

Electrostatic Discharged Protection Devices (ESD) Data Sheet

Description

Brightking's UES08A05L04 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.

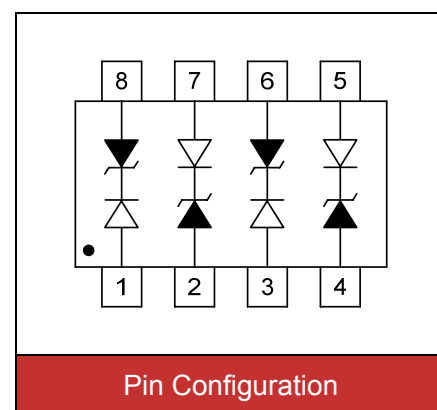


Contact : $\pm 8\text{kV}$
Air : $\pm 15\text{kV}$



Features

- IEC61000-4-2 ESD 15KV Air, 8KV contact compliance
- SOIC-08 surface mount package
- Protects four I/O lines
- Peak power dissipation of 500W under 8/20 μs waveform
- Working voltage: 5V
- 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 LCDA05



Applications

- Multi-Mode transceiver protection
- Ethernet 10/100 Base T
- Audio/Video inputs
- XDSL interfaces
- RS-422 (V.11, X.21)
- RS-232 (V.28)
- RS-499 (V.11/V.10)

