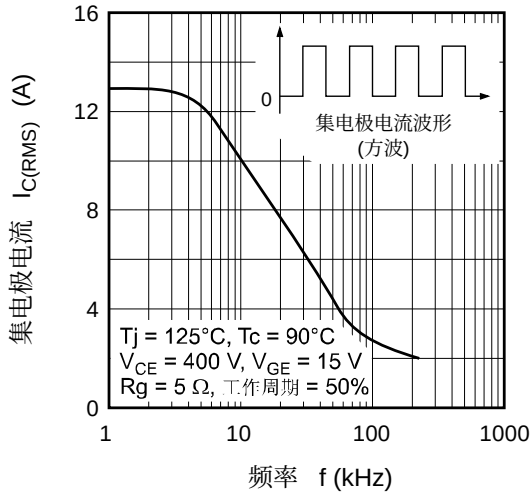
集电极/发射极饱和电压-壳温 (典型)



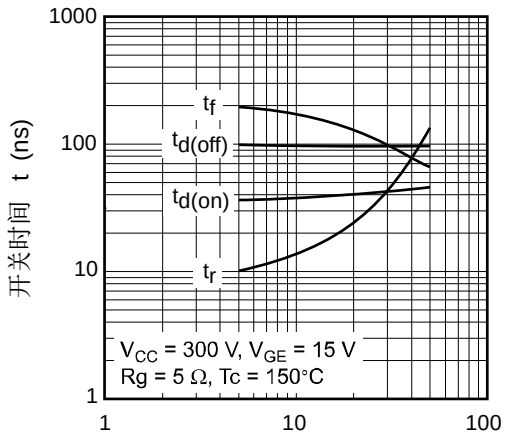
栅极/发射极截止电压-壳温 (典型)



频率特性 (典型)



开关特性 (典型) (1)



(感性负载)

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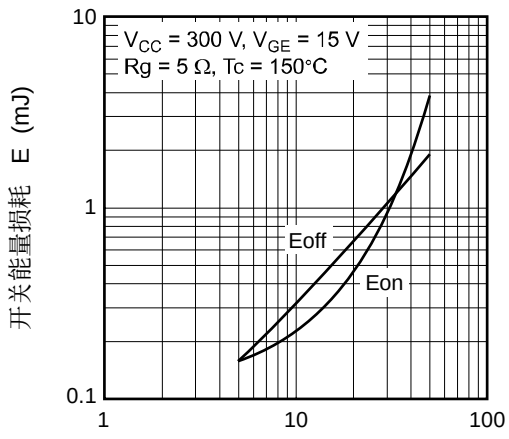
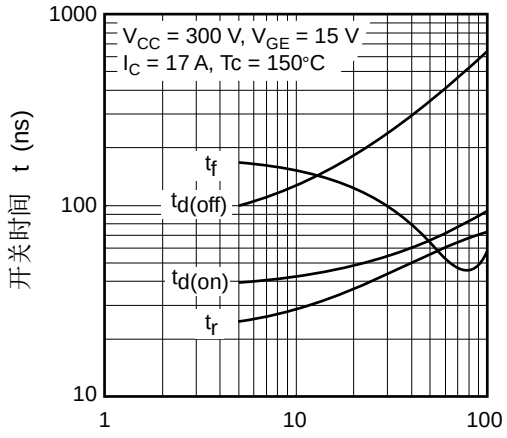


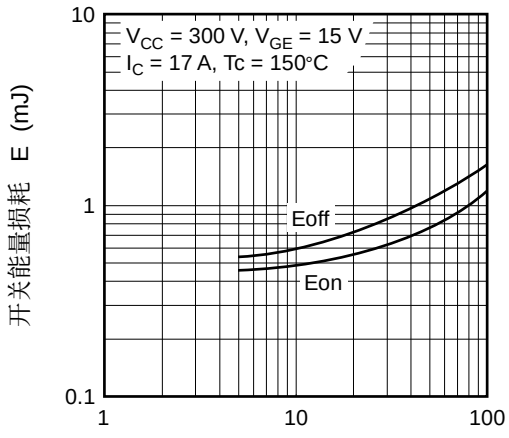
(感性负载)

开关特性 (典型) (3)



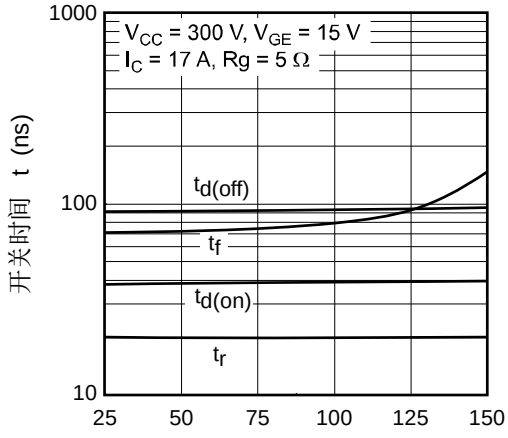
(感性负载)

