



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。

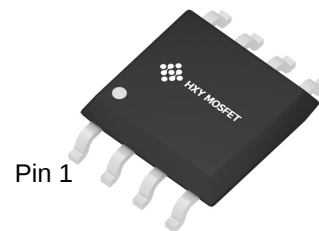
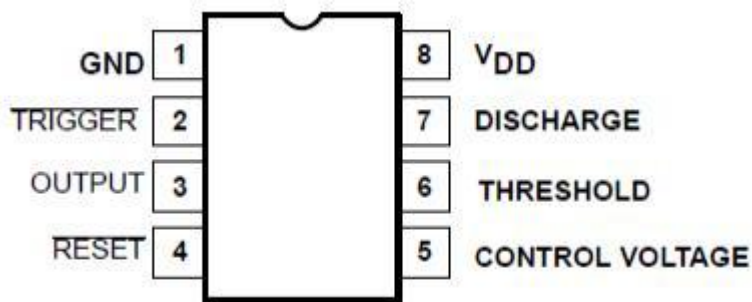
- 低电源电流： 80uA (典型值)
- 500KHz的稳态频率能力。
- 最低工作电压4.5V。
- 5V电压下，输出与TTL和CMOS逻辑电

- 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(SOIC-8)封装形式。

- 脉冲发生器
- 精确计时
- 延时生成
- 脉冲宽度调制

The diagram illustrates a 1-bit DAC circuit. It features two comparators, labeled 'COMPARATOR A' and 'COMPARATOR B'. The non-inverting input (+) of Comparator A is connected to the 'THRESHOLD' input (pin 6). The inverting input (-) of Comparator A is connected to the 'CONTROL VOLTAGE' input (pin 5). The non-inverting input (+) of Comparator B is connected to the 'CONTROL VOLTAGE' input (pin 5). The inverting input (-) of Comparator B is connected to the 'TRIGGER' input (pin 2). The outputs of the comparators are connected to the inputs of a flip-flop, labeled 'FLIP-FLOP'. The flip-flop has a 'RESET' input (pin 4) connected to the output of Comparator A. The output of the flip-flop is connected to the 'OUTPUT DRIVERS' (pin 3), which is also connected to the 'OUTPUT' (pin 1). The 'DISCHARGE' input (pin 7) is connected to the 'OUTPUT' (pin 1). The circuit is powered by V_{DD} (pin 8) and ground (pin 1) through resistors R .

TLC555提供SOP8(SOIC-8)封装形式



真值表

RESET	Vtrigger	Vthreshold	OUTPUT	DISCHARGE SWITCH
LOW	--	--	LOW	ON
HIGH	$<1/3V_{CC}$	--	HIGH	OFF
HIGH	$>1/3V_{CC}$	$>2/3V_{CC}$	LOW	ON
HIGH	$>1/3V_{CC}$	$<2/3V_{CC}$	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	$-0.3 \sim V_{cc} + 0.3$	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



