

Bi-directional ESD protection Devices

Features

- 75 Watts peak pulse power($t_p=8/20\mu s$)
- Capacitance 15pF max
- Low clamping voltage
- Small body outline dimensions: "0.039 * 0.024"
(1.0mm x 0.60mm)
- Low body height: "0.019" (0.5 mm)
- Stand-off voltage: 5.0V
- Low leakage current
- Response time is typically < 1 ns
- Protection one I/O or power line to:
IEC61000-4-2 $\pm 8kV$ contact $\pm 15kV$ air
IEC61000-4-4 (EFT) 40A (5/50ns)
IEC61000-4-5(lightning) 5A (8/20 μs)
- Solid-state silicon-avalanche technology
- These are Pb-free devices

Product Description

LT2C051N is a Bi-directional ESD protection devices. It has been specifically designed to protect sensitive electronic components which are connected to low speed data lines and control lines from over-stress caused by ESD (electrostatic discharge), EFT (electrical fast transients) and lightning.

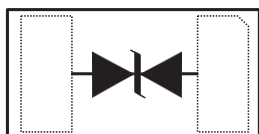
Applications

- Cellular handsets and accessories
- Personal digital assistants (PDA's)
- Tablets
- Notebooks & handhelds
- Digital cameras
- MP3 players
- Portable instrumentation
- Computer and peripherals
- Network communication devices
- Computer interfaces protection
- Microprocessors protection
- Serial and parallel ports protection
- Control signal lines protection
- Power lines on PCB protection
- Latch-up protection

Mechanical Characteristics

- DFN1006 package
- Marking: marking code
- Molding compound flammability rating: UL 94V-0
- RoHS compliant

Circuit Diagram



DFN1006 (Top View)



Absolute Maximum Rating

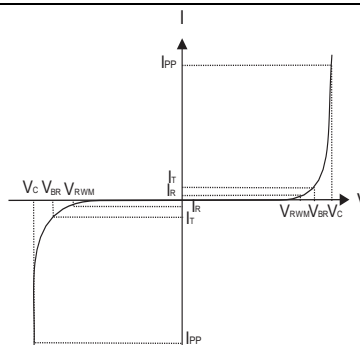
Rating	Symbol	Value	Units
Peak Pulse Power ($t_p = 8/20\mu s$)	P_{PP}	75	Watts
Peak Pulse Current ($t_p = 8/20\mu s$) (note1)	I_{PP}	5.0	A
ESD per IEC 61000-4-2 (Air)	V_{ESD}	15	kV
ESD per IEC 61000-4-2 (Contact)		8	
Lead Soldering Temperature	T_L	260(10 sec)	$^{\circ}C$
Junction Temperature	T_J	- 55 to +125	$^{\circ}C$
Storage Temperature	T_{STG}	- 55 to +125	$^{\circ}C$

Electrical Characteristics

Parameter	Symbol	Conditions	Minimum	Typical	Maximum	Units
Reverse Stand-Off Voltage	V_{RWM}				5V	V
Reverse Breakdown Voltage	V_{BR}	$I_T = 1mA$	5.5		7.6	V
Reverse Leakage Current	I_R	$V_{RWM} = 5V, T_A = 25^{\circ}C$			1.0	μA
Peak Pulse Current	I_{PP}	$t_p = 8/20\mu s$			5.0	A
Clamping Voltage	V_C	$I_{PP} = 5A, t_p = 8/20\mu s$			15	V
Junction Capacitance	C_J	$VR = 0V, f = 1MHz$			15	pF

Electrical Parameters ($T_A = 25^{\circ}C$ unless otherwise noted)

Symbol	Parameter
I_{PP}	Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}
V_{RWM}	Working Peak Reverse Voltage
I_R	Maximum Reverse Leakage Current @ V_{RWM}
V_{BR}	Breakdown Voltage @ I_T
I_T	Test Current



