

# MSKSEMI 美森科

SEMICONDUCTOR



ESD



TVS



TSS



MOV



GDT



PLED

## SN74LVC1G04

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### 产品手册

## 产品简介

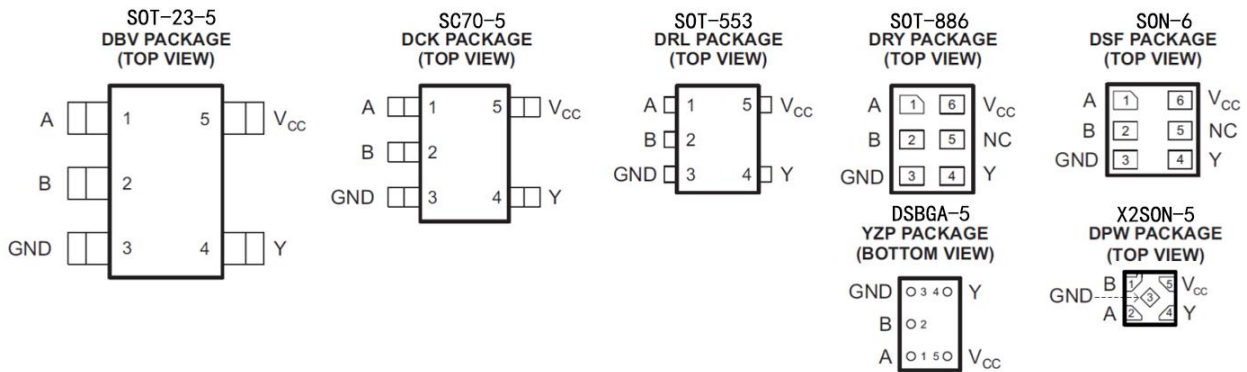
SN74LVC1G04 是一款的非门集成电路, 可实现  $Y = \bar{A}$  的数学逻辑运算。采用先进 CMOS 工艺设计, 具有低功耗和高输出驱动能力的工作特点, 电源电压 VCC 在 1.65V 和 5.5V 之间芯片均可正常工作。并且 SN74LVC1G04 具有多种小型封装外形, 可广泛应用于高端精密仪器和小型化低功耗的手持设备, 以及人工智能等领域。

## 产品特点

- 低输入电流: 典型值 0.1uA
- 宽工作电压范围: 1.65V to 5.5V
- 低静态功耗: 典型值 0.1uA
- 封装形式: DBV/DCK/DRL/YZP/ DRY/DSF/DPW
- 高输出驱动: VCC=4.5V, 大于 32MA

## 产品用途

- 便携式音频接口
- 蓝光播放器和家庭影院
- 数字电视
- 固态硬盘
- 无线耳机, 智能手表等
- 智能穿戴设备



管脚				
名称	DBV/DCK/DRL/YZP	DRY/DSF	DPW	说明
A	1	1	2	输入
B	2	2	1	输入
GND	3	3	3	电源地
Y	4	4	5	输出
VCC	5	6	5	电源正
NC	-	5	-	空脚

注: NC----空脚, 内部无连接线

## 极限参数

参数	符号	极限值	单位
工作电压	$V_{CC}$	6.5	V
输入	$V_{IN}$	-0.5~6.5	V
输出电压 (1)	$V_{OUT}$	-0.5~6.5	V
单个管脚输出电流	$I_{OUT}$	±25	mA
$V_{CC}$ 或 GND 电流	$I_{CC}$	±50	mA
存储温度	$T_S$	-65~150	°C
引脚焊接温度	$T_W$	260, 10s	°C

