

Electrostatic Discharged Protection Devices (ESD) Data Sheet

Description

Brightking's LHS08A12L04 has been specifically designed to protect sensitive components which is connected to data and transmission lines from overvoltage caused by electrostatic discharge (ESD), electrical fast transients (EFT), and lightning.

The low capacitance array configuration allows the user to protect four 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.

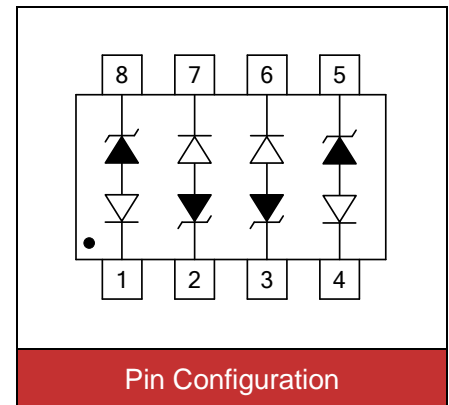


Contact : ±8kV
Air : ±15kV



Features

- IEC61000-4-2 ESD 15KV Air, 8KV contact compliance
- SOIC-08 surface mount package
- Protects four I/O lines
- Peak power dissipation of 800W under 8/20µs waveform
- 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 8LC12



Applications

- Multi-Mode transceiver protection
- Ethernet 10/100 Base T
- Audio/Video inputs
- ADSL interfaces
- RS-422 interfaces
- RS-232 interfaces
- RS-499 interfaces

Maximum Ratings

Rating	Symbol	Value	Unit
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 ($T_J=25^{\circ}\text{C}$)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V_{RWM}				12	V
Reverse breakdown voltage	V_{BR}	$I_{BR}=1\text{mA}$	13.4			V
Reverse leakage current	I_R	$V_R=12\text{V}$ Each I/O pin			4	μA
Clamping voltage ($t_p=8/20\mu\text{s}$)	V_C	$I_{PP}=1\text{A}$			19	V
Clamping voltage ($t_p=8/20\mu\text{s}$)	V_C	$I_{PP}=5\text{A}$			32.9	V
Peak pulse current ($t_p=8/20\mu\text{s}$)	I_{PP}				5	A
Off state junction capacitance	C_J	0Vdc, f=1MHz Between I/O pins and GND		25		pF

