

Features

- Ultra low leakage: nA level
- Operating voltage: 6V
- Low clamping voltage
- Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
 - Air discharge: $\pm 30\text{kV}$
 - Contact discharge: $\pm 30\text{kV}$
 - IEC61000-4-4 (EFT) 40A (5/50ns)
 - IEC61000-4-5 (Lightning) 100A (8/20 μs)
- RoHS Compliant

Applications

- T1/E1 Line Cards
- T3/E3 and DS3 Interfaces
- STS-1 Interfaces
- 10/100/1000 BaseT Ethernet
- ISDN Interfaces
- Low Voltage Interfaces

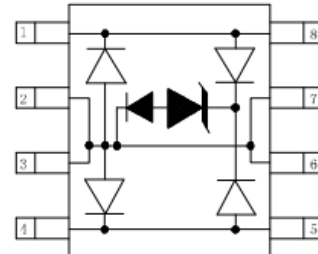
Mechanical Characteristics

- Package: SOP-8
- Lead Finish: Matte Tin
- UL Flammability Classification Rating 94V-0
- Quantity Per Reel: 2500pcs
- Reel Size: 13 inch
- Device Marking: LC-6

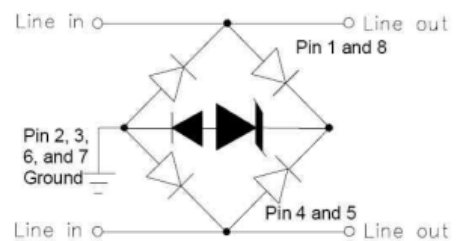
Absolute Maximum Ratings (T_{amb}=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 μs)	P _{pp}	2600	W
ESD per IEC 61000-4-2 (Air)	V _{ESD}	± 30	kV
ESD per IEC 61000-4-2 (Contact)		± 30	
Operating Temperature Range	T _J	-55 to +125	°C
Storage Temperature Range	T _{STJ}	-55 to +150	°C

Dimensions SOP-8



Pin Configuration

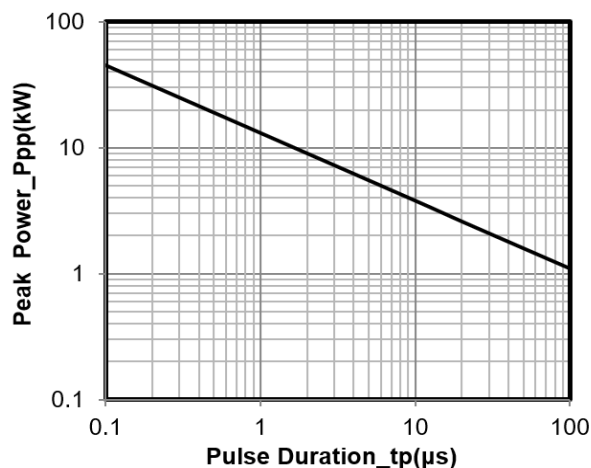
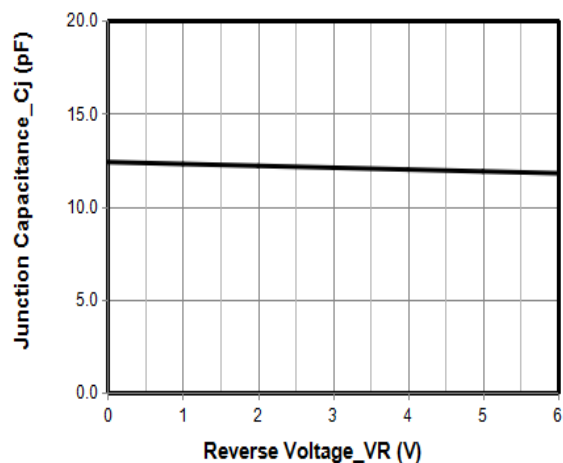


Electrical Characteristics (TA=25°C unless otherwise specified)

