

RJK60S5DPK-M0

600V - 20A -超结场效应晶体管
快速电源开关

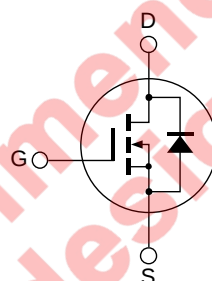
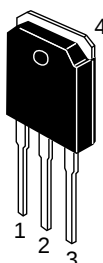
R07DS0245CJ0100
修订版本 4.00
Aug 28, 2012

特点

- 超结场效应晶体管
- 低漏极/源极通态电阻
 $R_{DS(on)} = 0.150 \Omega$ 典型值 ($I_D = 10 A$, $V_{GS} = 10 V$, $T_a = 25^\circ C$)
- 快速开关时间
 $t_f = 23 ns$ 典型值 ($I_D = 10 A$, $V_{GS} = 10 V$, $R_L = 30 \Omega$, $R_g = 10 \Omega$, $T_a = 25^\circ C$)

封装形式

RENESAS 封装代码: PRSS0004ZH-A
(封装名称:TO-3PSG)



- 栅极
- 漏极
- 源极
- 漏极

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}	600	V
栅极/源极电压	V_{GSS}	+30, -20	V
漏极电流	I_D 注1	20	A
	I_D 注1	12.6	A
脉冲漏极电流	$I_{D(pulse)}$ 注1	40	A
体二极管反向漏极电流	I_{DR} 注1	20	A
体二极管反向脉冲漏极电流	$I_{DR(pulse)}$ 注1	40	A
雪崩电流	I_{AP} 注3	5	A
雪崩能量	E_{AR} 注3	1.36	mJ
沟道最大容许损耗	P_{ch} 注2	192.3	W
沟道-外壳间热阻	θ_{ch-c}	0.65	$^\circ C/W$
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. $ST_{ch} = 25^\circ C$, $T_{ch} \leq 150^\circ C$

电特性

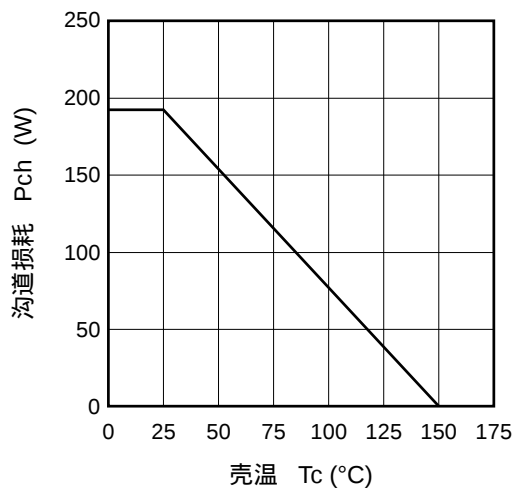
(Ta = 25°C)

