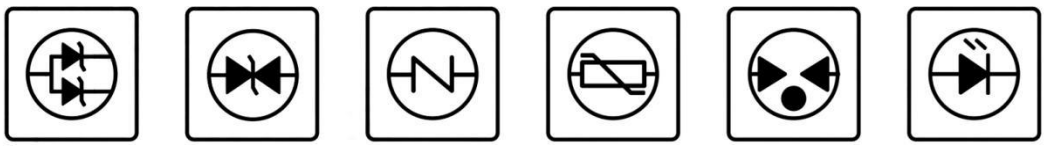
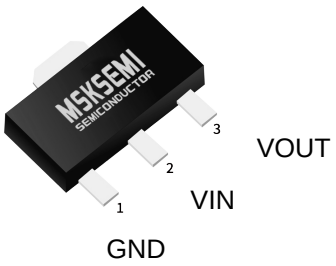
MSKSEMI
SEMICONDUCTOR

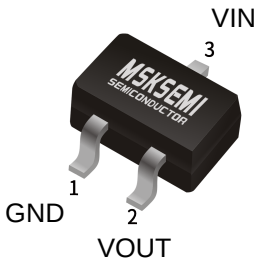


Product data sheet

SOT-89



SOT-23



产品概述

HT75XX是一款采用CMOS技术的低压差线性 稳压器。最高工作电压可达24V，有几种固定输 出电压值，输出范围为2.8V~9.0V，具有较低 的 静态功耗， 广泛用于各类音频、视频设备和通信 等设备的供电。

主要特点

- 低功耗
- 输入输出电压差低
- 温度漂移系数小
- 最高工作电压可达 24V
- 静态电流 1.5μA
- 输出电压精度：±2%
- 高输出电流： 100mA

典型应用

- 各类电源设备
- 通信设备
- 音频、视频设备

引脚功能

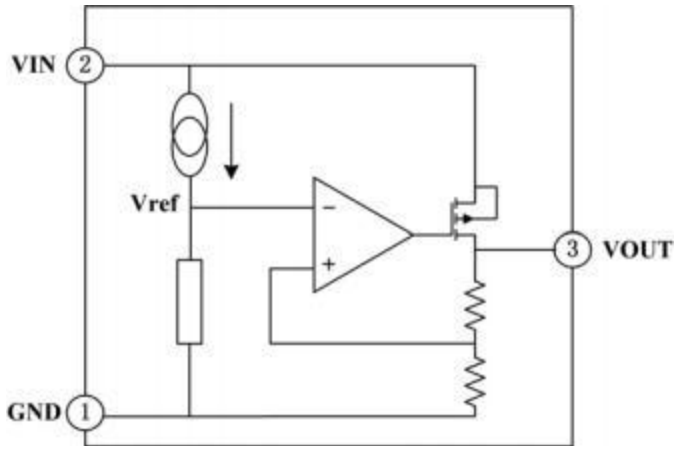
序号	符号	功能描述
1	GND	芯片接地端
2	VIN	输入
3	VOUT	输出

输出电压选型表

P/N	输出电压	封装类型
HT7528-1	2.8V	SOT-89/SOT-23/TO-92
HT7530-1	3.0V	
HT7533-1	3.3V	
HT7536-1	3.6V	
HT7540-1	4.0V	
HT7544-1	4.4V	
HT7550-1	5.0V	
HT7590-1	9.0V	

注：“XX”代表输出电压。

电路功能框图



最大额定值

参数说明	符号	数值范围	单位
工作电压	V_{IN}	－0.3~+30	V
贮存温度	T_{STG}	－50~＋125	C
工作温度	T_A	－40~＋85	C

注意：如果器件运行条件超过上述各项最大额定值，可能对器件造成永久性损坏。上述参数仅是运行条件的极大值，我们不建议器件在该规范范围外运行。如果器件长时间工作在绝对最大极限条件下，其稳定性可能会受到影响。

散热信息

参数说明	符号	封装类型	数值范围	单位
热阻	θ_{JA}	SOT89	200	℃/W
		TO92	200	C/ W
功耗	P_D	SOT89	500	mW
		TO92	500	mW

