



## 概述

TLC555是行业标准的 CMOS 版本 555 系列通用定时器。该 TLC555 可提供产生精确的时间延迟和频率，具有非常低的功率损耗和电源电流尖峰。当芯片作为触发延时使用时，时间延时由一个单一的外部电阻和电容精确控制。在稳定模式下，振荡频率和占空比准确由两个外接电阻和一个电容器设定。

## 主要特点

- 低电源电流：80uA (典型值)
- 500KHz的稳态频率能力。
- 最低工作电压4.5V。
- 5V电压下，输出与TTL和CMOS逻辑电

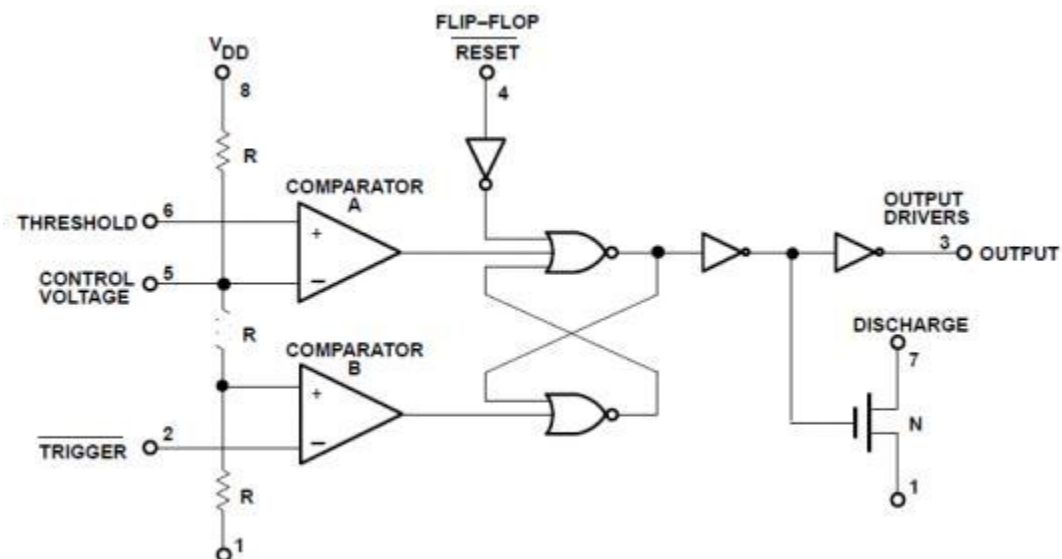
压完全兼容。

- 输出转换期间电源电流尖峰低。
- 极低的触发，阈值和复位电流：20pA(典型值)。
- 在非稳定和单稳态模式下运行，可调节占空比。
- 与555系列定时器引脚兼容。
- 采用SOP8封装形式。

## 主要应用领域

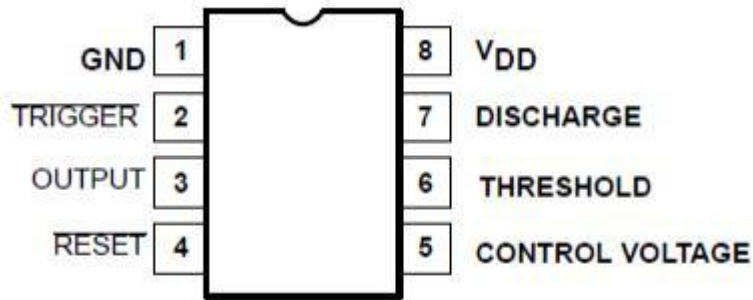
- 脉冲发生器
- 精确计时
- 延时生成
- 脉冲宽度调制

## 内部框图



## 管脚说明

TLC555提供 SOP8 封装形式



### 真值表

| RESET | Vtrigger | Vthreshold | OUTPUT | DISCHARGE SWITCH |
|-------|----------|------------|--------|------------------|
| LOW   | --       | --         | LOW    | ON               |
| HIGH  | <1/3VCC  | --         | HIGH   | OFF              |
| HIGH  | >1/3VCC  | >2/3VCC    | LOW    | ON               |
| HIGH  | >1/3VCC  | <2/3VCC    | 如前所述   |                  |