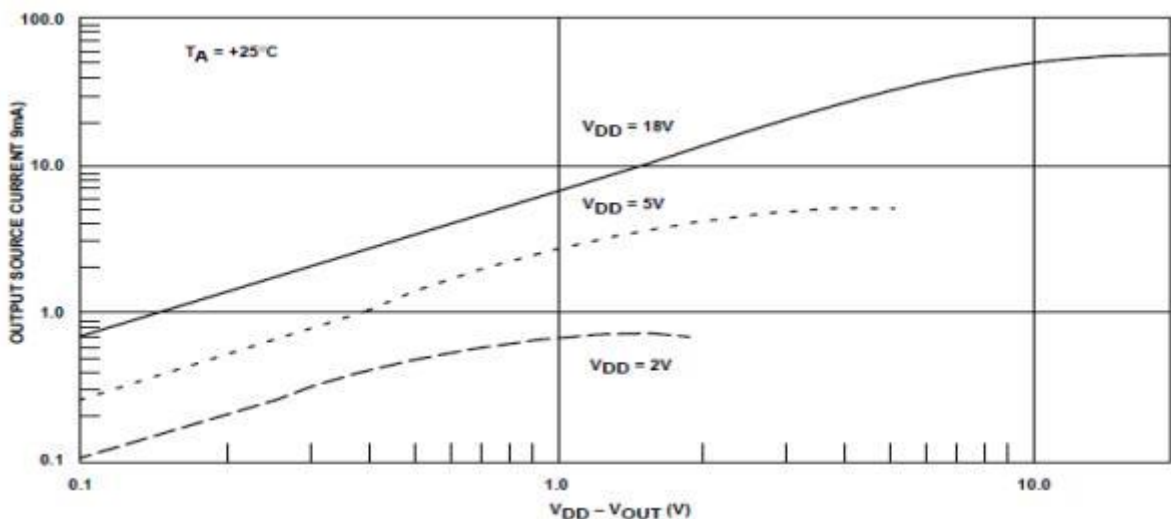
参数	标识	测试条件	Min	典型值	Max	单位
放电端饱和电压	VDIS	VCC=5V, IDIS=10mA		100	400	mV
输出电压(低)	VOL	VCC=5V, Io=3.2mA		0.1	0.4	V
		VCC=15V, Io=3.2mA				
输出电压(高)	VOH	VCC=5V, Io=-2mA	4.0	4.5		V
		VCC=15V, Io=-2mA	14.5	14.75		
触发电压	VTRIG	VCC=5V	1.55	1.66	1.7	V
		VCC=10V	3.23	3.33	3.38	
		VCC=15V	4.95	5	5.05	
触发电流	ITRIG	VCC=5V		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, RL=10MΩ, CL=10pF	35	40	75	ns
下降时间	tF	VCC=5V, RL=10MΩ, CL=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。