直流电特性（除特别说明外， T_A=＋25℃）

- **输出型号** HT7528-1

参数说明	符号	测试条件	最小值	典型值	最大值	单位
输出电压	V_{OUT}	V_{IN}=V_{OUT}+2.0V， I_{OUT}=10mA	2.744	2.80	2.856	V
输出电流	I_{OUT}	V_{IN}=V_{OUT}+2.0V	70	100	—	mA
负载调整率	△V_{OUT}	V_{IN}=V_{OUT}+2.0V 1mA≤I_{OUT}≤50mA	—	25	60	mV
低压差	V_{DIF}	I_{OUT}=1mA，△V_{OUT}=2%	—	30	100	mV
静态电流	I_{SS}	无负载	—	1.5	3.0	μA
线性调整率	△V_{OUT}/ V_{OUT}*△V_{IN}	V_{OUT}+1.0V≤V_{IN}≤24V， I_{OUT}=1mA	—	—	0.2	%/V
输入电压	V_{IN}	—	—	—	24	V
温度系数	△V_{OUT}/ △T_A*V_{OUT}	V_{OUT}+2.0V，I_{OUT}=10mA， -40℃≤T_A≤ 85℃	—	100	—	ppm/℃

注：当 V_{IN}=V_{OUT}+2.0V, 固定负载条件下使输出电压下降 2%，此时输入电压和输出电压的差值为低压差值 V_{DIF}。

- **输出型号** HT7530-1

参数说明	符号	测试条件	最小值	典型值	最大值	单位
输出电压	V_{OUT}	V_{IN}=V_{OUT}+2.0V， I_{OUT}=10mA	2.94	3.00	3.06	V
输出电流	I_{OUT}	V_{IN}=V_{OUT}+2.0V	70	100	–	mA
负载调整率	△V_{OUT}	V_{IN}=V_{OUT}+2.0V 1mA≤I_{OUT}≤50mA	–	25	60	mV
低压差	V_{DIF}	I_{OUT}=1mA，△V_{OUT}=2%	–	30	100	mV
静态电流	I_{SS}	无负载	–	1.5	3.0	μA
线性调整率	△V_{OUT}/ V_{OUT}*△V_{IN}	V_{OUT}+1.0V≤V_{IN}≤24V， I_{OUT}=1mA	–	–	0.2	%/V
输入电压	V_{IN}	–	–	–	24	V
温度系数	△V_{OUT}/ △T_A*V_{OUT}	V_{IN}= V_{OUT}+2.0V，I_{OUT}=10mA， -40℃≤T_A≤85℃	–	100	–	ppm/℃

注：当 V_{IN}=V_{OUT}+2.0V, 固定负载条件下使输出电压下降 2%，此时输入电压和输出电压的差值为低压差值 V_{DIF}。

- **输出型号** HT7533-1

参数说明	符号	测试条件	最小值	典型值	最大值	单位
输出电压	V_{OUT}	$V_{IN}=V_{OUT}+2.0V$， $I_{OUT}=10mA$	3.234	3.30	3.366	V
输出电流	I_{OUT}	$V_{IN}=V_{OUT}+2.0V$	70	100	–	mA
负载调整率	$\triangle V_{OUT}$	$V_{IN}=V_{OUT}+2.0V$ $1mA \leqslant I_{OUT} \leqslant 50mA$	–	25	60	mV
低压差	V_{DIF}	$I_{OUT}=1mA$，$\triangle V_{OUT}=2\%$	–	25	55	mV
静态电流	I_{SS}	无负载	–	1.5	3.0	μA
线性调整率	$\triangle V_{OUT}/V_{OUT}*\triangle V_{IN}$	$V_{OUT}+1.0V \leqslant V_{IN} \leqslant 24V$， $I_{OUT}=1mA$	–	–	0.2	%/V
输入电压	V_{IN}	–	–	–	24	V
温度系数	$\triangle V_{OUT}/\triangle T_A*V_{OUT}$	$V_{IN}=V_{OUT}+2.0V$，$I_{OUT}=10mA$， $-40℃ \leqslant T_A \leqslant 85℃$	–	100	–	ppm/℃

