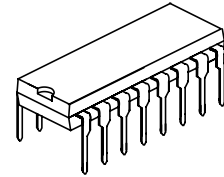




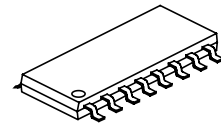
1.产品特性:

ULN2003 为 7 路达林顿结构电路，每路的输出电流为 500mA，峰值电流为 600mA，输出电压为 50V，采用共发射极结构，每路可以独立输出。该电路常用于驱动各种负载，如直流电动机、LED 显示灯、大功率缓存和 5V TTL、CMOS 等通用逻辑电路等。

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2.封装形式及管脚定义

SOP16/DIP16双列封装形式:

图 1 ULN2003 电路外形图

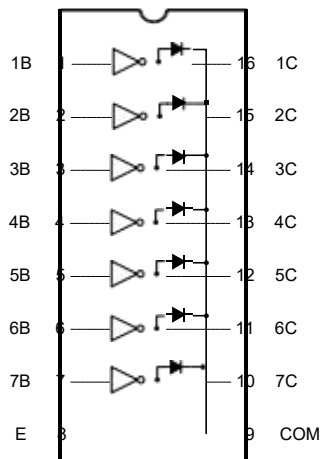


图 2 ULN2003管脚定义图

3.最大额定值

表 1 最大额定值

符号	参数	最大额定值	单位
V_o	输出电压	50	V
V_{in}	输入电压	30	V
I_c	输出电流	500	mA
I_b	输入电流	25	mA



4.电路原理图

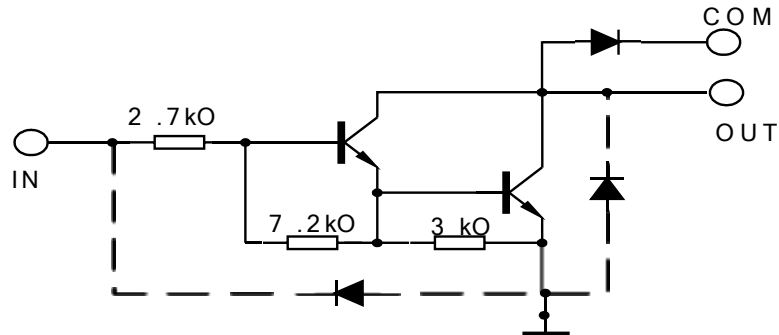


图 3 ULN2003电路原理图

5.电参数

表 2 测试电参数

Symbol	参数说明	测试条件	Min.	Typ.	Max.	单位	测试图
I_{CEX}	输出漏电流	$V_{CE}=50V$	—	—	50.0	μA	Figure 1a.
$V_{CE(sat)}$	集电极-发射极 饱和压降	$I_C=100mA, I_B=250\mu A$	—	0.9	1.1	V	Figure 2.
		$I_C=200mA, I_B=350\mu A$	—	1.1	1.3		
		$I_C=350mA, I_B=500\mu A$	—	1.3	1.6		
$I_{i(on)}$	输入开启电流	$V_i=3.85V$	—	0.93	1.35	mA	Figure 3.
$V_{i(on)}$	输入开启电压	$V_{CE}=2.0V, I_C=200mA$	—	—	2.4	V	Figure 5.
		$V_{CE}=2.0V, I_C=250mA$	—	—	2.7		
		$V_{CE}=2.0V, I_C=300mA$	—	—	3.0		
I_R	二极管漏电流	$V_R=50V$	-4.0	—	50.0	μA	Figure 6.
V_F	二极管正向压降	$I_F=350mA$	—	1.7	2	V	Figure 7.
I_{CEX-1V}	输出漏电流	$V_{CE}=50V, V_i=1V$	-5	—	80	μA	Figure 1b.



测试线路图

Figure 1a.

