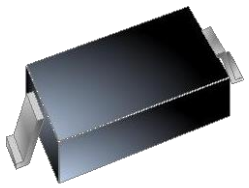
JKSEMI
金 开 盛 电 子

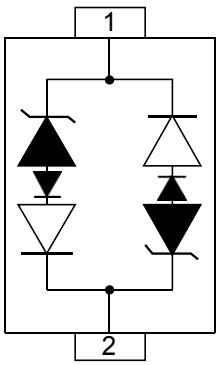
LC03CI-L
Transient Voltage Suppressor

FEATURES

- ✧ 260 Watts Peak Pulse Power per Line (tp = 8/20μs).
- ✧ Bidirectional Configuration.
- ✧ Protects One Power or I/O Port.
- ✧ ESD Protection > 40 kilovolts.
- ✧ Low Working Voltage：3.0V.
- ✧ Low Clamping Voltages.
- ✧ Ultra Low Capacitance: 1.5 pF Typical.



SOD-323



Bidirectional

IEC COMPATIBILITY (EN61000-4)

- ✧ IEC 61000-4-2 (ESD) ±30kV (air), ±30kV (contact).
- ✧ IEC 61000-4-4 (EFT) 40A (5/50ns).
- ✧ IEC 61000-4-5 (Lightning) 13A (8/20μs).

MECHANICAL CHARACTERISTICS

- ✧ Molded JEDEC SOD-323 package.
- ✧ Weight 10 milligrams (Approximate).
- ✧ Flammability rating UL 94V-0.
- ✧ 8mm Tape and Reel Per EIA Standard 481.
- ✧ Device Marking: Marking Code.
- ✧ RoHS/WEEE Compliant.

APPLICATIONS

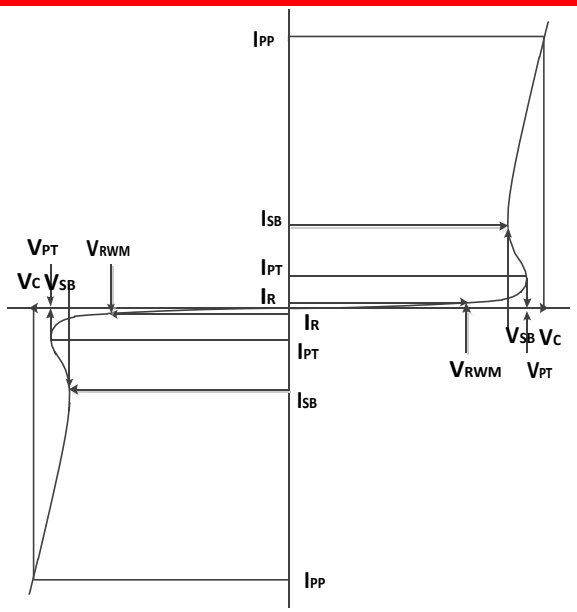
- ✧ Ethernet - 10/100/1000 Base T.
- ✧ Cellular Phones.
- ✧ Handheld - Wireless Systems.
- ✧ Personal Digital Assistant (PDA).
- ✧ USB Interface

ABSOLUTE MAXIMUM BATING

Rating	Symbol	Value	Units
Peak Pulse Power (t_p=8/20μs) - See Figure 1	P_{PP}	260	Watts
Operating Temperature	T_J	-55 to + 150	°C
Storage Temperature	T_{STG}	-55 to +150	°C

ELECTRICAL PARAMETER (T=25℃)

Symbol	Parameter
I_{PP}	Maximum 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_{PT}	Punch-through Breakdown Voltage @ I_T
V_{SB}	Snap-Back Voltage @ I_{SB}
I_{SB}	Snap-Back Current
I_{PT}	Test Current
V_{PTF}	Forward Punch-through Breakdown Voltage @ I_F
I_{PTF}	Forward Test Current



