RJH60F5BDPQ-A0

600V - 40A -绝缘栅双极晶体管
快速电源开关

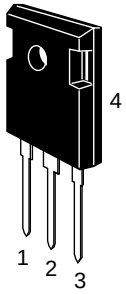
R07DS0631CJ0100
修订版本 1.00
Sep 13, 2012

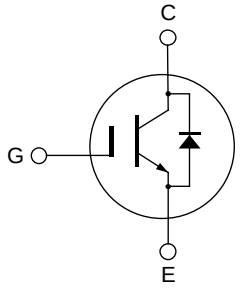
特点

- 低集电极/发射极饱和电压
  $V_{CE(sat)}$ = 1.37 V 典型值 (I_C = 40 A, V_{GE} = 15 V, Ta = 25°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 = 68 ns 典型值(I_C = 30 A, V_{CE} = 400 V, V_{GE} = 15 V, Rg = 5 Ω, Ta = 25°C, 感性负载)

封装形式

RENESAS 封装代码: PRSS0003ZH-A
(封装名称: TO-247A)





1. 栅极
2. 集电极
3. 发射极
4. 集电极

绝对最大额定值

(Tc = 25°C)

参数		符号	额定值	单位
集电极/发射极电压		V_{CES}	600	V
栅极/发射极电压		V_{GES}	±30	V
集电极电流	Tc = 25 °C	I_C	80	A
	Tc = 100 °C	I_C	40	A
集电极脉冲电流		ic(peak) 注 1	160	A
集电极/发射极二极管正向脉冲电流		i_{DF}(peak) 注 2	100	A
集电极最大容许功率损耗		P_C	260.4	W
结壳热阻 (绝缘栅双极晶体管)		θj-c	0.48	°C/W
结壳热阻 (二极管)		θj-cd	1.1	°C/W
结温		Tj	150	°C
储存温度		Tstg	–55 to +150	°C

注: 1. 脉宽限于安全工作区域
2. 在 PW ≤ 5 μs, 工作周期 ≤ 1% 的容许值

电特性

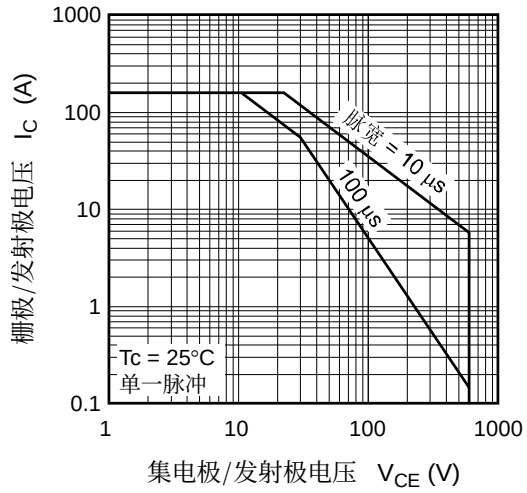
(Tj = 25°C)

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} = 600V, 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	—	8	V	V_{CE} = 10 V, I_C = 1 mA
集电极/发射极饱和电压	$V_{CE(sat)}$	—	1.37	1.8	V	I_C = 40 A, V_{GE} = 15 V 注 3
	$V_{CE(sat)}$	—	1.7	—	V	I_C = 80 A, V_{GE} = 15 V 注 3
输入电容	Cies	—	2780	—	pF	V_{CE} = 25 V V_{GE} = 0 V f = 1 MHz
输出电容	Coes	—	122	—	pF	
反向传输电容	Cres	—	43	—	pF	
接通延迟时间	$t_{d(on)}$	—	53	—	ns	I_C = 30 A, V_{CE} = 400 V, V_{GE} = 15 V Rg = 5 Ω 注 3 感性负载
上升时间	t_r	—	34	—	ns	
关断延迟时间	$t_{d(off)}$	—	95	—	ns	
下降时间	t_f	—	68	—	ns	
集电极/发射极二极管正向电压	V_{ECF}	—	2.5	3.0	V	I_F = 30 A 注 3
集电极/发射极二极管反向恢复时间	t_{rr}	—	25	—	ns	I_F = 30 A di_F/dt = 100 A/μs