Typical Characteristics

Figure.1 Non-Repetitive Peak Pulse Power vs. Pulse Time

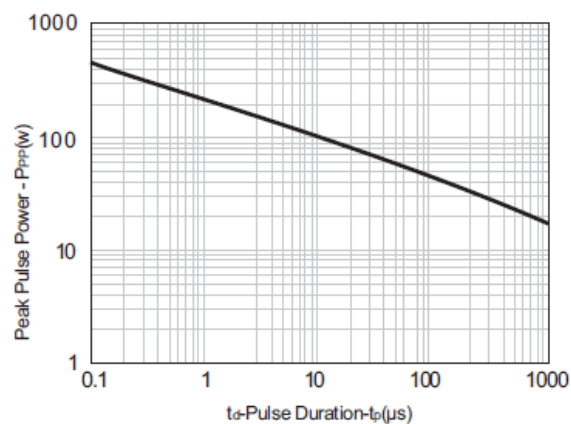


Figure.2 Power Derating Curve

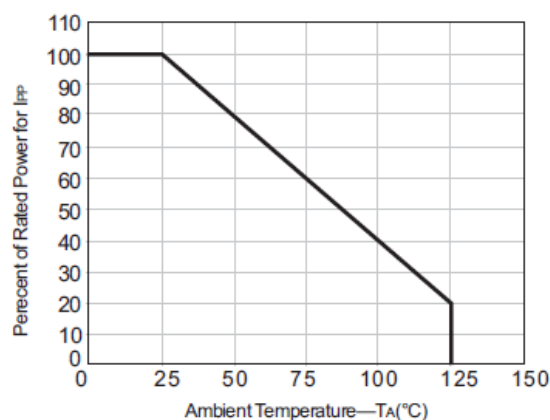


Figure.3 Pulse Waveform

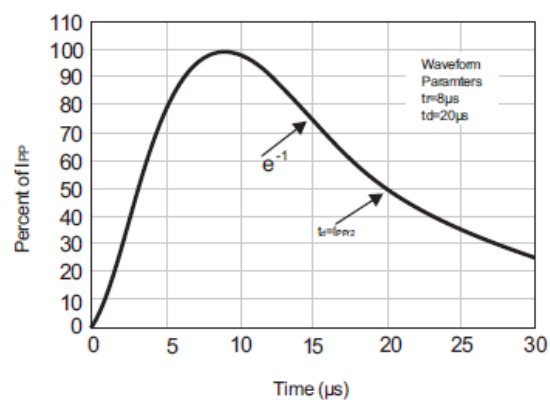
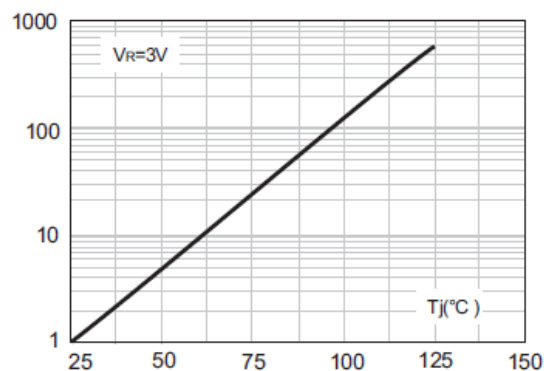
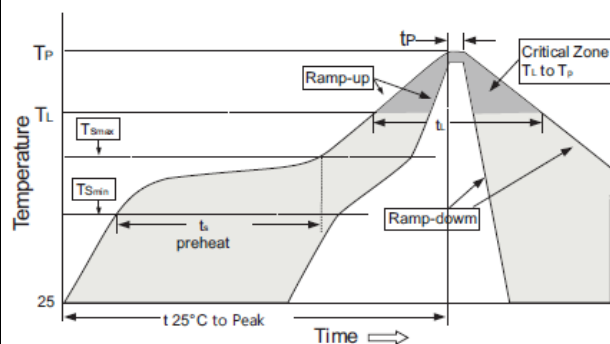


