

# RJK4002DJE

400V - 3A - 场效应晶体管  
快速电源开关

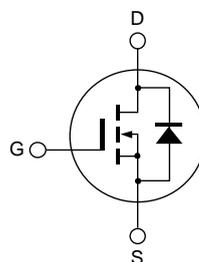
R07DS0842CJ0200  
修订版本 2.00  
Oct 30, 2012

## 特点

- 低漏极/源极通态电阻  
 $R_{DS(on)} = 2.4 \Omega$  典型值 ( $I_D = 1.5 A, V_{GS} = 10 V, T_a = 25^\circ C$ )
- 快速开关时间

## 封装形式

RENESAS 封装代码: PRSS0003DC-A  
(封装名称: TO-92 Mod)



1. 源极
2. 漏极
3. 栅极

## 绝对最大额定值

( $T_a = 25^\circ C$ )

参数	符号	额定值	单位
漏极/源极电压	$V_{DSS}$	400	V
栅极/源极电压	$V_{GSS}$	$\pm 30$	V
漏极电流	$I_D$ <sup>注1</sup>	3	A
脉冲漏极电流	$I_{D(pulse)}$ <sup>注4</sup>	6	A
体二极管反向漏极电流	$I_{DR}$ <sup>注1</sup>	3	A
体二极管反向脉冲漏极电流	$I_{DR(pulse)}$ <sup>注4</sup>	6	A
雪崩电流	$I_{AP}$ <sup>注3</sup>	2.5	A
雪崩能量	$E_{AR}$ <sup>注3</sup>	0.357	mJ
沟道最大容许损耗	$P_{ch}$ <sup>注2</sup>	2.54	W
沟道-环境热阻	$\theta_{ch-a}$	49.2	$^\circ C/W$
沟道温度	$T_{ch}$	150	$^\circ C$
储存温度	$T_{stg}$	-55 to +150	$^\circ C$

- 注:
1. 限于  $T_{ch}$  的最大值
  2. 在  $T_c = 25^\circ C$  的容许值
  3.  $ST_{ch} = 25^\circ C, T_{ch} \leq 150^\circ C$
  4. 脉宽限于安全工作区域

## 电特性

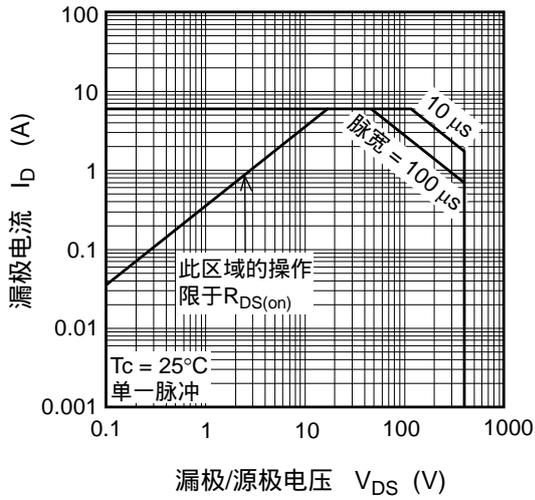
(Ta = 25°C)

参数	符号	最小值	典型值	最大值	单位	测定条件
漏极/源极破坏电压	$V_{(BR)DSS}$	400	—	—	V	$I_D = 10 \text{ mA}, V_{GS} = 0$
漏极截止电流	$I_{DSS}$	—	—	1	$\mu\text{A}$	$V_{DS} = 400 \text{ V}, V_{GS} = 0$
栅极截止电流	$I_{GSS}$	—	—	$\pm 0.1$	$\mu\text{A}$	$V_{GS} = \pm 30 \text{ V}, V_{DS} = 0$
栅极/源极截止电压	$V_{GS(off)}$	3.5	—	4.5	V	$V_{DS} = 10 \text{ V}, I_D = 1 \text{ mA}$
静态漏极/源极通态电阻	$R_{DS(on)}$	—	2.4	2.9	$\Omega$	$I_D = 1.5 \text{ A}, V_{GS} = 10 \text{ V}$ 注5
输入电容	$C_{iss}$	—	165	—	pF	$V_{DS} = 25 \text{ V}$
输出电容	$C_{oss}$	—	25	—	pF	$V_{GS} = 0$
反向传输电容	$C_{rss}$	—	2.6	—	pF	$f = 1 \text{ MHz}$
接通延迟时间	$t_{d(on)}$	—	11	—	ns	$I_D = 1.5 \text{ A}$
上升时间	$t_r$	—	12	—	ns	$V_{GS} = 10 \text{ V}$
关断延迟时间	$t_{d(off)}$	—	23	—	ns	$R_L = 133 \Omega$
下降时间	$t_f$	—	20	—	ns	$R_g = 10 \Omega$
栅极充电电荷量	$Q_g$	—	6.0	—	nC	$V_{DD} = 320 \text{ V}$
栅极/源极充电电荷量	$Q_{gs}$	—	1.2	—	nC	$V_{DS} = 100 \text{ V}$
栅极/漏极充电电荷量	$Q_{gd}$	—	3.4	—	nC	$I_D = 3 \text{ A}$
体二极管正向电压	$V_{DF}$	—	0.9	1.5	V	$I_F = 3 \text{ A}, V_{GS} = 0$ 注5
体二极管反向恢复时间	$t_{rr}$	—	200	—	ns	$I_F = 3 \text{ A}, V_{GS} = 0$ $di_F/dt = 100 \text{ A}/\mu\text{s}$

