

RJQ6003DPM

600V - 20A - 绝缘栅双极晶体管及二极管
快速电源开关

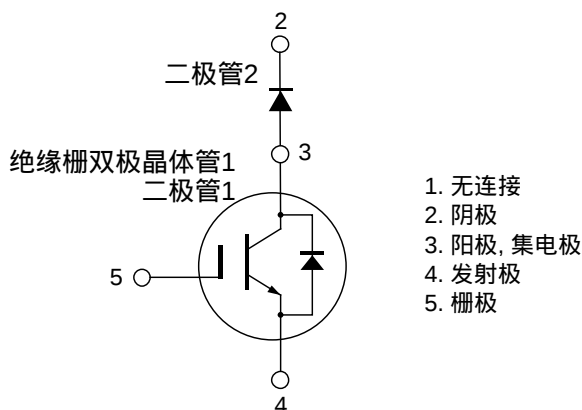
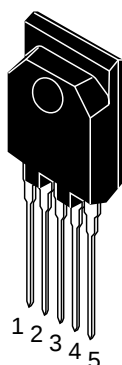
R07DS0846CJ0100
修订版本 1.00
Oct 23, 2012

特点

- 低集电极/发射极饱和电压
 $V_{CE(sat)} = 1.37 \text{ V}$ 典型值 ($I_C = 40 \text{ A}$, $V_{GE} = 15 \text{ V}$, $T_a = 25^\circ\text{C}$)
- 内置快速恢复二极管于一封装
- 沟槽栅与薄晶圆技术
- 快速开关时间
 $t_r = 85 \text{ ns}$ 典型值 ($I_C = 30 \text{ A}$, $V_{CE} = 400 \text{ V}$, $V_{GE} = 15 \text{ V}$, $R_g = 5 \Omega$, $T_a = 25^\circ\text{C}$, 感性负载)

封装形式

RENESAS 封装代码: PRSS0005ZB-A
(封装名称: TO-3PFM-5)



绝对最大额定值

绝缘栅双极晶体管 1, 二极管 1

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

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 注1	A
	$T_c = 100^\circ\text{C}$	I_C 注1	A
集电极脉冲电流	$I_{C(peak)}$ 注3	160	A
集电极/发射极二极管正向电流	I_{DF} 注1	20	A
集电极/发射极二极管正向脉冲电流	$I_{DF(peak)}$ 注3	100	A
集电极最大容许功率损耗	P_C 注2	50	W
结壳热阻 (绝缘栅双极晶体管)	θ_{j-c}	2.5	$^\circ\text{C}/\text{W}$
结壳热阻 (二极管)	θ_{j-cd}	4.5	$^\circ\text{C}/\text{W}$
结温	T_j	150	$^\circ\text{C}$
储存温度	T_{stg}	-55 to +150	$^\circ\text{C}$

- 注:
- 限于 T_j 的最大值
 - 在 $T_c = 25^\circ\text{C}$ 的容许值
 - 脉宽限于最大安全工作区域。

二极管 2

(Ta = 25°C)

参数	符号	额定值	单位
最大反向电压	V_{RM}	600	V
持续正向电流	I_F ^{注 1}	20	A
正向浪涌脉冲电流	I_{FSM} ^{注 4}	80	A
结壳热阻	θ_{j-c}	4.5	°C/W
结温	T_j	150	°C
储存温度	T_{stg}	-55 to +150	°C