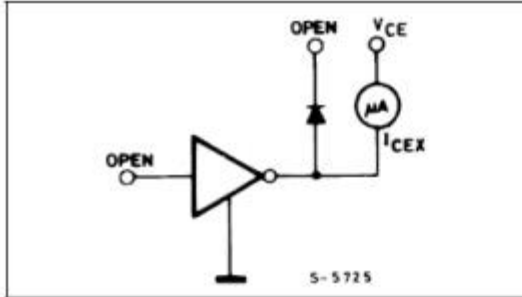


Figure 1b.

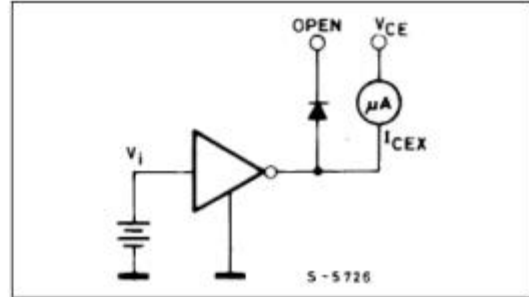


Figure 2.

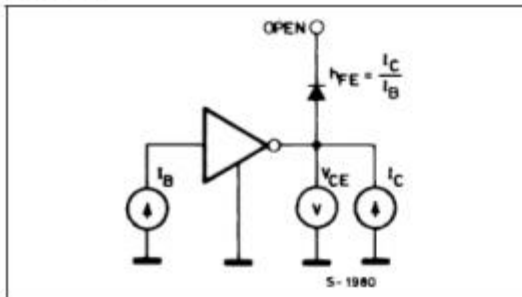


Figure 3.

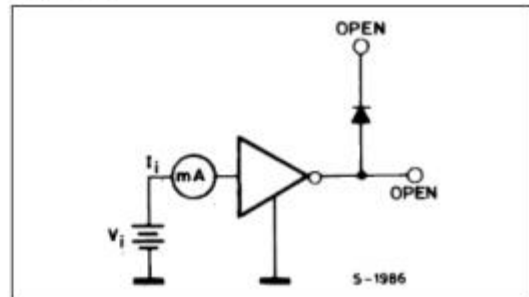


Figure 4.

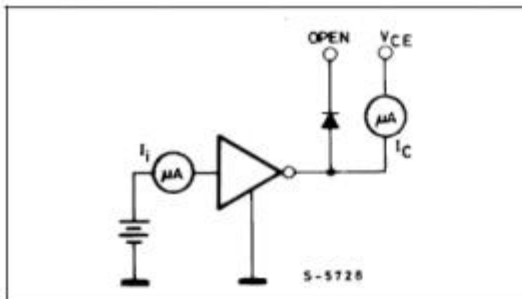


Figure 5.

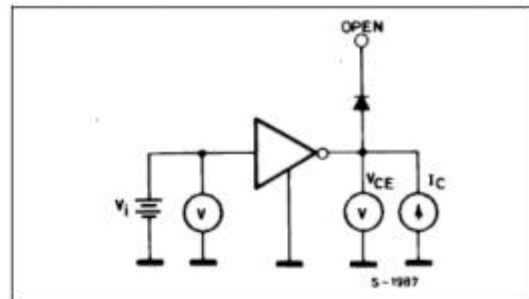


Figure 6.

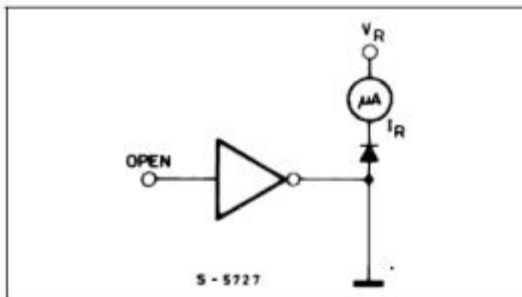
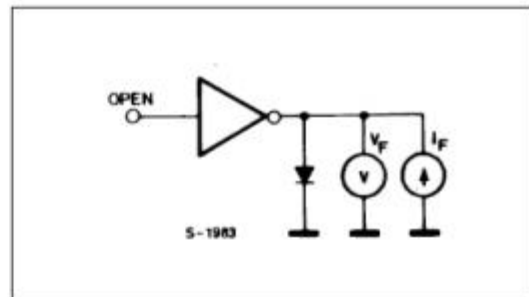


Figure 7.





