RJH60D7ADPK

600V - 50A – 绝缘汉双极晶体管
应用: 逆变器

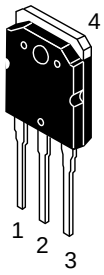
R07DS0547CJ0200
修订版本 2.00
Jul 25, 2012

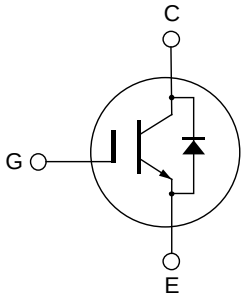
特点

- 短路承受时间 (5 µs 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 = 50 A, V_{GE} = 15 V, Ta = 25°C)
- 内置快速恢复二极管 (100 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 = 50 ns 典型值(V_{CC} = 300 V, V_{GE} = 15 V, I_C = 50 A, Rg = 5 Ω, Ta = 25°C, 感性负载)

封装形式

RENESAS 封装代码: PRSS0004ZE-A
(封装名称: TO-3P)





1. 栅极
2. 集电极
3. 发射极
4. 集电极 (凸缘)

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	90	A
	Tc = 100°C	I_C	50	A
集电极脉冲电流		ic(peak) 注 1	200	A
集电极/发射极二极管正向电流		i_{DF}	50	A
集电极/发射极二极管正向脉冲电流		i_{DF}(peak) 注 1	200	A
集电极最大容许功率损耗		P_C 注 2	300	W
结壳热阻 (绝缘栅双极晶体管)		θj-c 注 2	0.42	°C/ W
结壳热阻 (二极管)		θj-cd 注 2	1.07	°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)

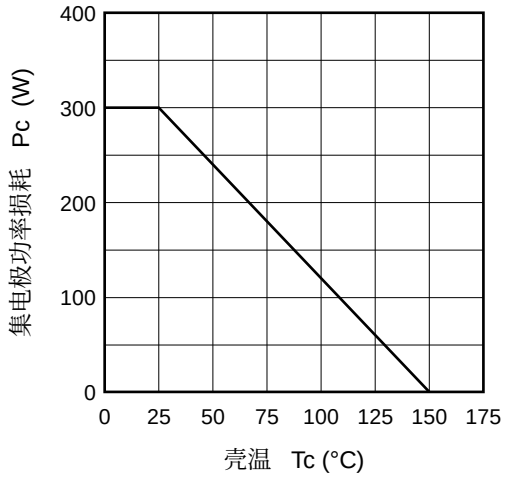
参数	符号	最小值	典型值	最大值	单位	测定条件
集电极/发射极破坏电压	$V_{BR(CES)}$	600	—	—	V	I_C =10 μA, V_{GE} = 0
集电极/发射极断路电流 或 二极管反向电流	I_{CES} / I_R	—	—	5	μA	V_{CE} = 600 V, V_{GE} = 0
栅极/发射极漏泄电流	I_{GES}	—	—	±1	μA	V_{GE} = ±30 V, V_{CE} = 0
栅极/发射极截止电压	$V_{GE(off)}$	4.0	—	6.0	V	V_{CE} = 10 V, I_C = 1 mA
集电极/发射极饱和电压	$V_{CE(sat)}$	—	1.6	2.2	V	I_C = 50 A, V_{GE} = 15 V 注 3
	$V_{CE(sat)}$	—	1.8	—	V	I_C = 90 A, V_{GE} = 15 V 注 3
输入电容	Cies	—	3000	—	pF	V_{CE} = 25 V V_{GE} = 0 f = 1 MHz
输出电容	Coes	—	160	—	pF	
反向传输电容	Cres	—	85	—	pF	
栅极充电电荷量	Qg	—	130	—	nC	V_{GE} = 15 V V_{CE} = 300 V I_C = 50 A
栅极/发射极充电电荷量	Qge	—	20	—	nC	
栅极/集电极充电电荷量	Qgc	—	45	—	nC	
接通延迟时间	$t_{d(on)}$	—	60	—	ns	V_{CC} = 300 V V_{GE} = 15 V I_C = 50 A Rg = 5 Ω (感性负载)
上升时间	t_r	—	46	—	ns	
关断延迟时间	$t_{d(off)}$	—	190	—	ns	
下降时间	t_f	—	50	—	ns	
接通能量	E_{on}	—	1.1	—	mJ	
关断能量	E_{off}	—	0.6	—	mJ	
总开关能量	E_{total}	—	1.7	—	mJ	
短路承受时间	t_{sc}	3.0	5.0	—	μs	V_{CC} ≤ 360 V, V_{GE} = 15 V