Typical Characteristics Curves

Figure 1. Power Derating Curve

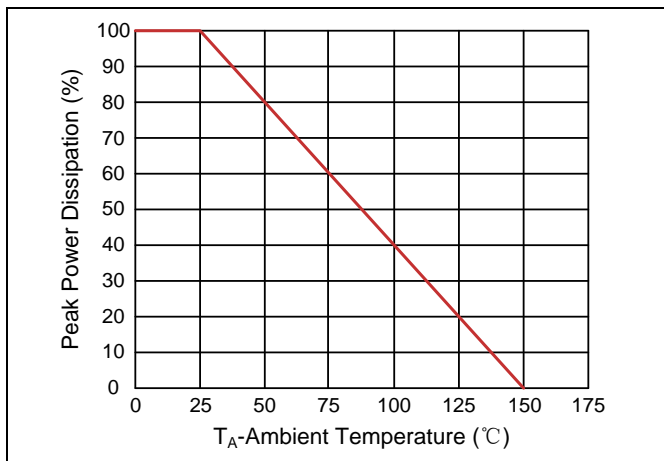


Figure 2. Pulse Waveforms

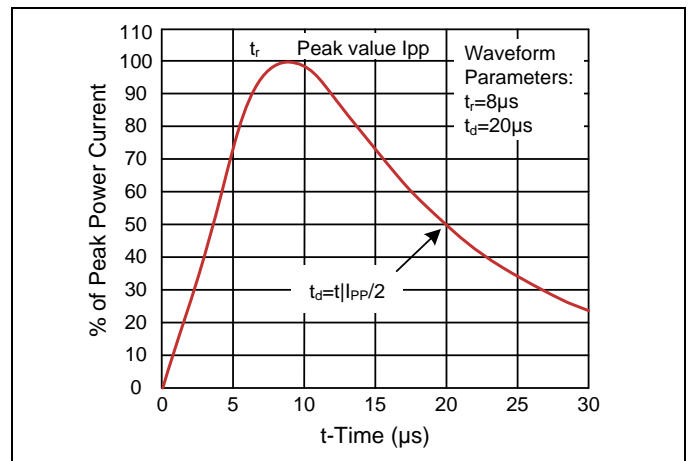


Figure 3. Non-Repetitive Peak Pulse vs. Pulse Time

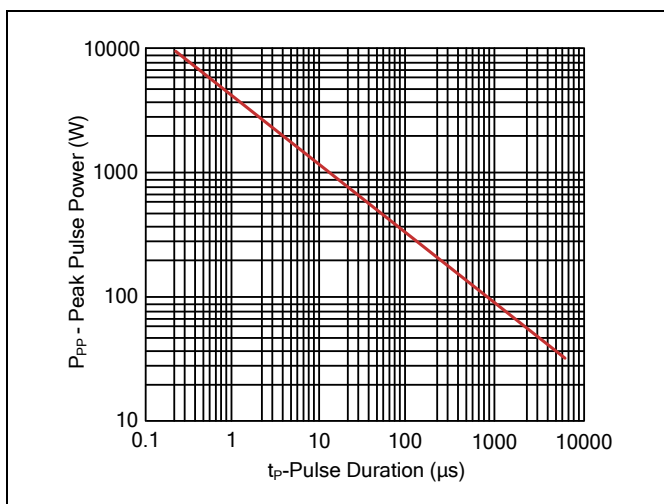
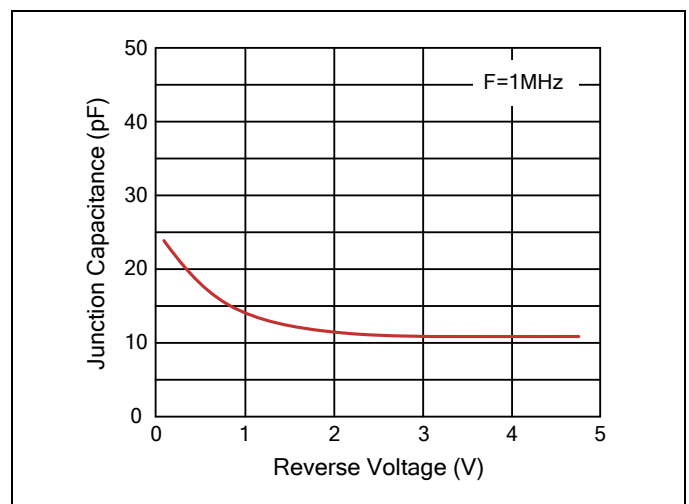
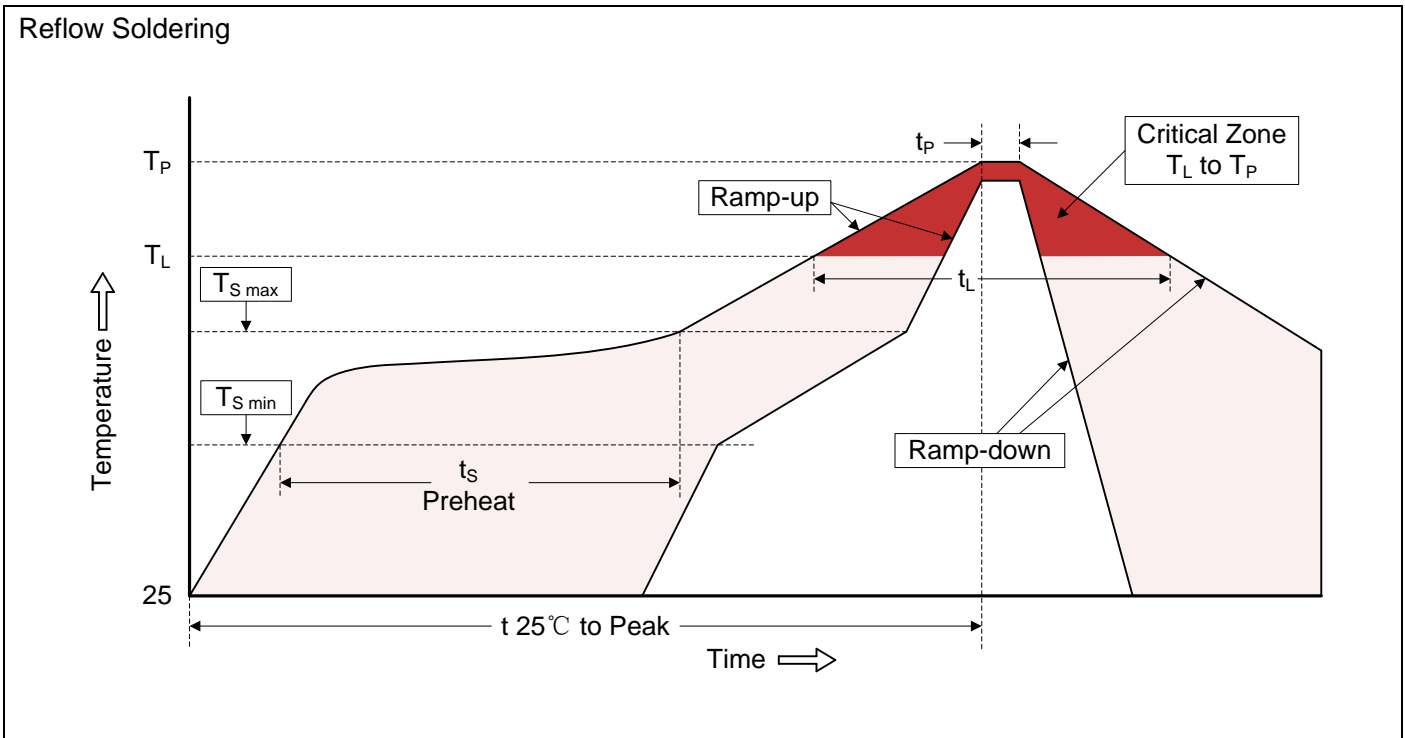


Figure 4. Capacitance vs. Reverse Voltage



Recommended Soldering Conditions



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-08)

<p>Recommended Soldering Pad Layout</p>	Dimension				
	Symbol	Millimeters		Inches	
		Min.	Max.	Min.	Max.
	A	4.80	5.00	0.189	0.197
B	5.80	6.20	0.228	0.244	
C	3.80	4.00	0.150	0.157	
D	1.27		0.050		
E	0.33	0.51	0.013	0.020	
F	0.40	1.27	0.016	0.050	
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	
H2	1.45		0.057		

Packaging

<p>Tape</p>	Symbol	Dimension (mm)
	W	12.00±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±0.05
	E	1.75±0.10
	F	5.50±0.10
	A	6.50±0.10
	B	5.40±0.10
	K	2.00±0.10
	t	0.30±0.05

<p>Reel</p>	D	Φ330.0±3.0
	D2	Φ13.0
	W1	13.5
	Quantity: 2500PCS	