

## DESCRIPTION

The SESR05- 4A is a dual USB port protection array that features ultra low capacitance. This device can be used in applications such as video cards, SMART phones, Gigabit Ethernet and other computer interfaces. Designed for ESD protection, the SESR05-4A can clamp the effects of electrical fast transients on the power bus.

The SESR05-4A combines 8 low capacitance steering diodes for up to four individual data or transmission lines and one TVS diode for power bus protection. This device is available in the space-saving SOT-2-3-6 package configuration, which minimizes lead inductance to prevent overshoot voltages during high ESD current events. The SESR05-4A meets the IEC 61000-4-2, 61000-4-2 and 61000-4-5 requirements.

## FEATURES

- >60 Watts peak pulse power( $t_p=8/20\mu s$ )
- >Protects four I/O lines
- >Low clamping voltage
- >Small package: SOT23-6L
- >Low leakage current
- >Weight 16 Milligrams

## APPLICATIONS

- >USB 2.0 Power and Data Line Protection
- >Video Graphics Cards
- >Monitors and Flat Panel Displays
- >Digit Video Interface (DVI)
- >10/100/1000 Ethernet
- >Notebook Computers
- >ATM Interfaces

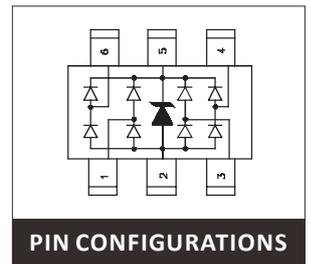
## IEC COMPATIBILITY

- >IEC 61000-4-2(ESD) $\pm 15KV$ (air), $\pm 8KV$ (contact)
- >IEC61000-4-4 (EFT) 40A (5/50ns)
- >IEC61000-4-5 (Lightning) 3A (8/20 $\mu s$ )

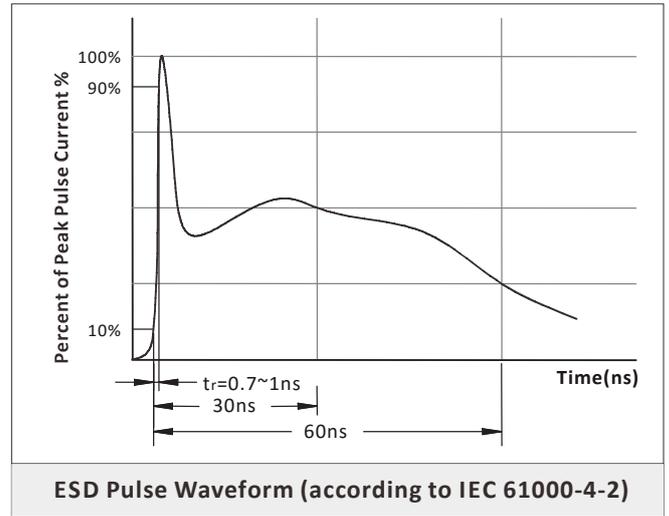
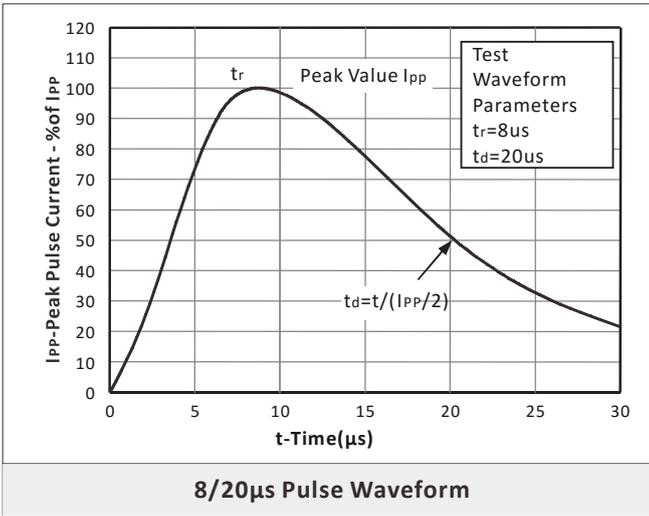
## TYPICAL DEVICE CHARACTERISTICS