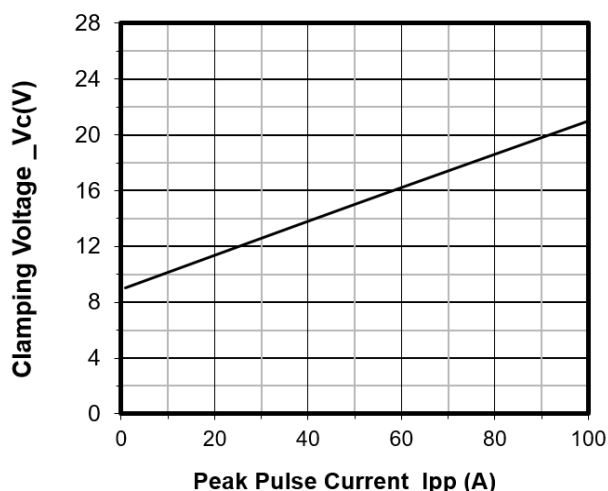
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Reverse Working Voltage	V_{RWM}				6	V
Breakdown Voltage	V_{BR}	$I_T = 1\text{mA}$	6.8			V
Reverse Leakage Current	I_R	$V_{RWM} = 6\text{V}$			25	μA
Clamping Voltage	V_C	$I_{PP} = 50\text{A}$ (8 x 20 μs pulse) any I/O pin to ground			18	V
Clamping Voltage	V_C	$I_{PP} = 100\text{A}$ (8 x 20 μs pulse) any I/O pin to ground			26	V
Junction Capacitance	C_J	$V_R = 0\text{V}$, $f = 1\text{MHz}$, between I/O pins and ground		16	25	pF
Junction Capacitance	C_J	$V_R = 0\text{V}$, $f = 1\text{MHz}$, between I/O pins		8	12	pF

Note 1: I/O pins are Pin 1, 4, 5 and 8

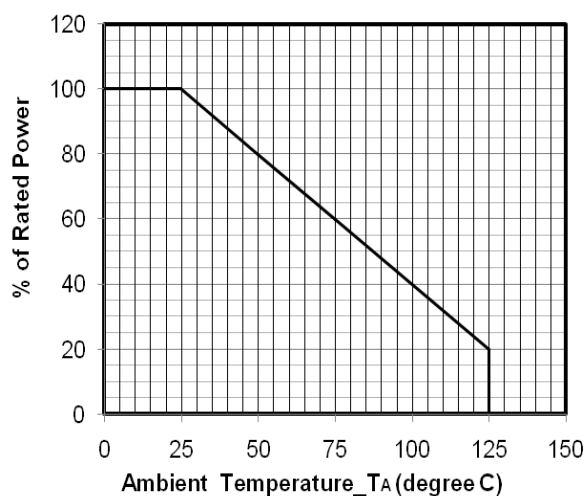
Typical Performance Characteristics (TA=25°C unless otherwise specified)



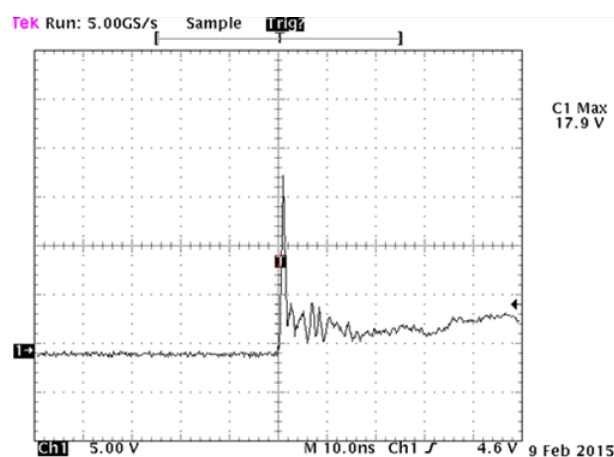
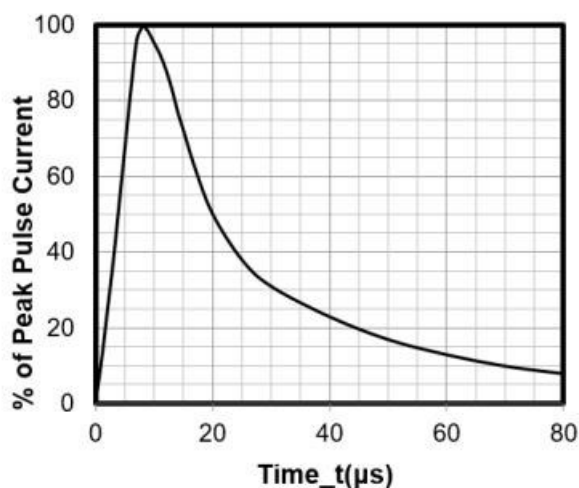
Junction Capacitance vs. Reverse Voltage