快速恢复二极管正向电压	V_F	—	1.4	2.0	V	I_F = 50 A 注 3
快速恢复二极管反向恢复时间	t_{rr}	—	100	—	ns	I_F = 50 A di_F/dt = 100 A/μs
快速恢复二极管反向恢复电荷	Q_{rr}	—	0.4	—	μC	
快速恢复二极管反向恢复电流	I_{rr}	—	6.5	—	A	

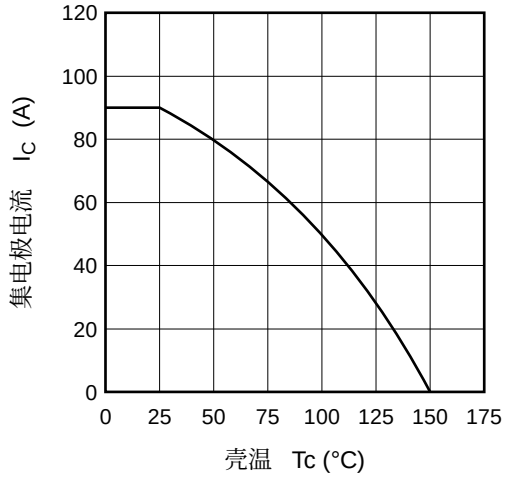
注: 3. 脉冲测试

主要特性

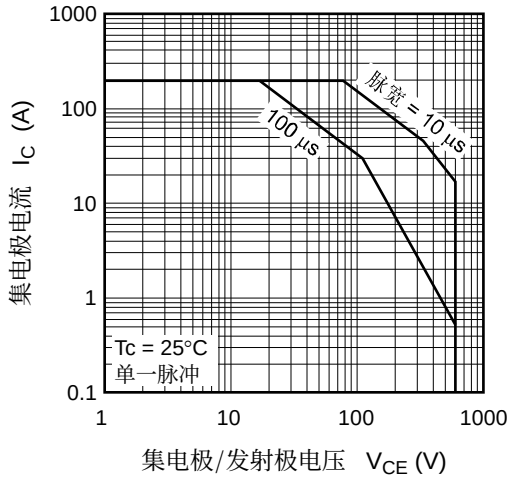
集电极功率损耗-壳温



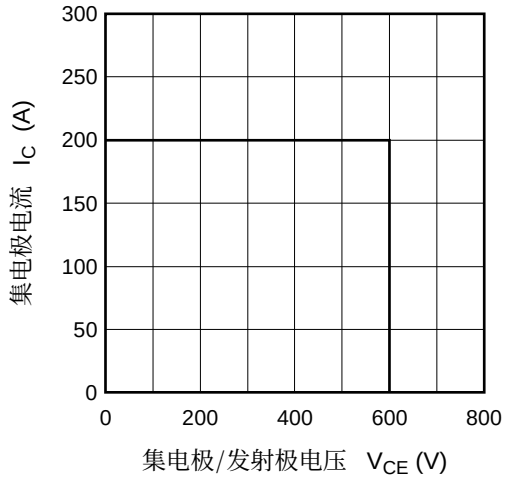
集电极最大直流电流-壳温