MAXIMUM RATINGS @ 25°C UNLESS OTHERWISE SPECIFIED			
PARAMETER	SYMBOL	VALUE	UNIT
Peak Pulse Power ( $t_p=8/20\mu s$ waveform)	P <sub>PP</sub>	60	Watts
Lead Soldering Temperature	T <sub>L</sub>	260(10 sec.)	°C
Operating Temperature Range	T <sub>J</sub>	-40~150	°C
Storage Temperature Range	T <sub>STG</sub>	-55~150	°C

ELECTRICAL CHARACTERISTICS PER LINE @ 25°C UNLESS OTHERWISE SPECIFIED									
PART NUMBER	DEVICE MARKING	V <sub>RWM</sub>	V <sub>B</sub>	I <sub>T</sub>	V <sub>C</sub>	V <sub>C</sub>		I <sub>R</sub>	C <sub>T</sub>
		(V) Max.	(V) Min.	(mA)	@1A Max.	Max.	@A	(uA) Max.	(pF) Max.
SESR05-4A	B05B	5.0	6.0	1	9.8	23.0	3	1	1



### CHARACTERISTIC CURVES

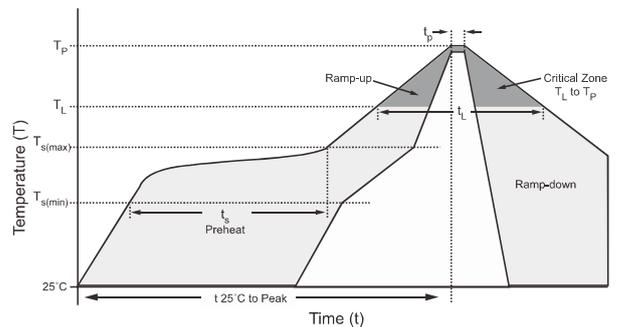