Peak Pulse Power vs. Pulse Time



Clamping Voltage vs. Peak Pulse Current (tp = 8/20us)



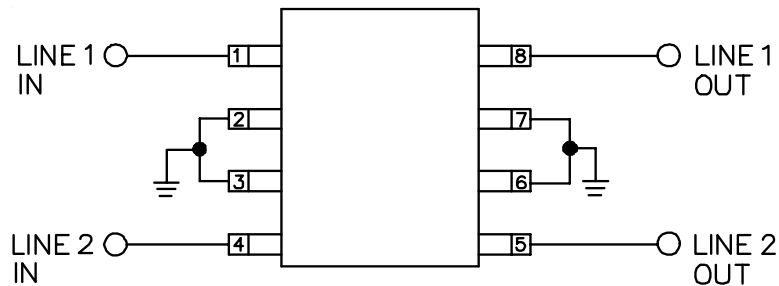
Note: Data is taken with a 10x attenuator

ESD Clamping Voltage

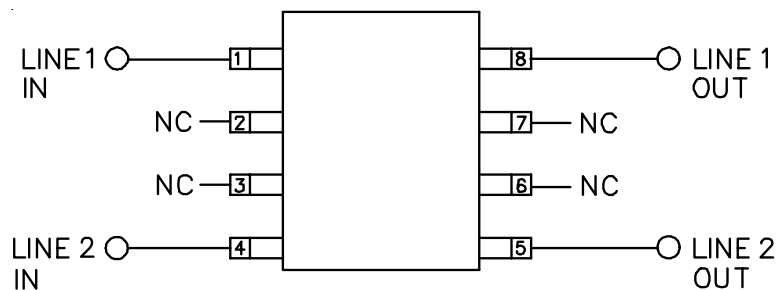
+8 kV Contact per IEC61000-4-2

Typical Application

The LC03-6 is designed to protect two high speed data lines (one differential pair) from transient over-voltages which result from lightning and ESD. The device can be configured to protect in differential (Line to Line) and common (Line to Ground) mode. Data line inputs/outputs are connected at pins 1 to 8, and 4 to 5 as shown below. Pins 2, 3, 6, 7 are connected to ground. These pins should be connected directly to a ground plane on the board for the best results, the path length is kept as short as possible to minimize parasitic inductance. In applications where high common voltages are present, differential protection is achieved by leaving pins 2, 3, 6, and 7 not connected.

