Low Capacitance ESD Protection Diode

1 Features

- IEC 61000-4-2 Level 4 ESD Protection
  - ±20-kV Contact Discharge
  - ±20-kV Air Gap Discharge
- IEC 61000-4-4 EFT Protection
  - 40 A (5/50 ns)
- Peak Reverse Working Voltage: 5.0V (Maximum)
- IO Capacitance:
  - 0.3 pF (Typical)
- DC Breakdown Voltage: 7.0 V
- Low Leakage Current: 1μA (Maximum)
- Industrial Temperature Range: –55°C to +150°C
- Package DFN0603-2L

2 Applications

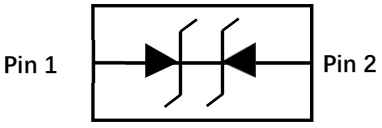
- End Equipment
  - TWS and Smart Wearable
  - TV and Monitors
  - Cellular handsets and accessories
  - Portable electronics
  - Communication systems
  - Computers and peripherals

3 Description

The SLEN15LCB is a bidirectional ESD protection. The SLEN15LCB is rated to dissipate ESD strikes at the maximum level specified in the IEC 61000-4-2 international standard (Level 4).

This device features a 0.3 pF (Typical) IO capacitance making it ideal for protecting high-speed interfaces up to 20 Gbps such as USB 3.1 Gen2 and Thunderbolt 3. The low dynamic resistance and low clamping voltage ensure system level protection against transient events.

4 Pin Configuration and Bottom View





DFN0603-2L

5 Device Information

PART NUMBER	PACKAGE	BODY SIZE (NOM)
SLEN15LCB	DFN0603-2L	0.60 mm x 0.30mm

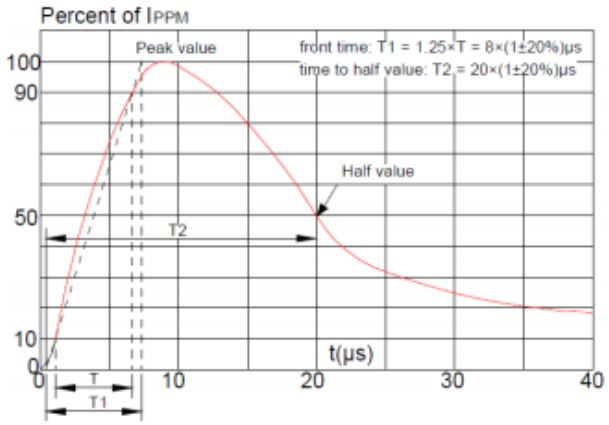
6 Absolute maximum Ratings @25℃

RATING	SYMBOL	VALUE	UNITS
Peak Pulse Power (tp=8/20μs)	P_{PP}	80	W
Peak Pulse Current (tp=8/20μs)	I_{PP}	5	A
Operating Temperature	T_J	-55 to 125	℃
Storage Temperature	T_{STG}	-55 to 150	℃
ESD Protection-Contact Discharge	V_{ESD}	±20	kV
ESD Protection-Air Discharge	V_{ESD}	±20	kV

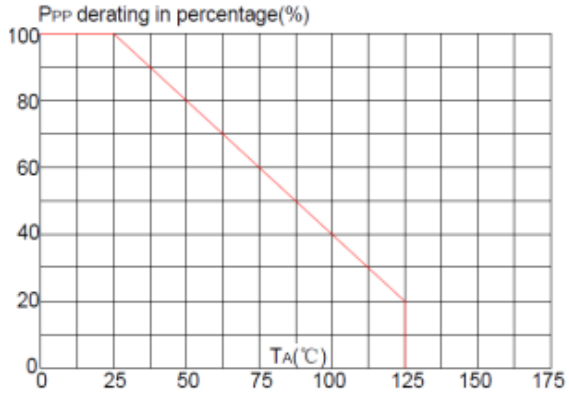
7 Electrical characteristics (@25℃ unless otherwise specified)

