

Electrostatic Discharged Protection Devices (ESD) Data Sheet

Description

Brightking's LES16CXXL08 series has been specifically designed to protect sensitive components which are connected to data and transmission lines from overvoltage caused by electrostatic discharge (ESD), electrical fast transients (EFT), and lightning.

The low capacitance array configuration of the series allows the user to protect eight high-speed data or I/O lines. The high surge capability makes the series suitable for telecommunication systems operating in harsh transient environments. The low inductance construction minimizes voltage overshoot during high current surges.

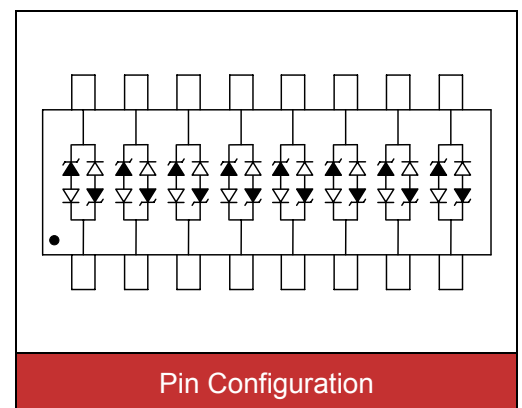


Contact : $\pm 8\text{kV}$
Air : $\pm 15\text{kV}$



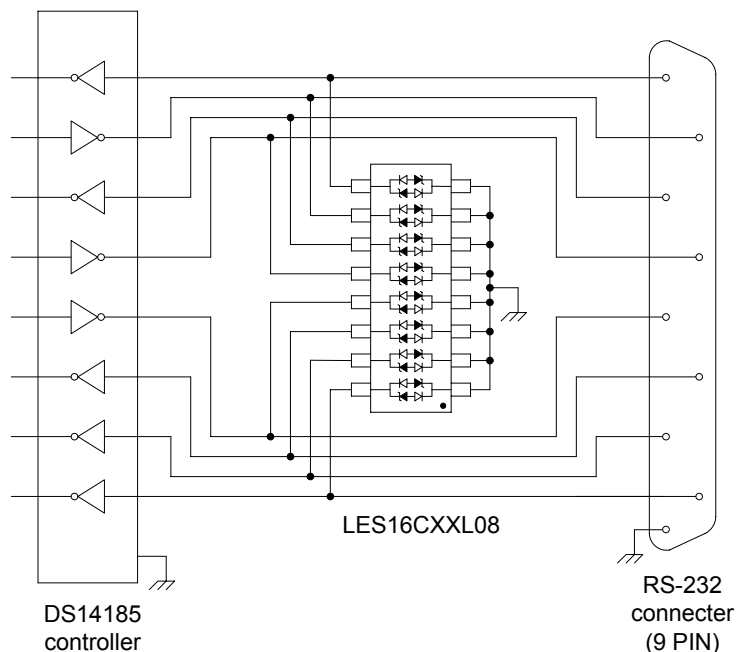
Features

- IEC61000-4-2 ESD 15KV Air, 8KV contact compliance
- SOIC-16 surface mount package
- Protects eight I/O lines
- Working voltage: 12V
- Low leakage current
- Low capacitance and clamping voltage
- Solid-state silicon avalanche technology
- Lead Free/RoHS compliant
- Solder reflow temperature: Pure Tin-Sn, 260~270°C
- Flammability rating UL 94V-0
- Meets MSL level 1, per J-STD-020
- Marking: B LC12C-8



Applications

- Wireless communication circuit
- WAN equipment
 - CSU/DSU
 - Multiplexers
 - Routers
 - ISP equipment
- RS-232 (V.28)
- RS-422 (V.11, X.21)
- Ethernet-10/100 base T
- Low-voltage ASICs



Maximum Ratings

Rating	Symbol	Value	Unit
Peak pulse current (tp=8/20μs waveform)	I _{PP}	15	A
ESD voltage (Contact discharge)	V _{ESD}	±8	kV
ESD voltage (Air discharge)		±15	
Storage & operating temperature range	T _{STG} , T _J	-55~+150	°C

Electrical Characteristics (T_J=25°C)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V _{RWM}				12	V
Reverse breakdown voltage	V _{BR}	I _{BR} =1mA	13.4			V
Reverse leakage current	I _R	V _R =12V each I/O pin			1	μA
Clamping voltage (tp=8/20μs)	V _C	I _{PP} =1A		20		V
Clamping voltage (tp=8/20μs)	V _C	I _{PP} =10A		28		V
Off state junction capacitance	C _J	0Vdc, f=1MHz Between I/O pins and GND		5	8	pF