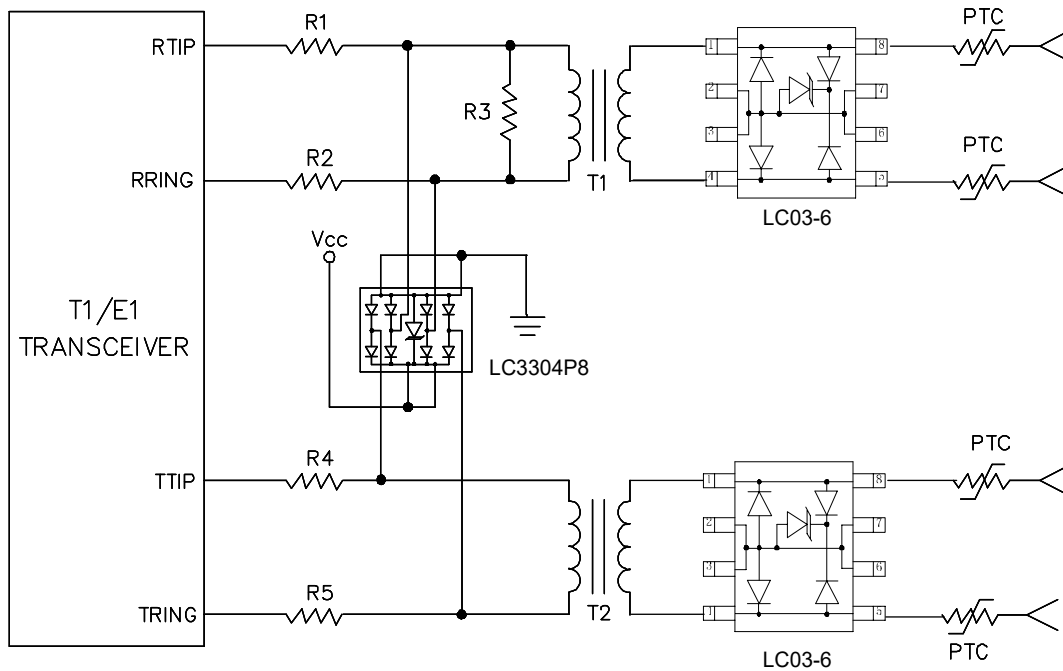


Connection for differential (Line to Line) and common mode protection (Line to Ground)

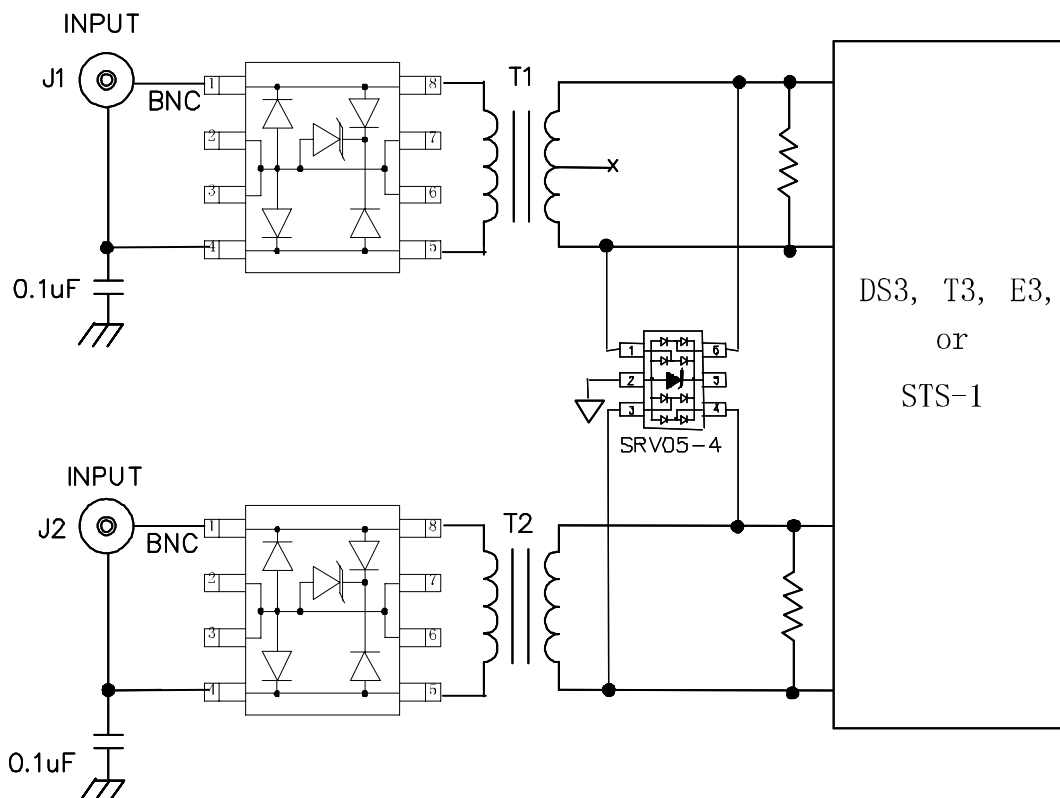


Connection for differential protection (Line to Line)