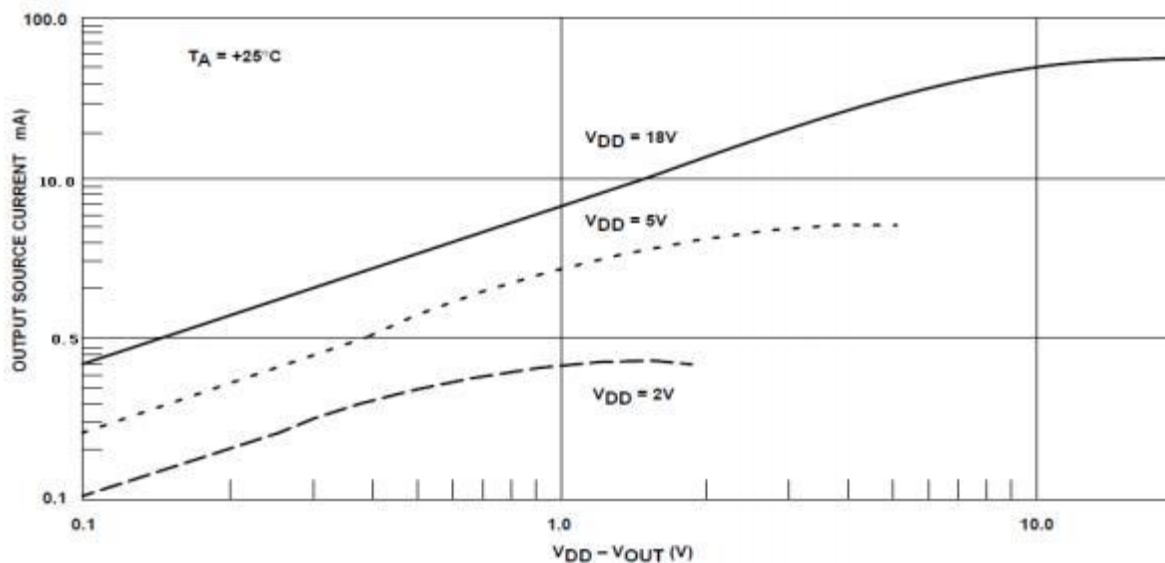
典型性能

1、高输出电压降与输出源电流

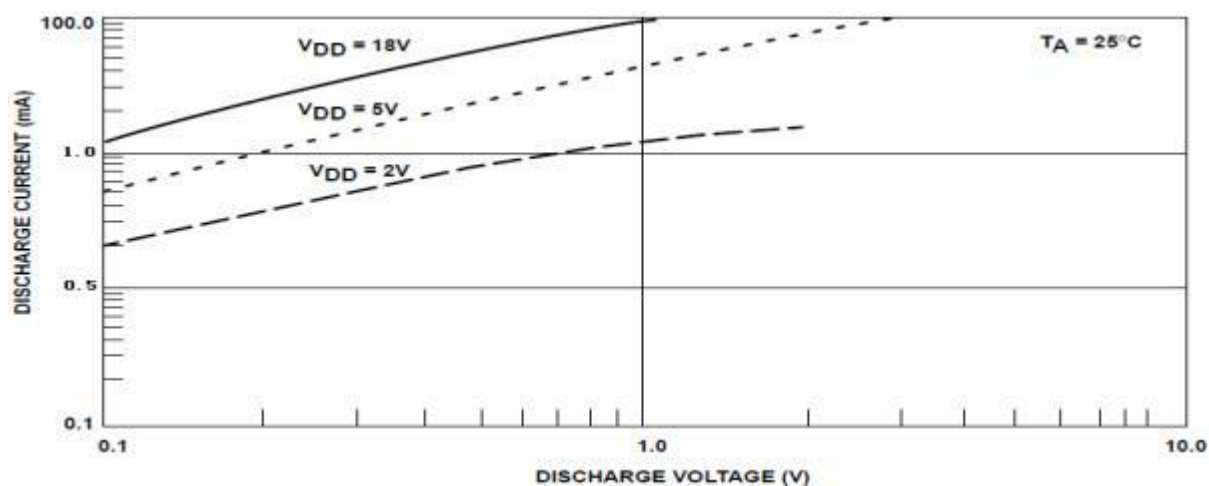




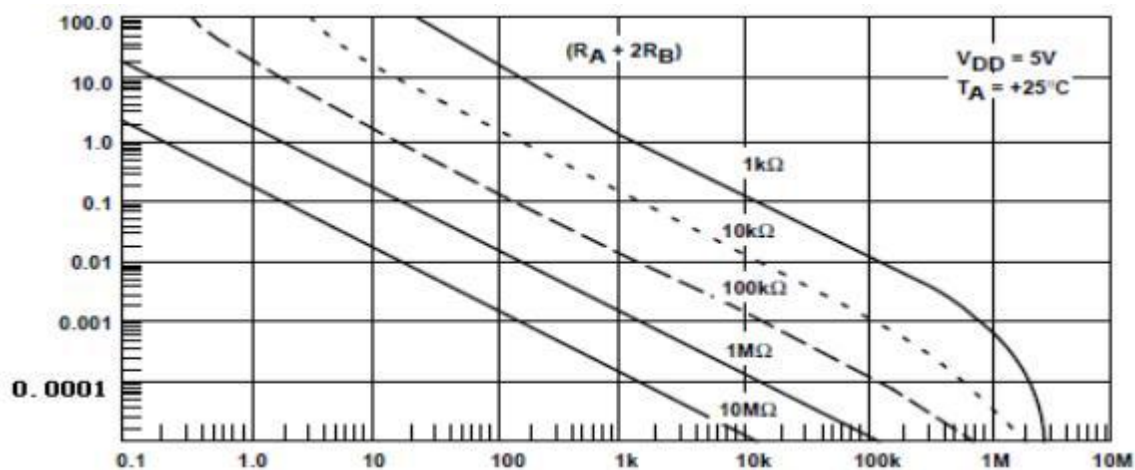
2、低输出电压与输出吸收电流



3、放电低输出电压与放电吸收电流



4、Ra、Rb、C 与频率





应用信息

单稳态

在这种操作模式中，定时器用作一个触发器(图 1)。外部电容通过内部电路初步放电。当一个小于 $1/3V_S$ 的负触发脉冲加在触发终端，触发器设置了电容器释放短路电流，并驱动输出为高电平。