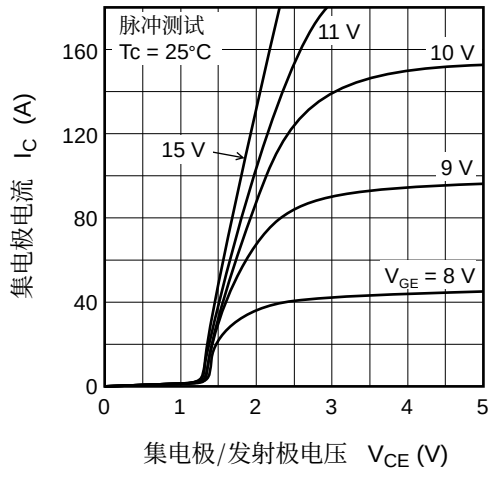
最大安全工作区域



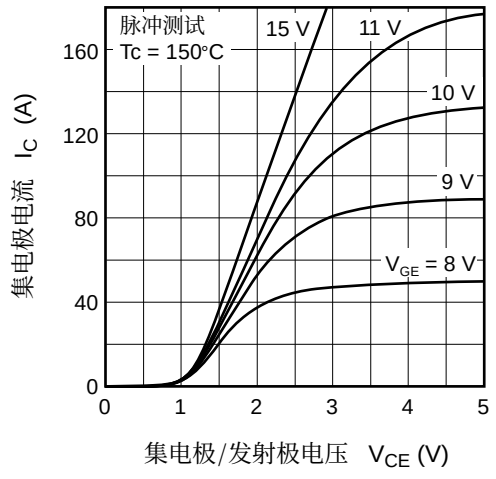
关断安全工作区域



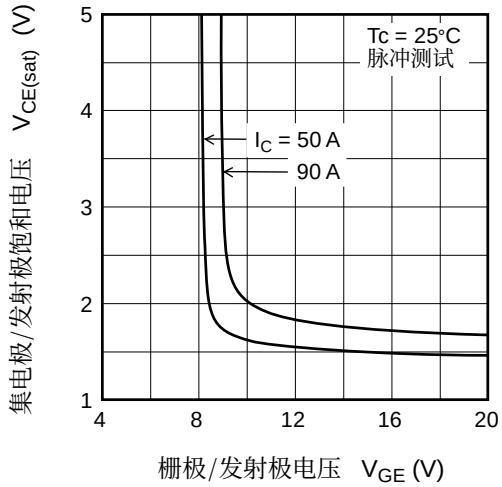
典型输出特性



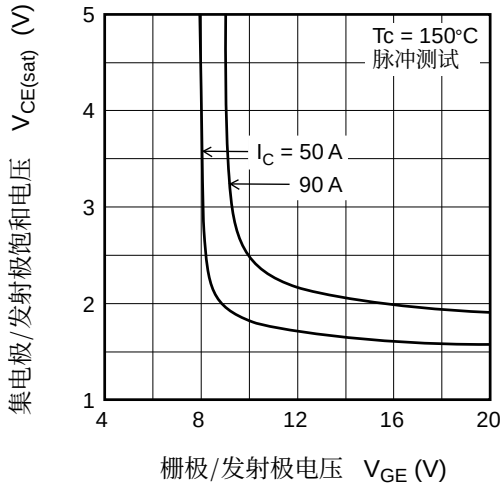
典型输出特性



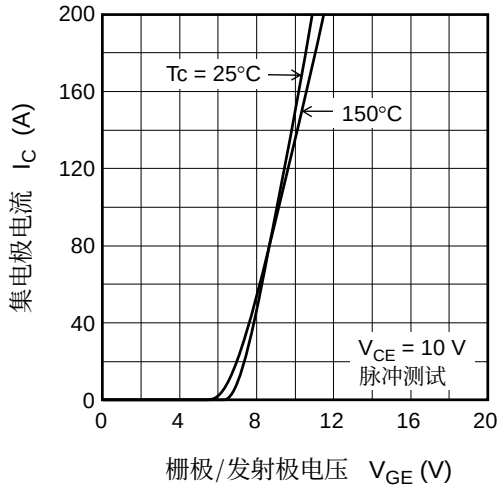
集电极/发射极饱和电压-
栅极/发射极电压 (典型)



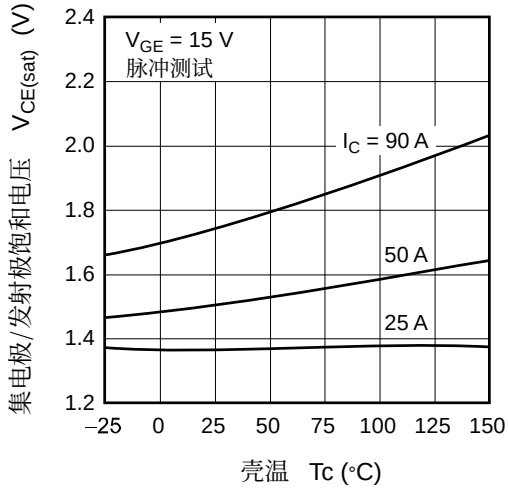
集电极/发射极饱和电压-
栅极/发射极电压 (典型)