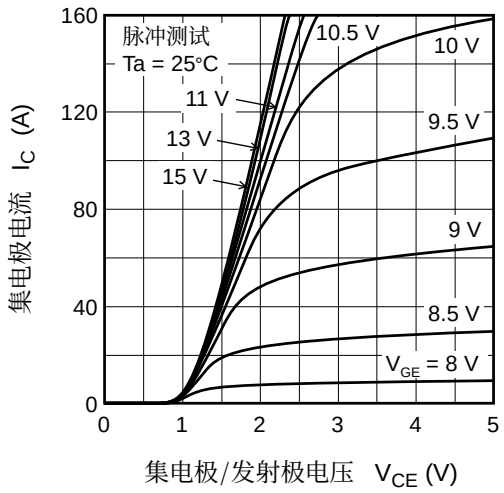
注: 3. 脉冲测试

主要特性

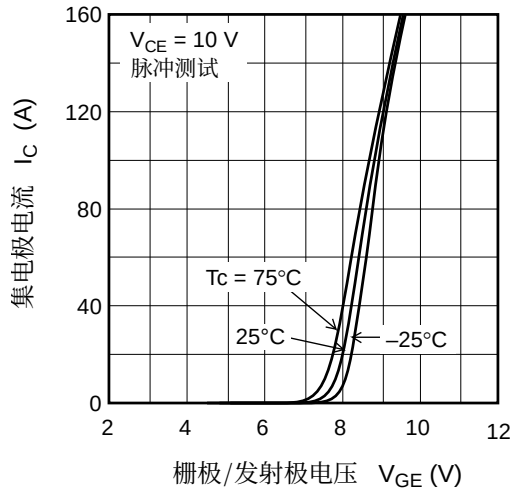
最大安全工作区域



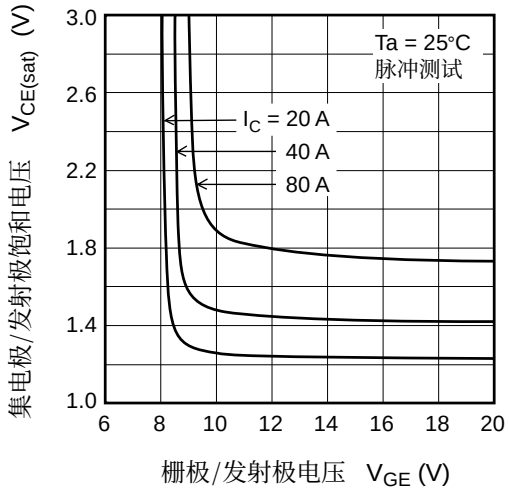
典型输出特性



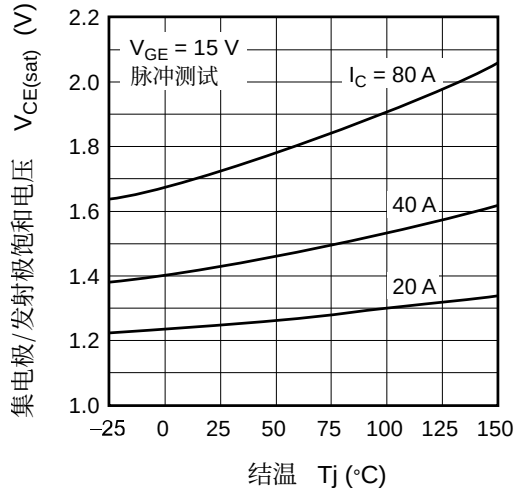
典型传输特性



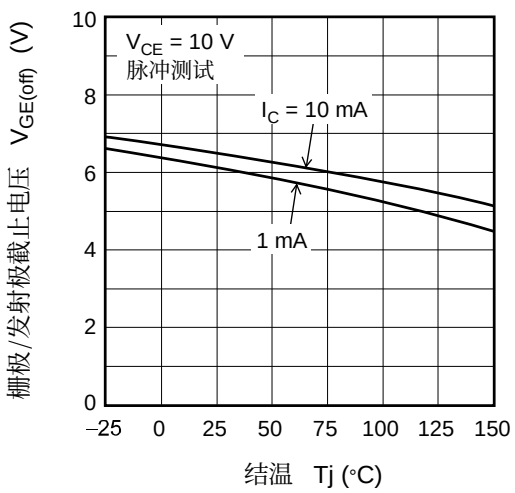
集电极/发射极饱和电压-栅极/发射极电压 (典型)