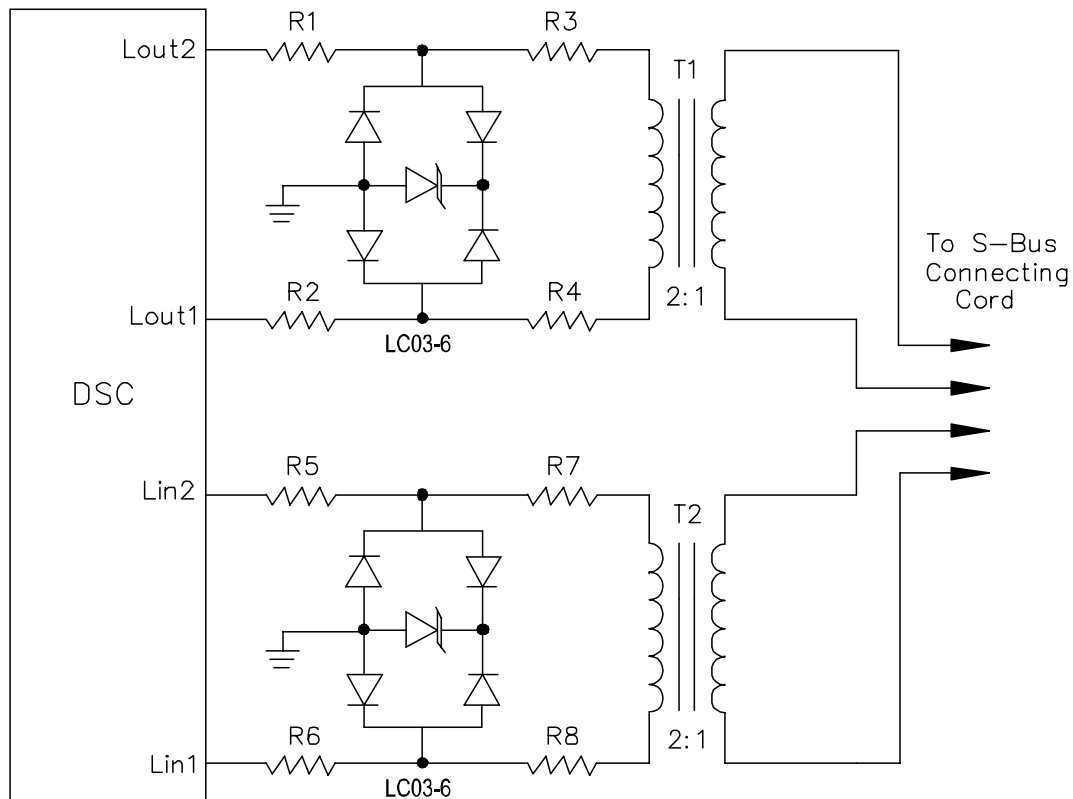
LC03-6 on T1 Line Card Application



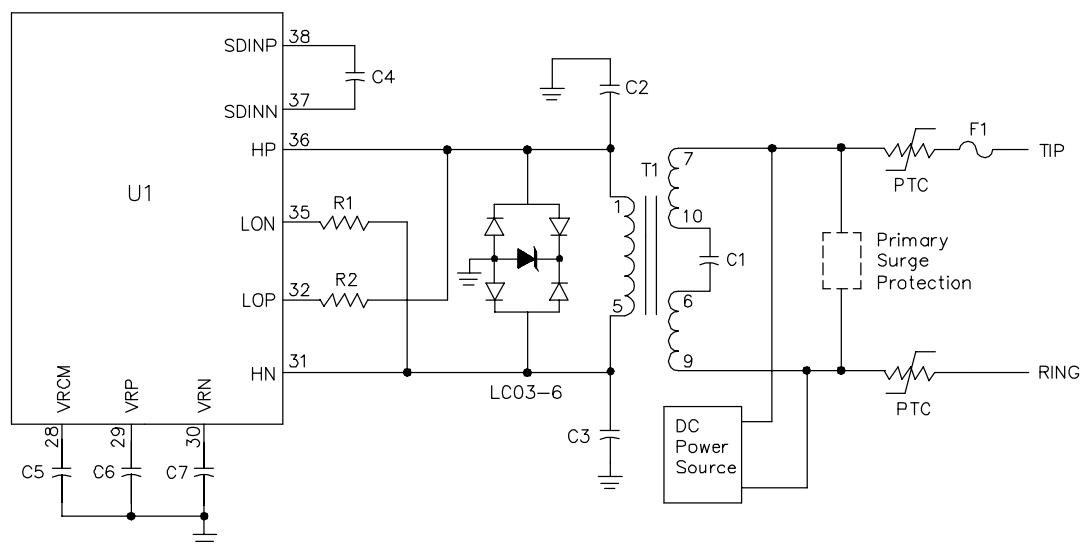
LC03-6 on T3/E3 and STS-1 Application



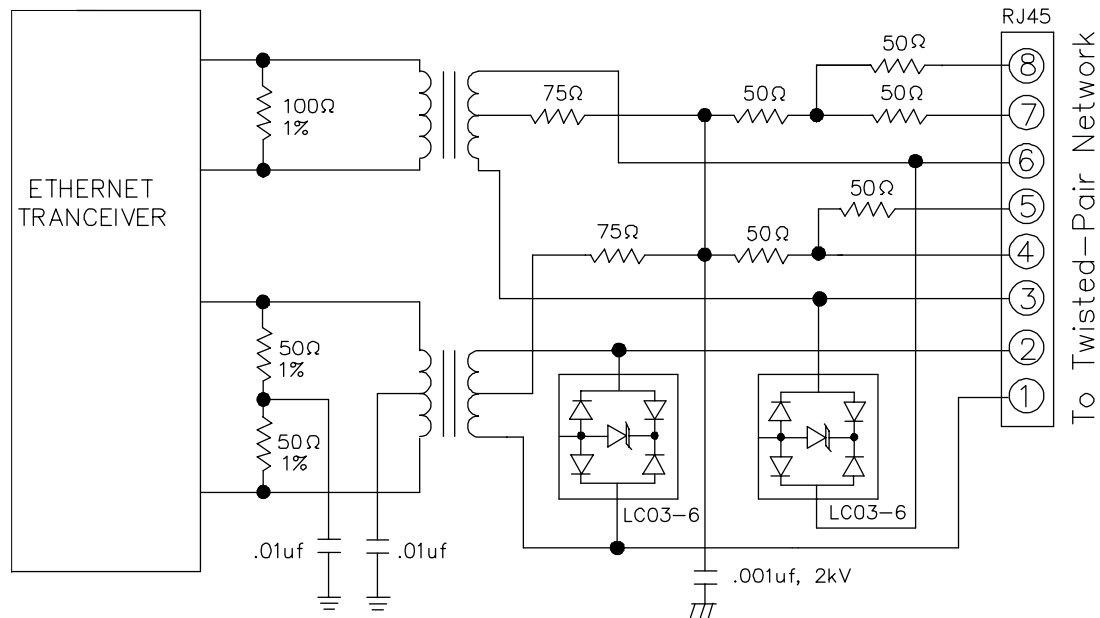
LC03-6 on ISDN S-Interface Application



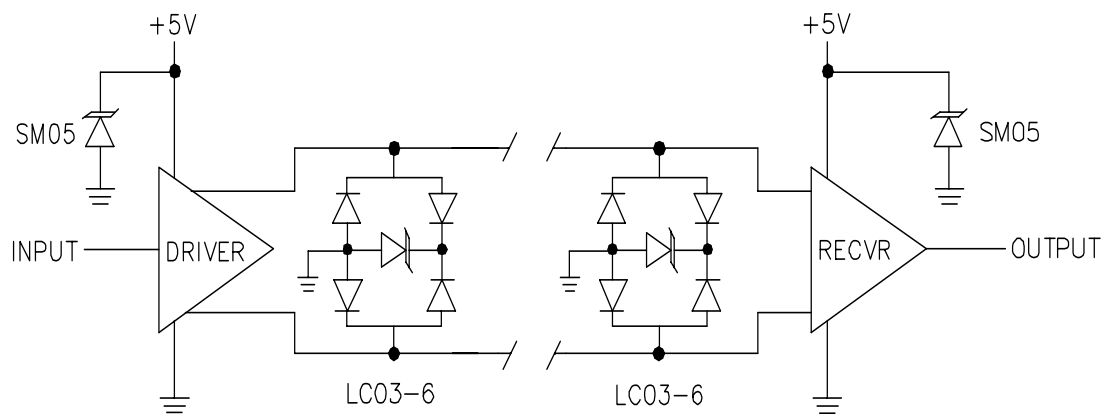
LC03-6 on ISDN U-Interface Secondary Application



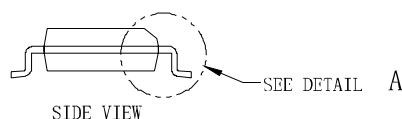
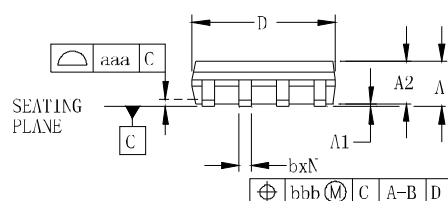
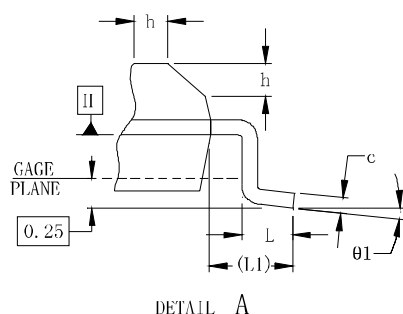