Figure.4 $I_R[T_J]/I_R[T_J=25^\circ C]$

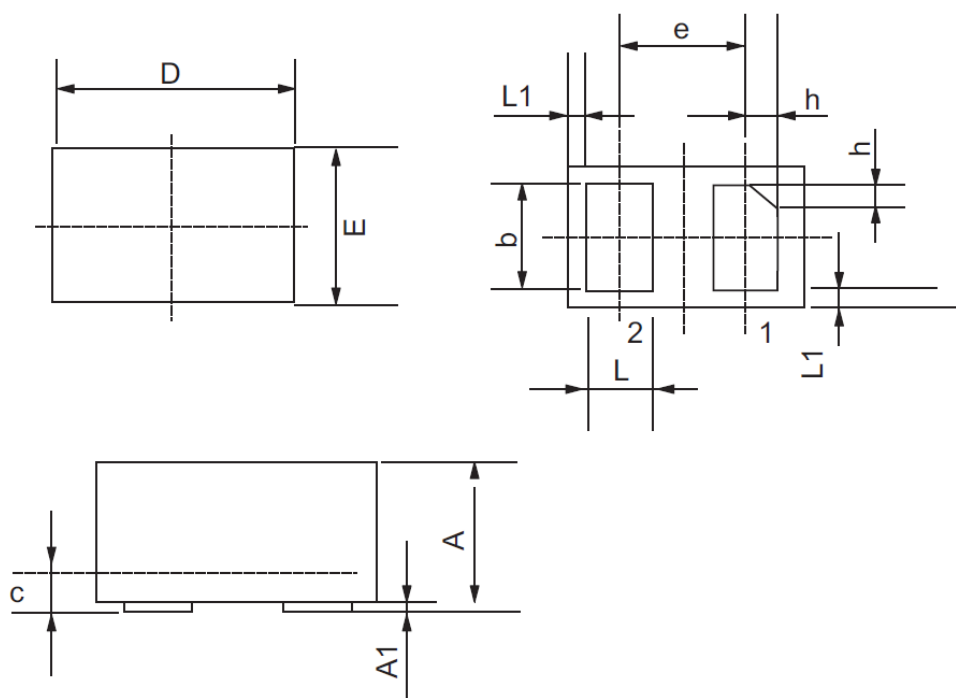


Soldering Parameters

Reflow Condition		Fb-Free assembly
Pre Heat	- Temperature Min ($T_{S(\text{Min})}$)	150°C
	- Temperature Max ($T_{S(\text{Max})}$)	200°C
	- Temperature Max (T_S)	60-180 secs
Average ramp up rate (Liquidus)Temp (T_L) To peak		3°C/second Max
$T_{S(\text{Max})}$ to T_L -Ramp-up Rate		3°C/second Max
Reflow	- Temperature (T_L)(Liquidus)	217°C
	- Temperature (t_L)	60-150 seconds
Peak Temperature (T_P)		260 ^{+0/-5} °C
Time within 5°C of actual peak Temperature (T_P)		20-40 seconds
Ramp-down Rate		6°C/second Max
Time 25°C to peak Temperature (T_P)		8 minutes Max
Do not exceed		260°C

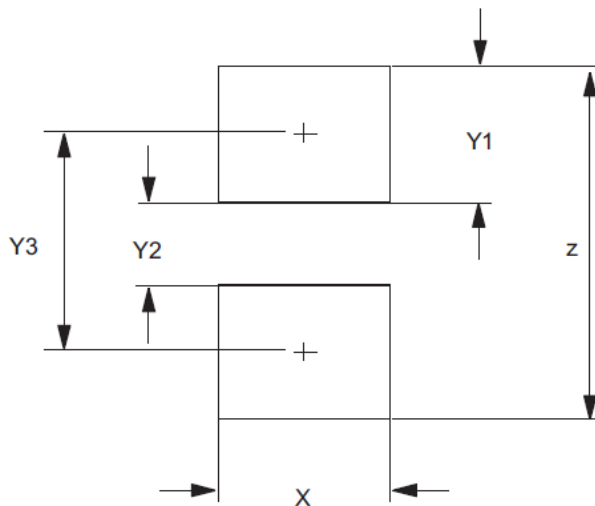


Outline Drawing - DFN1006



SYMBOL	Millimeters		
	MIN	NOM	MAX
A	0.40	0.50	0.55
A1	0	0.02	0.05
b	0.45	0.50	0.55
C	0.12	0.15	0.18
D	0.95	1.00	1.05
E	0.55	0.60	0.65
e	0.65BSC		
L	0.20	0.25	0.30
L1	0.05REF		
h	0.07	0.12	0.17

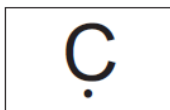
NOTES: 1. CONTROLLING DIMENSIONS ARE IN MILLIMETERS (ANGLES IN DEGREES).



SYMBOL	DIMENSIONS	
	MILIMETERS	INCHES
X	0.60	0.024
Y1	0.50	0.020
Y2	0.30	0.012
Y3	0.80	0.030
Z	1.30	0.052

1. CONTROLLING DIMENSIONS ARE IN MILLIMETERS (ANGLES IN DEGREES).
2. THIS LAND PATTERN IS FOR REFERENCE PURPOSES ONLY. CONSULT YOUR MANUFACTURING GROUP TO ENSURE YOUR COMPANY'S MANUFACTURING GUIDELINES ARE MET.

Marking Codes



Ordering Information

Part number	Package	MPQ (PCS)	Packaging Option
LT2C051N	DFN1006	10,000	Tape and reel