Absolute Maximum Rating

Rating	Symbol	Value	Units
Peak Pulse Power (t_p = 8/20µs)	P_{pk}	500	Watts
Lead Soldering Temperature	T_L	260 (10 sec.)	°C
Operating Temperature	T_J	-55 to +125	°C
Storage Temperature	T_{STG}	-55 to +150	°C

Electrical Characteristics

LCDA12C-1

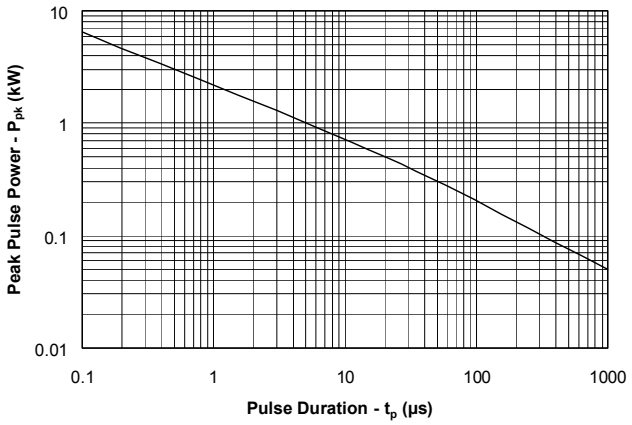
Parameter	Symbol	Conditions	Minimum	Typical	Maximum	Units
Reverse Stand-Off Voltage	V_{RWM}				12	V
Reverse Breakdown Voltage	V_{BR}	I_t = 1mA	13.3			V
Reverse Leakage Current	I_R	V_{RWM} = 12V, T=25°C			5	µA
Clamping Voltage	V_C	I_{PP} = 5A, t_p = 8/20µs			19	V
Clamping Voltage	V_C	I_{PP} = 20A, t_p = 8/20µs			26.6	V
Peak Pulse Current	I_{PP}	t_p = 8/20µs			20	A
Junction Capacitance	C_j	Between I/O pins and Ground V_R = 0V, f = 1MHz		8	15	pF

LCDA15C-1

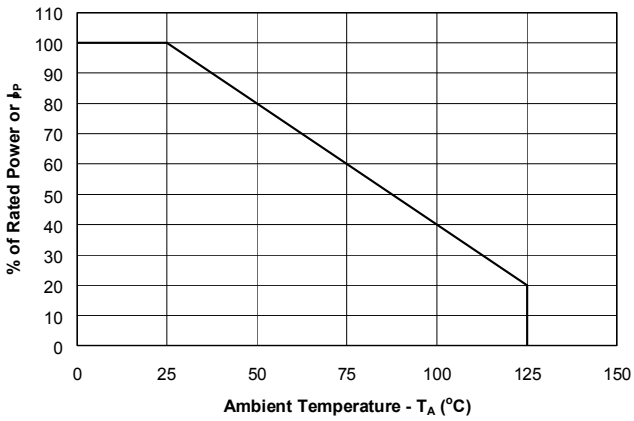
Parameter	Symbol	Conditions	Minimum	Typical	Maximum	Units
Reverse Stand-Off Voltage	V_{RWM}				15	V
Reverse Breakdown Voltage	V_{BR}	I_t = 1mA	16.7			V
Reverse Leakage Current	I_R	V_{RWM} = 15V, T=25°C			5	µA
Clamping Voltage	V_C	I_{PP} = 1A, t_p = 8/20µs			24	V
Clamping Voltage	V_C	I_{PP} = 15A, t_p = 8/20µs			33	V
Peak Pulse Current	I_{PP}	t_p = 8/20µs			15	A
Junction Capacitance	C_j	Between I/O pins and Ground V_R = 0V, f = 1MHz		8	15	pF

Typical Characteristics

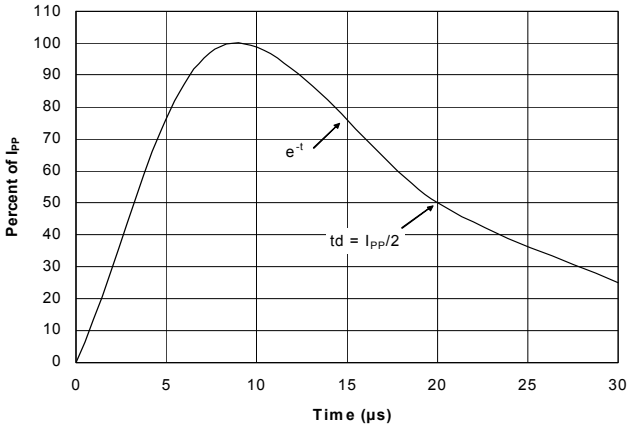
Non-Repetitive Peak Pulse Power vs. Pulse Time