### 极限参数 (注 2)

| 符号    | 参数     | 值       | 单位 |
|-------|--------|---------|----|
| Vcc   | 供电电压   | 15      | V  |
| Toper | 工作温度范围 | 0~85    | C  |
| Tj    | 结点温度   | 150     | C  |
| Tstg  | 贮藏温度范围 | -65~150 | C  |

### 推荐工作条件(TA=25°C)

| 符号                        | 参数     | 值            | 单位 |
|---------------------------|--------|--------------|----|
| Vcc                       | 供电电压   | 4.5~15       | V  |
| Vth, Vtrig, VCTRL, Vreset | 最大输入电压 | -0.3~Vcc+0.3 | V  |

### 电气特性 (注 1,2)

条件: (无特殊规定, 测试电路中, TA=25°C, 所有开关打开, RESET 连接到 VCC)

| 参数   | 标识    | 测试条件     | Min  | 典型值  | Max   | 单位 |
|------|-------|----------|------|------|-------|----|
| 电源电流 | Is    | VCC=5V   |      | 30   | 50    | uA |
|      |       | VCC =    |      | 60   | 100   |    |
|      |       | 10VVCC = |      | 90   | 150   |    |
| 控制电压 | VCTRL | 15V      | 3.28 | 3.33 | 3.38  | V  |
|      |       | VCC=5V   | 6.6  | 6.66 | 6.7   |    |
|      |       | VCC=10V  | 9.95 | 10   | 10.15 |    |

VCC=15V



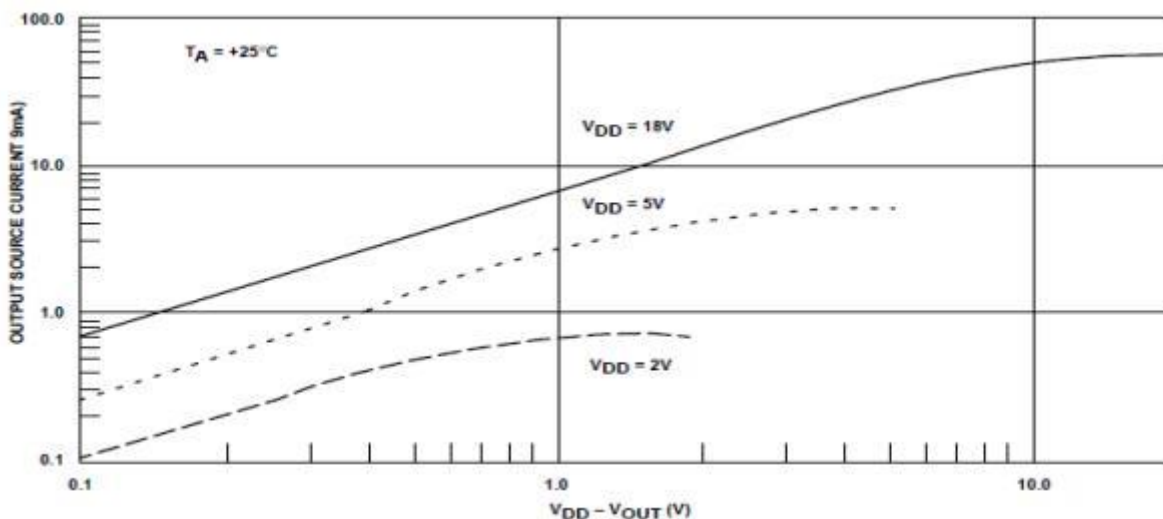
| 参数      | 标识      | 测试条件   | Min  | 典型值   | Max  | 单位  |
|---------|---------|--|------|-------|------|-----|
| 放电端饱和电压 | VDIS    | VCC=5V, IDIS=10mA                                  |      | 100   | 400  | mV  |
| 输出电压(低) | VOL     | VCC=5V, I <sub>o</sub> =3.2mA                      |      | 0.1   | 0.4  | V   |
|         |         | VCC=15V, I <sub>o</sub> =3.2mA                     |      |       |      |     |
| 输出电压(高) | VOH     | VCC=5V, I <sub>o</sub> =-2mA                       | 4.0  | 4.5   |      | V   |
|         |         | VCC=15V, I <sub>o</sub> =-2mA                      | 14.5 | 14.75 |      |     |
| 触发电压    | VTRIG   | VCC=5V   | 1.55 | 1.66  | 1.7  | V   |
|         |         | VCC=10V  | 3.23 | 3.33  | 3.38 |     |
|         |         | VCC=15V  | 4.95 | 5     | 5.05 |     |
| 触发电流    | ITRIG   | VCC=5V   |      | 10    |      | pA  |
| 复位电压    | VRES    | VCC=5V   | 0.4  | 0.7   | 1.2  | V   |
| 复位电流    | IRES    | VCC=5V   |      | 10    |      | pA  |
| 阈值电流    | ITHRESH | VCC=5V   |      | 10    |      | pA  |
| 放电端漏电流  | IDIS    | VCC=12V  |      | 1.0   | 100  | nA  |
| 输出上升    | tR      | VCC=5V, R <sub>L</sub> =10MΩ, C <sub>L</sub> =10pF | 35   | 40    | 75   | ns  |
| 下降时间    | tF      | VCC=5V, R <sub>L</sub> =10MΩ, C <sub>L</sub> =10pF | 35   | 40    | 75   | ns  |
| 最大频率    | Fmax    |  |      | 500   |      | KHz |