开关特性 (典型) (4)



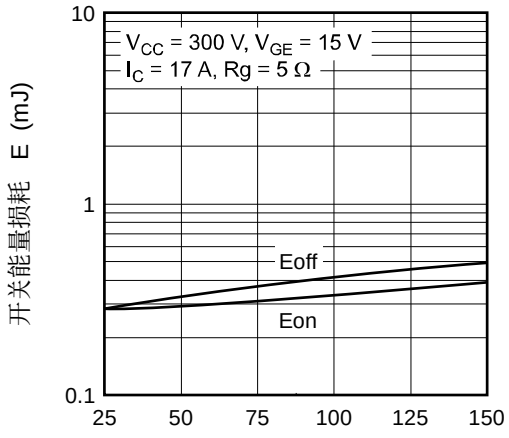
(感性负载)

开关特性 (典型) (5)



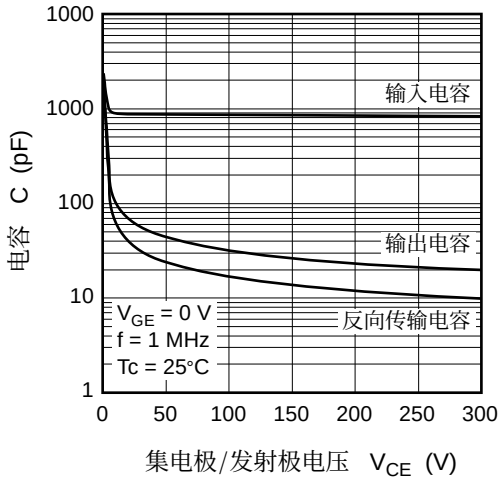
(感性负载)

开关特性 (典型) (6)

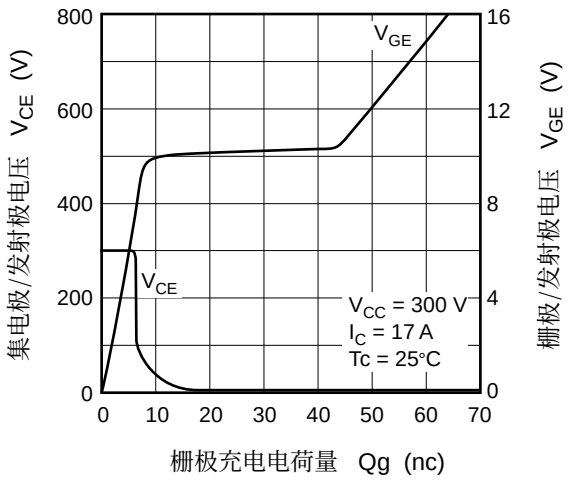


(感性负载)

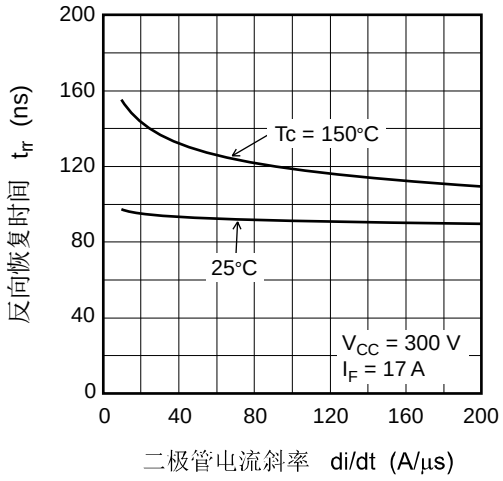
典型电容-集电极/发射极电压



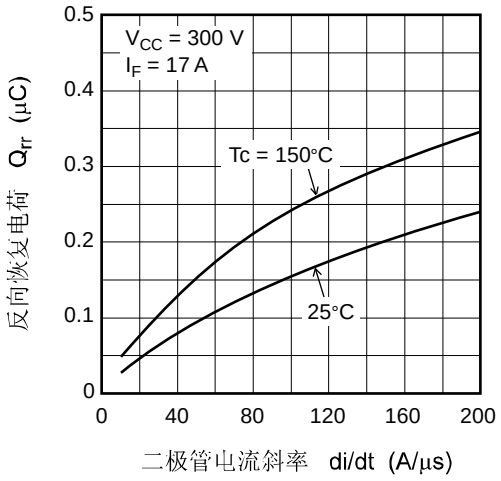
输入时序特性 (典型)



