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2010年4月1日
瑞萨电子公司

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7544 群

定时器 A 运行（脉冲宽度 HL 连续测定模式）

要点

这是定时器 A 的脉冲宽度 HL 连续测定模式的应用例子。

动作确认器件

本资料说明的应用例子适合下列单片机和使用条件：

- 单片机：7544 群

目录

1. 应用例子的说明

■要点

使用脉冲宽度HL连续测定模式，检测电话的铃声（呼叫）信号*。

*：由电话线路的ON/OFF（接通/断开）送来的信号。

每个国家有不同的规定，在此以日本国内的规定为例。

■说明

通过测定由铃声信号检测电路输出的脉冲宽度，判断有无电话呼叫。

将f(XIN)=6.4MHz的16分频作为计数源，使用脉冲宽度HL连续测定模式，测定铃声信号波形的“H”和“L”电平的宽度。对于“H”电平宽度，200ms以上1.2s未满的脉冲宽度为正常值；对于“L”电平宽度，600ms以上2.2s未满的脉冲宽度为正常值。如果超出此范围，就作为异常值检测。同时，1个周期（“H”电平宽度+“L”电平宽度）的宽度必须为1.0s以上3.0s未满，否则就作为异常值检测。

运行时钟使用f(XIN)=6.4MHz高速模式。

1.1 外围电路例子

外围电路例子如**图1**所示。

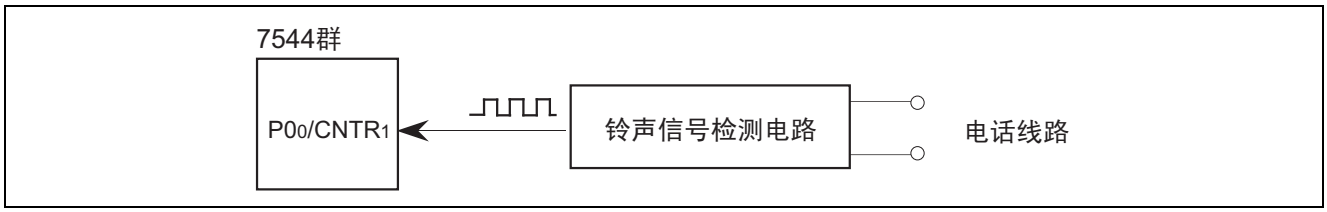

图 1 外围电路例子

1.2 铃声信号输入时的运行时序

铃声信号输入时的运行时序如**图2**所示。

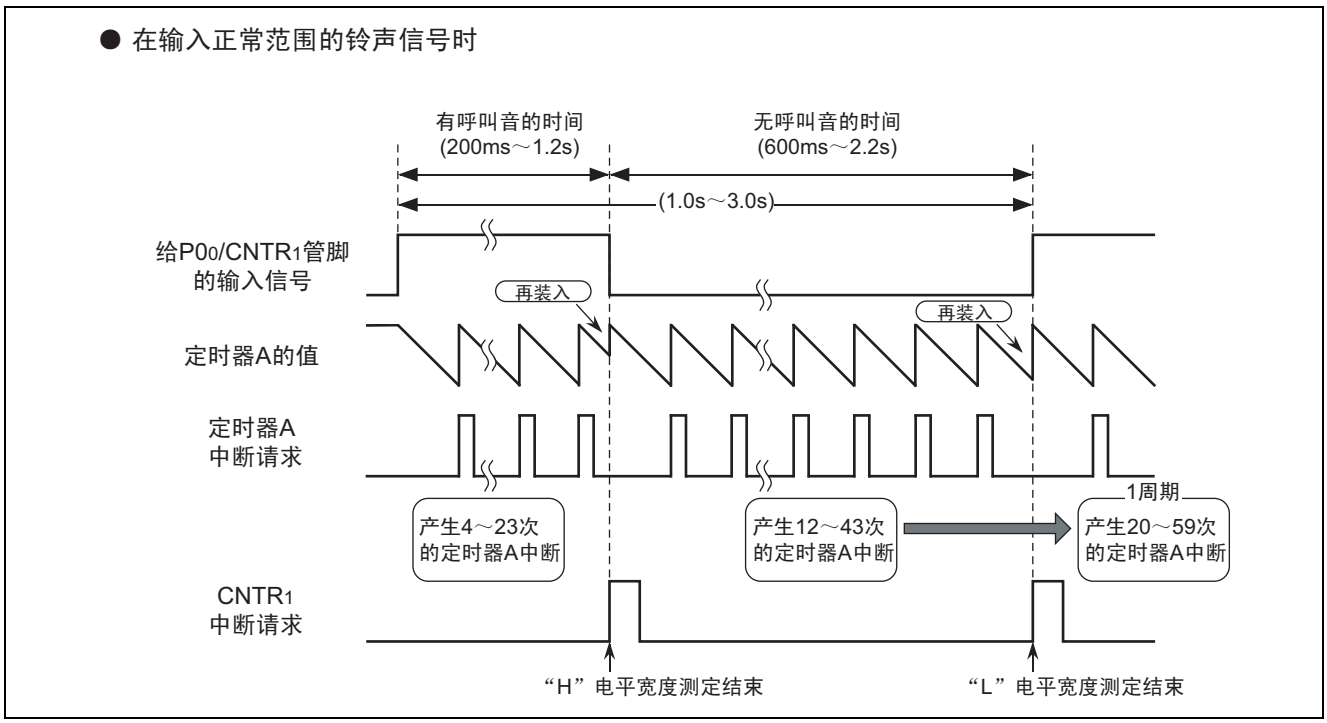

图 2 铃声信号输入时的运行时序

1.3 控制步骤例子

控制步骤例子如**图3**和**图4**所示。

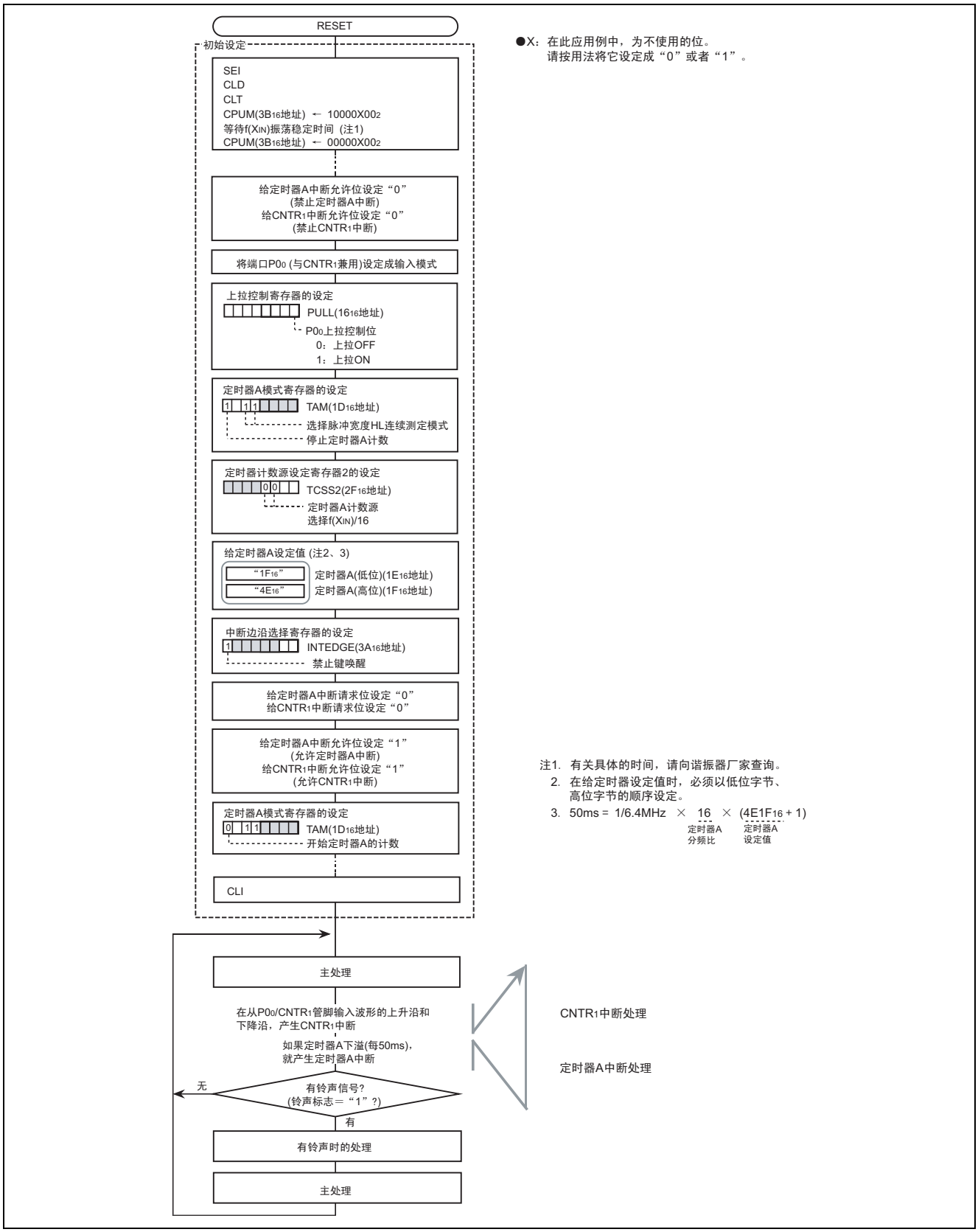

图 3　控制步骤例子（1）

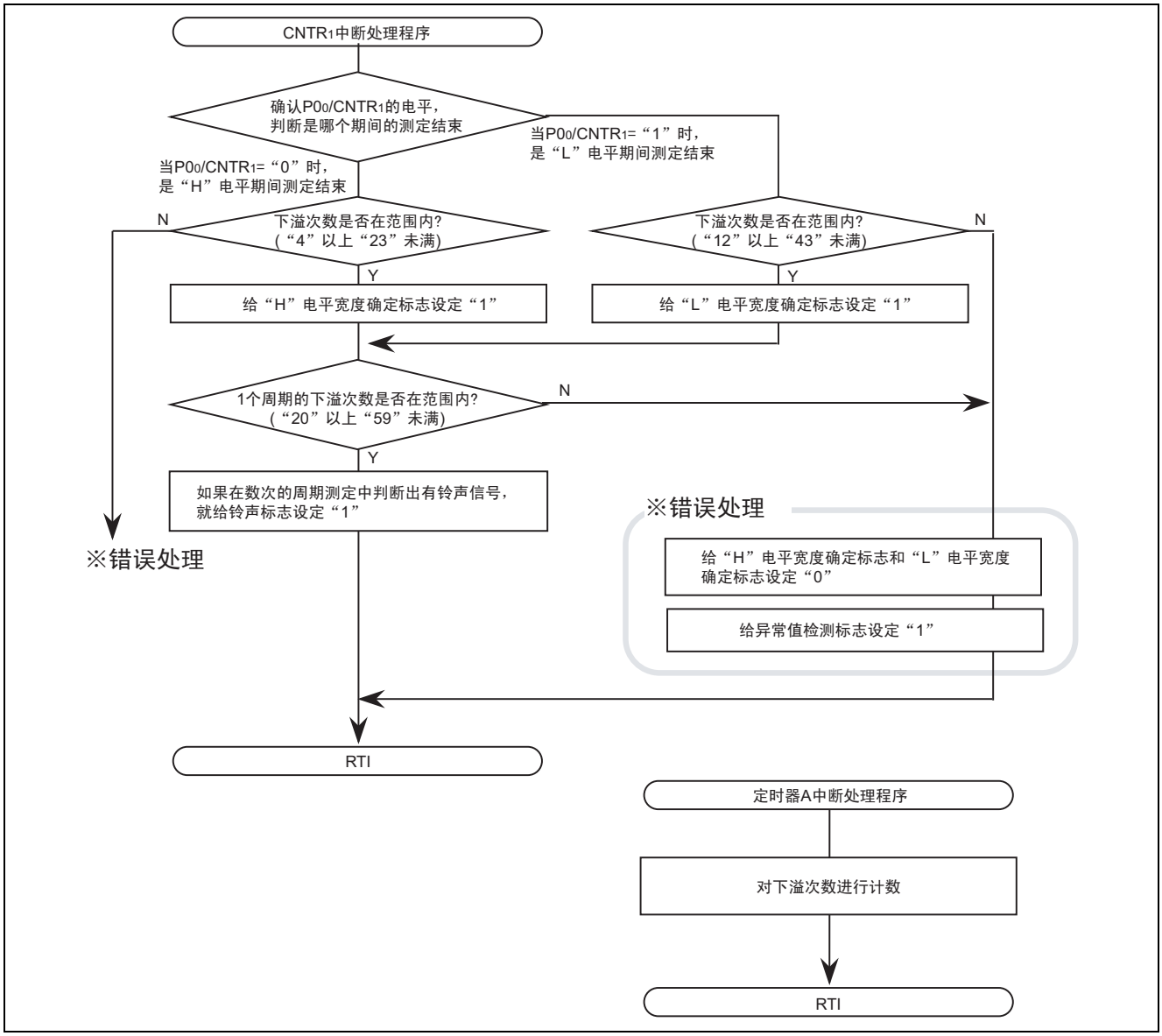
CNTR1中断处理程序
确认P00/CNTR1的电平，
判断是哪个期间的测定结束
当P00/CNTR1=“1”时，
是“L”电平期间测定结束
当P00/CNTR1=“0”时，
是“H”电平期间测定结束
下溢次数是否在范围内?
(“4”以上“23”未满)
N
Y
下溢次数是否在范围内?
(“12”以上“43”未满)
N
Y
给“H”电平宽度确定标志设定“1”
给“L”电平宽度确定标志设定“1”
1个周期的下溢次数是否在范围内?
(“20”以上“59”未满)
N
Y
如果在数次的周期测定中判断出有铃声信号，
就给铃声标志设定“1”
※错误处理
※错误处理
给“H”电平宽度确定标志和“L”电平宽度
确定标志设定“0”
给异常值检测标志设定“1”
RTI
定时器A中断处理程序
对下溢次数进行计数
RTI

图 4　控制步骤例子（2）

2. 参考文献

数据表

7544群数据表（最新版本请从瑞萨科技网页取得）

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修订记录

Rev.	发行日	修订内容	
		页	修订处
1.00	2004.09.15	—	初版发行

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