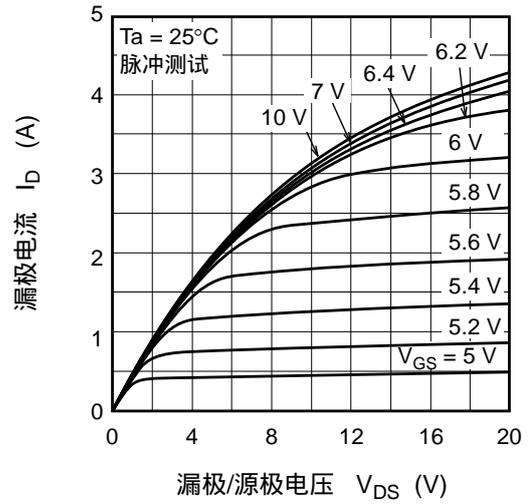
- 注: 5. 脉冲测试  
6. 因为此器件配备高电压 FET 芯片 ( $V_{DSS} \geq 400 \text{ V}$ ), 含高电压供给。因此, 请务必确认漏极终端与其他终端之间的静电放电。  
7. 此为静电敏感器件, 请谨慎处理此产品。

主要特性

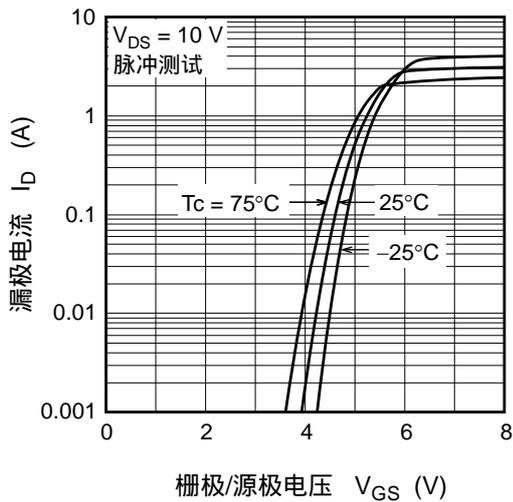
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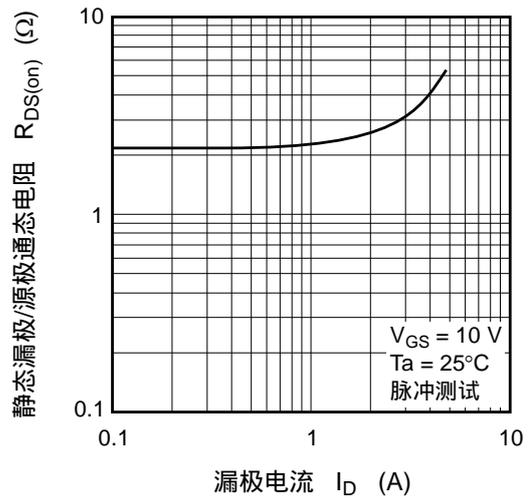
典型输出特性