注：1、在  $V_{CC}=0V$  断电状态下，输出所能承受的极限电压，

2、极限参数是指无论在任何条件下都不能超过的极限值。万一超过此极限值，将有可能造成产品劣化等物理性损伤；同时在接近极限参数下，不能保证芯片可以正常工作。

## 原理逻辑图



## 真值表

Inputs	Output
A	Y
L	H
H	L

## 工作条件

项目	符号	测试条件	最小值	典型值	最大值	单位
工作电压	$V_{CC}$	-	1.65	-	5.5	V
输入高电平电压	$V_{IH}$	$V_{CC} = 1.65V \sim 1.95V$	$0.65 * V_{CC}$	-	-	V
		$V_{CC} = 2.3V \sim 2.7V$	1.7V	-	-	
		$V_{CC} = 3V \sim 5.5V$	$0.7 * V_{CC}$	-	-	
输入高电平电压	$V_{IH}$	$V_{CC} = 1.65V \sim 1.95V$	-	-	$0.35 * V_{CC}$	V
		$V_{CC} = 2.3V \sim 2.7V$	-	-	0.7	
		$V_{CC} = 3V \sim 5.5V$	-	-	$0.3 * V_{CC}$	
输入电压	$V_I$	-	0	-	5.5	V
输出电压	$V_O$	-	0	-	$V_{CC}$	V
高电平输出电流	$I_{OH}$	$V_{CC} = 1.65V$	-	-	-4	mA
		$V_{CC} = 2.3V$	-	-	-8	
		$V_{CC} = 3V$	-	-	-16	
		$V_{CC} = 4.5V$	-	-	-32	
低电平输出电流	$I_{OL}$	$V_{CC} = 1.65V$	-	-	4	mA
		$V_{CC} = 2.3V$	-	-	8	
		$V_{CC} = 3V$	-	-	16	
		$V_{CC} = 4.5V$	-	-	32	

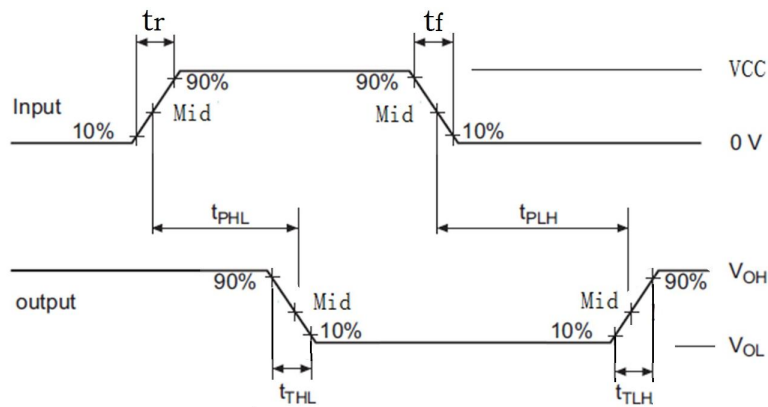
**电学特性**

直流电学特性: TA=25°C

项目	符号	测试条件	V <sub>cc</sub>	典型值	最大值	单位
高电平负载电压	V <sub>OH</sub>	I <sub>OH</sub> = -100uA	1.65V~5.5V	1.64	-	V
		I <sub>OH</sub> = -4 mA	1.65V	1.47	-	
		I <sub>OH</sub> = -8 mA	2.3V	2.15	-	
		I <sub>OH</sub> = -16 mA	3V	2.73	-	
		I <sub>OH</sub> = -32 mA	4.5V	4.0	-	
低电平负载电压	V <sub>OL</sub>	I <sub>OH</sub> = 100uA	1.65V~5.5V	0.01	-	V
		I <sub>OH</sub> = 4 mA	1.65V	0.11	-	
		I <sub>OH</sub> = 8 mA	2.3V	0.11	-	
		I <sub>OH</sub> = 16 mA	3V	0.2	-	
		I <sub>OH</sub> = 32 mA	4.5V	0.35	-	
输入电流	I <sub>I</sub>	V <sub>I</sub> = 5.5V 或 GND	0~5.5V	A	±5	uA
				B	±5	
关断电流	I <sub>OFF</sub>	V <sub>I</sub> = 5.5V	0	0.01	±10	uA
		V <sub>O</sub> = 5.5V	0	0.01	±10	
工作电流	I <sub>CC</sub>	V <sub>I</sub> = 5.5V, I <sub>O</sub> = 0	1.65V~5.5V	0.01	10	uA
		V <sub>I</sub> = GND, I <sub>O</sub> = 0		0.01	10	
工作电流变化值	DI <sub>CC</sub>	A = V <sub>cc</sub> - 0.6V B = V <sub>cc</sub> 或 GND	3V~5.5V	25	-	uA
		B = V <sub>cc</sub> - 0.6V A = V <sub>cc</sub> 或 GND		25	-	

