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38D2 群

AD 转换器（通过 ADKEY 从停止模式返回）

1. 要点

本篇资料介绍了一个如何使用 38D2 群 AD 转换器（通过 ADKEY 从停止模式返回）的例子。

2. 说明

该应用说明适用于以下 MCU 和参数：

适用的 MCU：38D2 群

振荡频率：内部振荡器（5MHz）

由于 SFR 位的配置关系，此参考程序可能包含一些对未使用功能位的操作。请根据用户系统的使用情况设置这些位的值。

3. 内容

3.1 通过 ADKEY 从停止模式返回

概要: 通过模拟输入管脚 P4₂/AN₂/ADKEY 的输入使 MCU 从停止模式返回。

详述:

- P4₂/AN₂/ADKEY 管脚作为模拟输入管脚。
- 通过 KEY4 或 KEY5 输入到模拟输入管脚, 使 MCU 从停止模式返回。
- 返回后, 应用定时器计数实现每 5ms 读取一次 A/D 转换结果。
- A/D 转换结果的确定值是从 10 次 A/D 转换结果的总和中减去一个最小值和一个最大值, 而后取剩余 8 次转换结果的平均值而得到的。
- 10 位 A/D 模式。
- A/D 转换结果的确定值表明了哪个键被按下。两次结果一致时确定此键被按下。

表 3.1 为用于键确认的值和键码, 表 3.2 为程序中用到的 RAM 区域及定义。

表 3.1 用于键确认的值和键码

按下的键	无键按下	KEY1	KEY2	KEY3	KEY4 *	KEY5 *
AN ₂ 上的理想电压值	5V	4V	3.75V	3.33V	2.5V	0V
理想的 A/D 转换结果	1023	820	769	684	514	0
用于键确认的值	1023~921	920~794	793~726	725~599	598~257	256~0
键码	0	1	2	3	4	5

* 用于从停止模式返回

图 3.1 为连接图, 图 3.2 为相关寄存器的设定, 图 3.3 和 3.4 为程序流程图。

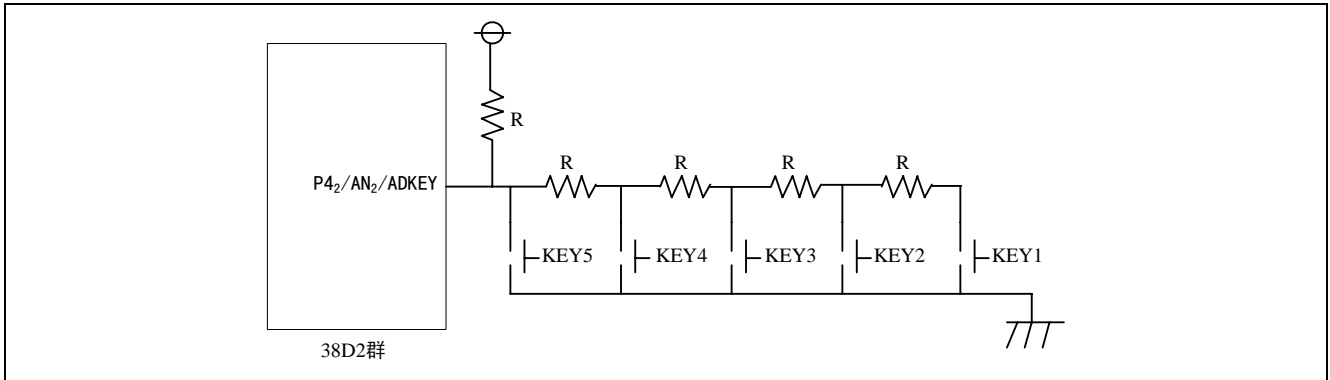


图 3.1 连接图

表 3.2 程序中用到的 RAM 区域及定义

地址(H)	标号 数据类型	初始值	大小(字节)	描述	Min(H)	Max(H)	标志
0050	C_AD	00H	1	A/D 计数	00	0A	—
0051	B_AD	00H	2	最新 A/D 转换值	00	0FFC0	—
0053	B_ADmax	00H	2	最大 A/D 转换值	00	03FF	—
0055	B_ADmin	00H	2	最小 A/D 转换值	00	03FF	—
0057	B_ADsum	00H	2	A/D 转换值的和	00	27F6	—
0059	B_ADfix	00H	2	A/D 转换的确定值	00	03FF	—
005B	B_KEYcode	00H	1	上一个键码	00	5	—
005C	D_KEYcode	00H	1	最新键码	00	5	—
005D	B_WORK	00H	3	WORK	00	FFFFFF	—