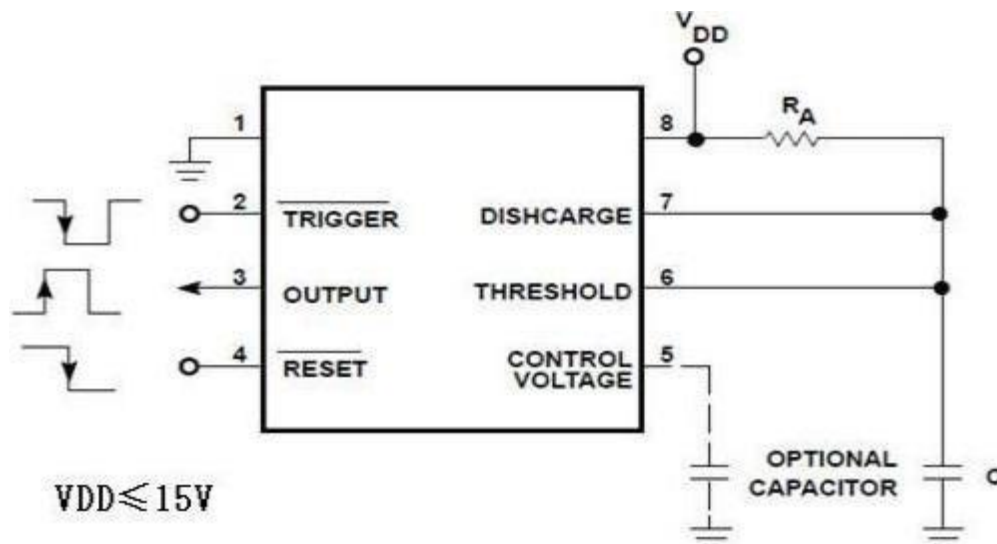


图 1：单稳态(单次)

稳态运行

该电路如图 2 连接(触发的和阈值的终端连接在一起)，它会触发本身和释放运行作为一个多谐振荡器。外部电容通过 $R_A + R_B$ 充电和通过 R_B 放电。从而占空比可通过这两个电阻的比值被精确地设置。