交流电学特性: Ta=25°C VCC=5.0V, tr = tf ≤ 20ns 见测试方法。

项目	符号	测试条件	最小值	典型值	最大值	单位
最大传输延迟时间 A、B to Y	t <sub>PHL</sub>	C <sub>L</sub> = 15pF	-	10	-	ns
	t <sub>PLH</sub>	C <sub>L</sub> = 15pF	-	10	-	ns

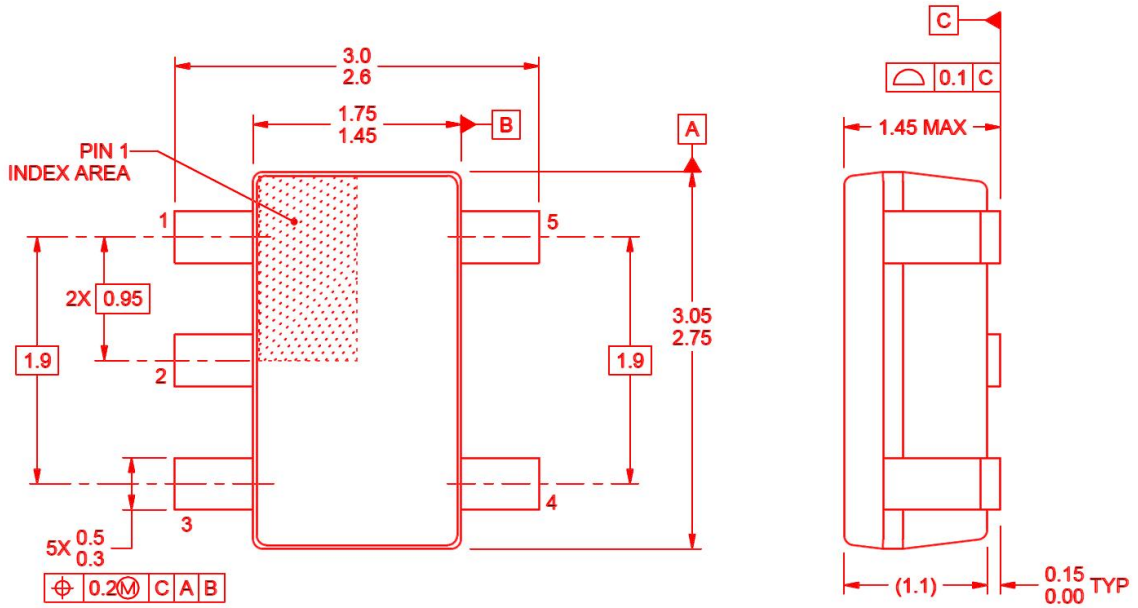


- 注: 1、CL电容为外接贴片电容(0603), 靠近输出管脚接入, 电容地靠近芯片GND;  
 2、Input: 端口输入电平, f=500kHz, D=50%; tr=tf≤20ns;  
 3、Output: Y端输出测试。