注: 4. 50 Hz 正弦半波, 不重复 1 周期值, $T_j = 25^\circ\text{C}$

电特性

绝缘栅双极晶体管

(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/发射极短路电流	I_{CES}	—	—	100	μA	$V_{CE} = 600\text{V}, V_{GE} = 0$
栅极/发射极漏泄电流	I_{GES}	—	—	± 1	μA	$V_{GE} = \pm 30\text{V}, V_{CE} = 0$
栅极/发射极截止电压	$V_{GE(off)}$	4	—	8	V	$V_{CE} = 10\text{V}, I_C = 1\text{mA}$
集电极/发射极饱和电压	$V_{CE(sat)}$	—	1.37	1.8	V	$I_C = 40\text{A}, V_{GE} = 15\text{V}$ ^{注 5}
	$V_{CE(sat)}$	—	1.7	—	V	$I_C = 80\text{A}, V_{GE} = 15\text{V}$ ^{注 5}
输入电容	C_{ies}	—	2780	—	pF	$V_{CE} = 25\text{V}$
输出电容	C_{oes}	—	122	—	pF	$V_{GE} = 0\text{V}$
反向传输电容	C_{res}	—	43	—	pF	$f = 1\text{MHz}$
接通延迟时间	$t_{d(on)}$	—	53	—	ns	$I_C = 30\text{A},$ $V_{CE} = 400\text{V}, V_{GE} = 15\text{V}$ $R_g = 5\Omega$ ^{注 5} 感性负载
上升时间	t_r	—	145	—	ns	
关断延迟时间	$t_{d(off)}$	—	105	—	ns	
下降时间	t_f	—	85	—	ns	

注: 5. 脉冲测试

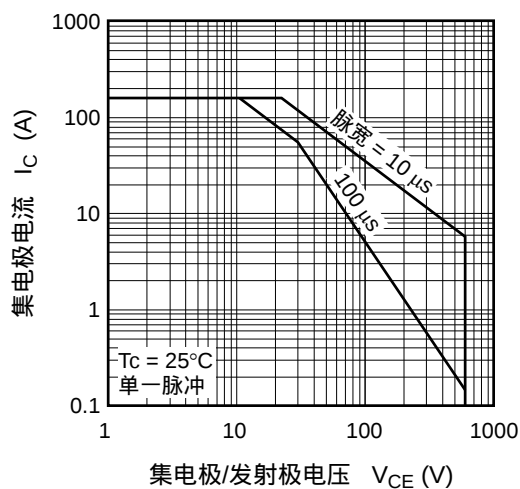
二极管 1, 二极管 2

(Ta = 25°C)

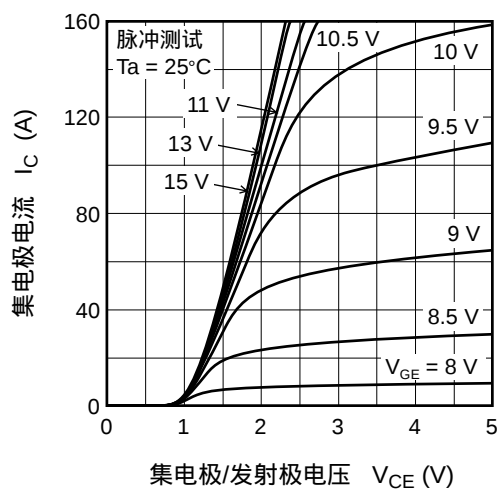
参数	符号	最小值	典型值	最大值	单位	测定条件
正向电压	V_F	—	1.4	1.9	V	$I_F = 30\text{A}$
反向电流	I_R	—	—	1	μA	$V_R = 600\text{V}$
反向恢复时间	t_{rr}	—	100	—	ns	$I_F = 30\text{A}$ $di/dt = 100\text{A}/\mu\text{s}$
快速恢复二极管反向恢复电荷	Q_{rr}	—	0.18	—	μC	
快速恢复二极管反向恢复脉冲电流	I_{rr}	—	4.2	—	A	