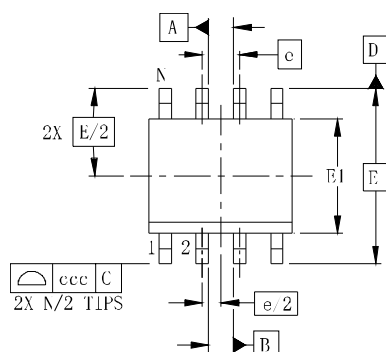
LC03-6 on 10/100 Ethernet Application



LC03-6 on High Speed Driver/Receiver Application

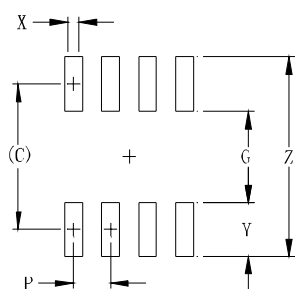


SOP-8 Package Outline Drawing



SYM	DIMENSIONS					
	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	1.35		1.75	0.053		0.069
A1	0.10		0.25	0.004		0.010
A2	1.25		1.65	0.049		0.065
b	0.31		0.51	0.012		0.020
c	0.17		0.25	0.007		0.010
D	4.80	4.90	5.00	0.189	0.193	0.197
E	3.80	3.90	4.00	0.150	0.154	0.157
E1	6.00 BSC			0.236 BSC		
e	1.27 BSC			0.050 BSC		
h	0.25		0.50	0.010		0.020
L	0.40	0.72	1.04	0.016	0.028	0.041
L1	(1.04)			(0.041)		
N	8			8		
θ1	0°		8°	0°		8°
aaa	0.10			0.004		
bbb	0.25			0.010		
ccc	0.20			0.008		

Suggested Land Pattern



SYM	DIMENSIONS	
	MILLIMETERS	INCHES
C	(5.20)	0.205
G	3.00	0.118
P	1.27	0.050
X	0.60	0.024
Y	2.20	0.087
Z	7.40	0.291

NOTICE

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