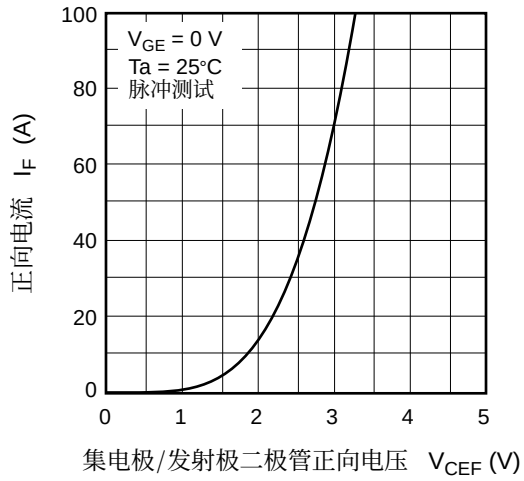
集电极/发射极饱和电压-结温 (典型)



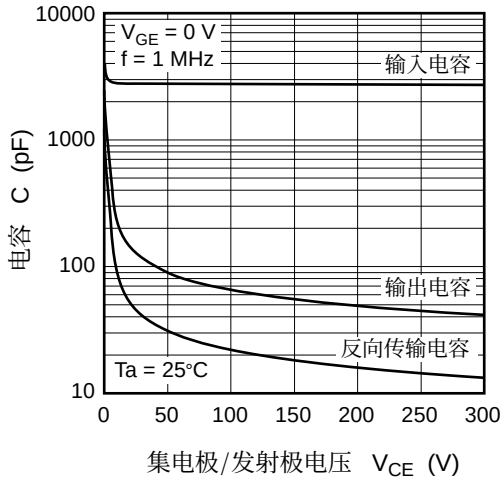
栅极/发射极截止电压-结温 (典型)



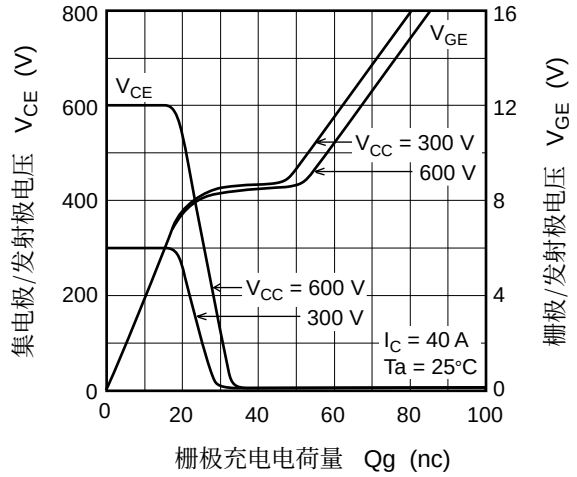
正向电流-正向电压 (典型)



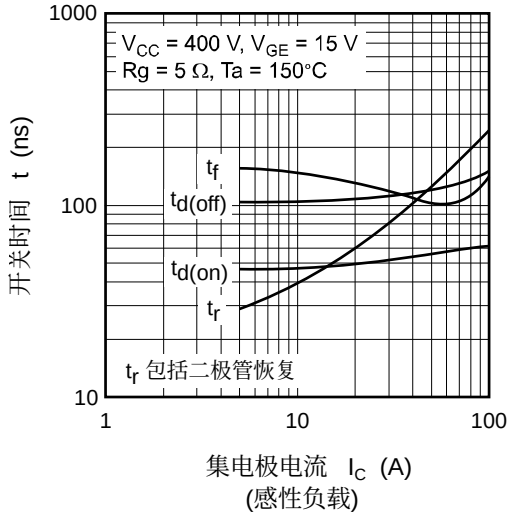
典型电容-集电极/发射极电压



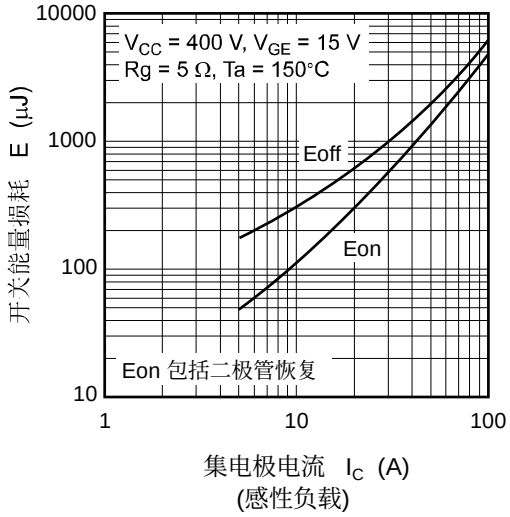
输入时序特性 (典型)



开关特性 (典型) (1)



开关特性 (典型) (2)