注：当 $V_{IN}=V_{OUT}+2.0V$，固定负载条件下使输出电压下降 2%，此时输入电压和输出电压的差值为低压差值 V_{DIF}。

- **输出型号** HT7536-1

参数说明	符号	测试条件	最小值	典型值	最大值	单位
输出电压	V_{OUT}	$V_{IN}=V_{OUT}+2.0V$ ， $I_{OUT}=10mA$	3.528	3.60	3.672	V
输出电流	I_{OUT}	$V_{IN}=V_{OUT}+2.0V$	70	100	–	mA
负载调整率	$\triangle V_{OUT}$	$V_{IN}=V_{OUT}+2.0V$ $1mA \leqslant I_{OUT} \leqslant 50mA$	–	25	60	mV
低压差	V_{DIF}	$I_{OUT}=1mA$，$\triangle V_{OUT}=2\%$	–	25	55	mV
静态电流	I_{SS}	无负载	–	1.5	3.0	μA
线性调整率	$\triangle V_{OUT}/V_{OUT}*\triangle V_{IN}$	$V_{OUT}+1.0V \leqslant V_{IN} \leqslant 24V$， $I_{OUT}=1mA$	–	–	0.2	%/V
输入电压	V_{IN}	–	–	–	24	V
温度系数	$\triangle V_{OUT}/\triangle T_A*V_{OUT}$	$V_{IN}=V_{OUT}+2.0V$，$I_{OUT}=10mA$， $-40℃ \leqslant T_A \leqslant 85℃$	–	100	–	ppm/℃

注：当 $V_{IN}=V_{OUT}+2.0V$，固定负载条件下使输出电压下降 2%，此时输入电压和输出电压的差值为低压差值 V_{DIF}。

- **输出型号** HT7540-1

参数说明	符号	测试条件	最小值	典型值	最大值	单位
输出电压	V_{OUT}	$V_{IN}=V_{OUT}+2.0V$， $I_{OUT}=10mA$	3.92	4.0	4.08	V
输出电流	I_{OUT}	$V_{IN}=V_{OUT}+2.0V$	70	100	-	mA
负载调整率	$\triangle V_{OUT}$	$V_{IN}=V_{OUT}+2.0V$ $1mA \leqslant I_{OUT} \leqslant 50mA$	-	25	60	mV
低压差	V_{DIF}	$I_{OUT}=1mA$，$\triangle V_{OUT}=2\%$	-	25	55	mV
静态电流	I_{SS}	无负载	-	1.5	3.0	μA
线性调整率	$\triangle V_{OUT}/V_{OUT}*\triangle V_{IN}$	$V_{OUT}+1.0V \leqslant V_{IN} \leqslant 24V$， $I_{OUT}=1mA$	-	-	0.2	%/V
输入电压	V_{IN}	-	-	-	24	V
温度系数	$\triangle V_{OUT}/\triangle T_A*V_{OUT}$	$V_{IN}=V_{OUT}+2.0V$，$I_{OUT}=10mA$， $-40℃ \leqslant T_A \leqslant 85℃$	-	100	-	ppm/℃

注：当 $V_{IN}=V_{OUT}+2.0V$，固定负载条件下使输出电压下降 2%，此时输入电压和输出电压的差值为低压差值 V_{DIF}。

- **输出型号** HT7544-1

参数说明	符号	测试条件	最小值	典型值	最大值	单位
输出电压	V_{OUT}	$V_{IN}=V_{OUT}+2.0V$ ， $I_{OUT}=10mA$	4.312	4.4	4.488	V
输出电流	I_{OUT}	$V_{IN}=V_{OUT}+2.0V$	70	100	-	mA
负载调整率	$\triangle V_{OUT}$	$V_{IN}=V_{OUT}+2.0V$ $1mA \leqslant I_{OUT} \leqslant 50mA$	-	25	60	mV
低压差	V_{DIF}	$I_{OUT}=1mA$，$\triangle V_{OUT}=2\%$	-	25	55	mV
静态电流	I_{SS}	无负载	-	1.5	3.0	μA
线性调整率	$\triangle V_{OUT}/V_{OUT}*\triangle V_{IN}$	$V_{OUT}+1.0V \leqslant V_{IN} \leqslant 24V$， $I_{OUT}=1mA$	-	-	0.2	%/V
输入电压	V_{IN}	-	-	-	24	V
温度系数	$\triangle V_{OUT}/\triangle T_A*V_{OUT}$	$V_{IN}=V_{OUT}+2.0V$，$I_{OUT}=10mA$， $-40℃ \leqslant T_A \leqslant 85℃$	-	100	-	ppm/℃