### ENVIRONMENTAL CHARACTERISTICS

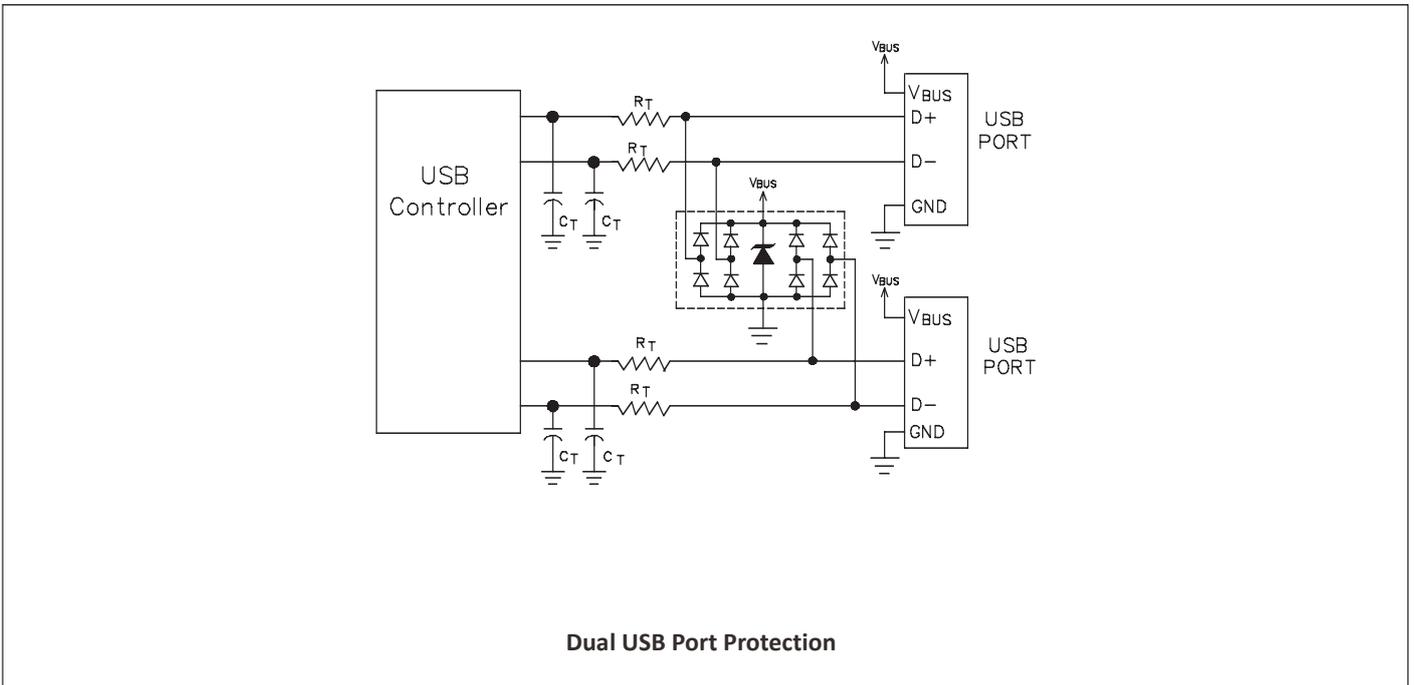
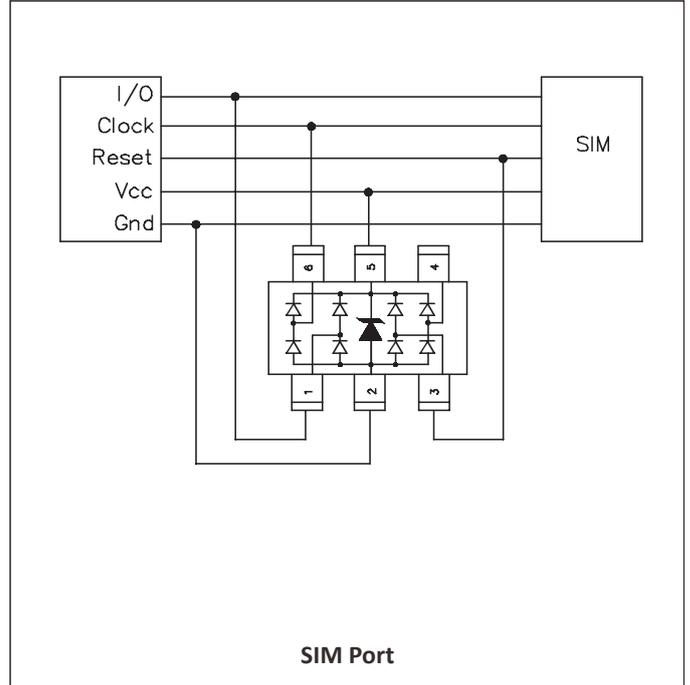
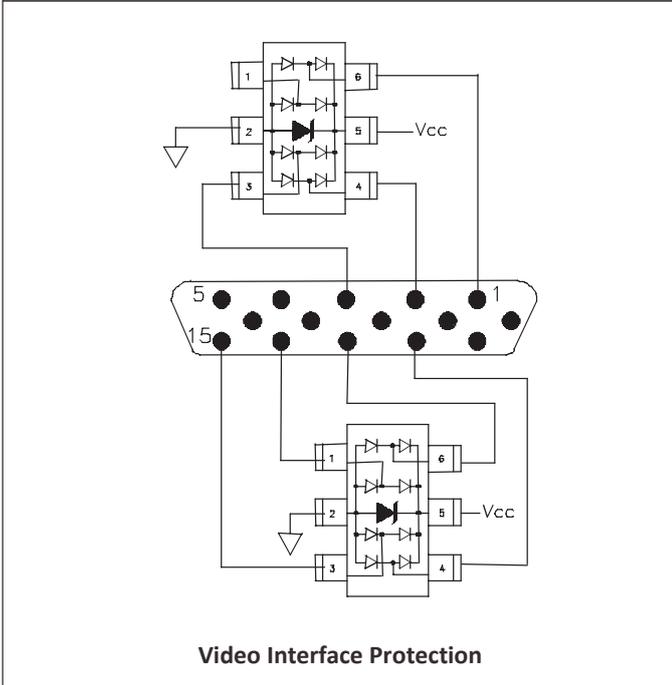
Testing Items	Technical Standards
High Temperature Reverse Bias Test	Temperature:150±3°C,Bias=80%VDRM ;Time:168H
High Temperature Life Test	Temperature:150°C;Time:168H
High-Low Temperature Cycle Test	Temperature:From -40°C to 150°C ;Dwell Time:30min,10-100 Cycles
High Temperature&High Humidity Test	Temperature:85°C.Humidity:85%; Time:168H
Pressure Cooker Test	Temperature:121°C,2 atm.Humidity:100%; Time:24H To 168H
Resistance Of Soldering Heat	Temperature:260±5°C;Time Of Dip Soldering:10s,3 Times