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	$V_{(BR)DSS}$	600	—	—	V	$I_D = 10 \text{ mA}$, $V_{GS} = 0$
漏极截止电流	I_{DSS}	—	—	1	mA	$V_{DS} = 600 \text{ V}$, $V_{GS} = 0$
栅极截止电流	I_{GSS}	—	—	± 0.1	μA	$V_{GS} = +30\text{V}$, -20 V , $V_{DS} = 0$
栅极/源极截止电压	$V_{GS(off)}$	3	—	5	V	$V_{DS} = 10 \text{ V}$, $I_D = 1 \text{ mA}$
静态漏极/源极通态电阻	$R_{DS(on)}$	—	0.150	0.178	Ω	$I_D = 10 \text{ A}$, $V_{GS} = 10 \text{ V}$ 注4
	$R_{DS(on)}$	—	0.375	—	Ω	Ta = 150°C $I_D = 10 \text{ A}$, $V_{GS} = 10 \text{ V}$ 注4
栅极电阻	Rg	—	2.5	—	Ω	f = 1 MHz $V_{DS} = 25 \text{ V}$, $V_{GS} = 0$
输入电容	Ciss	—	1600	—	pF	$V_{DS} = 25 \text{ V}$
输出电容	Coss	—	2160	—	pF	$V_{GS} = 0$
反向传输电容	Crss	—	8.2	—	pF	f = 100kHz
接通延迟时间	$t_{d(on)}$	—	23	—	ns	$I_D = 10 \text{ A}$
上升时间	t_r	—	25	—	ns	$V_{GS} = 10 \text{ V}$
关断延迟时间	$t_{d(off)}$	—	49	—	ns	$R_L = 30 \Omega$
下降时间	t_f	—	23	—	ns	Rg = 10 Ω 注4
总栅极充电电荷量	Qg	—	27	—	nC	$V_{DD} = 480 \text{ V}$
栅极/源极充电电荷量	Qgs	—	10.5	—	nC	$V_{GS} = 10 \text{ V}$
栅极/漏极充电电荷量	Qgd	—	8.5	—	nC	$I_D = 20 \text{ A}$ Note4
体二极管正向电压	V_{DF}	—	0.96	1.60	V	$I_F = 20 \text{ A}$, $V_{GS} = 0$ 注4
体二极管反向恢复时间	t_{rr}	—	400	—	ns	$I_F = 20 \text{ A}$
体二极管反向恢复电流	I_{rr}	—	25	—	A	$V_{GS} = 0$
体二极管反向恢复电荷	Qrr	—	5.6	—	μC	$di_F/dt = 100 \text{ A}/\mu\text{s}$ 注4