主要特性

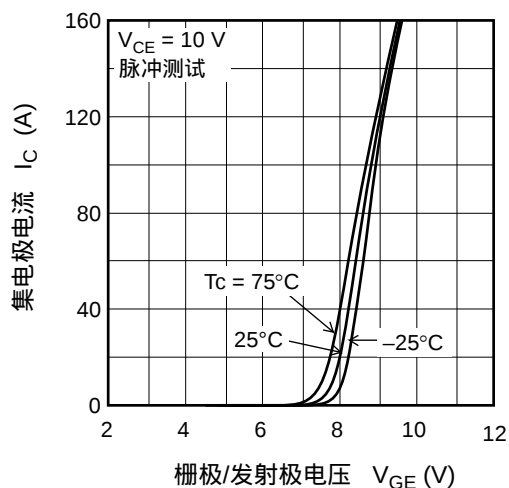
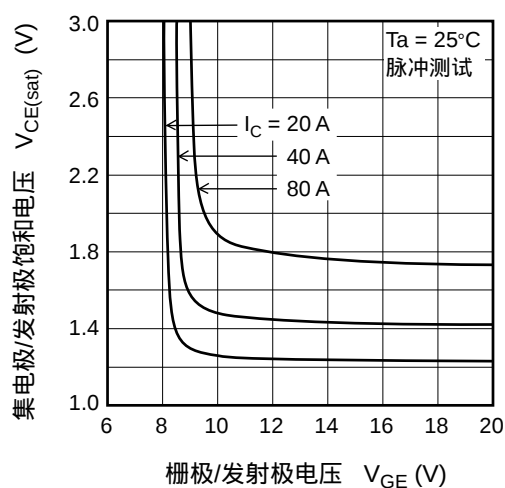
最大安全工作区域



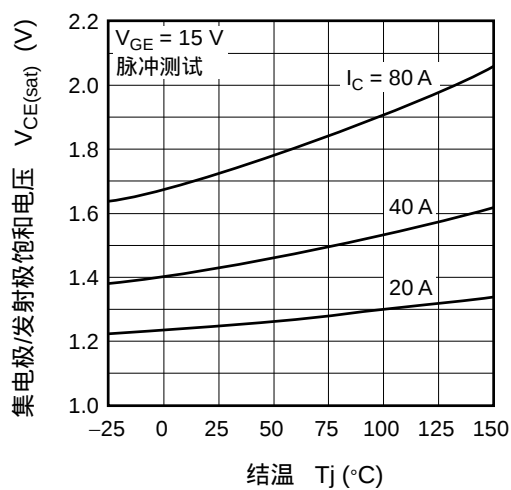
典型输出特性



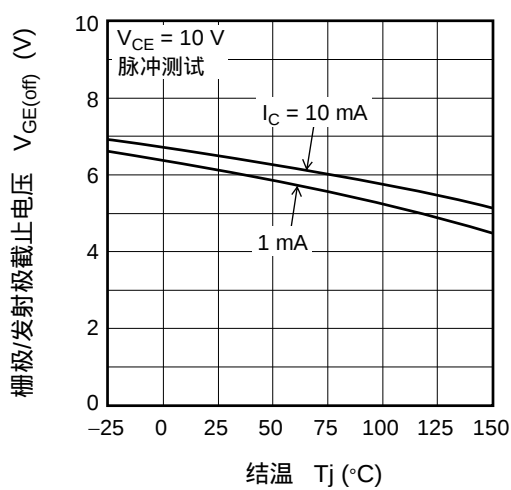
典型传输特性

集电极/发射极饱和电压-
栅极/发射极电压 (典型)

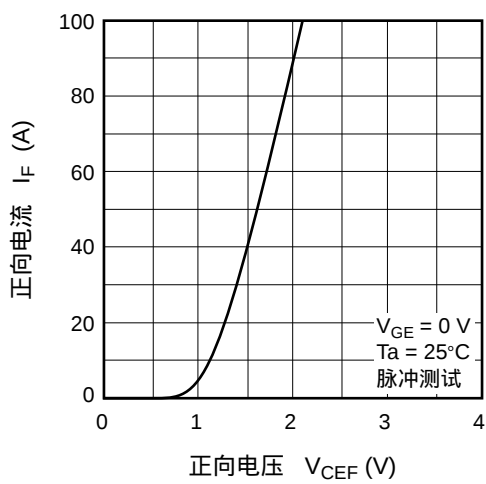
集电极/发射极饱和电压-结温 (典型)