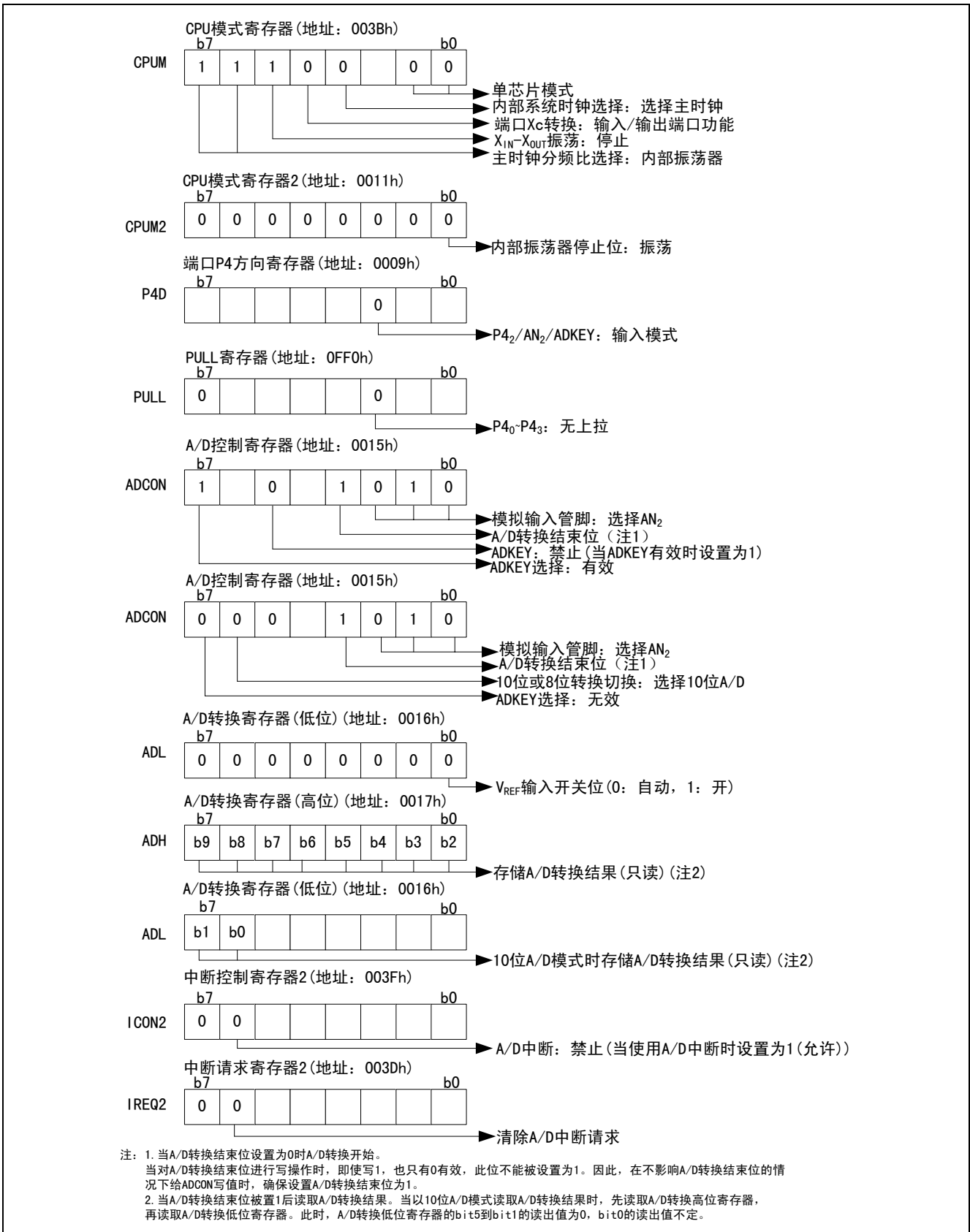


图 3.2 相关寄存器的设定