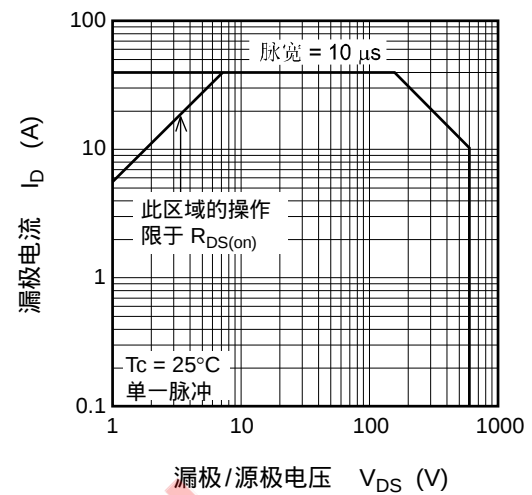
注: 4. 脉冲测试

主要特性

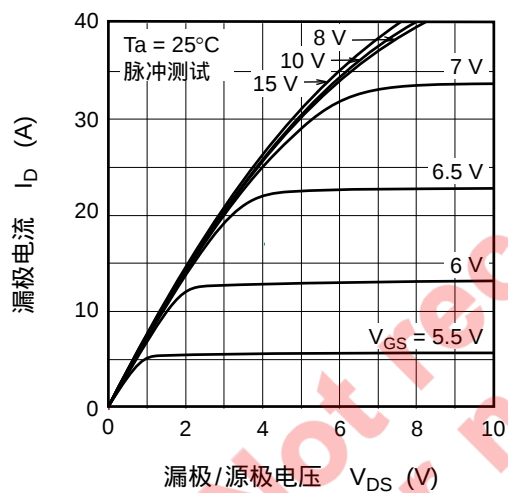
沟道损耗-壳温



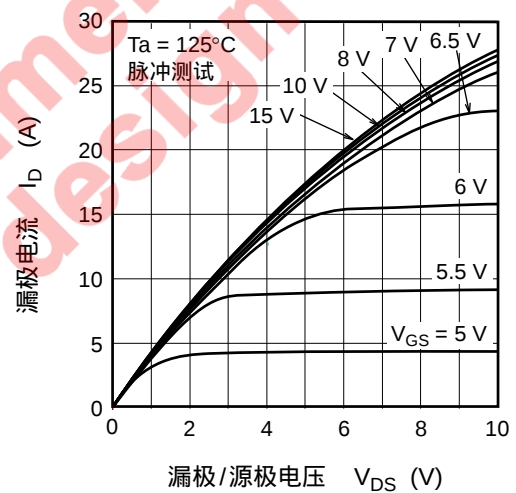
最大安全工作区域



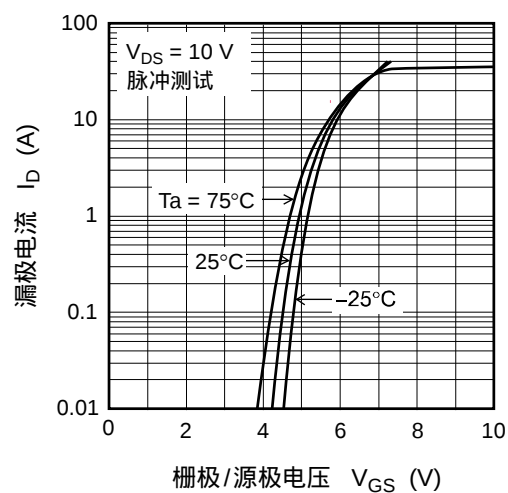
典型输出特性



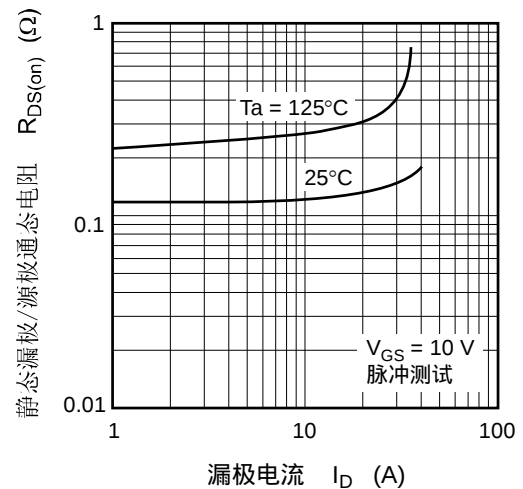
典型输出特性

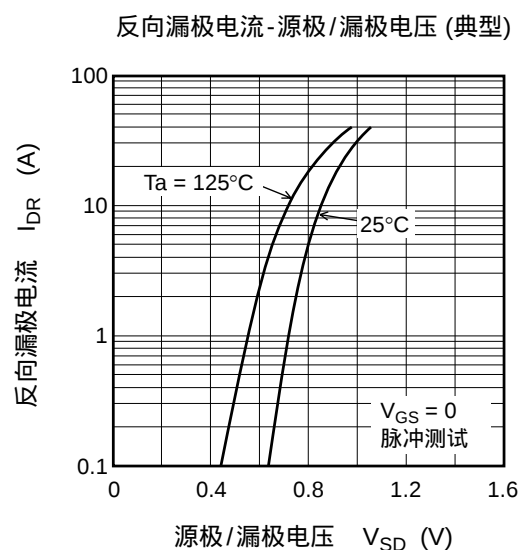