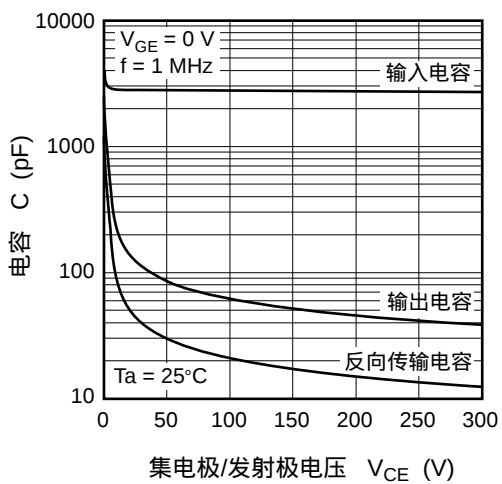
栅极/发射极截止电压-结温 (典型)



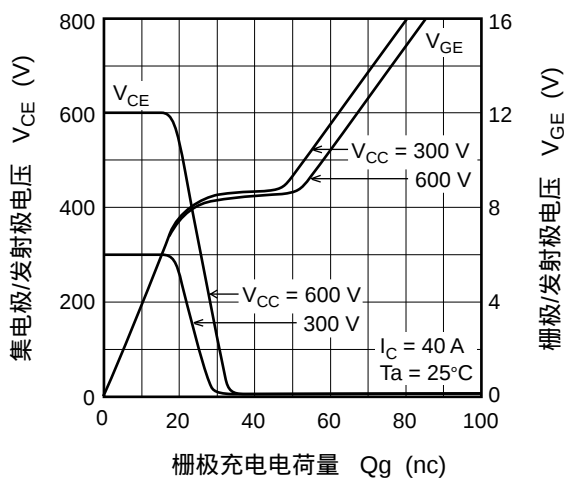
正向电流-正向电压 (典型)



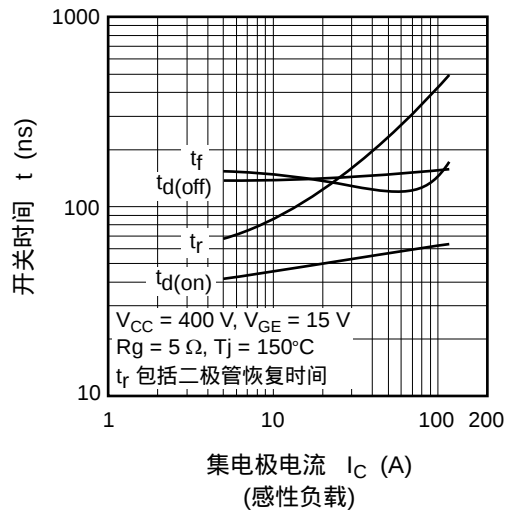
典型电容-集电极/发射极电压



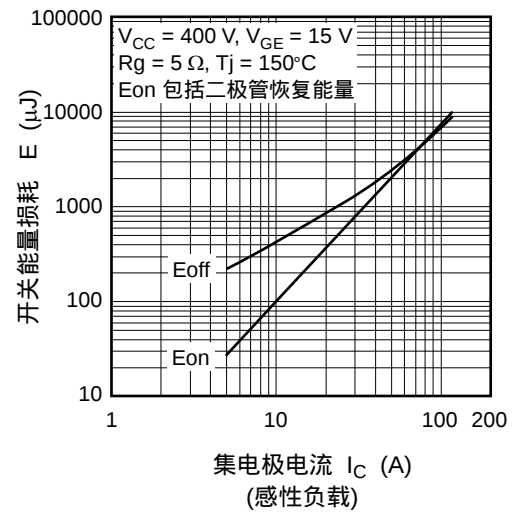
输入时序特性 (典型)