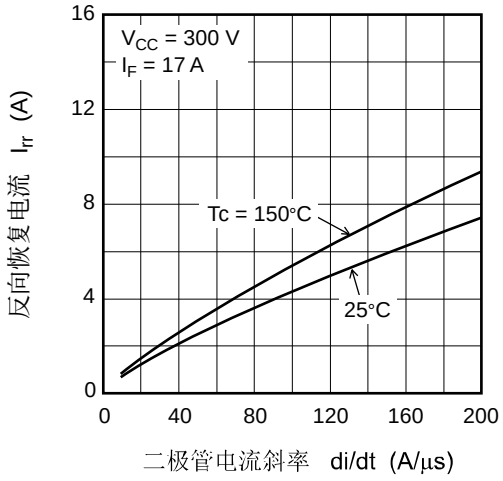
反向恢复时间-二极管电流斜率 (典型)



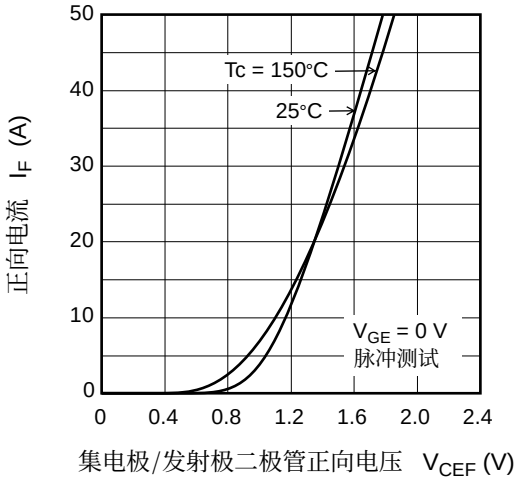
反向恢复电荷-二极管电流斜率 (典型)



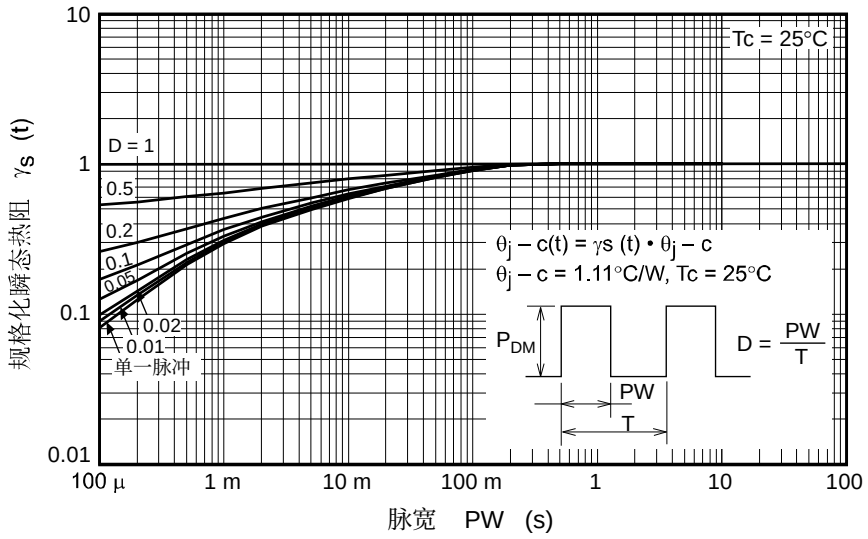
反向恢复电流-二极管电流斜率 (典型)



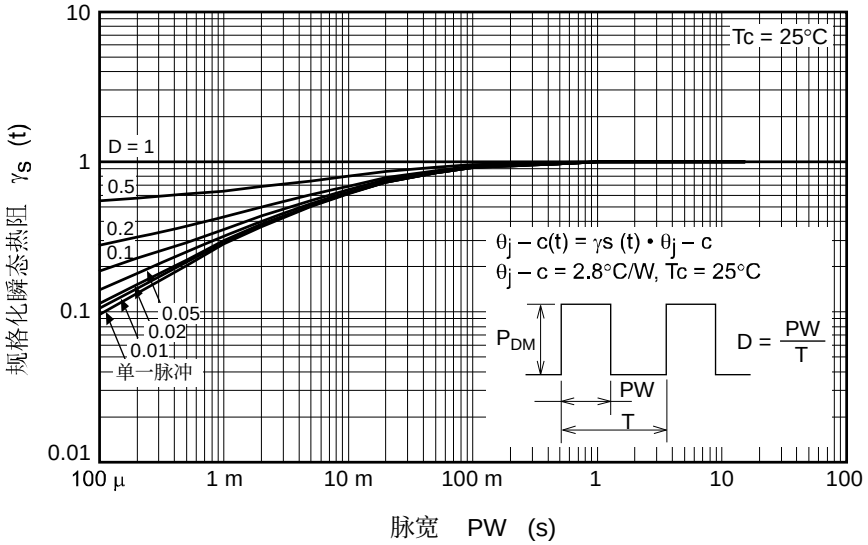
正向电流-正向电压 (典型)