注：当 $V_{IN}=V_{OUT}+2.0V$，固定负载条件下使输出电压下降 2%，此时输入电压和输出电压的差值为低压差值 V_{DIF}。

- **输出型号** HT7550-1

参数说明	符号	测试条件	最小值	典型值	最大值	单位
输出电压	V_{OUT}	$V_{IN}=V_{OUT}+2.0V$ ， $I_{OUT}=10mA$	4.9	5.0	5.1	V
输出电流	I_{OUT}	$V_{IN}=V_{OUT}+2.0V$	100	150	–	mA
负载调整率	$\triangle V_{OUT}$	$V_{IN}=V_{OUT}+2.0V$ $1mA \leqslant I_{OUT} \leqslant 70mA$	–	25	60	mV
低压差	V_{DIF}	$I_{OUT}=1mA$，$\triangle V_{OUT}=2\%$	–	25	55	mV
静态电流	I_{SS}	无负载	–	1.5	3.0	μA
线性调整率	$\triangle V_{OUT}/ V_{OUT} * \triangle V_{IN}$	$V_{OUT}+1.0\ V \leqslant V_{IN} \leqslant 24V$， $I_{OUT}=1mA$	–	–	0.2	%/V
输入电压	V_{IN}	–	–	–	24	V
温度系数	$\triangle V_{OUT}/ \triangle T_A * V_{OUT}$	$V_{IN}= V_{OUT}+2.0V$ ， $I_{OUT}=10mA$， $-40℃ \leqslant T_A \leqslant 85℃$	–	100	–	ppm/℃

注：当 $V_{IN}=V_{OUT}+2.0V$, 固定负载条件下使输出电压下降 2%，此时输入电压和输出电压的差值为低压差值 V_{DIF}。

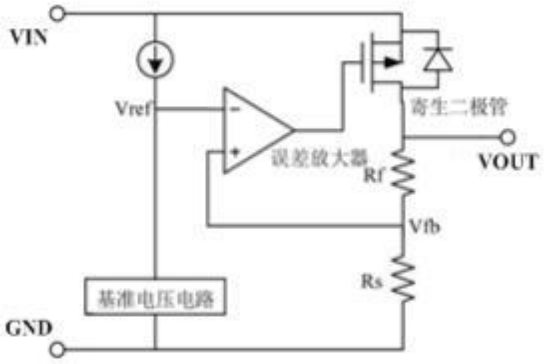
- **输出型号** HT7590-1

参数说明	符号	测试条件	最小值	典型值	最大值	单位
输出电压	V_{OUT}	$V_{IN}=V_{OUT}+2.0V$ ， $I_{OUT}=10mA$	8.82	9.0	9.18	V
输出电流	I_{OUT}	$V_{IN}=V_{OUT}+2.0V$	100	150	–	mA
负载调整率	$\triangle V_{OUT}$	$V_{IN}=V_{OUT}+2.0V$ $1mA \leqslant I_{OUT} \leqslant 70mA$	–	25	60	mV
低压差	V_{DIF}	$I_{OUT}=1mA$，$\triangle V_{OUT}=2\%$	–	25	55	mV
静态电流	I_{SS}	无负载	–	1.5	3.0	μA
线性调整率	$\triangle V_{OUT}/ V_{OUT} * \triangle V_{IN}$	$V_{OUT}+1.0\ V \leqslant V_{IN} \leqslant 24V$， $I_{OUT}=1mA$	–	–	0.2	%/V
输入电压	V_{IN}	–	–	–	24	V
温度系数	$\triangle V_{OUT}/ \triangle T_A * V_{OUT}$	$V_{IN}= V_{OUT}+2.0V$ ， $I_{OUT}=10mA$， $-40℃ \leqslant T_A \leqslant 85℃$	–	100	–	ppm/℃

注：当 $V_{IN}=V_{OUT}+2.0V$, 固定负载条件下使输出电压下降 2%，此时输入电压和输出电压的差值为低压差值 V_{DIF}。

功能描述

误差放大器根据反馈电阻 Rs 及 Rf 所构成的分压电阻的输入电压 Vfb 同基准电压(Vref)相比较。通过此误差放大器向输出晶体管提供必要的门极电压，而使输出电压不受输入电压或温度变化的影响而保持一定。