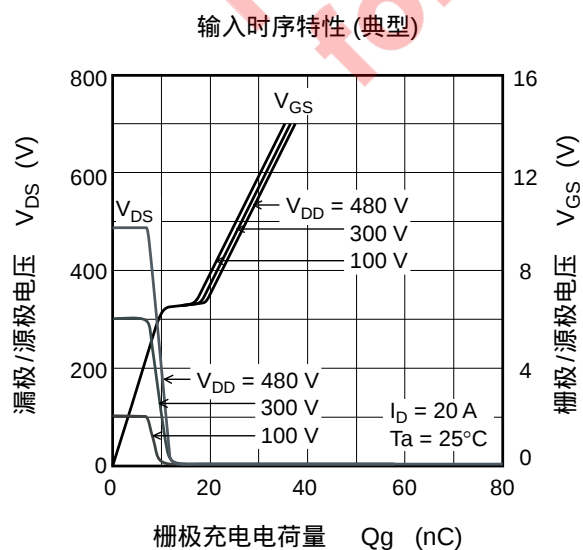
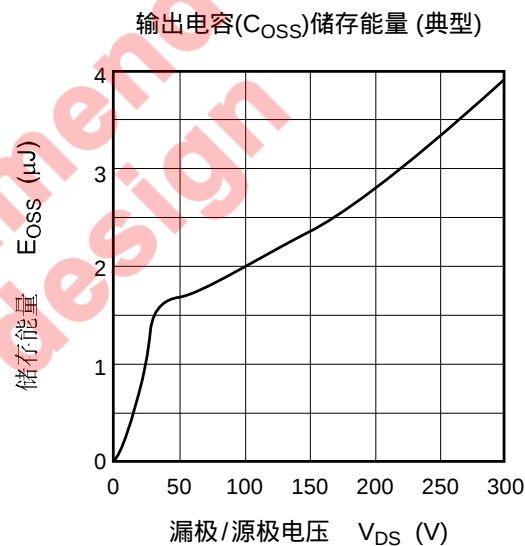
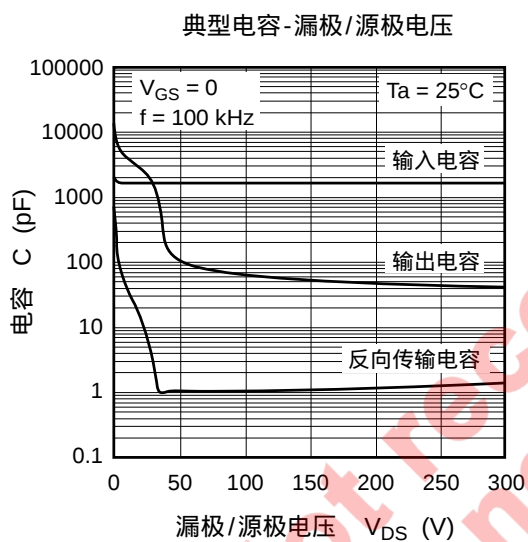
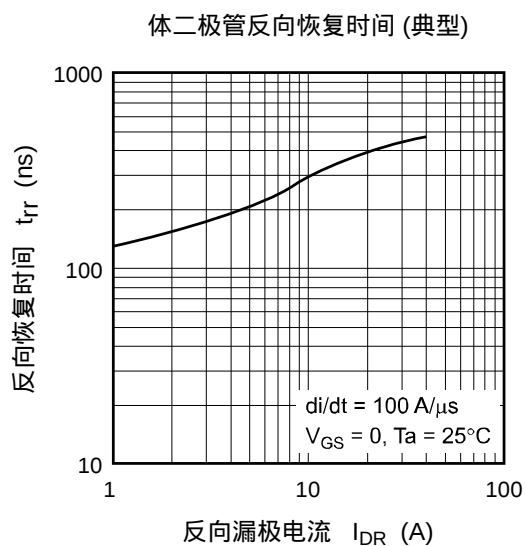
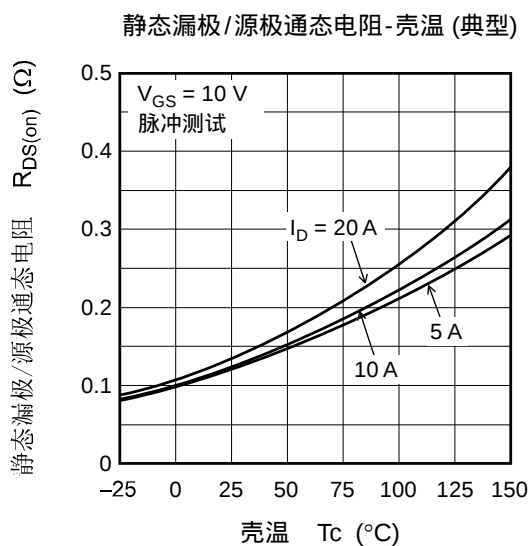


典型传输特性

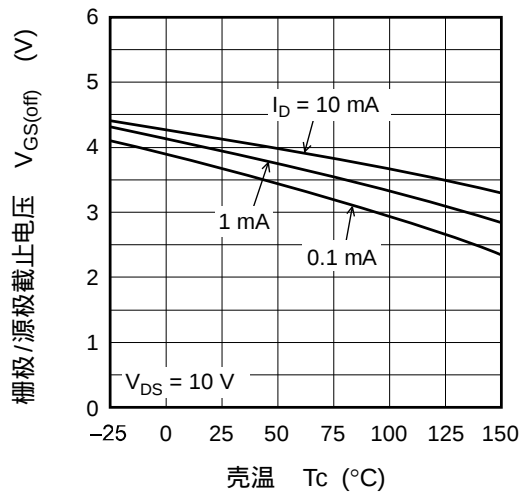


静态漏极/源极通态电阻-漏极电流 (典型)