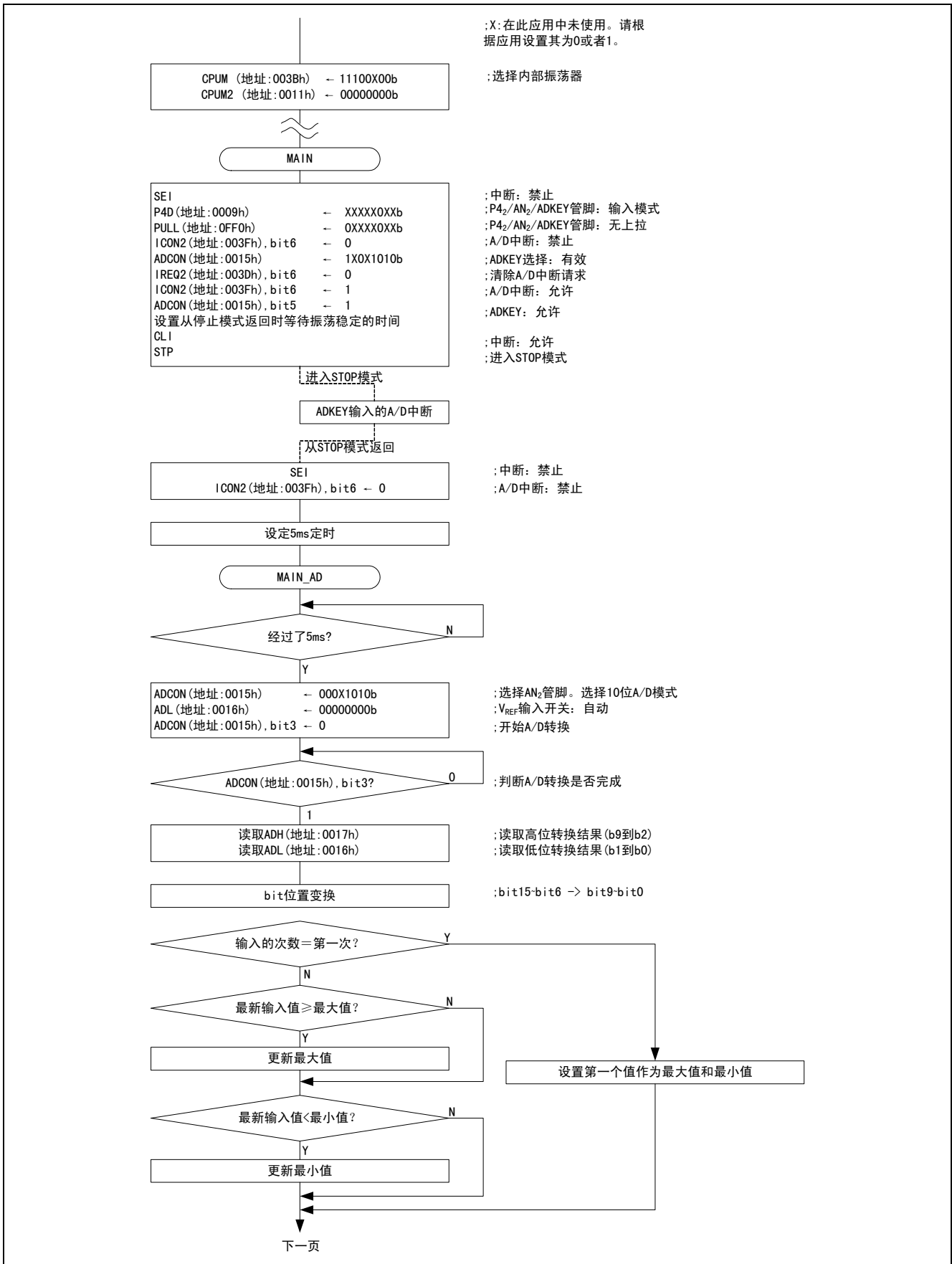


图 3.3 程序流程图 (1)