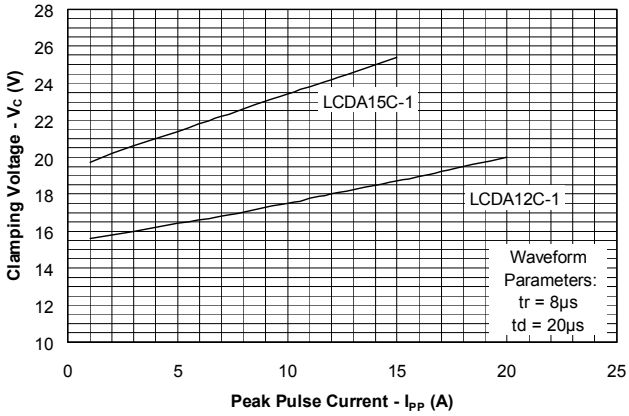
Power Derating Curve



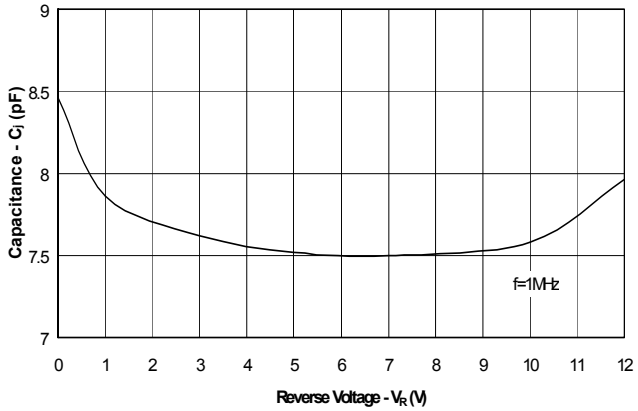
Pulse Waveform



Clamping Voltage vs. Peak Pulse Current



Capacitance vs. Reverse Voltage



Applications Information

Device Connection for Metallic Protection of High-Speed Data Lines

The LCDAxxC-1 is designed to protect high-speed data lines from transient over-voltages which result from lightning and ESD. The device is designed to protect one line in common mode (Line-to-Ground) or one line pair in metallic (Line-to-Line) mode. For metallic mode protection, the input of line 1 is connected at pin 1 and the output is connected at pin 4. Likewise, the input of line 2 is connected at pin 2 and the output is connected at pin 3. For common mode protection, ground either pins 1 and 4 or pins 2 and 3. The ground connection should be made directly to the ground plane for best results.

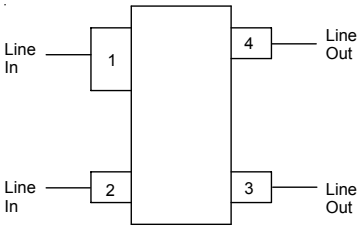


Figure 1 - Connection for Differential Protection (Line-to-Line)

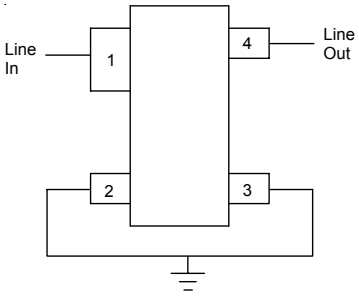


Figure 2 - Connection for Common Mode Protection (Line-to-Ground)

ADSL Protection

A typical ADSL protection circuit is shown in Figure 3. The LCDA12C-1 (or LCDA15C-1 for 15 volt drivers) is connected from each line to ground on the IC side of the line. They provide lightning and ESD protection for the sensitive line driver IC.

Matte Tin Lead Finish

Matte tin has become the industry standard lead-free replacement for SnPb lead finishes. A matte tin finish is composed of 100% tin solder with large grains. Since the solder volume on the leads is small compared to the solder paste volume that is placed on the land pattern of the PCB, the reflow profile will be determined by the requirements of the solder paste. Therefore, these devices are compatible with both lead-free and SnPb assembly techniques. In addition, unlike other lead-free compositions, matte tin does not have any added alloys that can cause degradation of the solder joint.