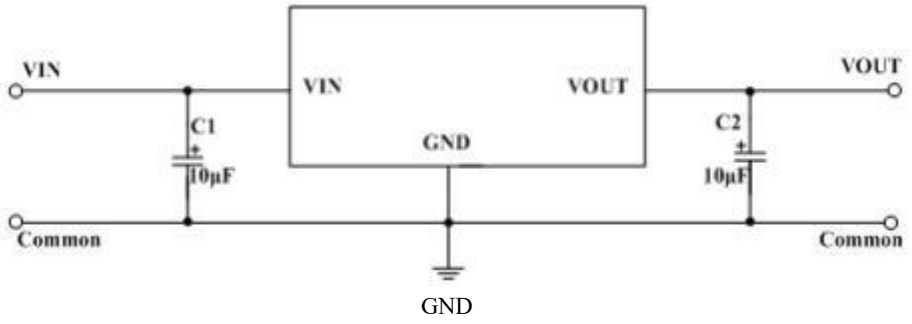
1、 应用时尽量将电容接到 VIN 和 VOUT 脚位附近。

2、 电路内部使用了相位补偿电路和利用输出电容的 ESR 来补偿。所以输出到地一定要接大于 2.2μF 的电容器，推荐使用钽电容。

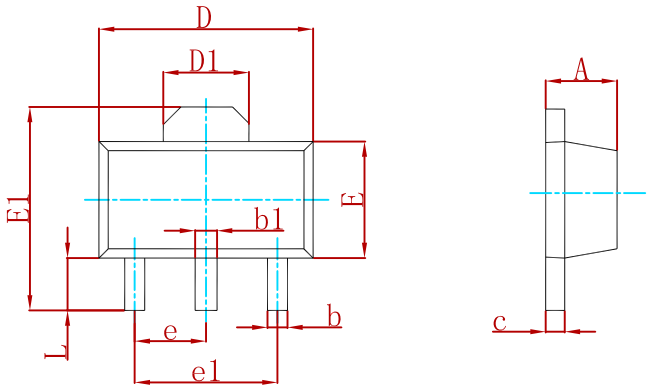
3、 注意输入输出电压、负载电流的使用条件，避免 IC 内部的功耗超出封装允许的最大功耗值。

典型应用线路图

1、基本应用图

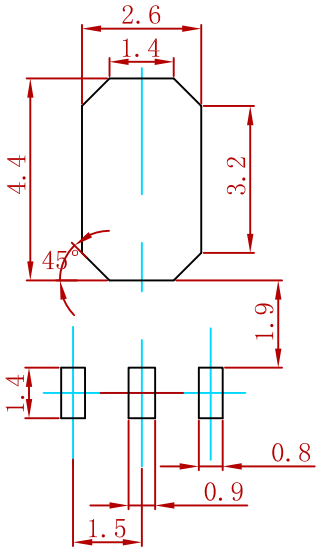


PACKAGE MECHANICAL DATA



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.400	1.600	0.055	0.063
b	0.320	0.520	0.013	0.020
b1	0.400	0.580	0.016	0.023
c	0.350	0.440	0.014	0.017
D	4.400	4.600	0.173	0.181
D1	1.550 REF.		0.061 REF.	
E	2.300	2.600	0.091	0.102
E1	3.940	4.250	0.155	0.167
e	1.500 TYP.		0.060 TYP.	
e1	3.000 TYP.		0.118 TYP.	
L	0.900	1.200	0.035	0.047

