

Easy II IR/RF Applications

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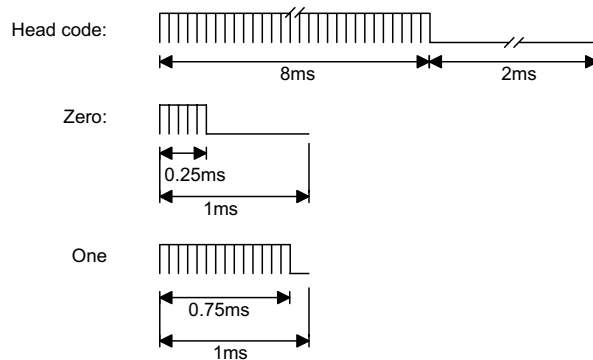
Holtek Semiconductor Inc.

Introduction

To enhance the variety of applications, this application note is provided to assist the users in implementing the IR or RF features. In this example, an alternate singing effect of a man's and a woman's voice can be achieved by the IR/RF transmission.

IR Specification with EASY Format

- The carrier can be optioned: No carrier/38kHz/57kHz.
- The head code is automatically generated by the system.
- The data code is 2 byte and defined by the user.
- The transmitter path command is $Write(M_i, M_j) \times n$, where $n=1,2,\dots,255$.
- The receiver path command is $Read(M_i, M_j) \times n$, where $n=1,2,\dots,8$.
- The reserved word IRWakeUp allows the system to wake up from the halt mode.
- PB7: DOUT, PB6: DIN (fix : wakeup enable)
- Code format



Carrier and System Frequency Reference Table

Carrier	System Clock Frequency
38kHz	5MHz, 6MHz, 7MHz, 8MHz
57kHz	6MHz, 7MHz, 8MHz

Special Purpose Instructions

These special purpose instructions will be available when the IR/RF feature is selected. Their functions are listed in the table below.

Mnemonics	Description	Range
Write(Mi,Mj)×n	Transmitting data	n=1~255
Read(Mi,Mj)×n	Receiving data	n=1~8
IRWakeUp	To execute the specified path	

Example

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;*****
;This is an example using EASY format in IR/RF
;application with man-woman alternating voice
;Sequence effect.
;*****
EASY 4
CABC-R1.wav/upcm ;#0 860mS
CABC-R2.wav/upcm ;#1 3000mS
CABC-R3.wav/upcm ;#2 3257mS
CABC-R4.wav/upcm ;#3 13861mS
CABC-R5.wav/upcm ;#4 2412mS
CABC-L1.wav/upcm ;#5 1692mS
CABC-L2.wav/upcm ;#6 1455mS
CABC-L3.wav/upcm ;#7 3326mS
CABC-L4.wav/upcm ;#8 3435mS
CABC-L5.wav/upcm ;#9 3400mS
CABC-L4a.wav/upcm ;#10 3435mS

Input states
;          TR1   TR2   TR3   TR4
State0:   /P1   /p2   /p3   /p4

Output states
;          OUT1  OUT2  OUT3  OUT4
Out1:     X     X     L     L
Out2:     X     X     H     H

; M0: IR Read or Write low byte register.
; M1: IR Read or Write high byte register.
; M2: bit0 is option pin. ( 0: Mam , 1:Womam )
; M3: Voice sequence play counter.

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Paths
PowerOn:      m3=0  Out1  m2=pb  Out2  m2=m2.and.1  end
IRWakeUp:    Receive      end
Receive:      Read(m1,m0)×2      m1?78:ChkNo1M0
              m1?56:ChkNo2M0 &  m1?44:ChkNo3M0
              m1?32:ChkNo4M0      m1?22:ChkNo5M0      end

ChkNo1M0:    m0?26:Gir12      m0?17:BOY1      end
ChkNo2M0:    m0?26:Gir13      m0?36:BOY2      end
ChkNo3M0:    m0?37:Gir14      m0?35:BOY3      end
ChkNo4M0:    m0?48:Gir15      m0?44:BOY4      end
ChkNo5M0:    m0?59:Gir15      m0?53:BOY5      end

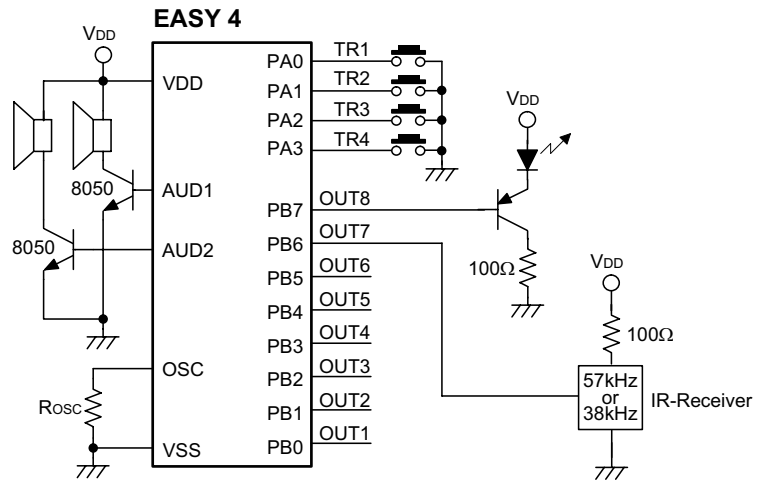
BOY1: #5      m1=78  m0=26  Write(m1,m0)×4  delay(1)  end
BOY2: #6      m1=56  m0=37  Write(m1,m0)×4  delay(1)  end
BOY3: #7      m1=44  m0=48  Write(m1,m0)×4  delay(1)  end
BOY4: #8      m1=32  m0=59  Write(m1,m0)×4  #10 delay(1)  end
BOY5: #9      m1=22  m0=65  Write(m1,m0)×4  delay(1)  end

Gir11:#0      m1=78  m0=17  Write(m1,m0)×4  delay(1)  end
Gir12:#1      m1=56  m0=36  Write(m1,m0)×4  delay(1)  end
Gir13:#2      m1=44  m0=35  Write(m1,m0)×4  delay(1)  end
Gir14:#3      m1=32  m0=44  Write(m1,m0)×4  delay(1)  end
Gir15:#4      end

P1:  Gir11  end
P2:  m3=1   end
P3:  STOP   end
P4:  Gir11  end
```

Basic Application Circuits

For IR



For RF