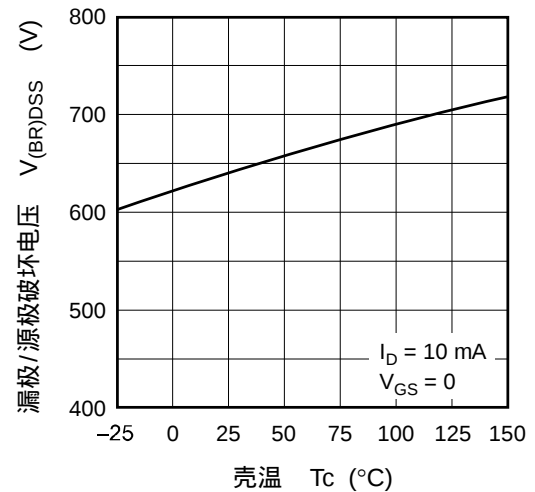




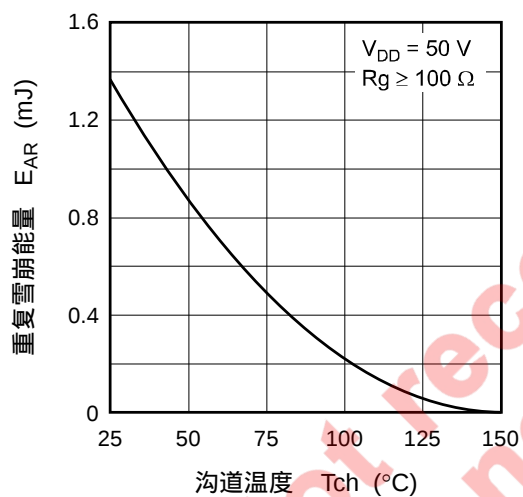
栅极/源极截止电压-壳温 (典型)



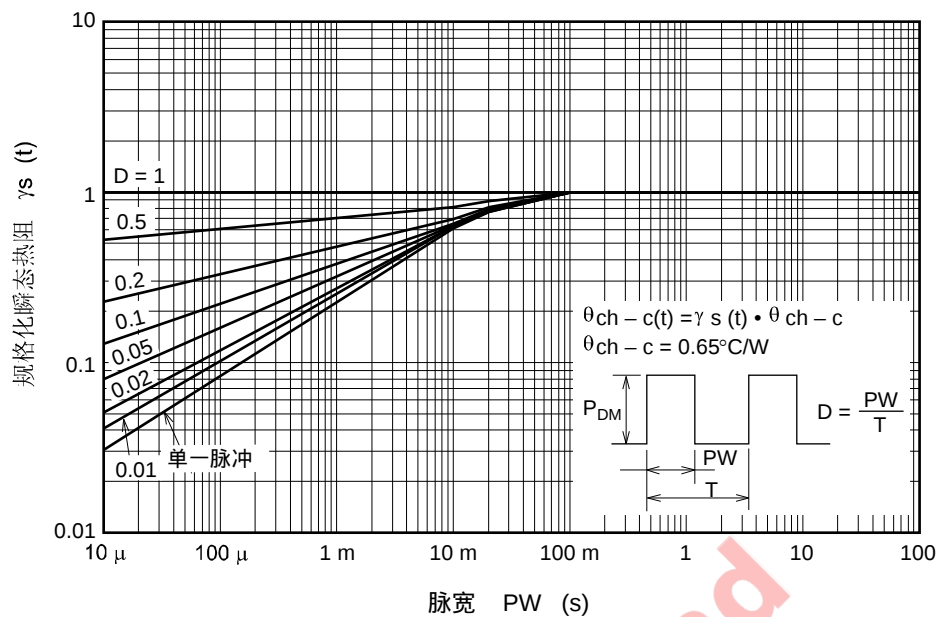
漏极/源极破坏电压-壳温 (典型)