### REFLOW PROFILE

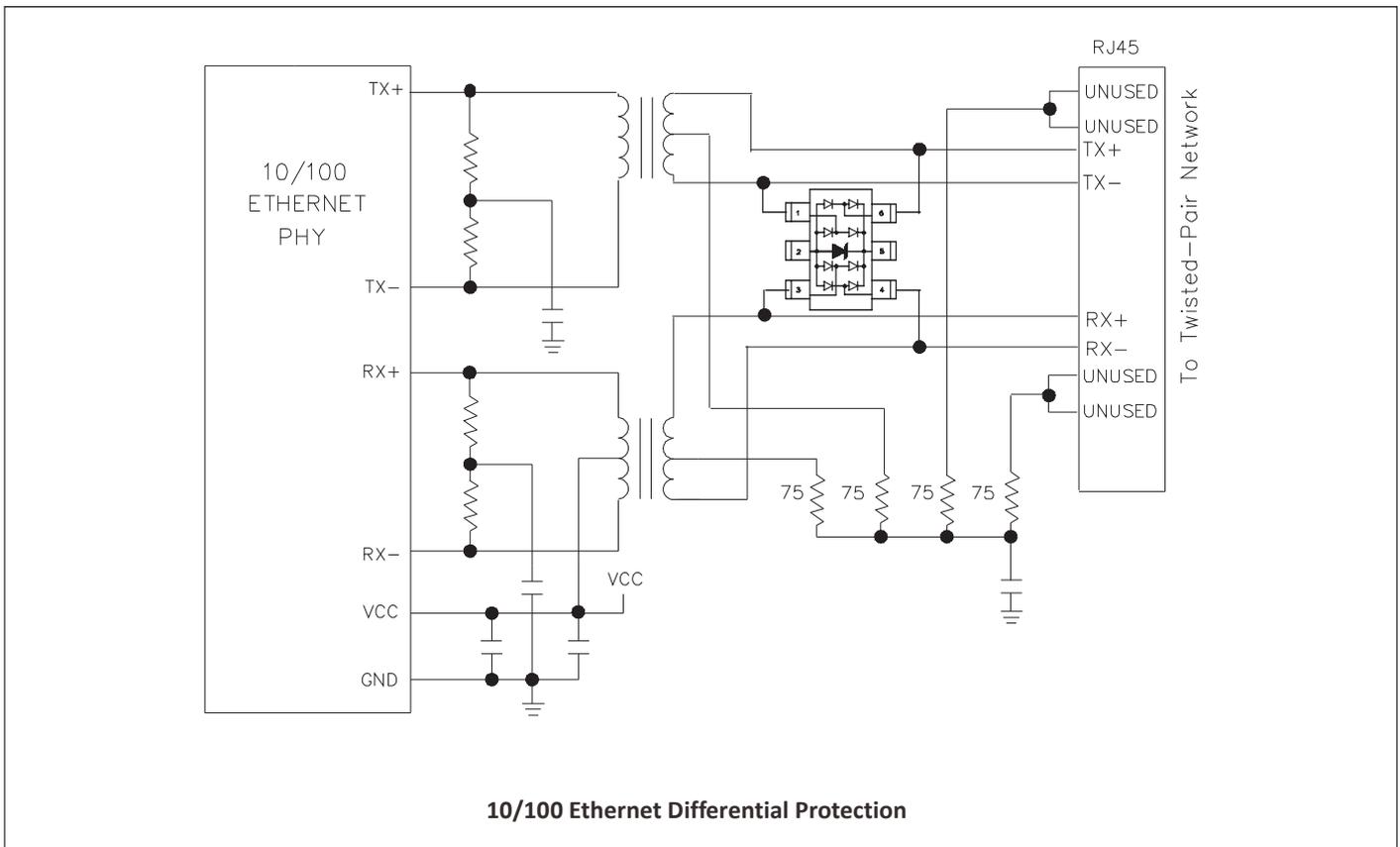
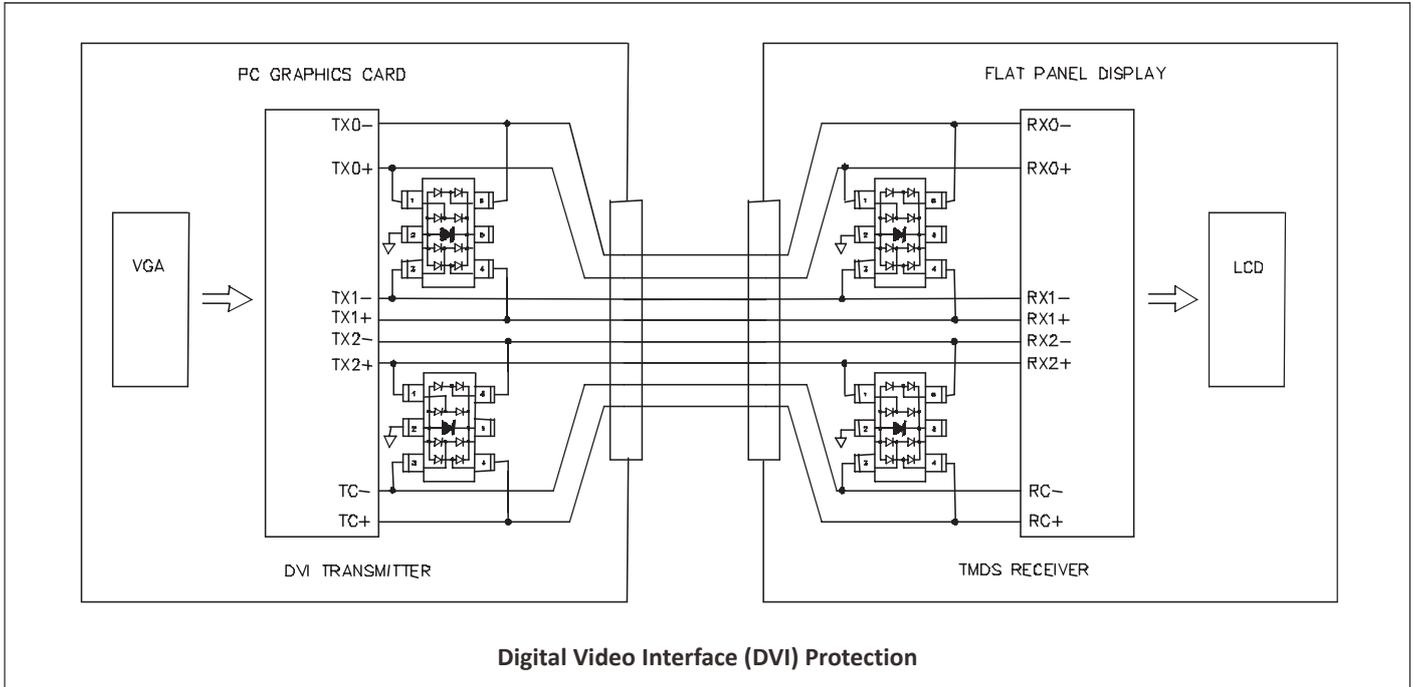
Reflow Condition		Lead-free assembly
Pre Heat	Temperature Min (Ts(min))	150°C
	Temperature Max (Ts(max))	200°C
	Time (min to max) (ts)	60 – 180 secs
Average ramp up rate (Liquidus Temp (TL) to peak)		3°C/second max
Ts(max)to TL - Ramp-up Rate		3°C/second max
Reflow	Temperature (TL) (Liquidus)	217°C
	Time (min to max) (ts)	60 – 150 seconds
Peak Temperature (TP)		260°C
Time within 5°C of actual peak Temperature (tp)		20 – 40 seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (TP)		8 minutes Max.
Do not exceed		260°C