Typical Characteristics Curves

Figure 1. Power Derating Curve

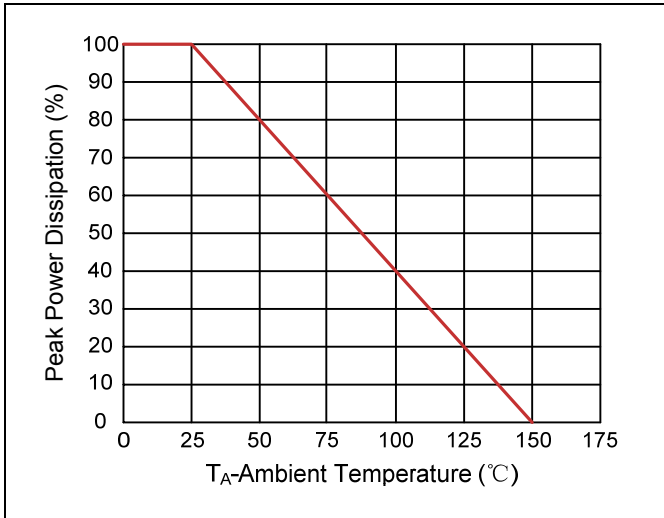


Figure 2. Pulse Waveforms

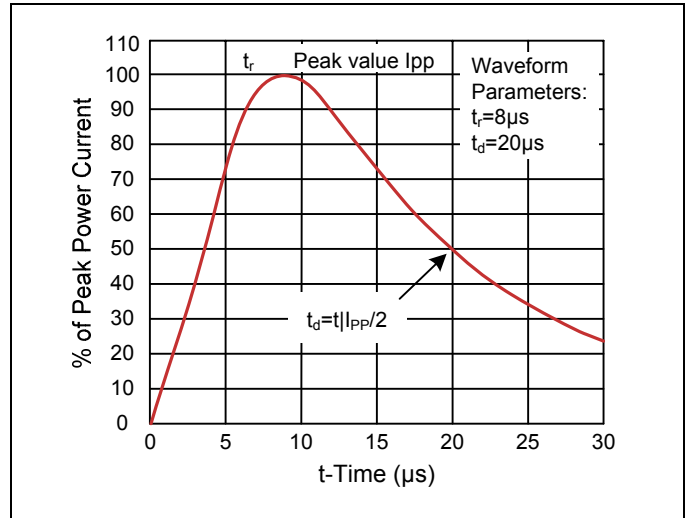


Figure 3. Clamping Voltage vs. Peak Pulse Current

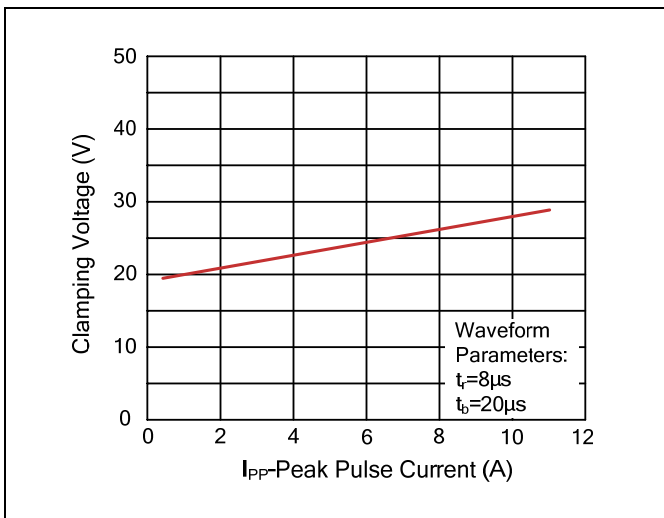
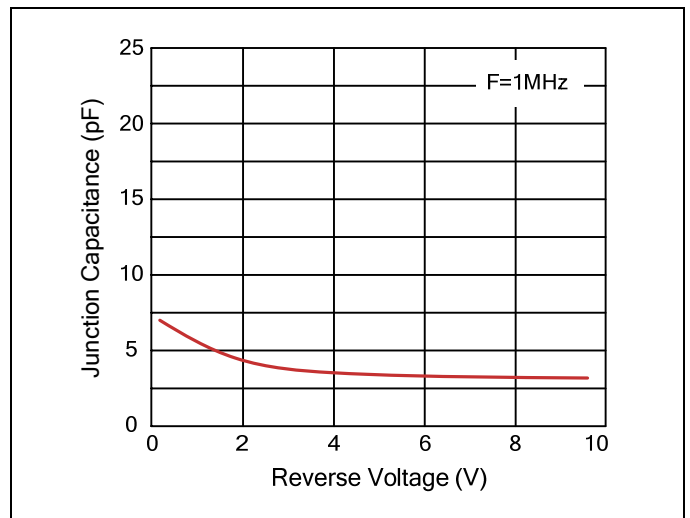
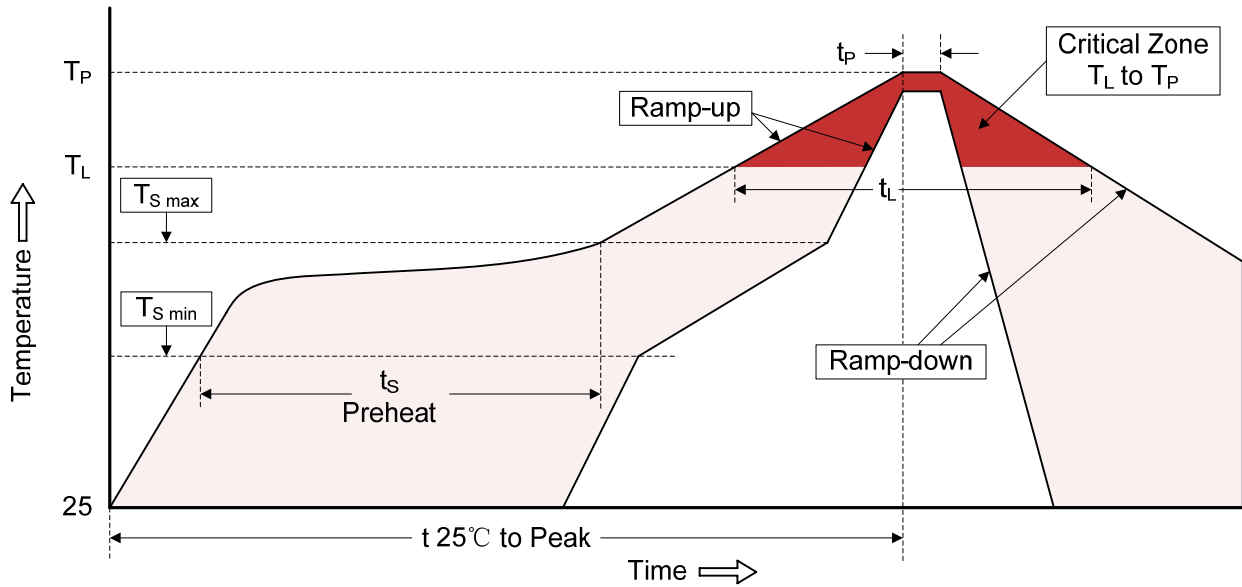


Figure 4. Capacitance vs. Reverse Voltage



Recommended Soldering Conditions

Reflow Soldering



Recommended Conditions

Profile Feature	Pb-Free Assembly
Average ramp-up rate (T_L to T_P)	3°C/second max.
Preheat -Temperature Min ($T_{S\ min}$) -Temperature Max ($T_{S\ max}$) -Time (min to max) (t_s)	150°C 200°C 60-180 seconds
$T_{S\ max}$ to T_L -Ramp-up Rate	3°C/second max.
Time maintained above: -Temperature (T_L) -Time (t_L)	217°C 60-150 seconds
Peak Temperature (T_P)	260°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	8 minutes max.

Dimensions (SOIC-16)

Symbol	Dimension			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	9.80	10.0	0.386	0.394
B	5.80	6.20	0.228	0.244
C	3.80	4.00	0.150	0.157
D	1.27		0.05	
E	0.35	0.51	0.014	0.020
F	0.50	0.90	0.020	0.035
G	0.19	0.25	0.007	0.010
H	1.35	1.75	0.053	0.069
H1	0.10	0.25	0.004	0.010

Packaging

Tape		Symbol	Dimension (mm)		
		W	16.00±0.30		
		P0	4.00±0.10		
		P1	8.00±0.10		
		P2	2.00±0.10		
		D0	Φ1.55±0.10		
		D1	Φ1.55±0.10		
		E	1.75±0.10		
		F	7.50±0.10		
		A	6.55±0.20		
		B	10.40±0.20		
		K	2.00±0.20		
		t	0.30±0.05		
		Reel		D	Φ330.0±3.0
				D2	Φ13.0
W1	17.5				
Quantity: 2500PCS					