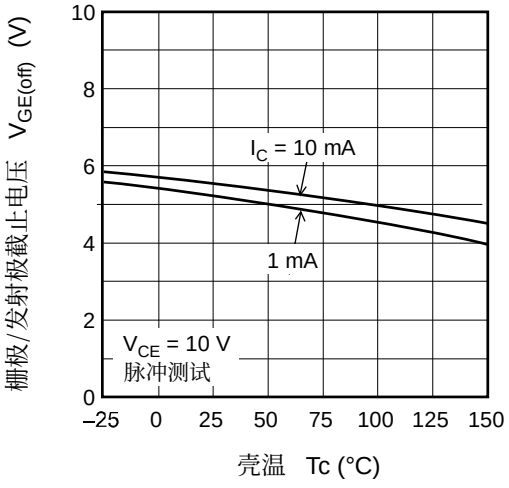
典型传输特性



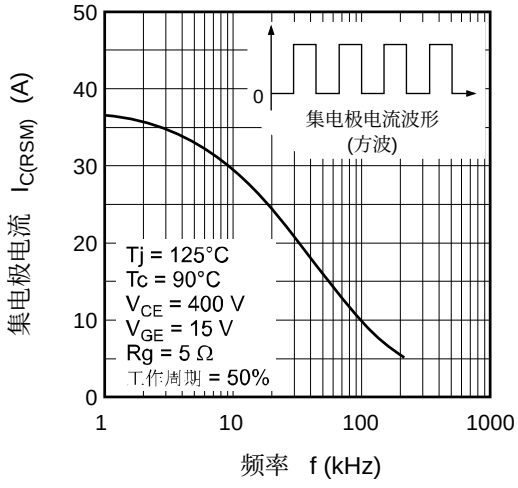
集电极/发射极饱和电压-壳温 (典型)



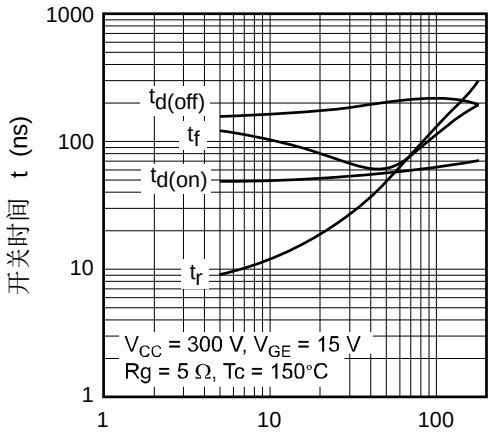
栅极/发射极截止电压-壳温 (典型)



频率特性 (典型)

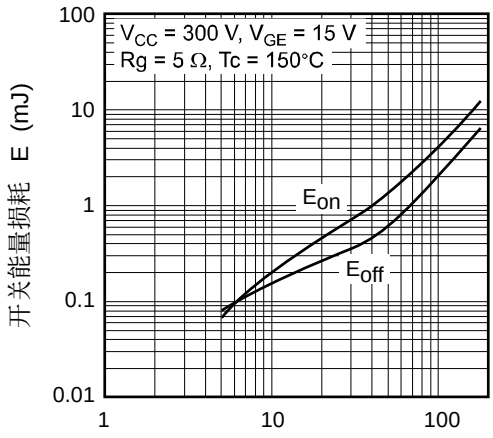


开关特性 (典型) (1)



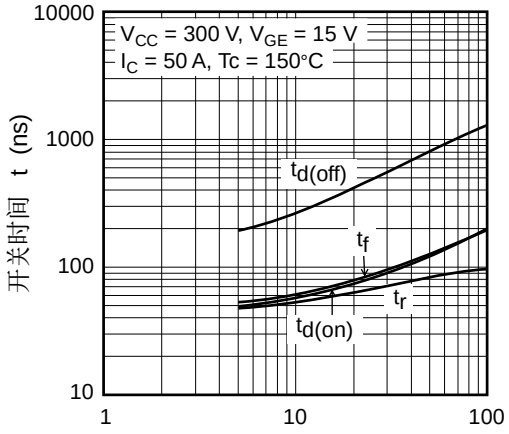
(感性负载)