ELECTRICAL CHARACTERISTICS

LC03CI-L

Parameter	Symbol	Conditions	Minimum	Typical	Maximum	Units
Reverse Stand-Off Voltage	V_{RWM}				3.0	V
Punch-through Voltage	V_{PT}	I_{PT}=1μA	4.0			V
Snap-Back Voltage	V_{SB}	I_{SB}=50mA	3.0			V
Reverse Leakage Current	I_R	V_{RWM}=3.3V			200	nA
Peak Pulse Current	I_{PP}	t_p=8/20μs			13	A
Clamping Voltage	Vc	I_{PP} = 13A, t_p = 8/20μs		20	25	V
Dynamic Resistance[1,2]	R_{DYN}	TLP=0.2/100ns		0.7		Ω
ESD Clamping Voltage[1]	V_C	IPP = 4A, tp = 0.2/100ns (TLP)		9.7		V
ESD Clamping Voltage[1]	V_C	IPP = 16A, tp = 0.2/100ns (TLP)		18.0		V
Junction Capacitance	Cj	V_R = 0V, f = 1MHz		1.5	2.0	pF

Notes：1、TLP Setting：t_p=100ns, t_r=0.2ns, I_{TLP} and V_{TLP} sample window:t_1=70ns to t_2=90ns.

2、Dynamic resistance calculated from I_{PP}=4A to I_{PP}=16A using “Best Fit”.