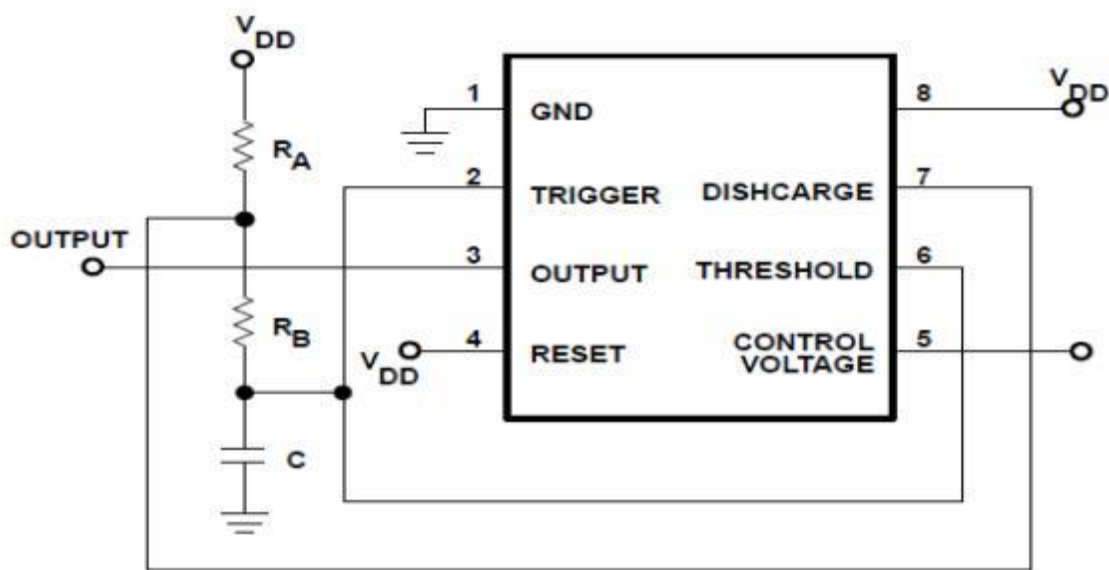


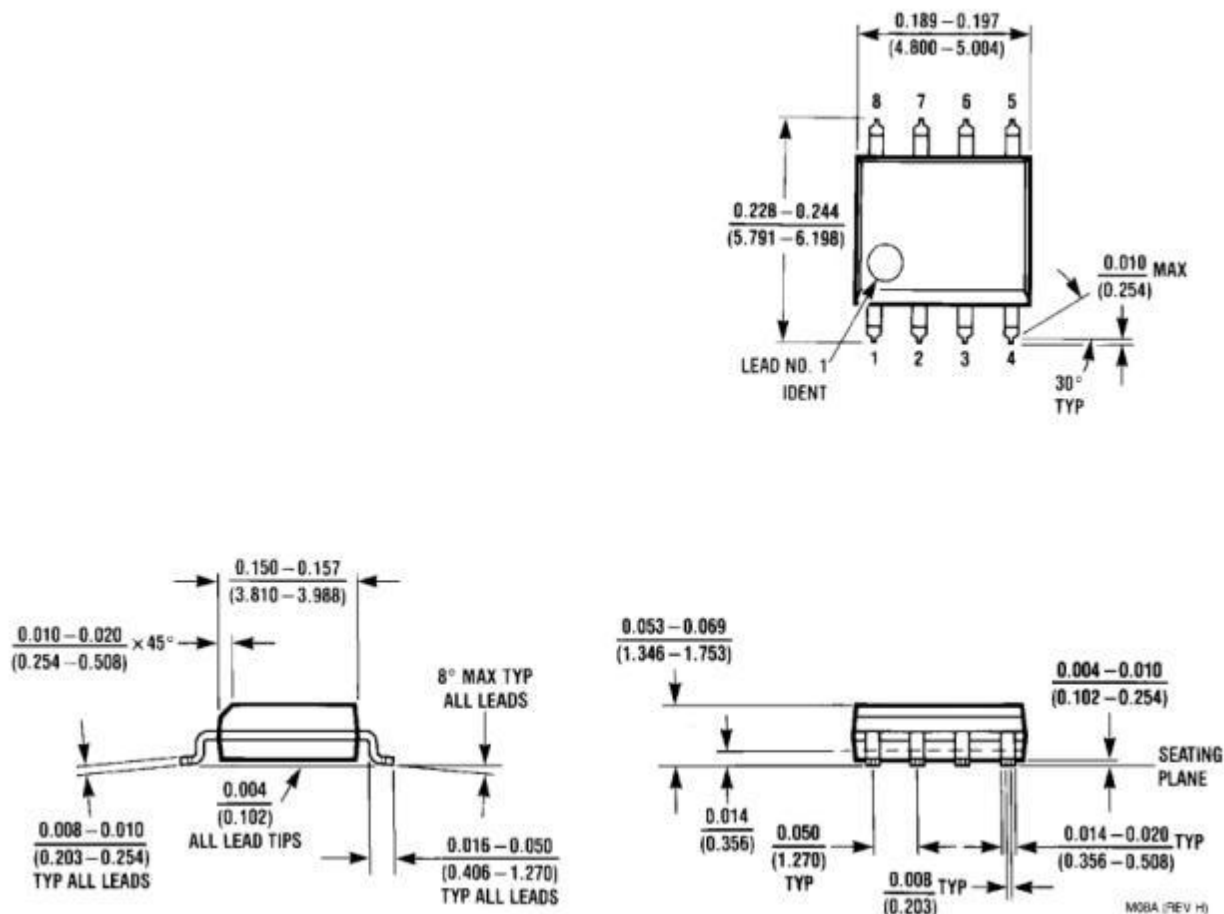
图 2：稳态(可变占空比振荡器)



TLC555

基定时器

8 引脚塑料 SOP 英寸(毫米), 除非另有说明





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