开关特性 (典型) (2)



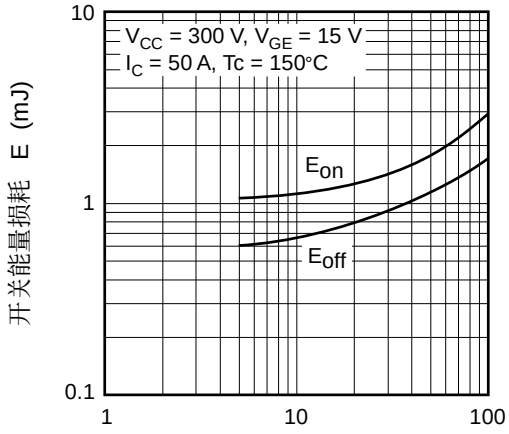
(感性负载)

开关特性 (典型) (3)



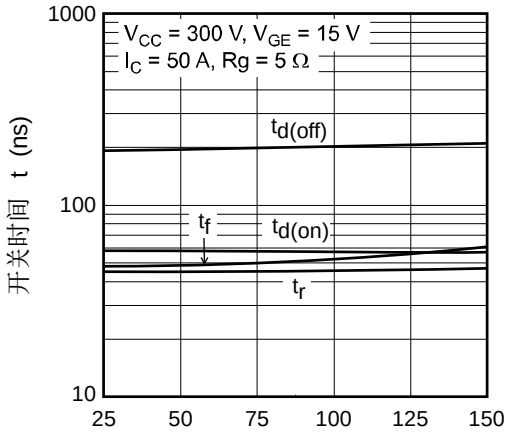
(感性负载)

开关特性 (典型) (4)



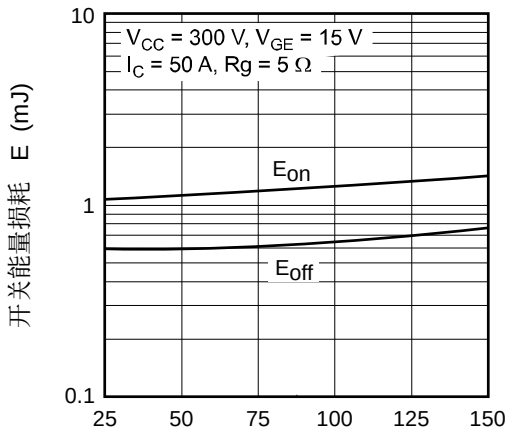
(感性负载)

开关特性 (典型) (5)



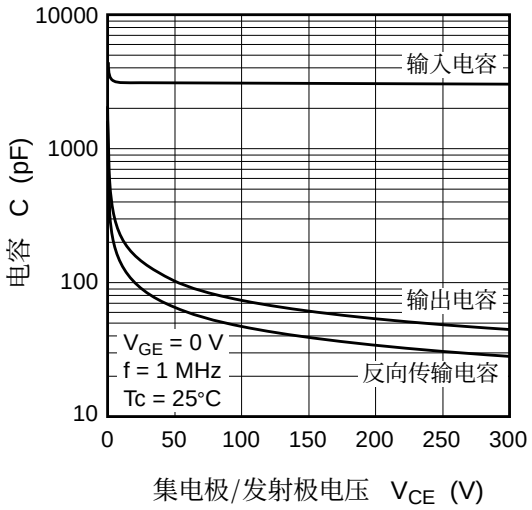
(感性负载)

开关特性 (典型) (6)

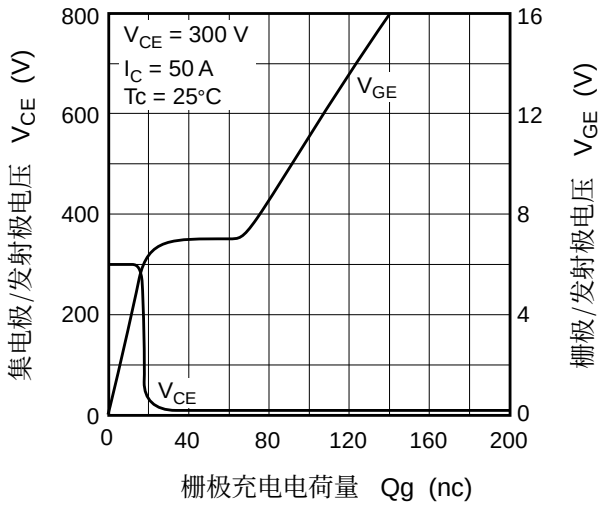


(感性负载)