PARAMETER	SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNITS
Peak Reverse Working Voltage	V_{RWM}				5.0	V
Breakdown Voltage	V_{BR}	I_t = 1mA	7		10	V
Reverse Leakage Current	I_R	V_{RWM} = 5V, T=25℃			1	μA
Clamping Voltage	V_C	I_{PP} = 1A, t_P = 8/20μs		10	12.5	V
Clamping Voltage	V_C	I_{PP} = 2.5A, t_P = 8/20μs		13	15	V
Clamping Voltage	V_C	I_{PP} = 5A, t_P = 8/20μs		24	27	V
Junction Capacitance	C_j	V_R=0V, f = 1MHz		0.3	0.5	pF

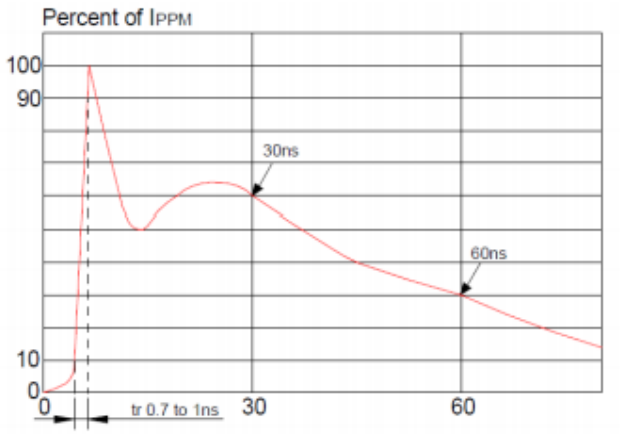
8 Typical Characteristics



Pulse Waveform (8/20us)



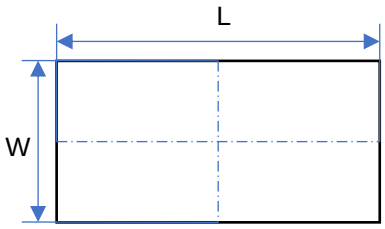
Pulse Derating Curve

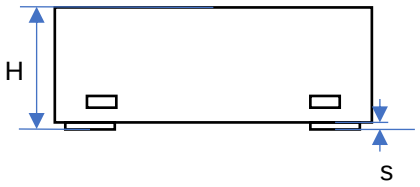


ESD Clamping(8kV Contact Discharge)

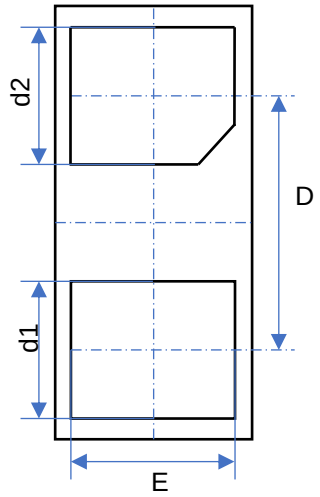
9 Product dimension

DFN0603-2L

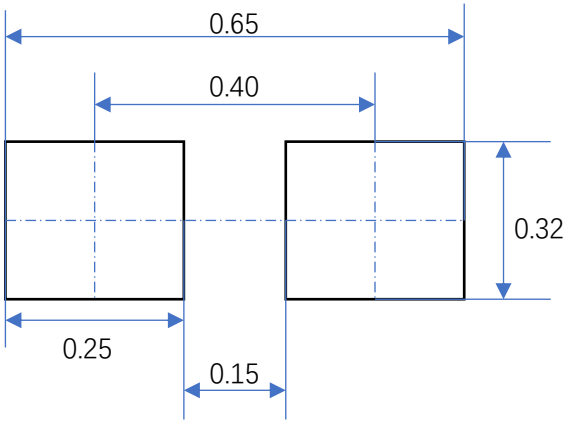




DIM	UNITS (mm)		
	MIN.	TYP.	MAX.
L	0.55	0.60	0.65
W	0.25	0.30	0.35
H	0.27	0.30	0.35
s	0.00	0.02	0.05
D	-	0.35	-
E	0.20	0.25	0.30
d1	0.13	0.18	0.23
d2	0.13	0.18	0.23



10 PCB Layout Footprints



11 Ordering Information

Part Number	Packaging	Reel Size
SLEN15LCB	10000/Tape & Reel	7 inch