封装信息

单位：毫米 / 英寸

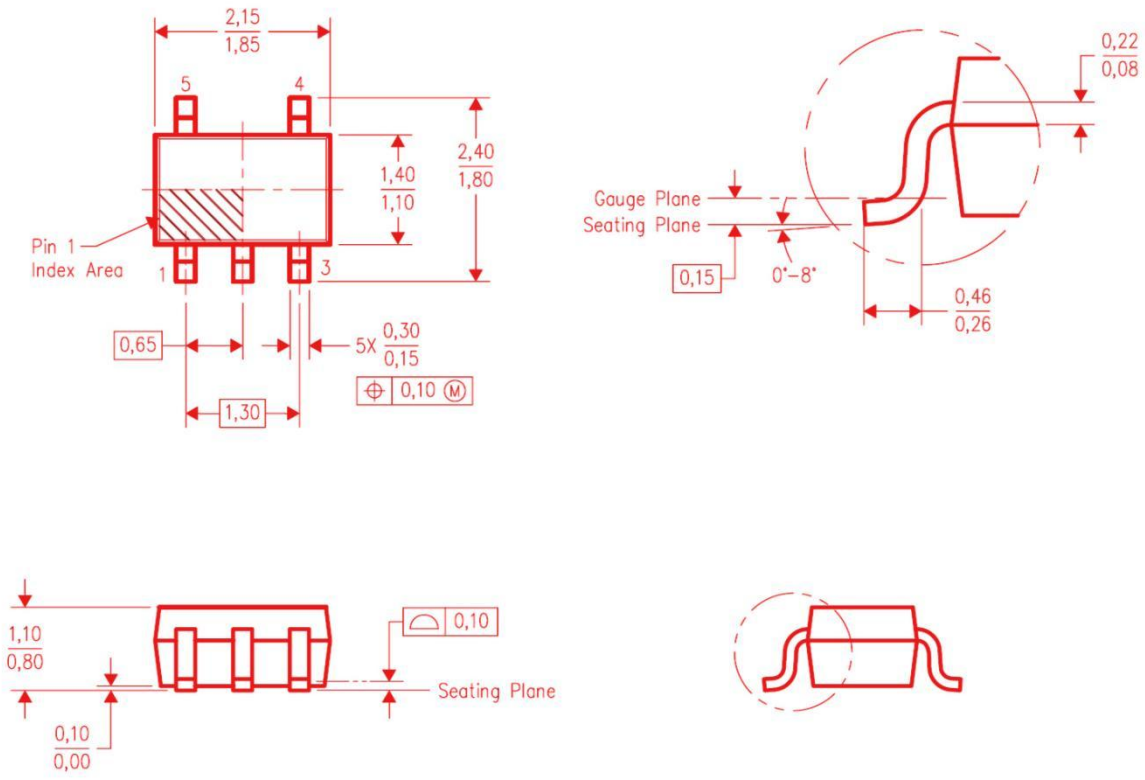
DBV (SOT-23-5)



卷轴规格

P/N	PKG	QTY
SN74LVC1G04DBVR-MS	SOT-23-5	3000

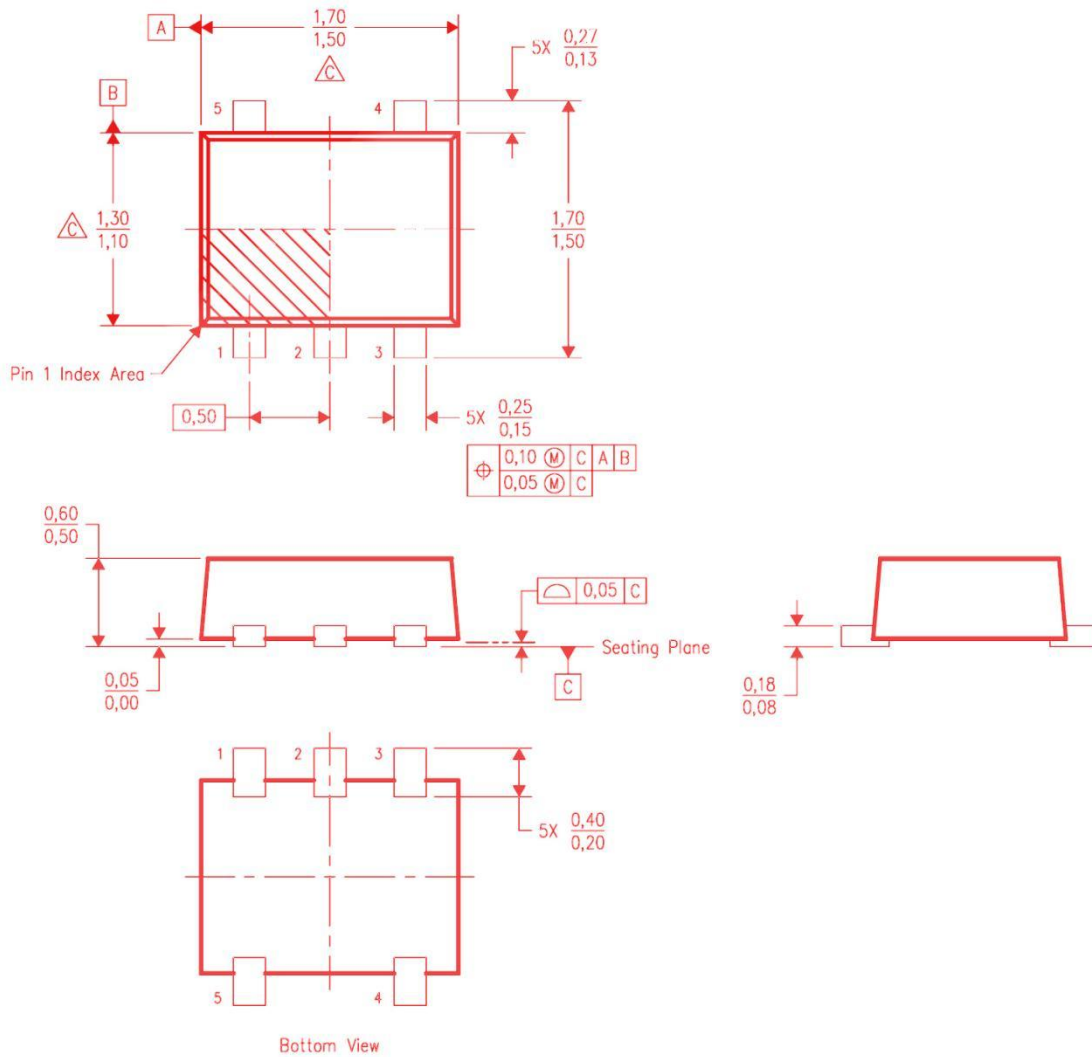
DCK (SC70-5)