TYPICAL CHARACTERISTICS

Figure 1: Peak Pulse Power vs. Pulse Time

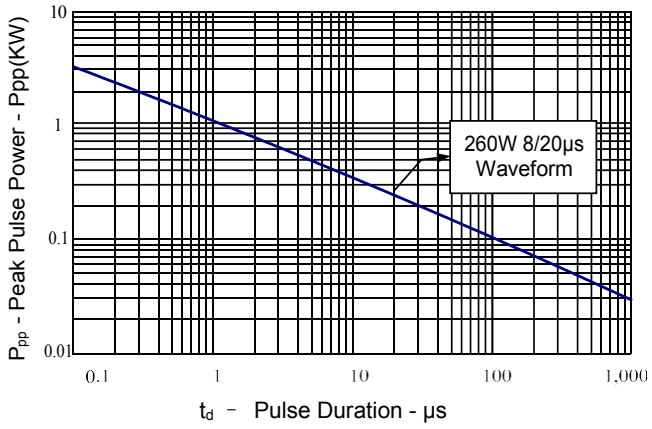


Figure 2: Power Derating Curve

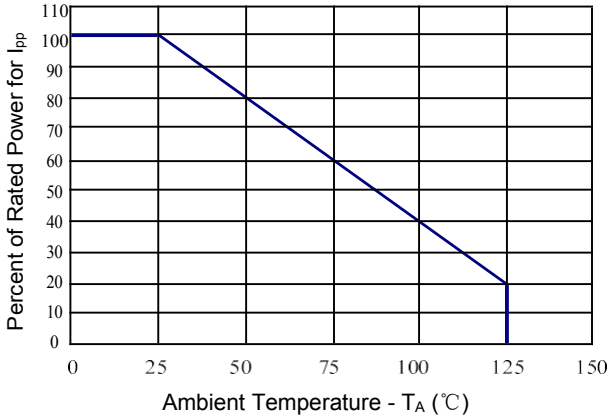


Figure 3: Clamping Voltage vs. Peak Pulse Current

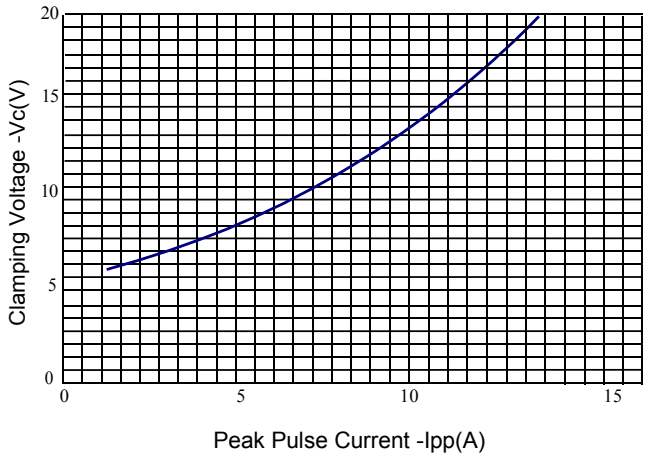


Figure 4: Normalized Junction Capacitance vs. Reverse Voltage

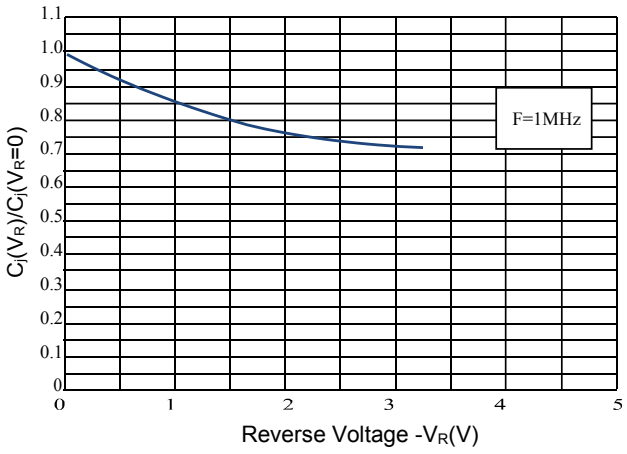


Figure 5: TLP Positive I-V Curve

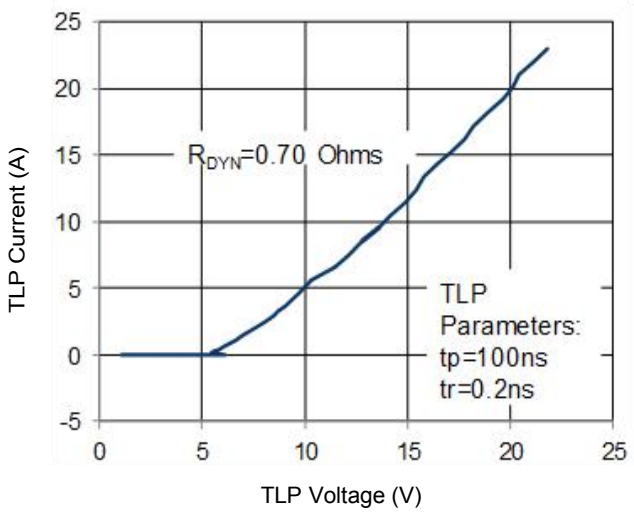
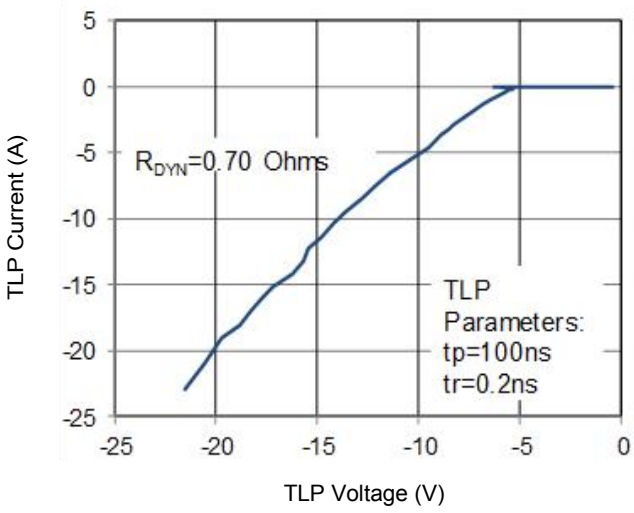
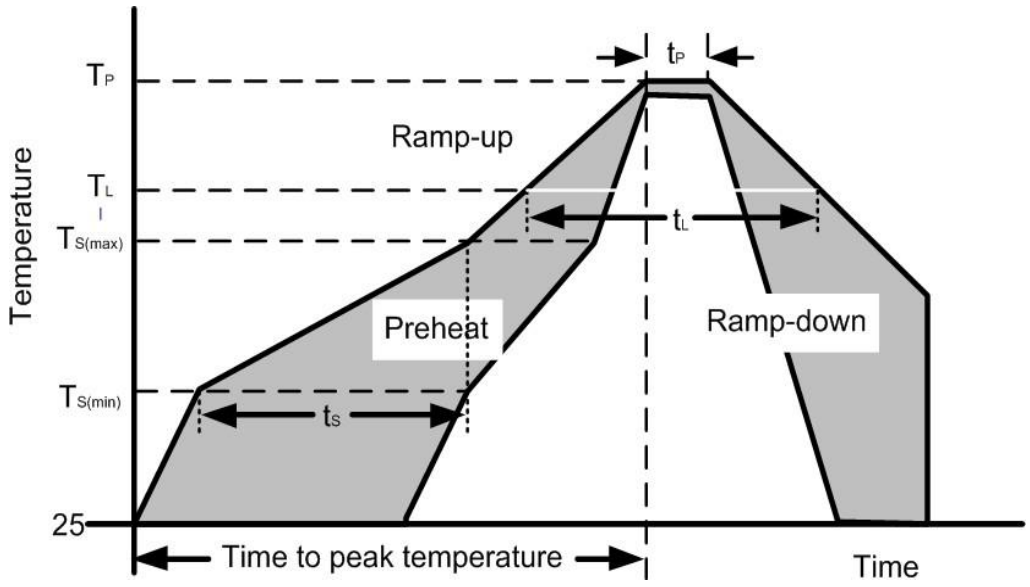