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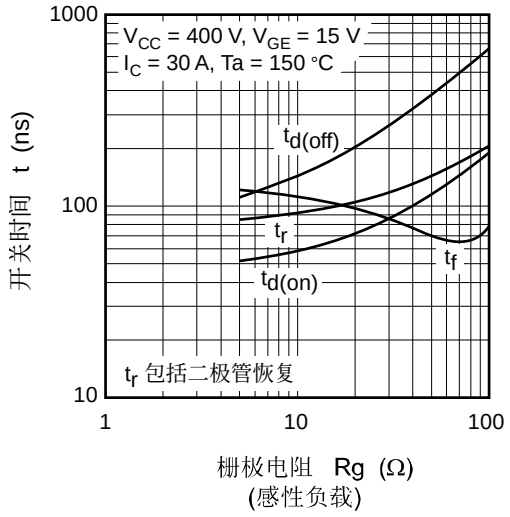
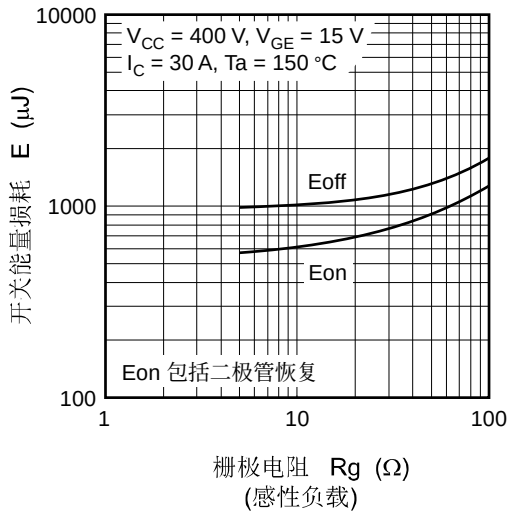
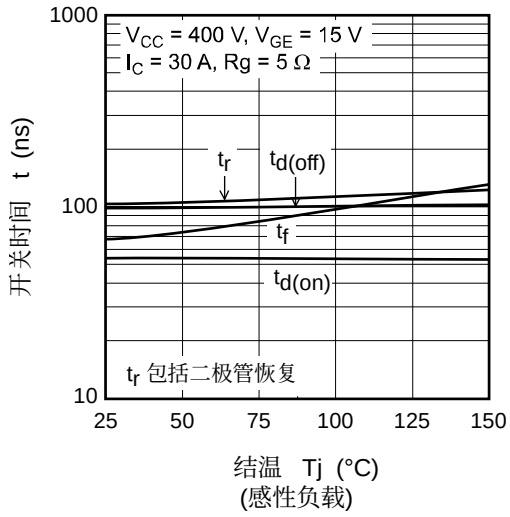


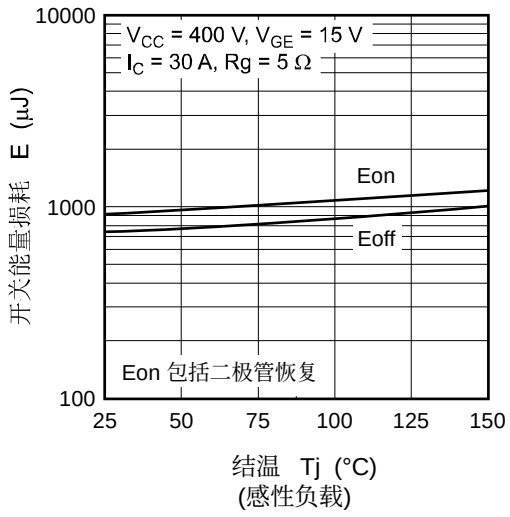
开关特性 (典型) (4)