注 1：所有电压都相对于该接地引脚测定，除非另有规定。

注 2：绝对最大额定值指超出该工作限制可能出现芯片损坏。工作额定值表明该设备可以工作，但不保证特殊的性能界限。电气特性的测试条件这保证特定性能指标下的直流和交流电气规范。这假定该芯片是在工作额定范围内。规格不保证没有限制条件的参数，然而典型值是芯片性能的一个很好的体现。

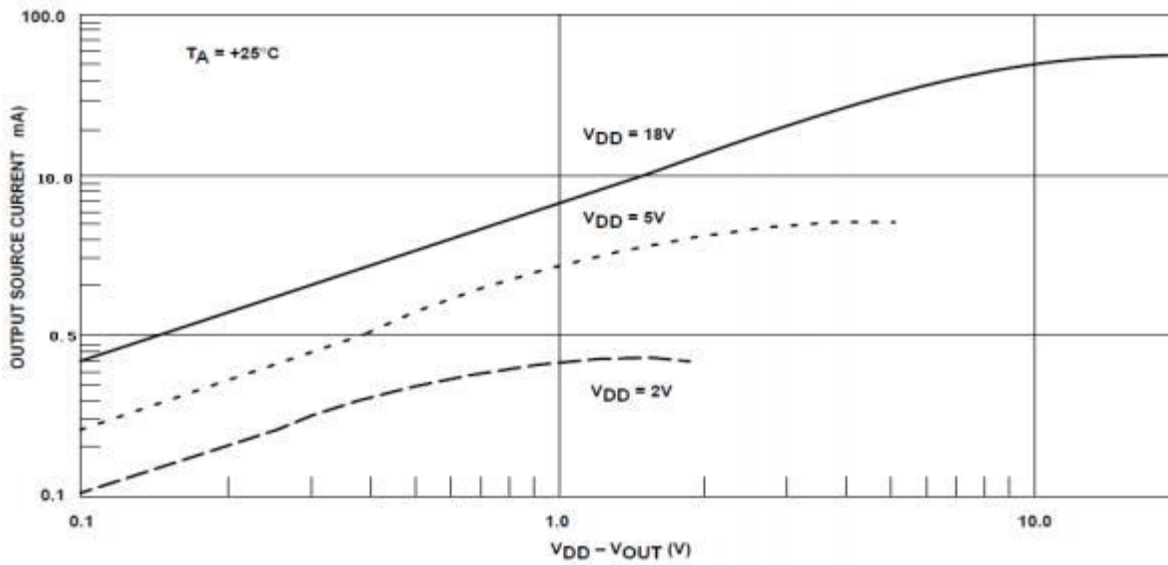
## 典型性能

### 1、高输出电压降与输出源电流

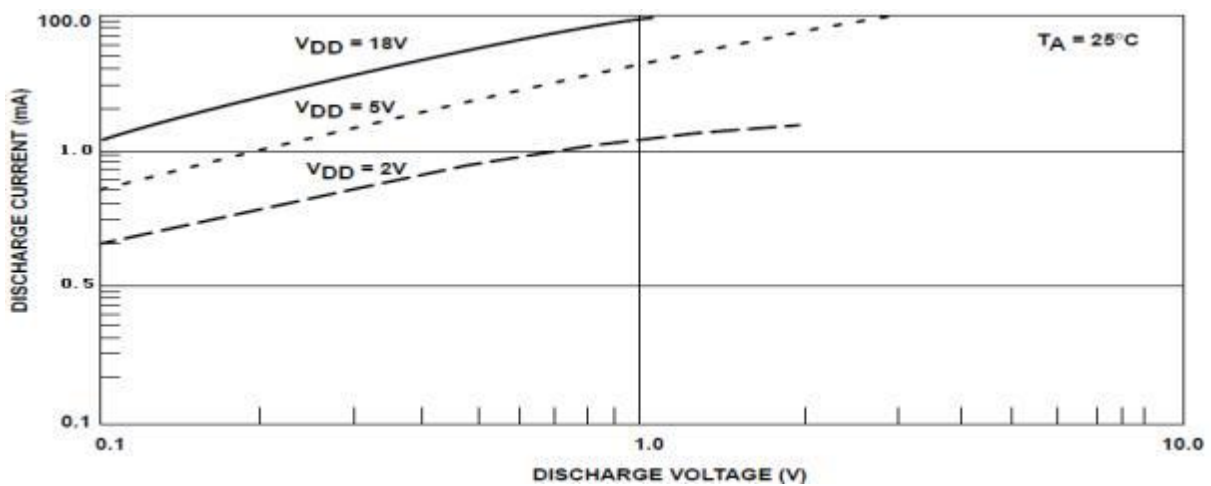




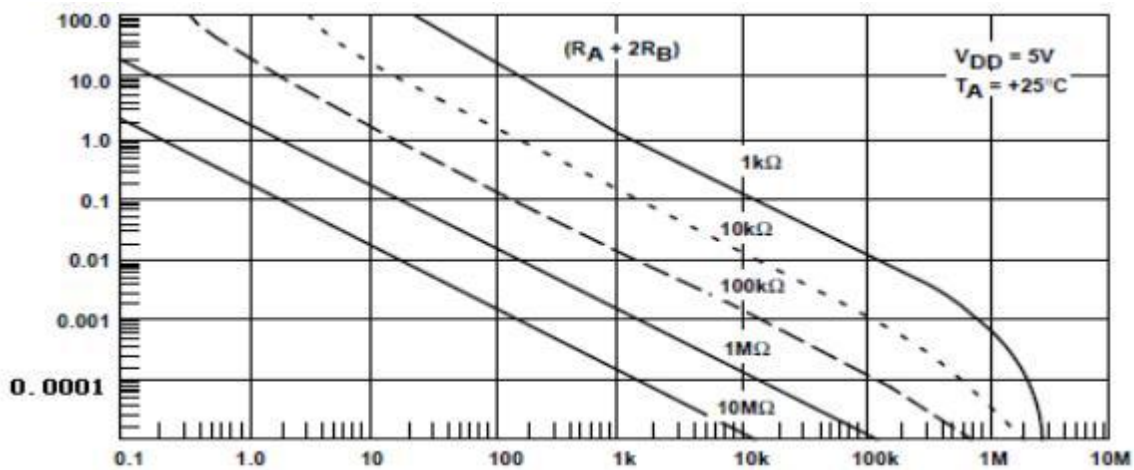
## 2、低输出电压与输出吸收电流



## 