|  |  |  |
| --- | --- | --- |
| **74HC154 概述**  　　74HC154是一款高速CMOS器件，74HC154引脚兼容低功耗肖特基TTL（LSTTL）系列。 　　74HC154译码器可接受4位高有效二进制地址输入，并提供16个互斥的低有效输出。74HC154的两个输入使能门电路可用于译码器选通，以消除输出端上的通常译码“假信号”，也可用于译码器扩展。该使能门电路包含两个“逻辑与”输入，必须置为低以便使能输出端。任选一个使能输入端作为数据输入，74HC154可充当一个1-16的多路分配器。当其余的使能输入端置低时，地址输出将会跟随应用的状态。 | |  | | --- | |  | |
| **74HC154 特性**   * 16线多路分配功能  |  |  |  | | --- | --- | --- | | **74HC154 参数** | | | | 74HC154 基本参数 | | | | 电压 |  | 2.0～6.0V | | 驱动电流 |  | +/-5.2 mA | | 传输延迟 |  | 11 ns@5V | | 74HC154 其他特性 | | | | 逻辑电平 |  | CMOS | | 功耗考量 |  | 低功耗或电池供电应用 | | 74HC154 封装与引脚 | | | | SO24, SSOP24, DIP24, TSSOP24 | | |  * 4位二进制码输入译码至16个互斥输出 * 兼容JEDEC标准no.7A * 温度范围   + -40～+85 ℃   + -40～+125 ℃ * ESD保护   + HBM EIA/JESD22-A114D超过2000 V   + MM EIA/JESD22-A115-A超过200 V |

74HC154 4线-16 线译码器/解调器  
   
 ·将4个二进制编码输入译成16个彼独立的输出之一  
 ·将数据从一个输入线分配到16个输出的任意一个而实现解调功能  
 ·输入箝位二极管简化了系统设计  
 ·与大部分TTL和DTL电路完全兼容  
   
 74154这种单片4 线—16 线译码器非常适合用于 [高性能存储器的译码器](http://www.838dz.com/)。当两个选通输入G1 和G2 为低时, 它可将4 个二进制编码的输入译成16 个互相独立的输出之一。实现解调功能的办法是：用4 个输入线写出输出线的地址，使得在一个选通输入为低时数据通过另一个选通输入。当任何一个选通输入是高时，所有输出都为高。

**TRUTH TABLE真值表：**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **INPUTS 输入** | | | | | | **SELECTED OUTPUT 选定输出(L)** |
| **G1** | **G2** | **D** | **C** | **B** | **A** |
| L | L | L | L | L | L | Y0 |
| L | L | L | L | L | H | Y1 |
| L | L | L | L | H | L | Y2 |
| L | L | L | L | H | H | Y3 |
| L | L | L | H | L | L | Y4 |
| L | L | L | H | L | H | Y5 |
| L | L | L | H | H | L | Y6 |
| L | L | L | H | H | H | Y7 |
| L | L | H | L | L | L | Y8 |
| L | L | H | L | L | H | Y9 |
| L | L | H | L | H | L | Y10 |
| L | L | H | L | H | H | Y11 |
| L | L | H | H | L | L | Y12 |
| L | L | H | H | L | H | Y13 |
| L | L | H | H | H | L | Y14 |
| L | L | H | H | H | H | Y15 |
| X | H | X | X | X | X | NONE |
| H | X | X | X | X | X | NONE |

[引脚](http://www.838dz.com)功能表：

|  |  |  |
| --- | --- | --- |
| [引脚](http://www.838dz.com" \t "_blank)端 No | SYMBOL符号 | NAME AND FUNCTION名称及功能 |
| 1,2,3,4,5,6,7,8,9,10,11,13,14,15,16,17 | Y0 to Y15 | Outputs输出(Active LOW)低电平 |
| 18,19 | G1, G2 | Enable Inputs(Active LOW)使能输入(低电平) |
| 23,22,21,20 | A to D | Address Inputs地址输入 |
| 12 | GND | Ground接地(0V) |
| 24 | VCC | Positive Supply Voltage电源电压 |

|  |
| --- |
|  |
| <http://www.838dz.com/d/file/ad/PCB/2009-06-19/545ff1f307428558f30f37d1ac515e7b.jpg>                                           图1 逻辑图 |
|  |
| <http://www.838dz.com/d/file/ad/PCB/2009-06-19/6bc0f12a22dc4ee2be392605f1fb2b74.jpg>       图2 [引脚](http://www.838dz.com)图   |  | | --- | | <http://www.838dz.com/d/file/ad/PCB/2009-06-19/124fe9d679db98b5688f75884b1917dd.jpg>                           图3 国际电工委员会逻辑符号 | |