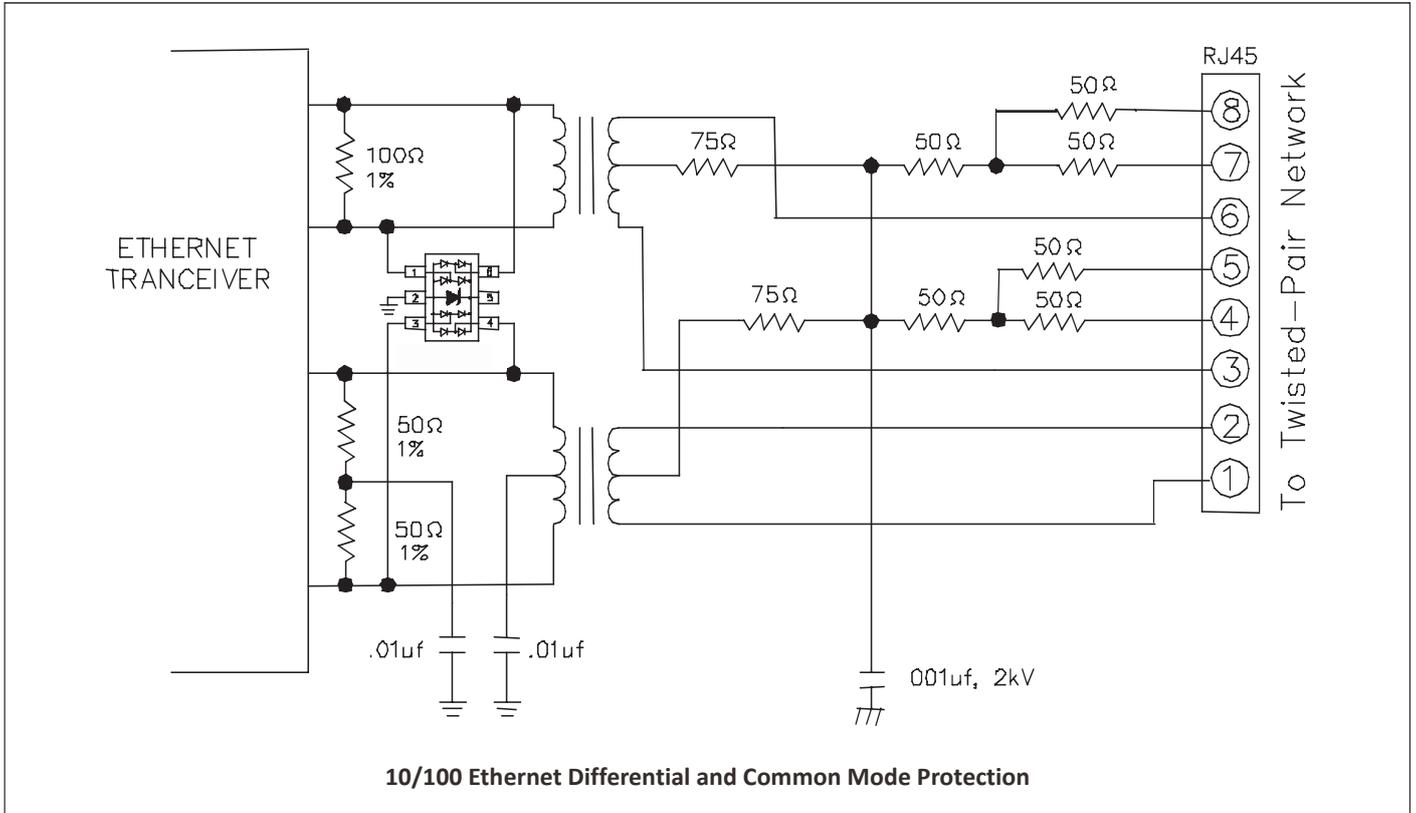
**TYPICAL APPLICATIONS**



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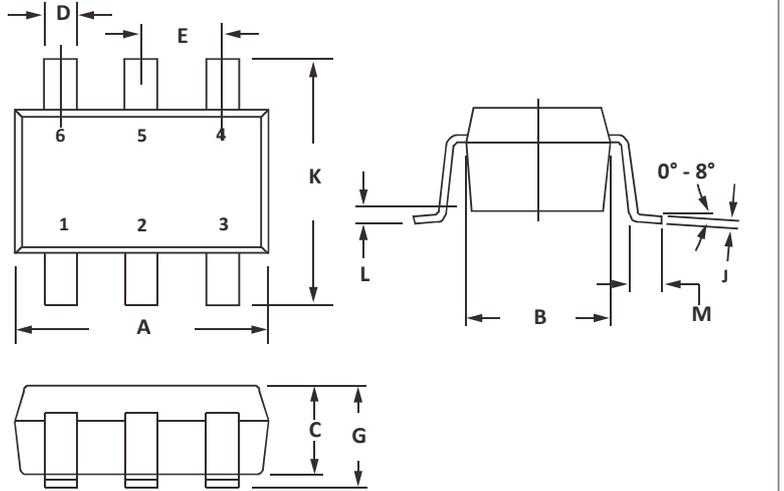


**TYPICAL APPLICATIONS**

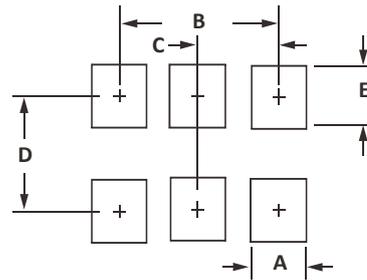


SOT-23-6 PACKAGE INFORMATION

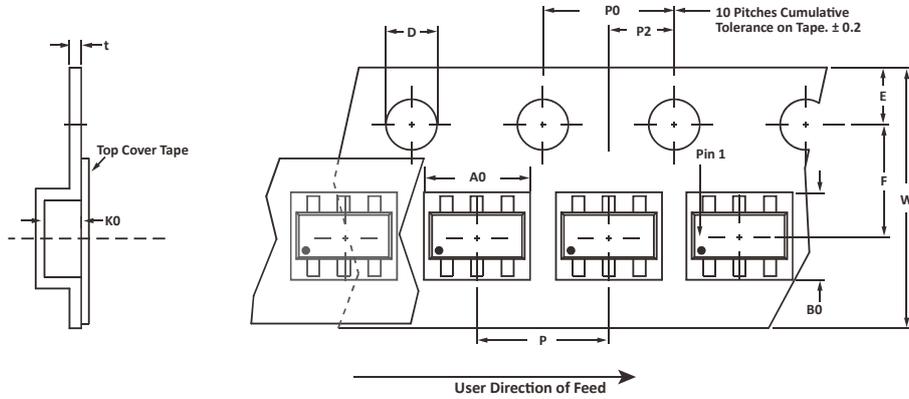
OUTLINE DIMENSIONS				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	2.80	3.05	0.110	0.120
B	1.50	1.75	0.059	0.070
C	0.90	1.30	0.036	0.051
D	0.30	0.40	0.012	0.016
E	0.85	1.05	0.033	0.040
G	0.90	1.45	0.036	0.057
J	0.09	0.20	0.003	0.008
K	2.60	3.00	0.102	0.118
L	0.0	0.15	0.0	0.006
M	0.30	0.60	0.012	0.024



PAD LAYOUT DIMENSIONS		
DIM	MILLIMETERS	INCHES
	NOMINAL	NOMINAL
A	0.70	0.028
B	1.90	0.074
C	0.95	0.037
D	2.40	0.094
E	1.00	0.039



**TAPE AND REEL**



**SPECIFICATIONS**

REEL DIA.	TAPE WIDTH	A0	B0	K0	D	E	F	W	P0	P2	P	tmax
178mm (7")	8mm	3.20 ± 0.10	3.20 ± 0.10	1.65 ± 0.10	1.50 ± 0.10	1.75 ± 0.10	3.50 ± 0.05	8.00 ± 0.30	4.00 ± 0.10	2.00 ± 0.05	4.00 ± 0.10	0.25

**NOTES**

1. Dimensions are in millimeters.
2. Surface mount product is taped and reeled in accordance with EIA-481.
3. Suffix - T7 = 7" Reel - 3,000 pieces per 8mm tape.

**ORDERING INFORMATION**

BASE PART NUMBER	LEAD FREE SUFFIX	TAPE SUFFIX	QTY/REEL	REEL SIZE	TUBE QTY
SESR05-4A	-LF	-T7	3,000	7"	n/a

This device is only available in a Lead-Free configuration.



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