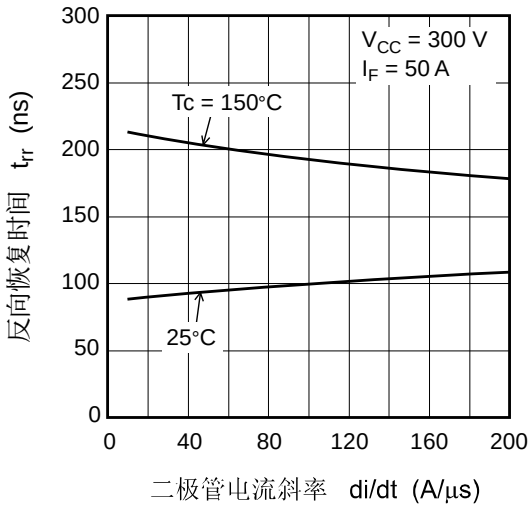
典型电容-集电极/发射极电压



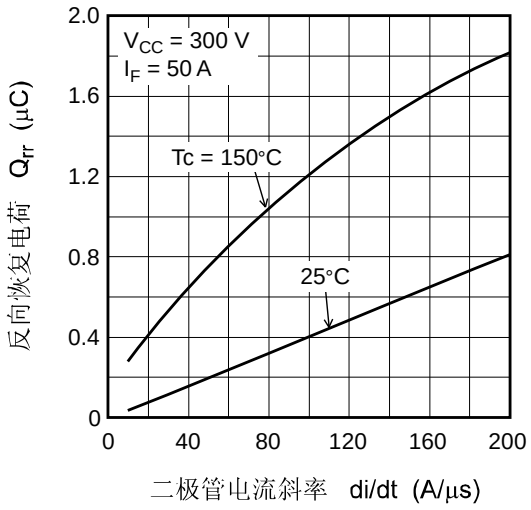
输入时序特性 (典型)



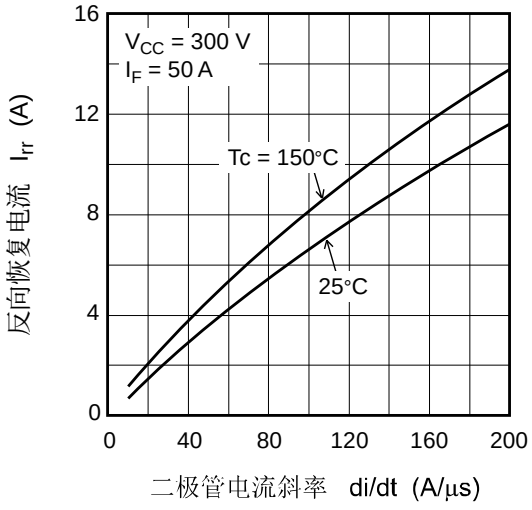
反向恢复时间-二极管电流斜率 (典型)



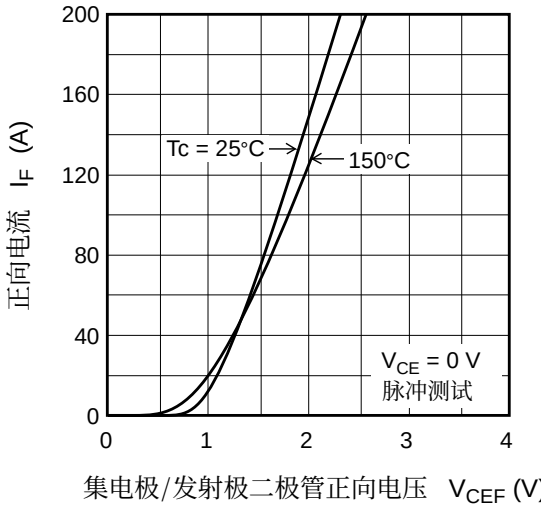
反向恢复电荷-二极管电流斜率 (典型)