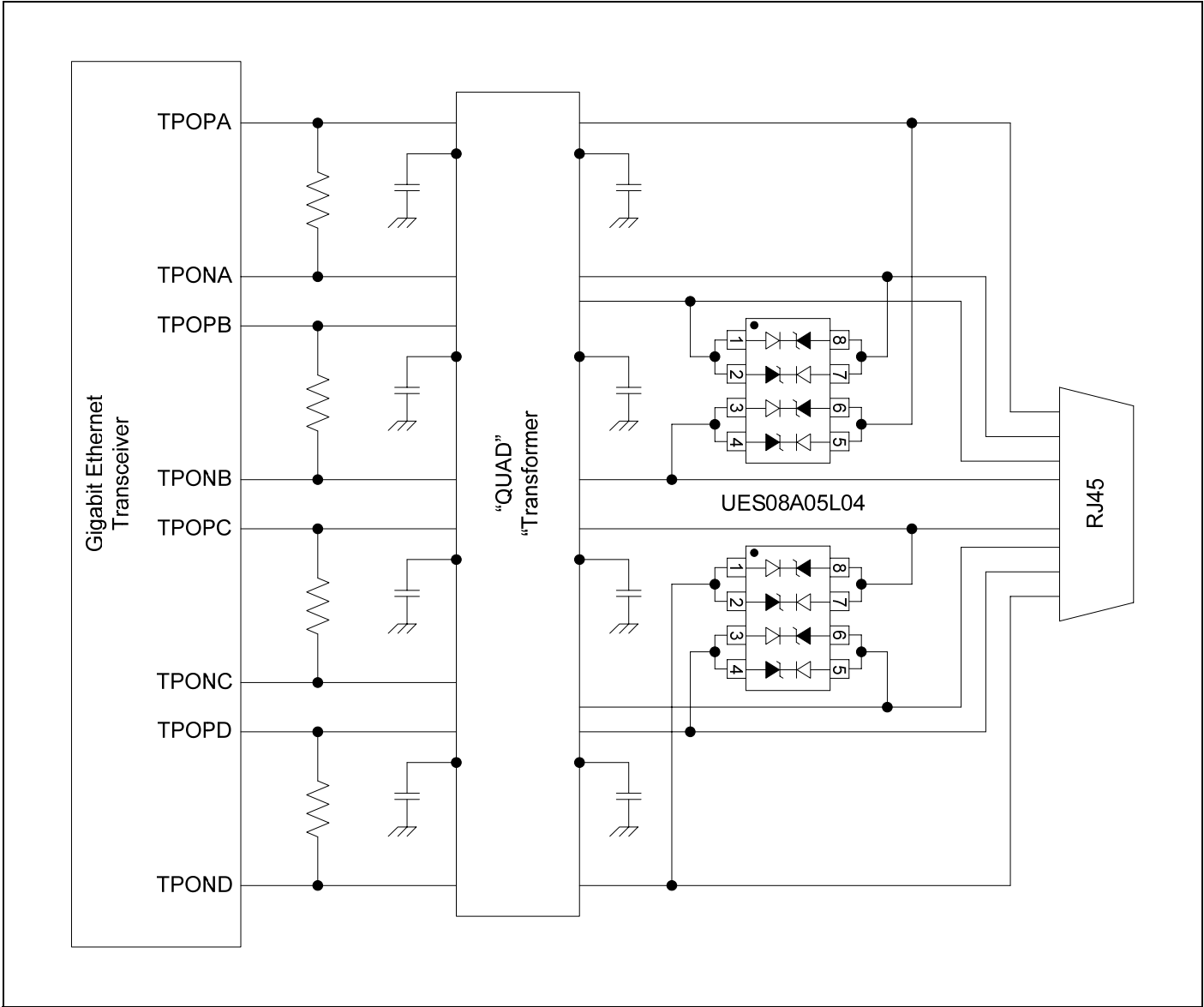
Maximum Ratings

Rating	Symbol	Value	Unit
Peak pulse power ($t_p=8/20\mu\text{s}$ waveform)	P_{PP}	500	W
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}				5	V
Reverse breakdown voltage	V _{BR}	I _{BR} =1mA	6			V
Reverse leakage current	I _R	V _R =5V Each I/O pin			5	μA
Clamping voltage (tp=8/20μs)	V _C	I _{PP} =1A			9.8	V
Clamping voltage (tp=8/20μs)	V _C	I _{PP} =20A			13.5	V
Off state junction capacitance	C _J	0Vdc,f=1MHz Between I/O pins and GND			5	pF