Suggested Pad Layout

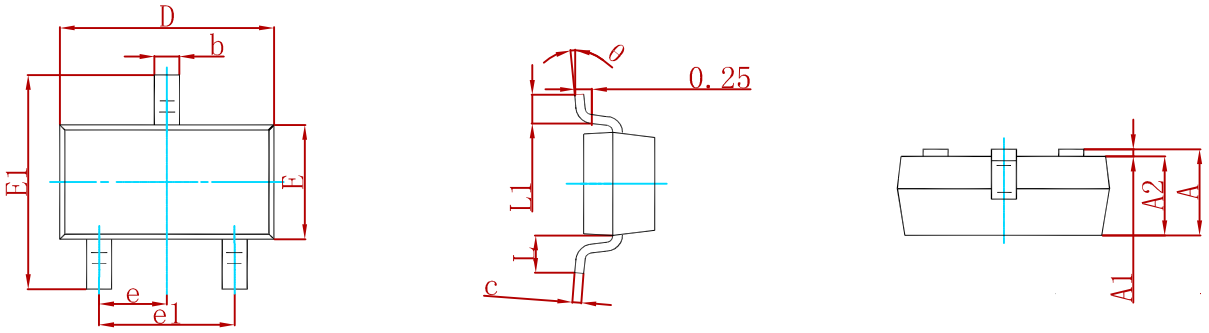


Note:
1.Controlling dimension:in millimeters.
2.General tolerance:±0.05mm.
3.The pad layout is for reference purposes only.

REEL SPECIFICATION

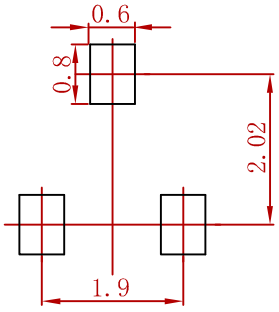
P/N	PKG	QTY
HT75XX	SOT-89	1000

PACKAGE MECHANICAL DATA



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

Suggested Pad Layout

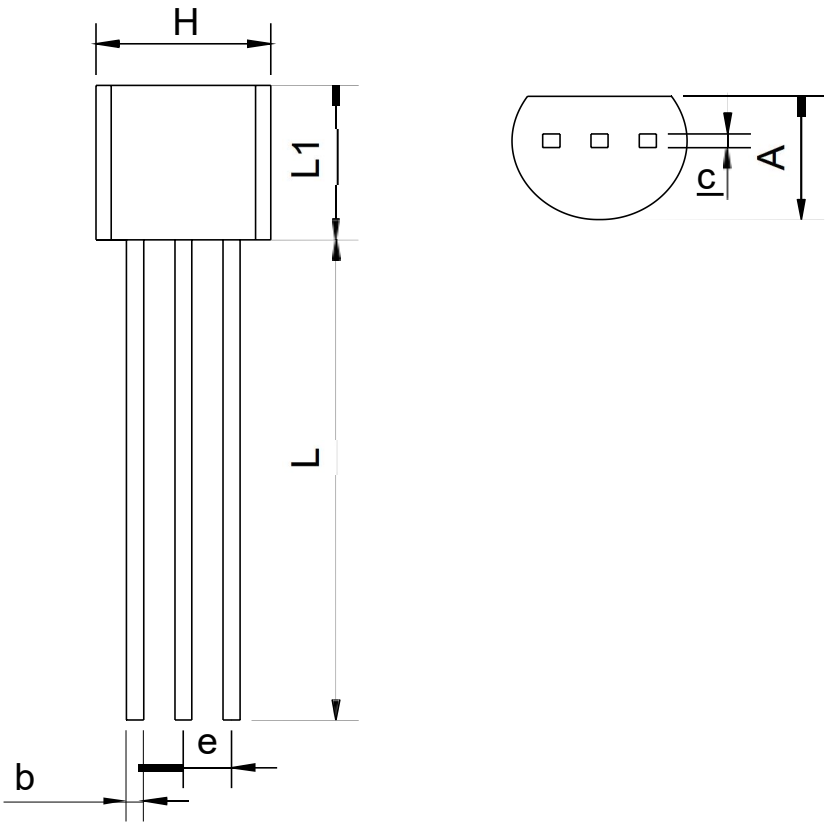


Note:
1.Controlling dimension:in millimeters.
2.General tolerance:± 0.05mm.
3.The pad layout is for reference purposes only.

REEL SPECIFICATION

P/N	PKG	QTY
HT75XX	SOT-23	3000

PACKAGE MECHANICAL DATA



SYMBOL	mm	
	min	max
A	3.40	3.80
b	0.40	0.50
c	0.35	0.45
e	1.27BSC	
H	4.40	4.80
L	13.00	15.00
L1	4.30	4.70

REEL SPECIFICATION

P/N	PKG	QTY
HT75XX	TO-92	1000

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