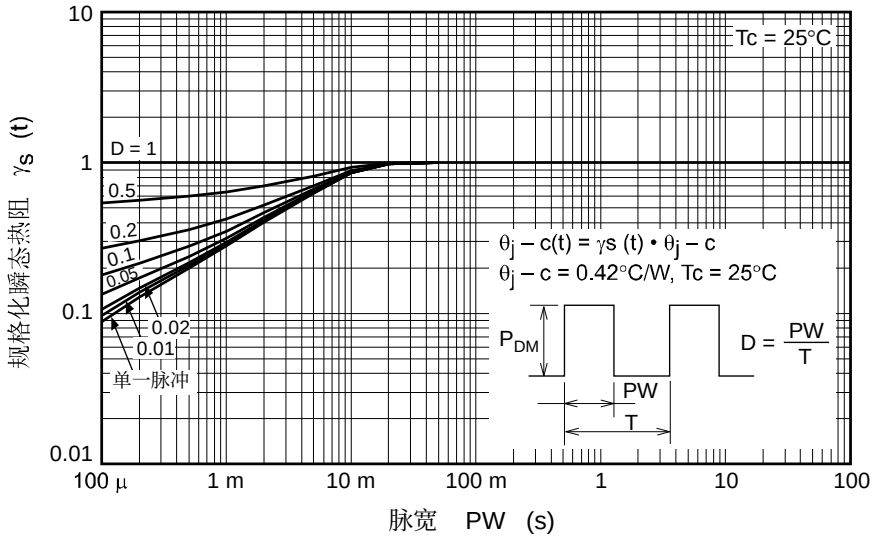
反向恢复电流-二极管电流斜率 (典型)



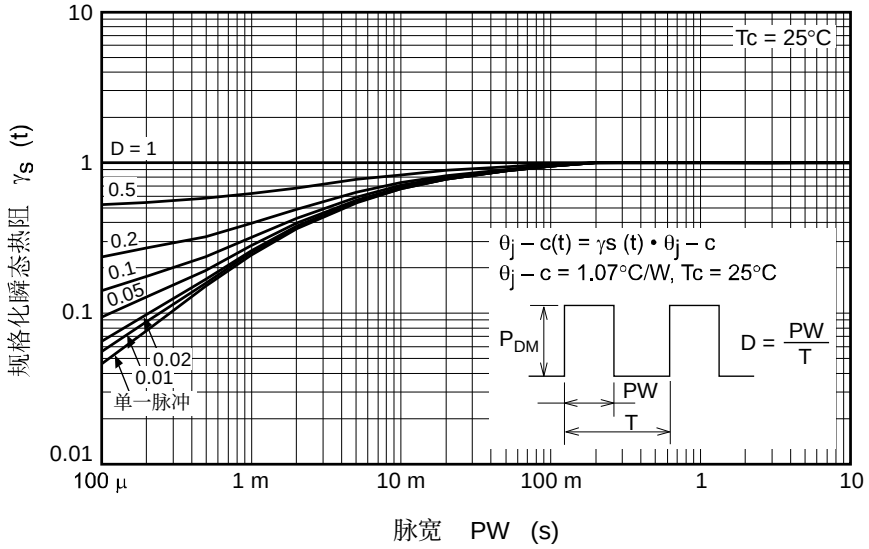
正向电流-正向电压 (典型)



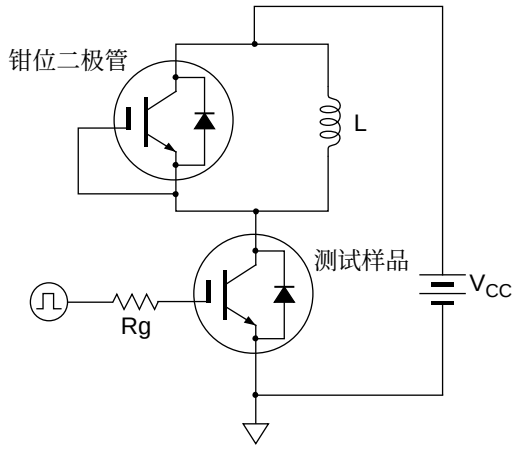
瞬态热阻特性规格化 (绝缘栅双极晶体管)