Applications Information



Typical Characteristics Curves

Figure 1. Power Derating Curve

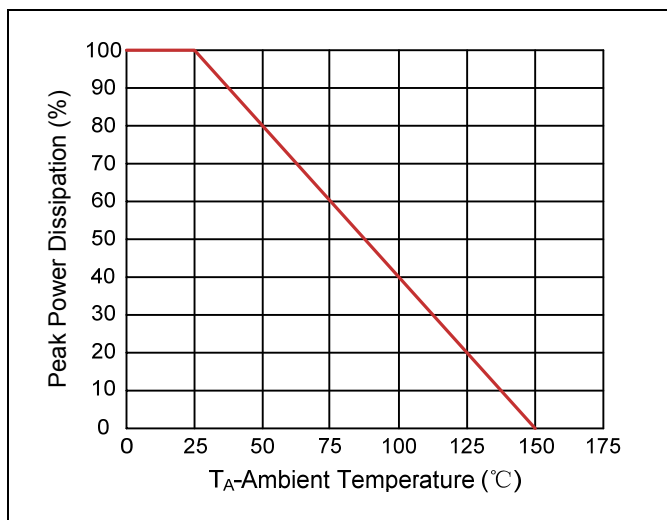


Figure 2. Pulse Waveforms

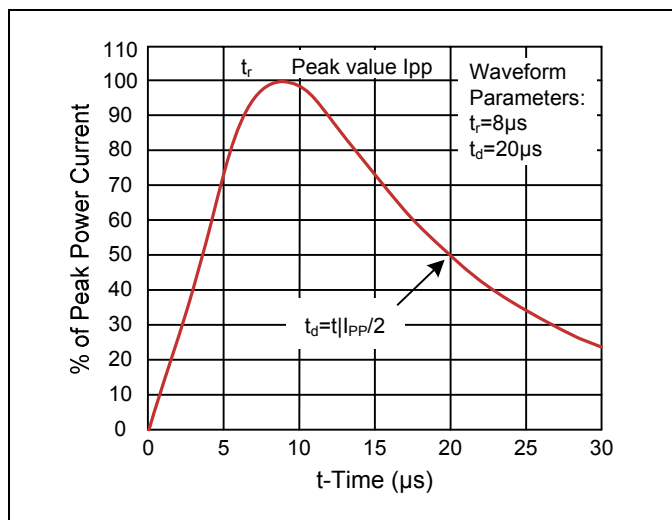


Figure 3. Non-Repetitive Peak Pulse vs. Pulse Time

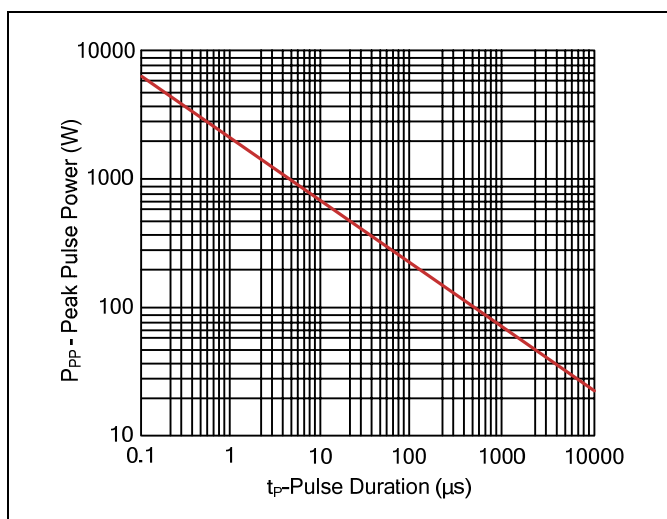


Figure 4. Capacitance vs. Reverse Voltage

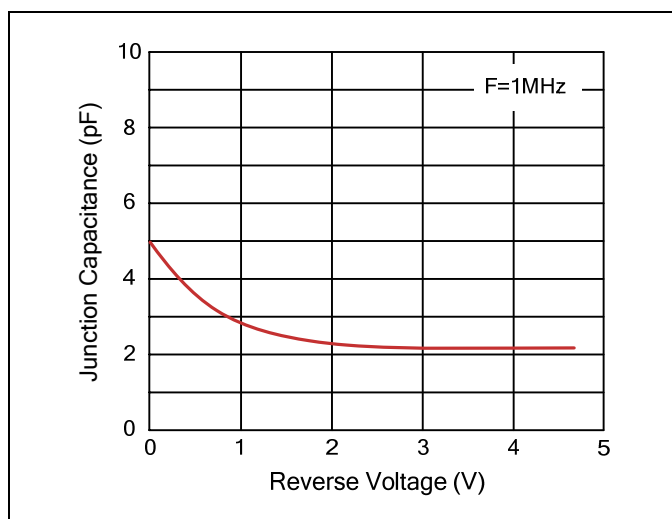
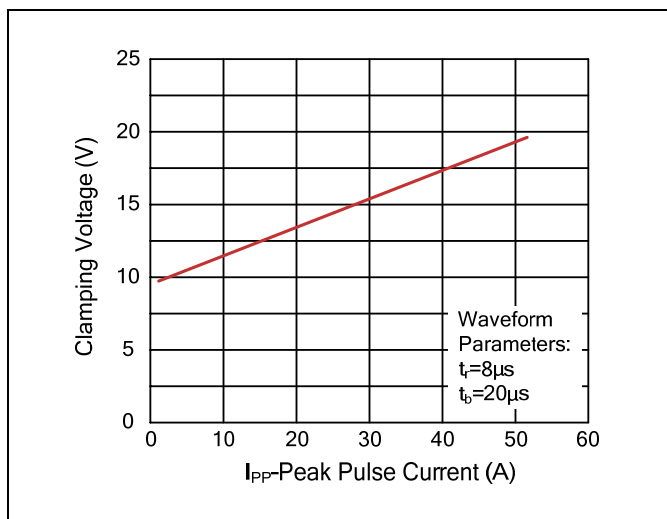
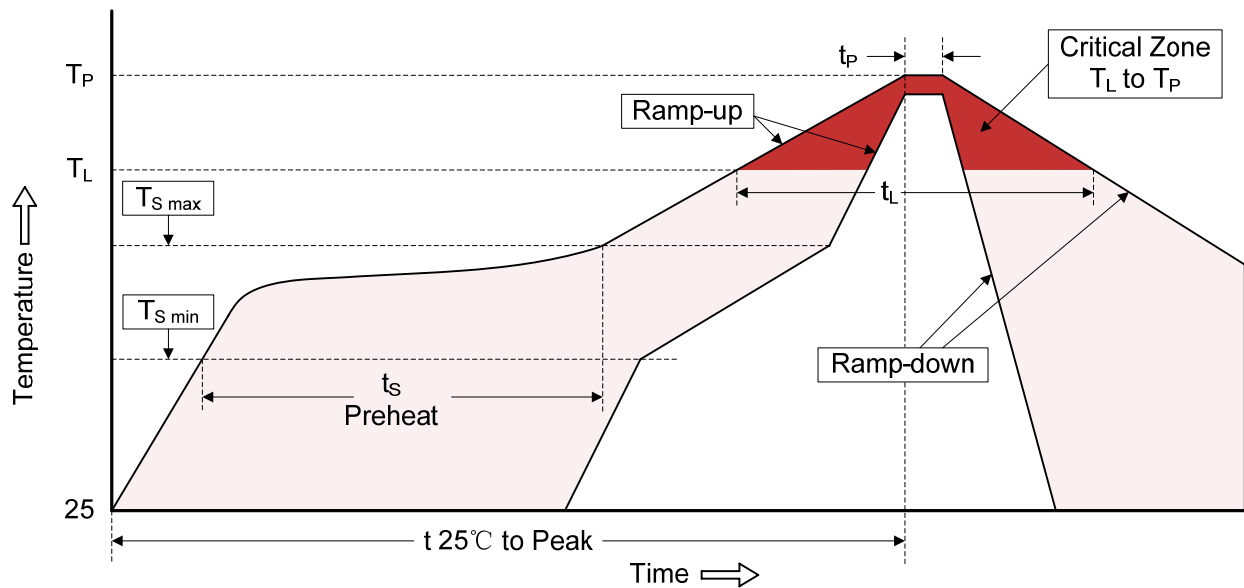