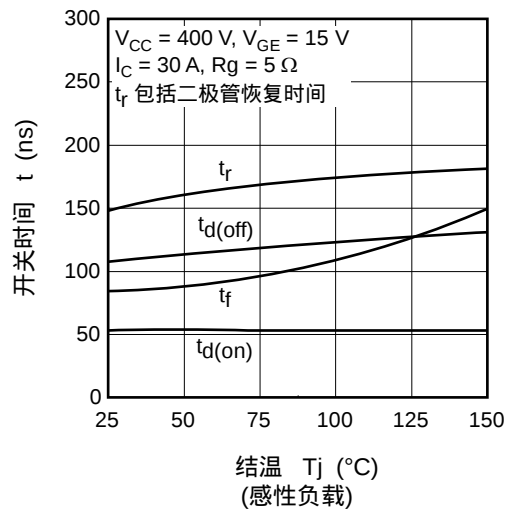
开关特性 (典型) (1)



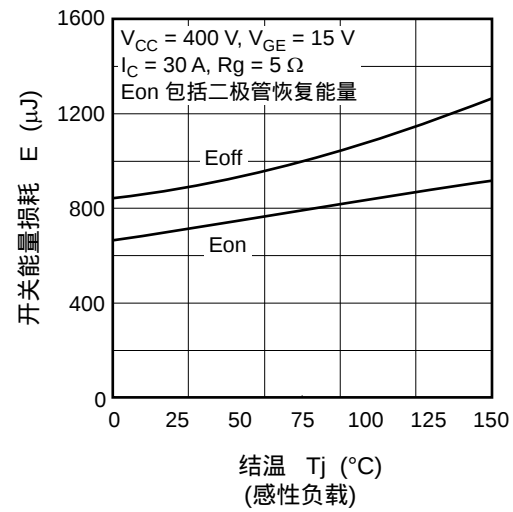
开关特性 (典型) (2)



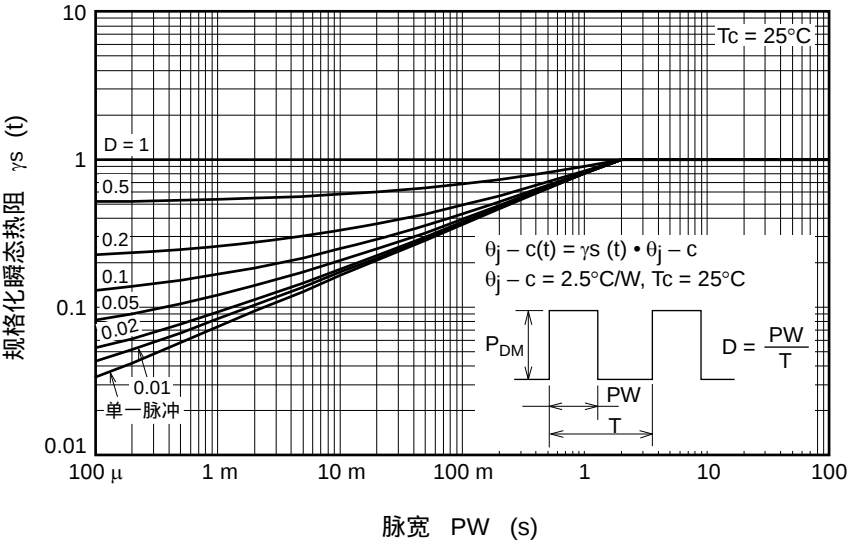
开关特性 (典型) (3)