ABSOLUTE MAXIMUM RATINGS绝对最大额定值

|  |  |  |  |
| --- | --- | --- | --- |
| Symbol符号 | Parameter参数 | Value 数值 | Unit 单位 |
| VCC | Supply Voltage电源电压 | -0.5 to +7 | V |
| VI | DC Input Voltage 直流输入电压 | -0.5 to VCC + 0.5 | V |
| VO | DC Output Voltage直流输出电压 | -0.5 to VCC + 0.5 | V |
| IIK | DC Input Diode Current直流输入二极管电流 | ± 20 | mA |
| IOK | DC Output Diode Current直流输出二极管电流 | ± 20 | mA |
| IO | DC Output Source Sink Current Per Output Pin | ± 25 | mA |
| ICC or IGND | DC VCC or Ground Current | ± 50 | mA |
| PD | Power Dissipation功耗 | 500 (\*) | mW |
| Tstg | Storage Temperature贮藏温度 | -65 to +150 | ℃ |
| TL | Lead Temperature 焊接温度 (10 sec) | 300 | ℃ |

RECOMMENDED OPERATING CONDITIONS建议操作条件

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Symbol符号 | Parameter参数 | | Value 数值 | Unit 单位 |
| VCC | Supply Voltage电源电压 | | 2 to 6 | V |
| VI | Input Voltage输入电压 | | 0 to VCC | V |
| VO | Output Voltage输出电压 | | 0 to VCC | V |
| Top | Operating Temperature:操作温度： | | -40 to +85 | ℃ |
| tr,tf | Input Rise and Fall Time输入上升和下降时间 | VCC = 2 V | 0 to 1000 | ns |
| VCC = 4.5 V | 0 to 500 |
| VCC = 6 V | 0 to 400 |

DC SPECIFICATIONS直流电气规格：

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Symbol符号** | **Parameter 参数** | **Test Conditions测试条件** | | | **Value 数值** | | | | | **Unit 单位** |
| **VCC (V)** | | | **TA =25 ℃** | | | **-40 to 85 ℃** | |
| **最小** | **典型** | **最大** | **最小** | **最大** |
| VIH | High Level Input Voltage输入高电平电压 | 2.0 |  | | 1.5 |  |  | 1.5 |  | V |
| 4.5 | 3.15 |  |  | 3.15 |  |
| 6.0 | 4.2 |  |  | 4.2 |  |
| VIL | Low Level Input Voltage输入低电平电压 | 2.0 |  | |  |  | 0.5 |  | 0.5 | V |
| 4.5 |  |  | 1.35 |  | 1.35 |
| 6.0 |  |  | 1.8 |  | 1.8 |
| VOH | High Level Output Voltage输出高电平电压 | 2.0 | VI = VIH or  VIL | IO=-20μA | 1.9 | 2.0 |  | 1.9 |  | V |
| 6.0 | 4.4 | 4.5 |  | 4.4 |  |
| 4.5 | 5.9 | 6.0 |  | 5.9 |  |
| 4.5 | IO=-4.0 mA | 4.18 | 4.31 |  | 4.13 |  |
| 6.0 | IO=-5.2mA | 5.68 | 5.8 |  | 5.63 |  |
| VOL | Low Level Output Voltage输出低电平电压 | 2.0 | VI = VIH or  VIL | IO=20μA |  | 0.0 | 0.1 |  | 0.1 | V |
| 4.5 |  | 0.0 | 0.1 |  | 0.1 |
| 6.0 |  | 0.0 | 0.1 |  | 0.1 |
| 4.5 | IO=4.0mA |  | 0.17 | 0.26 |  | 0.33 |
| 6.0 | IO= 5.2mA |  | 0.18 | 0.26 |  | 0.33 |
| II | Input Leakage Current输入漏电流 | 6.0 | VI =VCC or GND | |  |  | ±0.1 |  | ±1 | μA |
| ICC | Quiescent Supply Current静态电源电流 | 6.0 | VI =VCC or GND | |  |  | 4 |  | 40 | μA |

**AC ELECTRICAL CHARACTERISTICS交流电气特性：**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Symbol 符号** | **Parameter参数** | **Test Conditions测试条件** | **Value** | | | | | **Unit 单位** |
| **VCC (V)** | **TA =25 ℃** | | | **-40 to 85 ℃** | |
| **最小** | **典型** | **最大** | **最小** | **最大** |
| tTLH tTHL | Output Transition Time输出过渡时间 | 2.0 |  | 30 | 75 |  | 95 | ns |
| 4.5 |  | 8 | 15 |  | 19 |
| 6.0 |  | 7 | 13 |  | 16 |
| tPLH tPHL | Propagation Delay Time 传递延迟时间(A, B, C, D -Y) | 2.0 |  | 65 | 175 |  | 220 | ns |
| 4.5 |  | 19 | 35 |  | 44 |
| 6.0 |  | 16 | 30 |  | 37 |
| tPLH tPHL | Propagation Delay Time 传递延迟时间(G1, G2 -Y) | 2.0 |  | 55 | 160 |  | 200 | ns |
| 4.5 |  | 17 | 32 |  | 40 |
| 6.0 |  | 15 | 27 |  | 34 |
| CIN | Input Capacitance输入电容 |  |  | 5 | 10 |  | 10 | pF |
| CPD (\*) | Power Dissipation Capacitance功耗电容 |  |  | 57 |  |  |  | pF |