Figure 5. Clamping Voltage vs. Peak Pulse Current



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-08)

The diagram illustrates the mechanical specifications of an SOIC-08 package. It includes three views: a top view, a side view, and a recommended soldering pad layout.

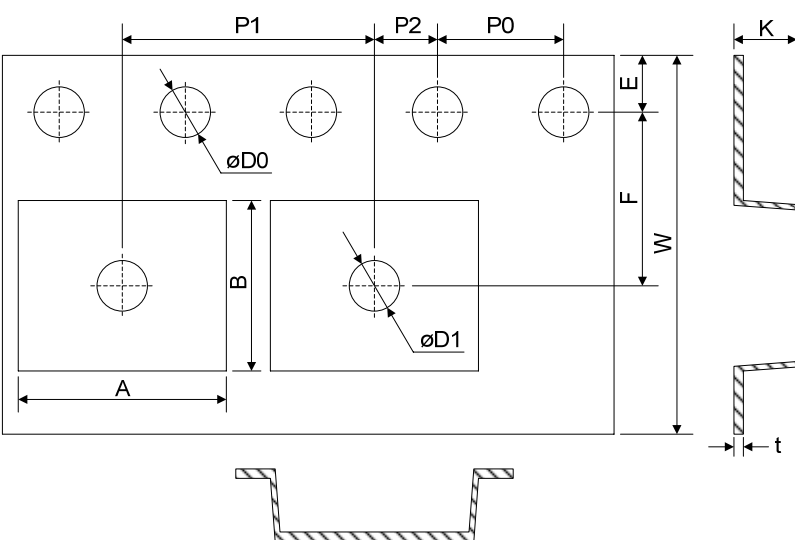
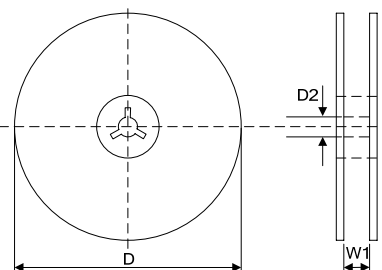
Top View: Shows the package body with dimensions A (total width), B (total height), C (body height), D (pitch), and E (lead width). Pin numbers 1 through 8 are indicated.

Side View: Shows the package height with dimensions F (lead height), G (lead thickness), H (total height), and H1 (lead height at the base).

Recommended Soldering Pad Layout: Shows the dimensions for the soldering pads, including 1.20 (8X) for the pad width, 0.73 (8X) for the pad thickness, and 1.27 for the pitch.

Symbol	Dimension			
	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

Tape 	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
	D	Φ330.0±3.0
	D2	Φ13.0
Reel 	W1	13.5
	Quantity: 2500PCS	