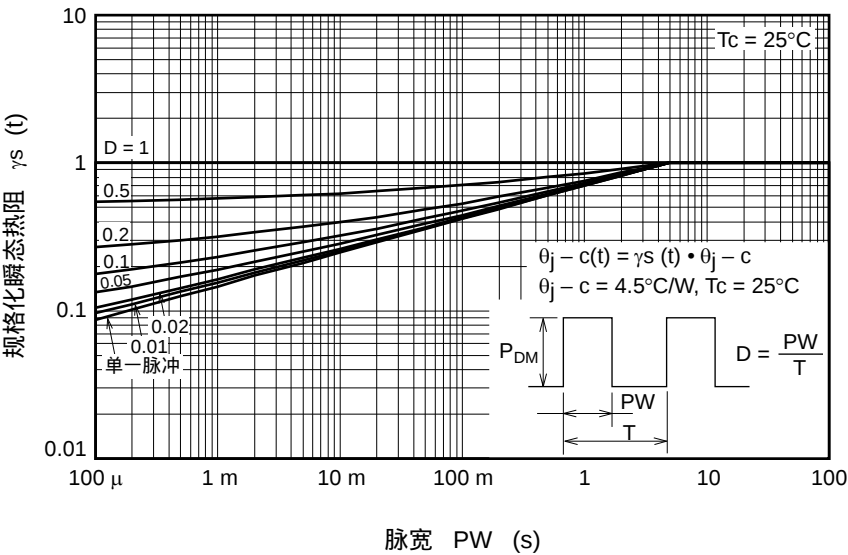
开关特性 (典型) (4)



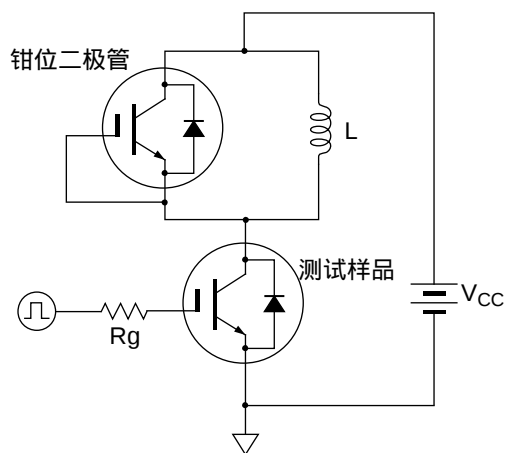
瞬态热阻特性规格化 (绝缘栅双极晶体管)



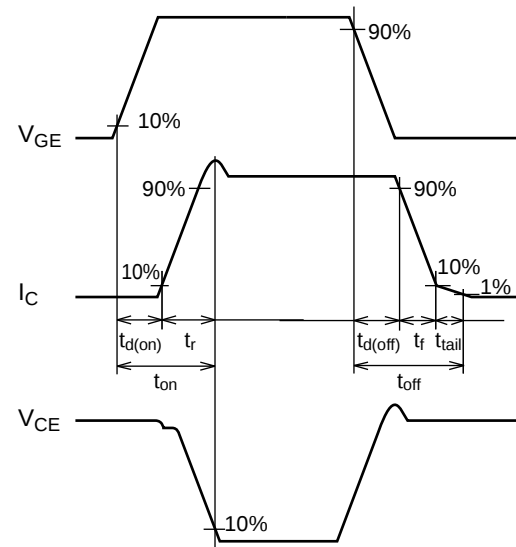
瞬态热阻特性规格化 (二极管)



开关时间测定电路

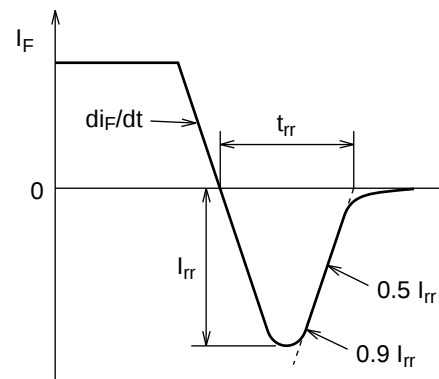
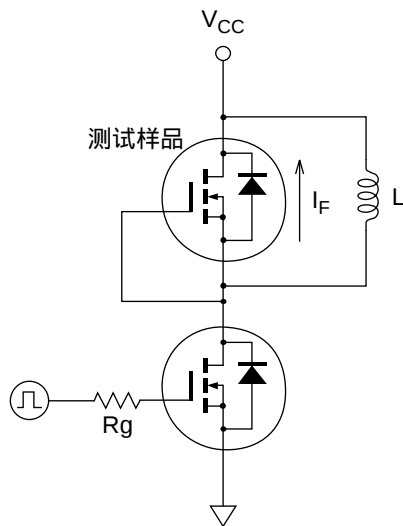