卷轴规格

P/N	PKG	QTY
SN74LVC1G04DCKR-MS	SC70-5	3000

DRL (SOT-553)



卷轴规格

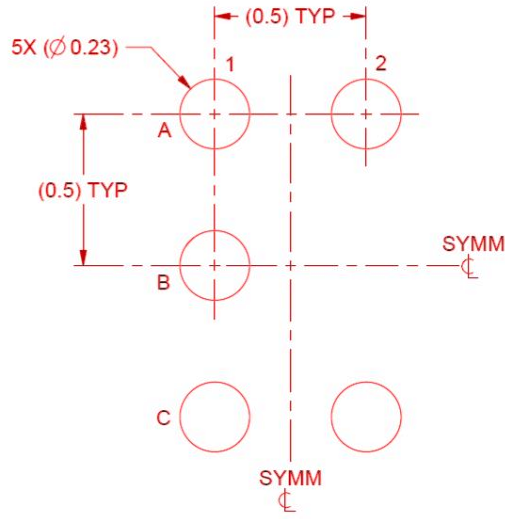
P/N	PKG	QTY
SN74LVC1G04DBLR-MS	SOT-553	4000



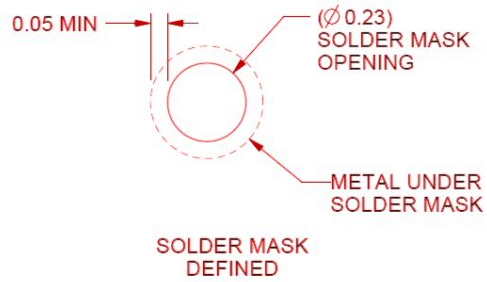
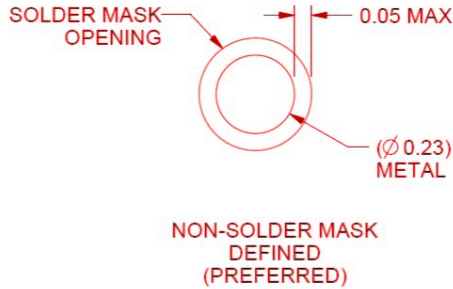




YZP (DSBGA-5)