7.特性曲线图

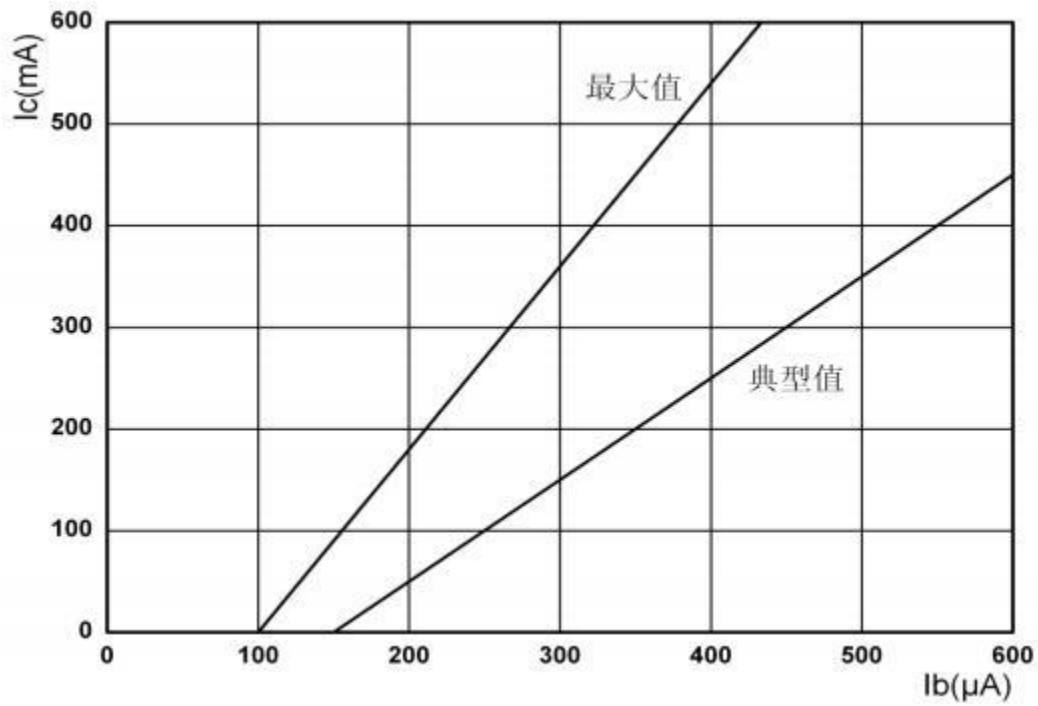


图 4 输出电压和输入电流特性曲线图

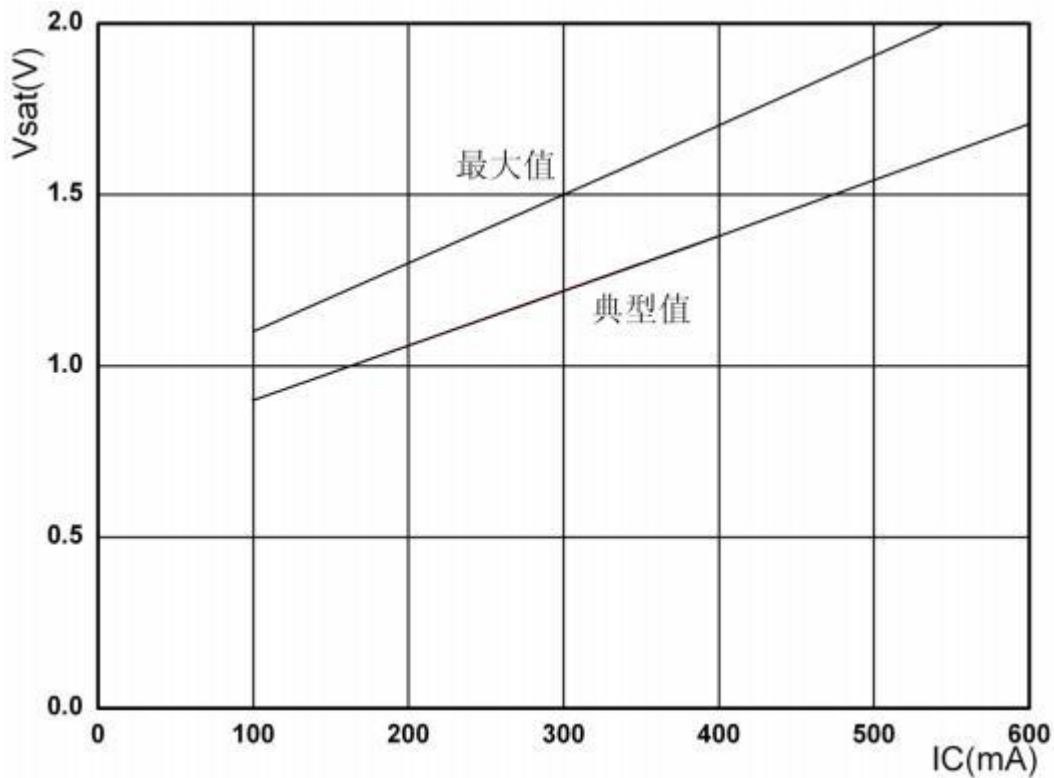
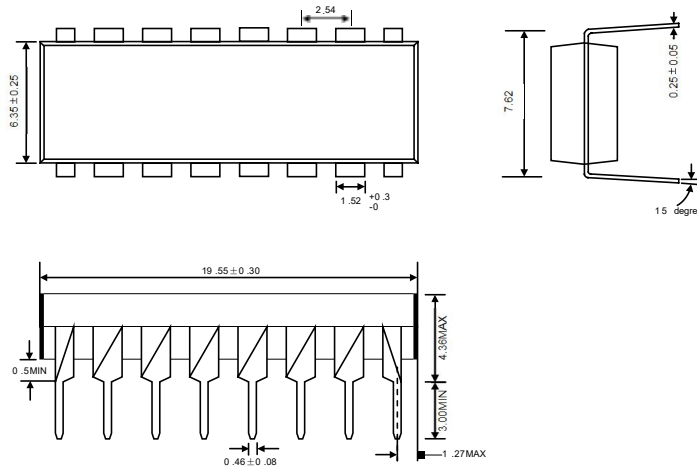


图 5 饱和压降和输出电压特性曲线图

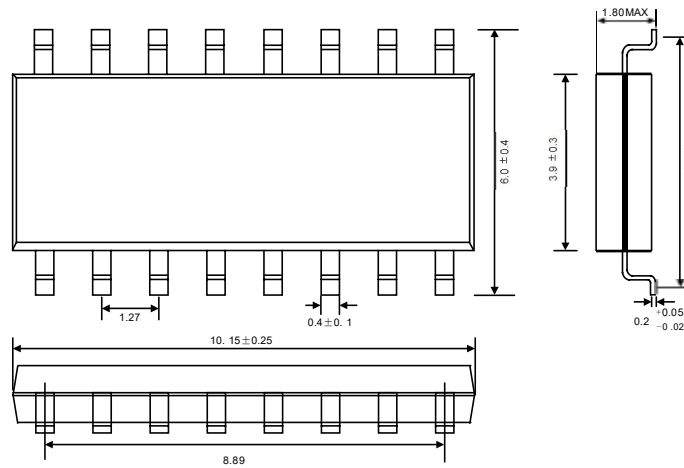


8.封装信息及尺寸

DIP-16



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注：尺寸单位为MM

图 6 ULN2003 封装及尺寸图



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