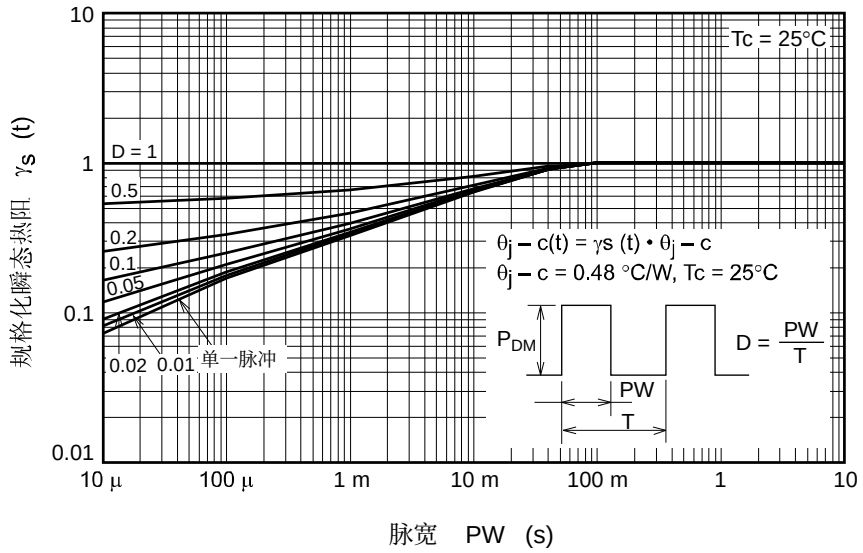
开关特性 (典型) (5)



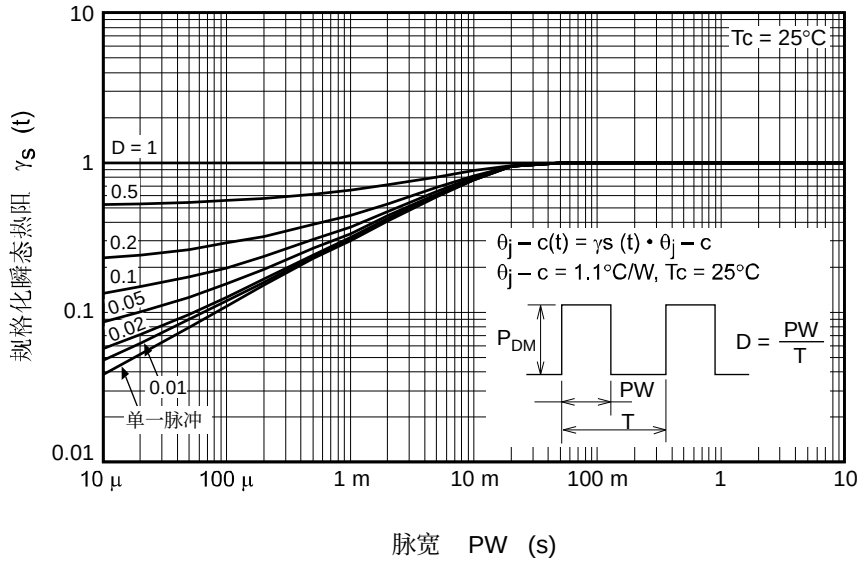
开关特性 (典型) (6)



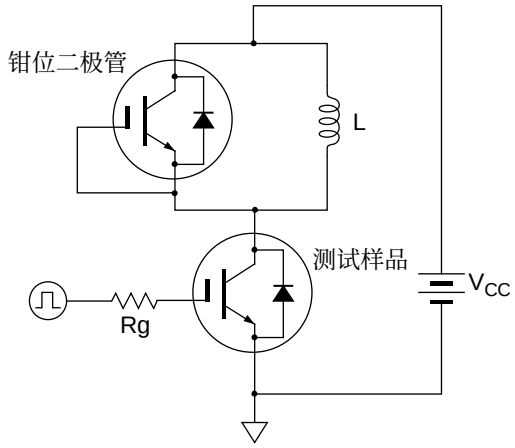
瞬态热阻特性规格化 (绝缘栅双极晶体管)



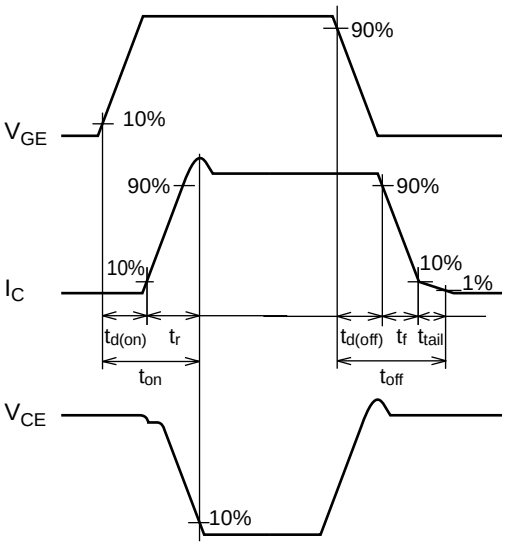
瞬态热阻特性规格化 (二极管)