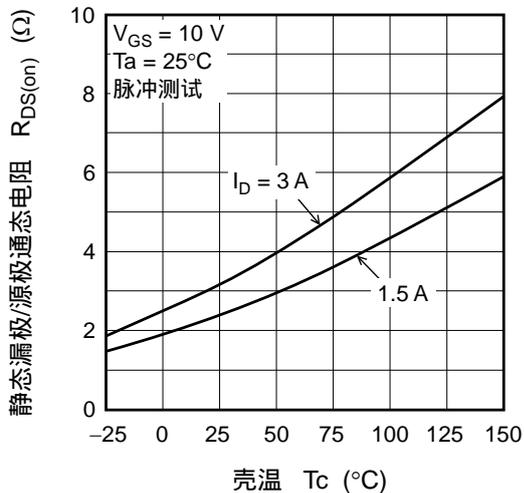
典型传输特性



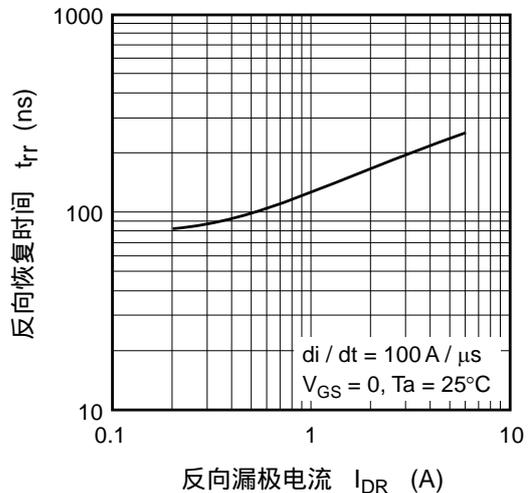
静态漏极/源极通态电阻-漏极电流 (典型)



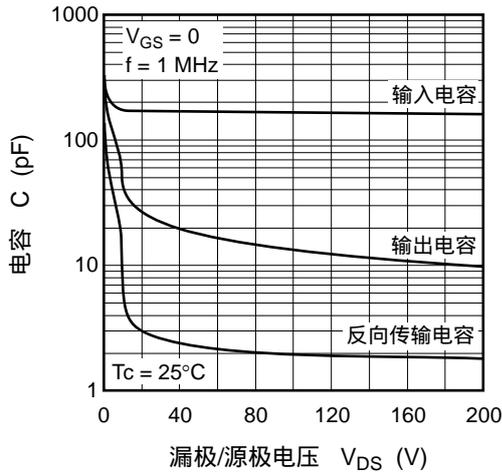
静态漏极/源极通态电阻-壳温 (典型)



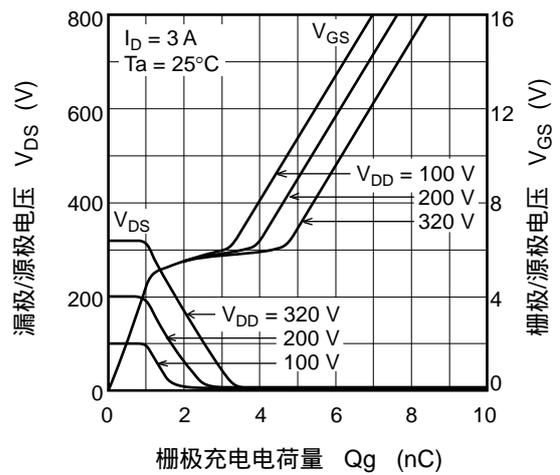
体二极管反向恢复时间 (典型)



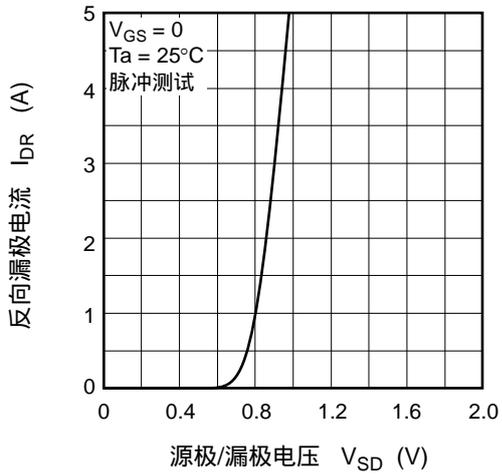
典型电容-漏极/源极电压



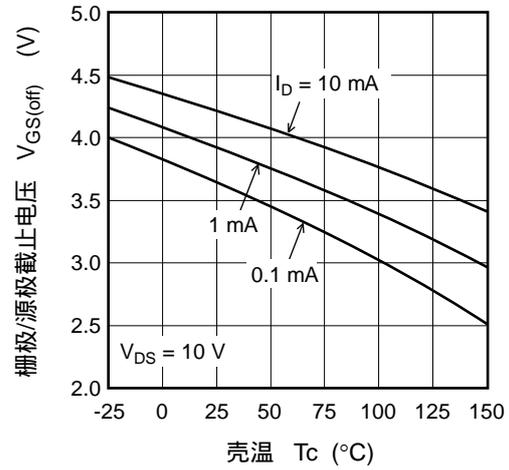
输入时序特性 (典型)