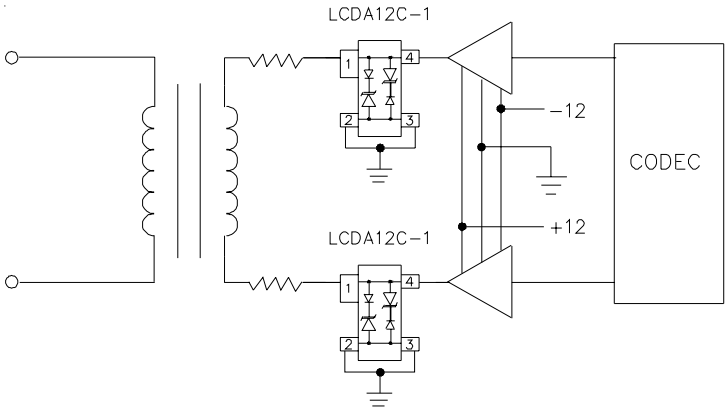
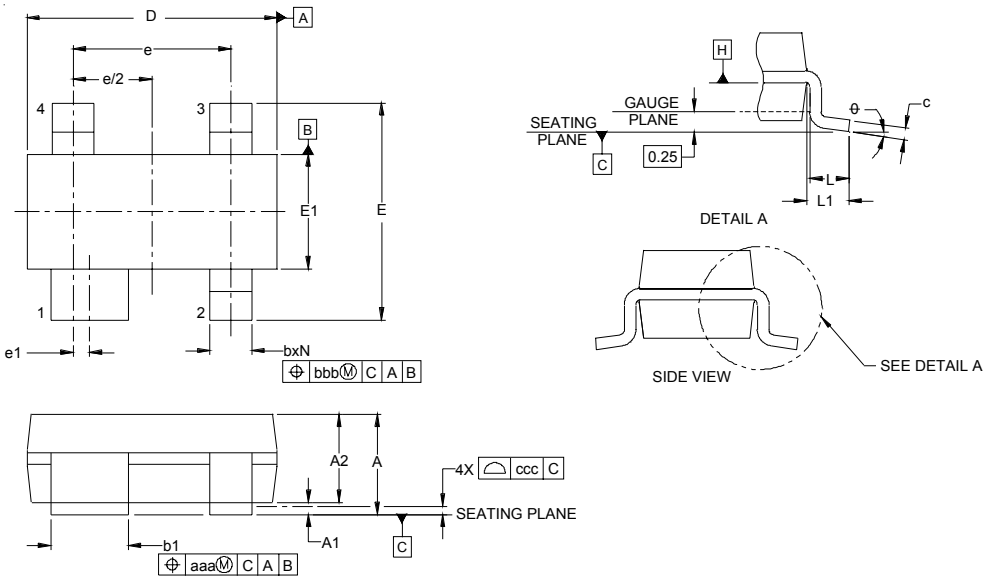


Figure 3 - ADSL Protection Circuit

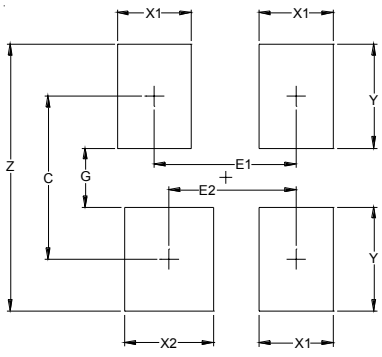
Outline Drawing - SOT-143



DIM	DIMENSIONS					
	INCHES			MILLIMETERS		
	MIN	NOM	MAX	MIN	NOM	MAX
A	.031	-	.048	0.80	-	1.22
A1	.000	-	.006	0.013	-	0.15
A2	.029	.035	.042	0.75	0.90	1.07
b	.011	-	.020	0.30	-	0.51
b1	.029	-	.037	0.76	-	0.94
c	.003	-	.008	0.08	-	0.20
D	.110	.114	.120	2.80	2.90	3.04
E	.082	.093	.104	2.10	2.37	2.64
E1	.047	.051	.055	1.20	1.30	1.40
e	.075			1.92 BSC		
e1	.008			0.20 BSC		
L	.015	.020	.024	0.40	0.50	0.60
L1	(.021)			(0.54)		
N	4			4		
θ	0°	-	8°	0°	-	8°
aaa	.006			0.15		
bbb	.008			0.20		
ccc	.004			0.10		

NOTES:
1. CONTROLLING DIMENSIONS ARE IN MILLIMETERS (ANGLES IN DEGREES).
2. DATUMS -A- AND -B- TO BE DETERMINED AT DATUM PLANE -H-
3. DIMENSIONS "E1" AND "D" DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.
4. REFERENCE JEDEC STD TO-253, VARIATION D.

Land Pattern - SOT-143



DIM	DIMENSIONS	
	INCHES	MILLIMETERS
C	(.087)	(2.20)
E1	.076	1.92
E2	.068	1.72
G	.031	0.80
X1	.039	1.00
X2	.047	1.20
Y	.055	1.40
Z	.141	3.60

NOTES:
1. THIS LAND PATTERN IS FOR REFERENCE PURPOSES ONLY CONSULT YOUR MANUFACTURING GROUP TO ENSURE YOUR COMPANY'S MANUFACTURING GUIDELINES ARE MET.
2. REFERENCE IPC-SM-782A

Marking Codes

Part Number	Marking Code
LCDA12C-1	12L
LCDA15C-1	15L

Ordering Information

Part Number	Lead Finish	Qty per Reel	Reel Size
LCDA12C-1.TC	SnPb	3,000	7 Inch
LCDA15C-1.TC	SnPb	3,000	7 Inch
LCDA12C-1.TCT	Pb Free	3,000	7 Inch
LCDA15C-1.TCT	Pb Free	3,000	7 Inch

Contact Information

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