波形

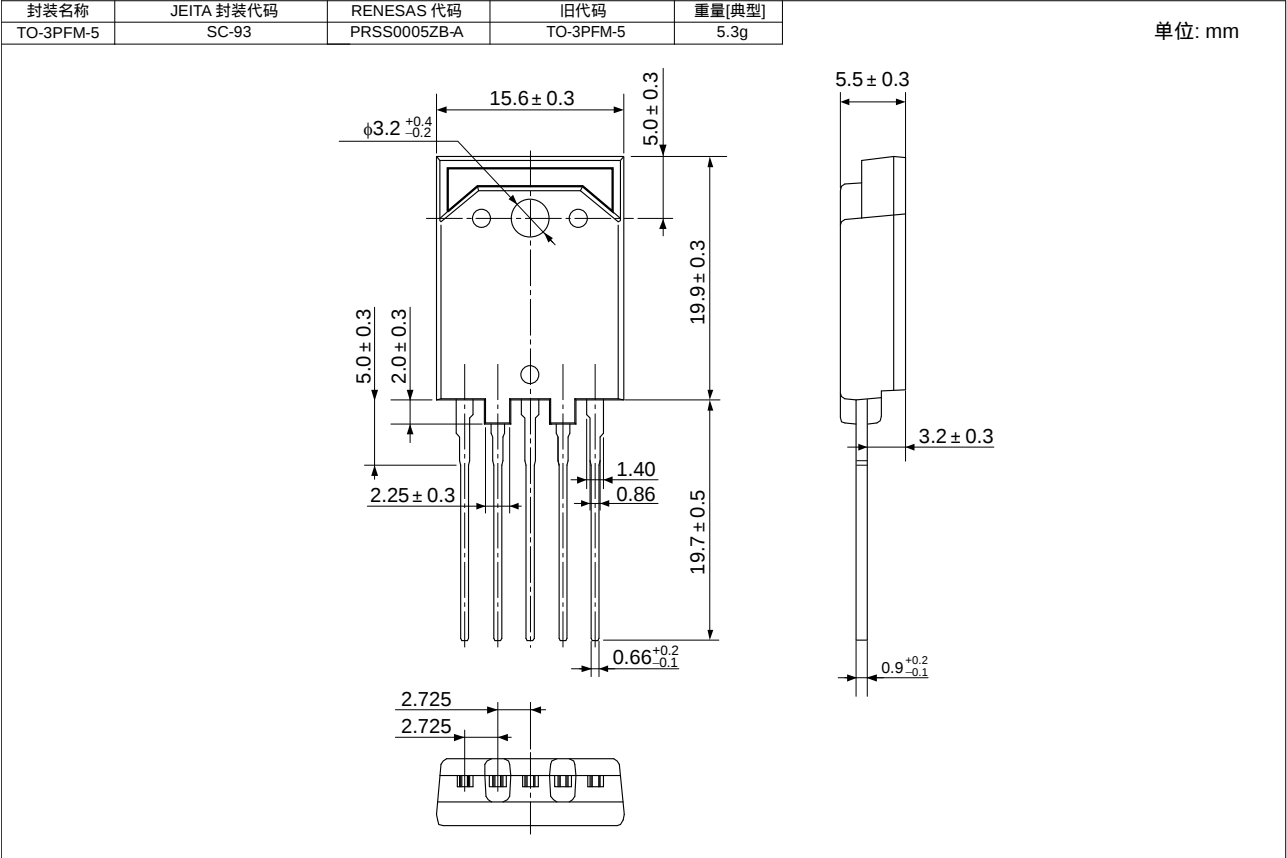


波形

二极管反向恢复时间测定电路



封装尺寸



订购信息

订购型号	数量	运输包装
RJQ6003DPM-00#T0	360 枚	纸盒包装 (管状容器)

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