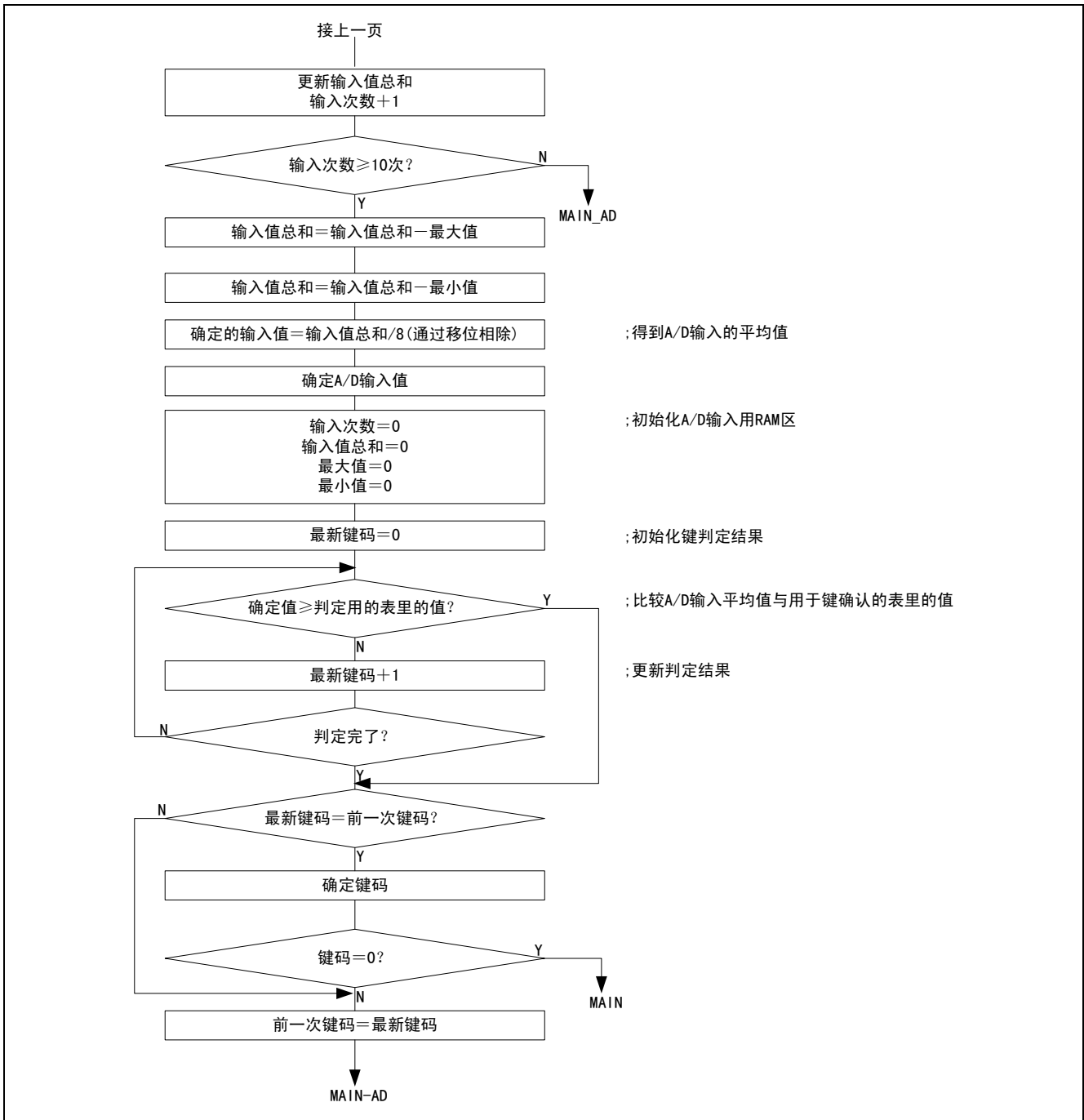


图 3.4 程序流程图 (2)

4. 参考例程

请从瑞萨科技网站上下载参考例程。

在 38D2 群的网页上单击左边的“Application Notes”下载应用笔记。

5. 参考文献

硬件手册

38D2 群数据手册

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1.00	2007.06.06	—	初版发行
1.01	2008.03.17	7	更新咨询邮箱地址, 修改硬件手册名称

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