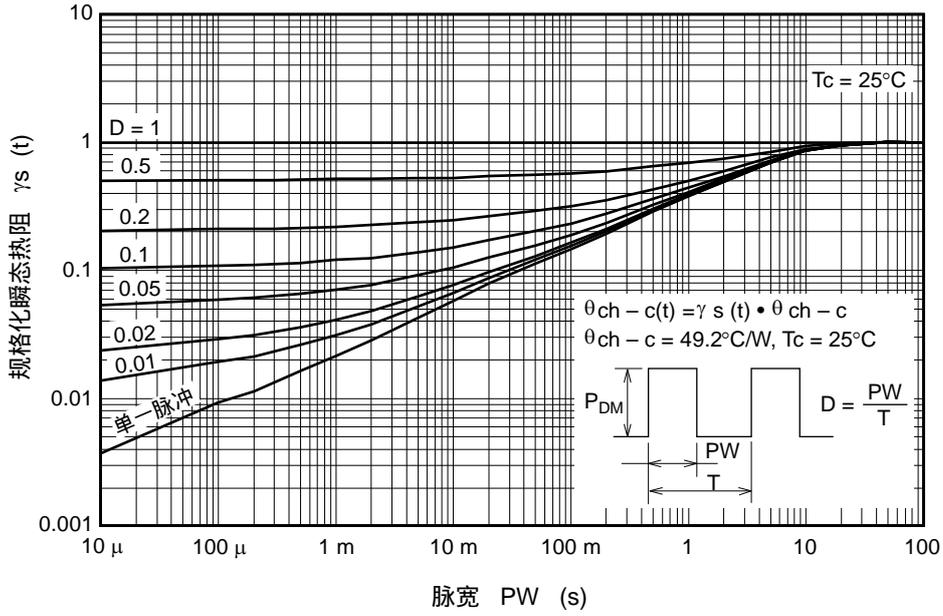
反向漏极电流-源极/漏极电压 (典型)



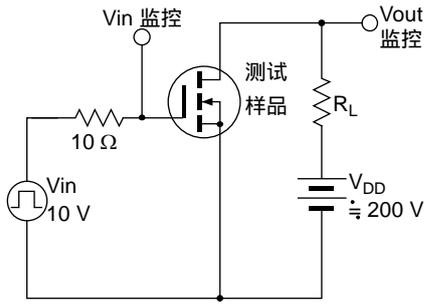
栅极/源极截止电压-壳温 (典型)