Figure 6: TLP Negetive I-V Curve



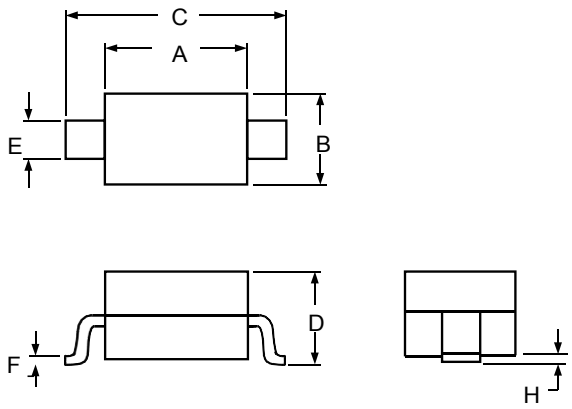
SOLDING PARAMETERS

Reflow Condition		Pb – Free assembly
Pre Heat	Temperature Min ($T_{s(min)}$)	150°C
	Temperature Max ($T_{s(max)}$)	200°C
	Time (min to max) (ts)	60 – 190 secs
Average ramp up rate (Liquidus Temp) (T_L) to peak		5°C/second max
$T_{S(max)}$ to T_L——Ramp-up Rate		5°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 actual peak Temperature (t_p)		20 – 40 seconds
Ramp-down Rate		5°C/second max
Time 25°C to peak Temperature (T_P)		8 minutes Max.
Do not exceed		280°C



OUTLINE DRAWING– SOD323

PACKAGE OUTLINE

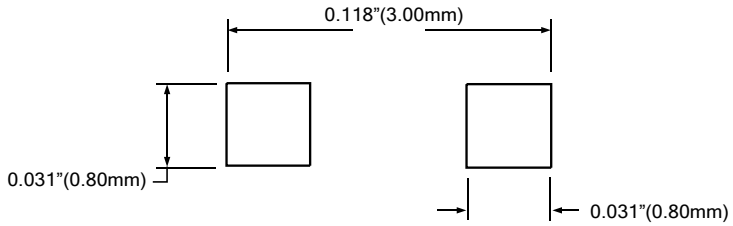


SOD-323

DIMENSIONS

SYMBOL	MILLIMETER		INCHES	
	MIN	MAX	MIN	MAX
A	1.60	1.90	0.063	0.075
B	1.15	1.45	0.045	0.057
C	2.39	2.70	0.094	0.106
D	0.92	1.10	0.036	0.043
E	0.25	0.40	0.010	0.016
F	0.10	0.20	0.004	0.008
H	-	0.10	-	0.004

MOUNTING PAD



Notes

1. Controlling Dimensions in Millimeters.
2. Dimensions are exclusive of mold flash and metal burrs.

TAPE & REEL ORDERING NOMENCLATURE

1. Surface mount product is taped and reeled in accordance with EIA-481.

Marking Codes

Part Number	Marking Code
LC03CI-L	3X