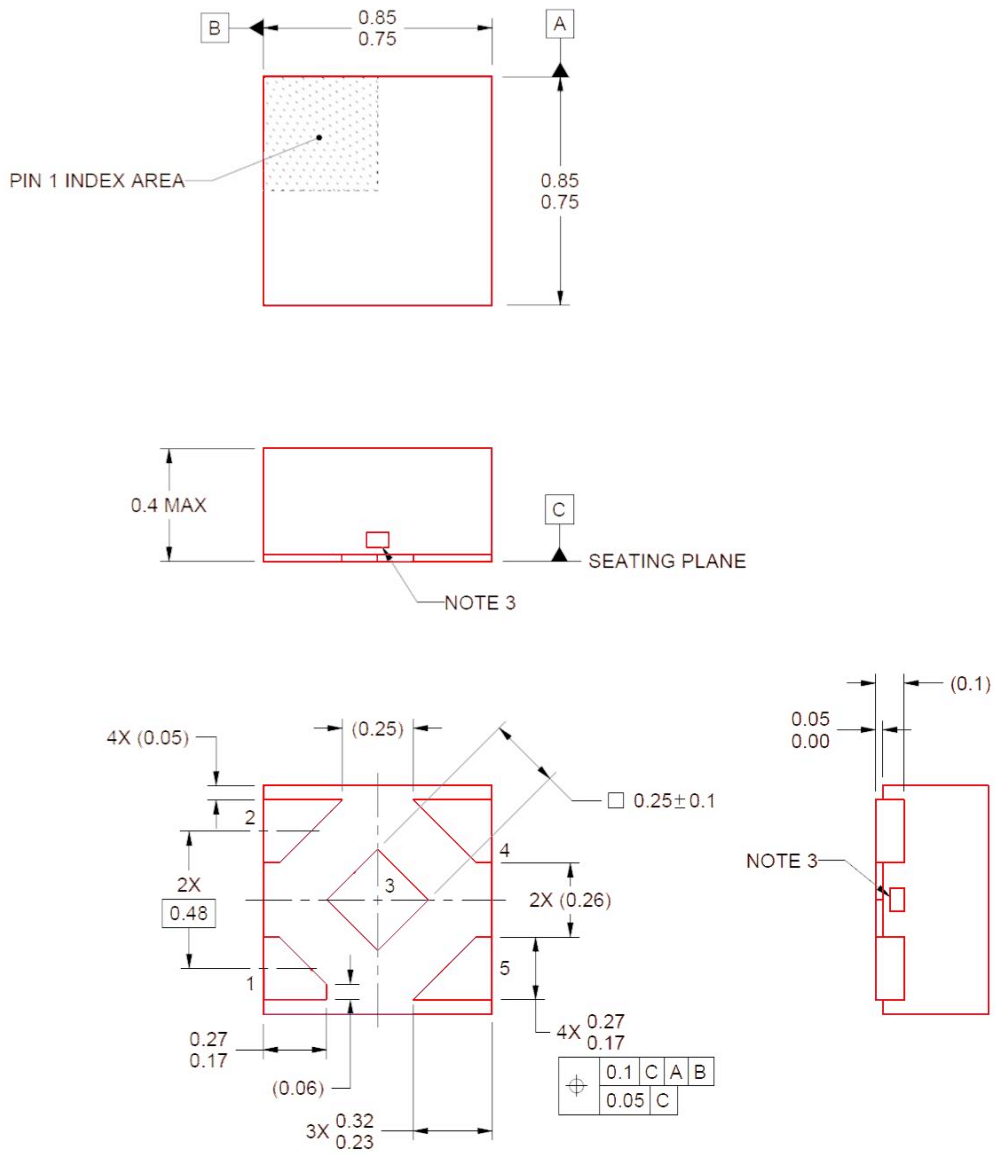
LAND PATTERN EXAMPLE  
SCALE:40X



卷轴规格

P/N	PKG	QTY
SN74LVC1G04YZPR-MS	X2SON-5	3000

DPW (X2SON-5)



卷轴规格

P/N	PKG	QTY
SN74LVC1G04DPWR-MS	DSBGA-5	5000

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