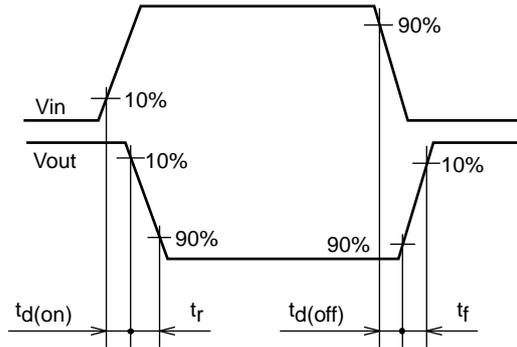
瞬态热阻特性规格化



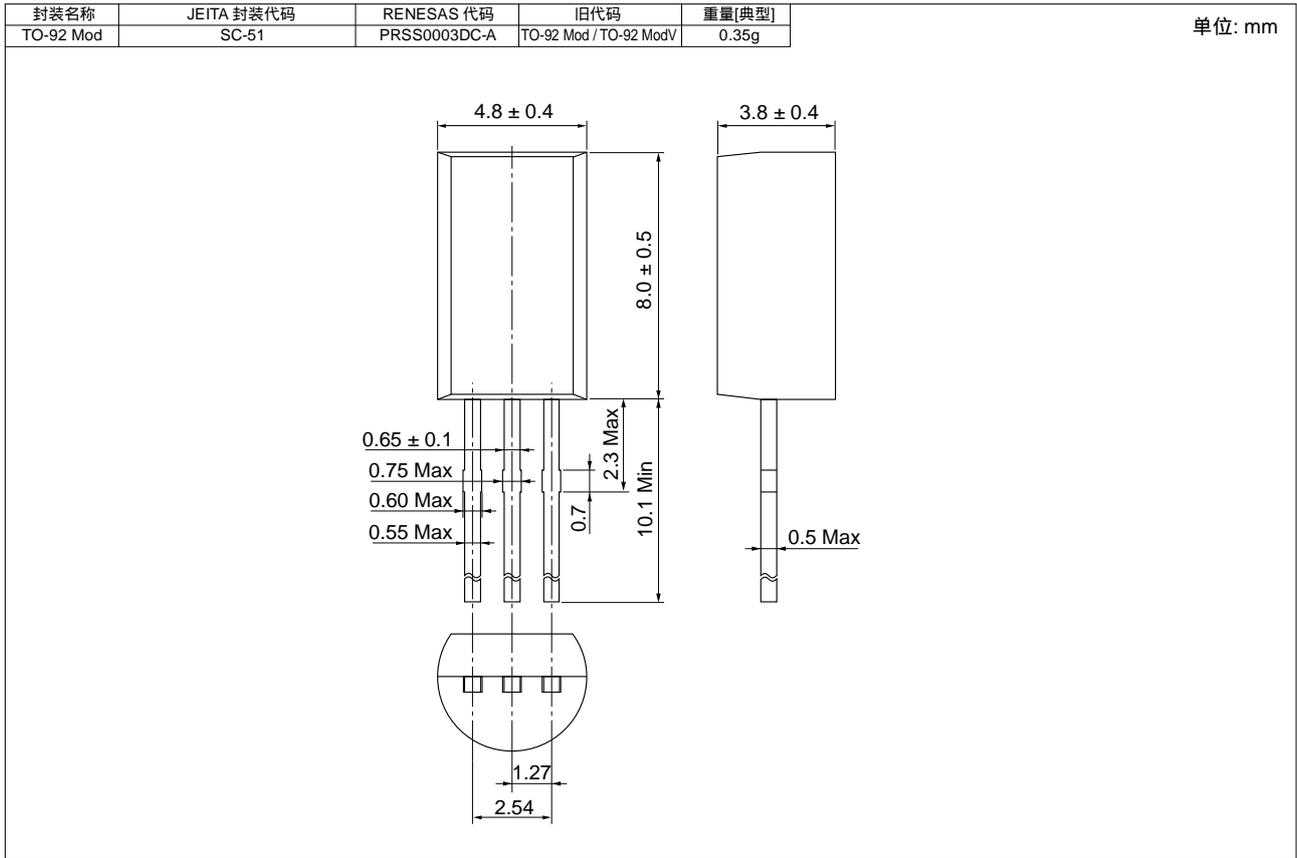
开关时间测定电路



波形



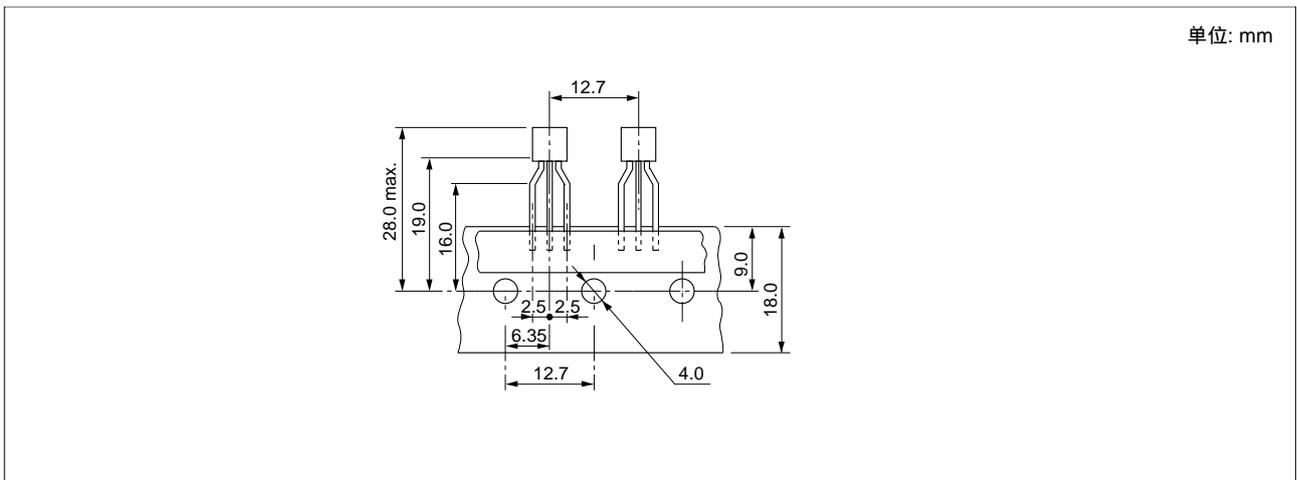
封装尺寸



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注: 下图显示引脚弯曲方式。



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