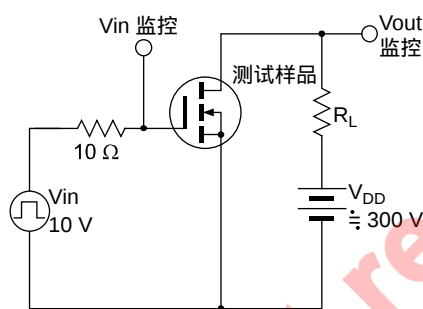
最大雪崩能量-沟道温度降额



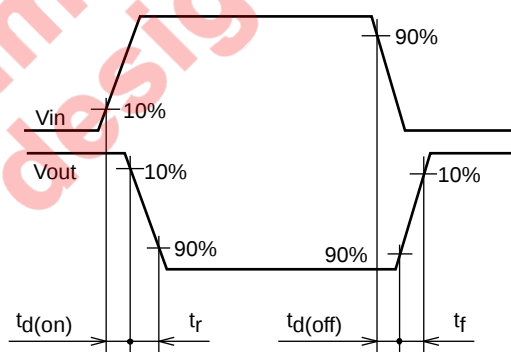
瞬态热阻特性规格化



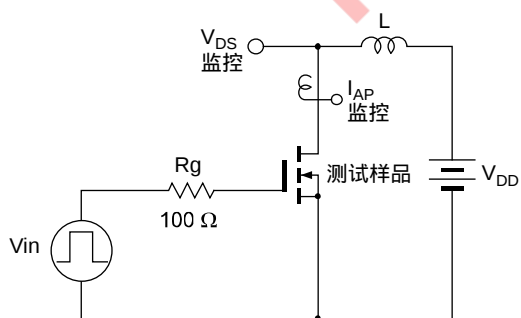
开关时间测定电路



波形

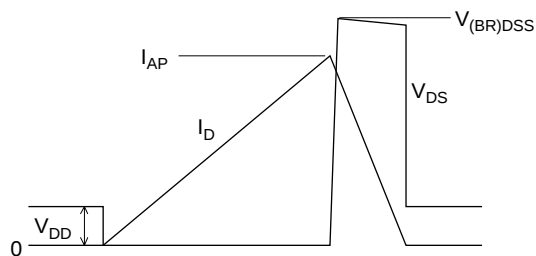


雪崩测定电路



雪崩波形

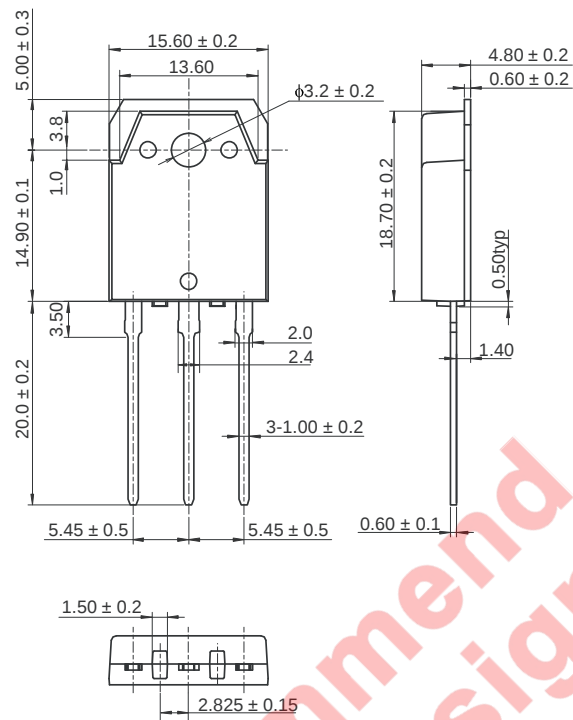
$$E_{AR} = \frac{1}{2} L \square I_{AP}^2 \square \frac{V_{DSS}}{V_{DSS} - V_{DD}}$$



封装尺寸

封装名称	JEITA 封装代码	RENESAS 代码	旧代码	重量[典型]
TO-3PSG	—	PRSS0004ZH-A	TO-3PSG/TO-3PSGV	3.7g

单位: mm



订购信息

订购型号	数量	运输包装
RJK60S5DPK-M0#T0	360 枚	纸盒包装 (管状容器)

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