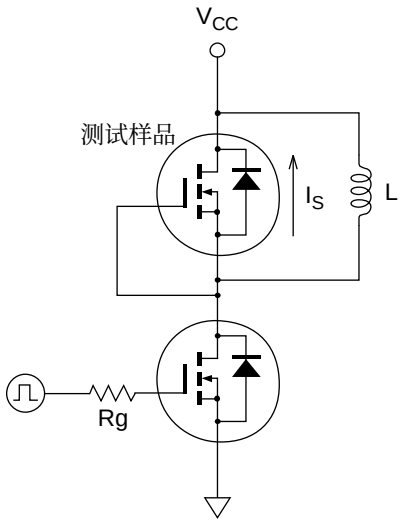
开关时间测定电路



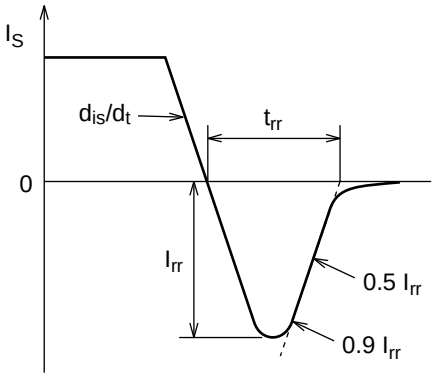
波形



二极管反向恢复时间测定电路



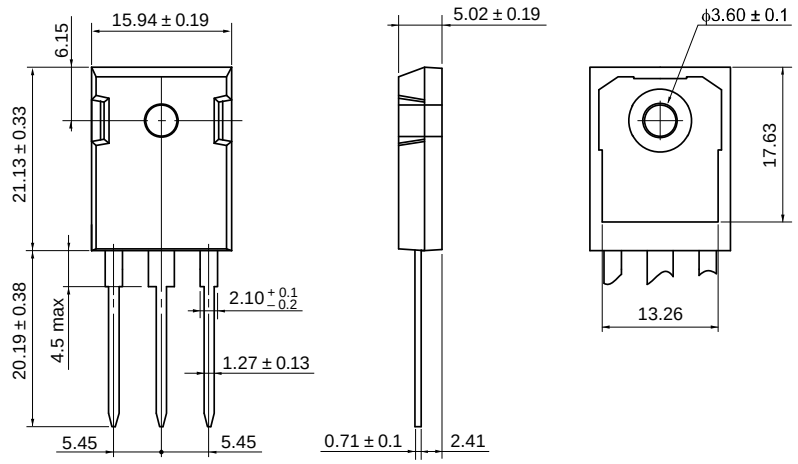
波形



封装尺寸

封装名称	JEITA 封装代码	RENESAS 代码	旧代码	重量[典型]
TO-247A	—	PRSS0003ZH-A	—	6.14g

单位: mm



订购信息

订购型号	数量	运输包装
RJH60F5BDPQ-A0#T0	240 枚	纸盒包装 (管状容器)

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8. 关于环境保护方面的详细内容，例如每种瑞萨电子产品的环境兼容性等，请与瑞萨电子的营业部门联系。使用瑞萨电子产品时，请遵守对管制物质的使用或含量进行管理的所有相应法律法规（包括但不限于《欧盟RoHS指令》）。对于因用户未遵守相应法律法规而导致的损害或损失，瑞萨电子不承担任何责任。
9. 不可将瑞萨电子产品和技术用于或者嵌入日本国内或海外相应的法律法规所禁止生产、使用及销售的任何产品或系统中。也不可将本文档中记载的瑞萨电子产品或技术用于与军事应用或者军事用途有关的任何目的（如大规模杀伤性武器的开发等）。在将本文档中记载的瑞萨电子产品或技术进行出口时，应当遵守相应的出口管制法律法规，并按照上述法律法规所规定的程序进行。
10. 向第三方分销或处分产品或者以其他方式将产品置于第三方控制之下的瑞萨电子产品买方或分销商，有责任事先向上述第三方通知本文档规定的内容和条件；对于用户或第三方因非法使用瑞萨电子产品而遭受的任何损失，瑞萨电子不承担任何责任。
11. 在事先未得到瑞萨电子书面认可的情况下，不得以任何形式部分或全部转载或复制本文档。
12. 如果对本文档所记载的信息或瑞萨电子产品有任何疑问，或者用户有任何其他疑问，请向瑞萨电子的营业部门咨询。

(注1) 瑞萨电子：在本文档中指瑞萨电子株式会社及其控股子公司。
(注2) 瑞萨电子产品：指瑞萨电子开发或生产的任何产品。

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