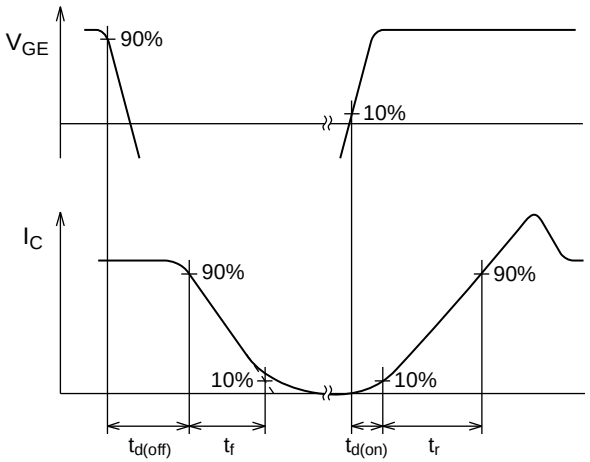
瞬态热阻特性规格化 (二极管)



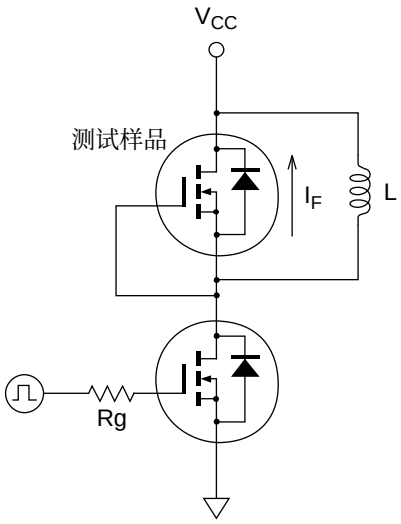
开关时间测定电路



波形



二极管反向恢复时间测定电路



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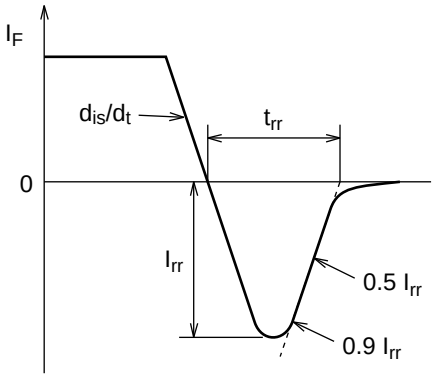
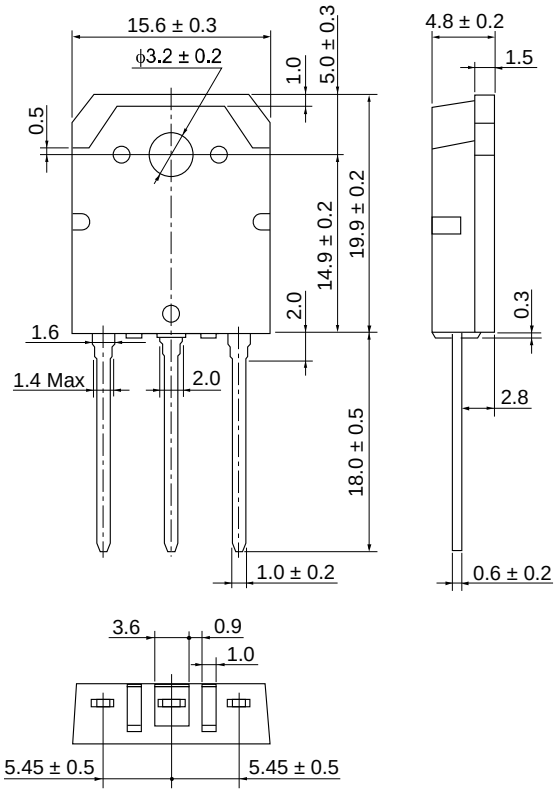


封装尺寸

封装名称	JEITA 封装代码	RENESAS 代码	旧代码	重量[典型]
TO-3P	SC-65	PRSS0004ZE-A	TO-3P / TO-3PV	5.0g

单位: mm



订购信息

订购型号	数量	运输包装
RJH60D7ADPK-00#T0	360 枚	纸盒包装 (管状容器)

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