3、放电低输出电压与放电吸收电流



## 4、Ra、Rb、C 与频率

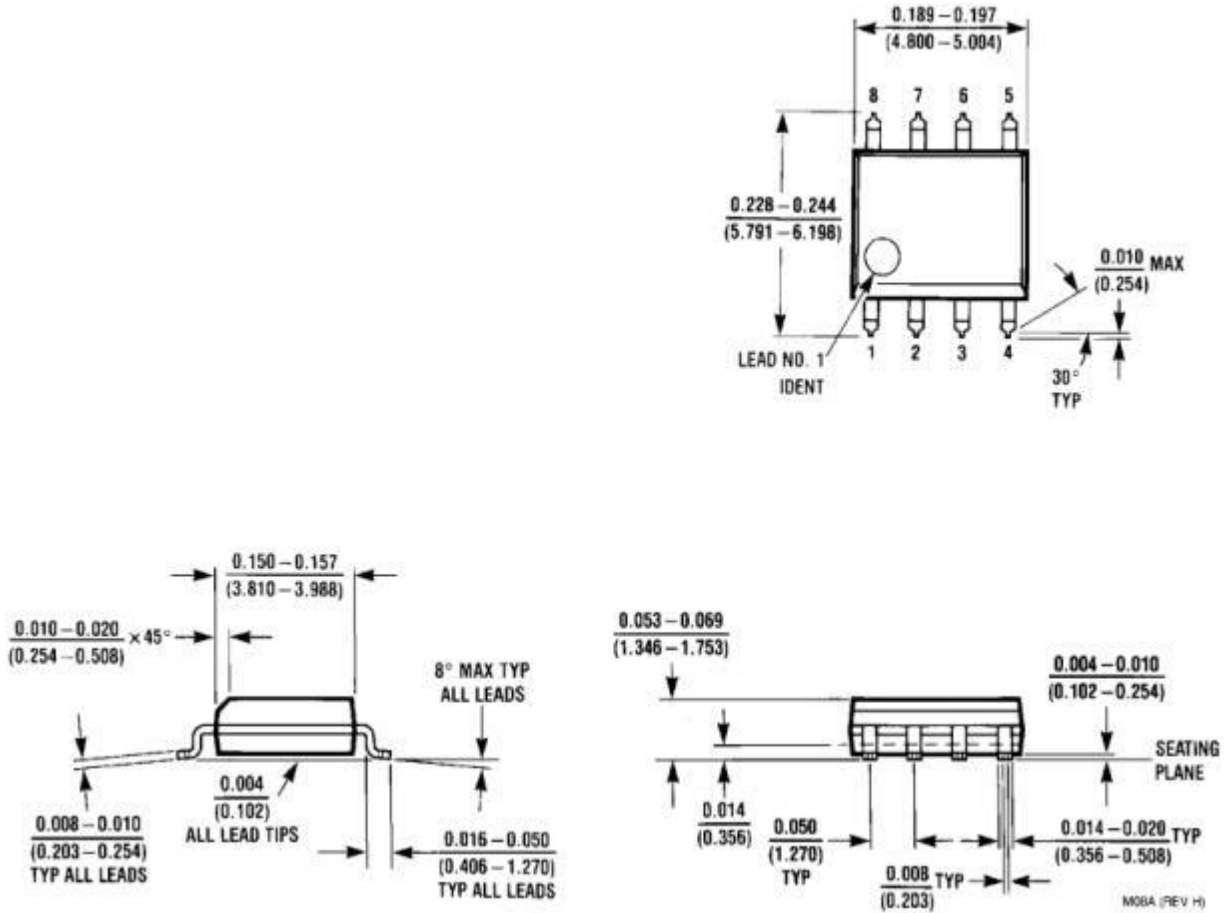






### 封装机械数据:

8 引脚塑料 SOP 英寸(毫米), 除非另有说明





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