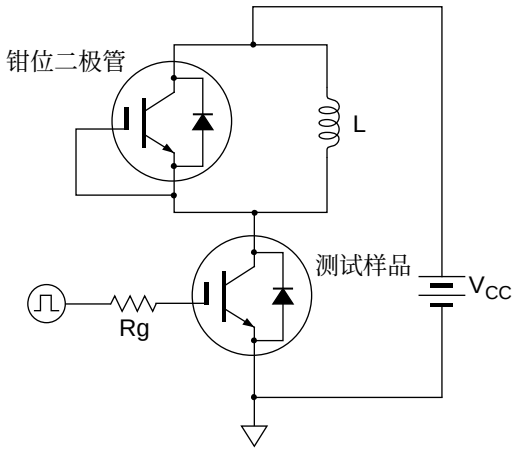
瞬态热阻特性规格化 (绝缘栅双极晶体管)



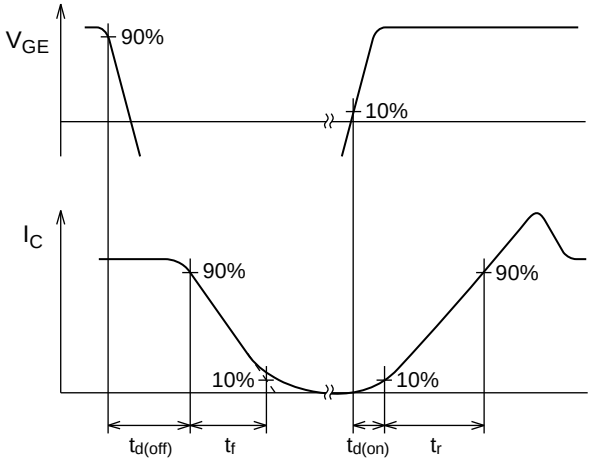
瞬态热阻特性规格化 (二极管)



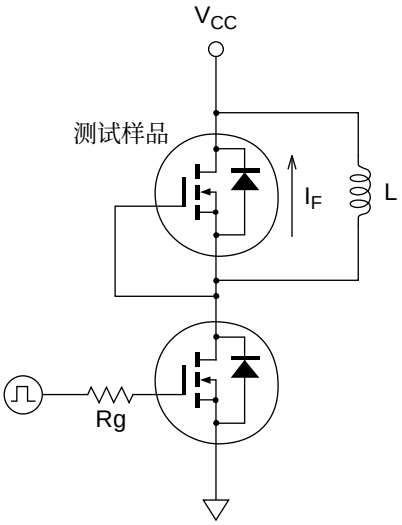
开关时间测定电路



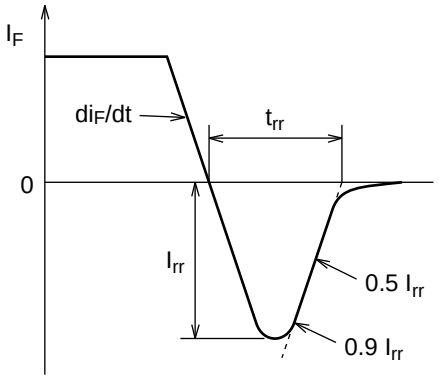
波形



二极管反向恢复时间测定电路



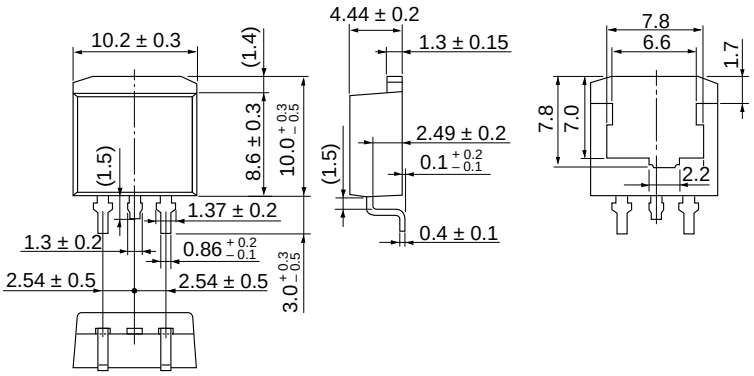
波形



封装尺寸

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

单位: mm



订购信息

订购型号	数量	运输包装
RJH60M3DPE-00#J3	1000 枚	带卷包装

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