

# DATA SHEET

**ELECTROSTATIC DISCHARGE  
PROTECTION DEVICES**

**INDUSTRIAL / CONSUMER**

LES08A05L05 series

RoHS compliant & Halogen free



Product specification – November 07, 2020 V.1



## Electrostatic Discharged Protection Devices (ESD) Data Sheet

### Description

Brightking's LES08A05L05 components are surge rated diode array designed to protect high speed data line interfaces. It 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 unique design of this device incorporates surge rated, low capacitance steering diodes and TVS diodes in a single package. During transient conditions, the steering diodes direct the transient either the position side of the power supply or to the ground.

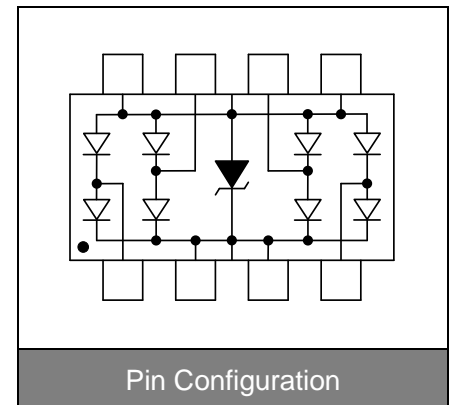


Contact :  $\pm 30\text{kV}$   
Air :  $\pm 30\text{kV}$



### Features

- IEC61000-4-2 ESD 30KV Air, 30KV contact compliance
- SOIC-08 surface mount package
- Protects four I/O lines
- Peak power dissipation of 500W under 8/20 $\mu\text{s}$  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 $^{\circ}\text{C}$
- Flammability rating UL 94V-0
- Meets MSL level 1, per J-STD-020



### Applications

- Ethernet 10/100/ base T
- Firewire & USB protection
- Set Top Box (STB) protection
- Video card (DVI) protection
- T1/E1 secondary IC side protection
- T3/E3 secondary IC side protection
- HDSL secondary IC side protection
- IC bus protection
- Micro-controller line protection

### Maximum Ratings

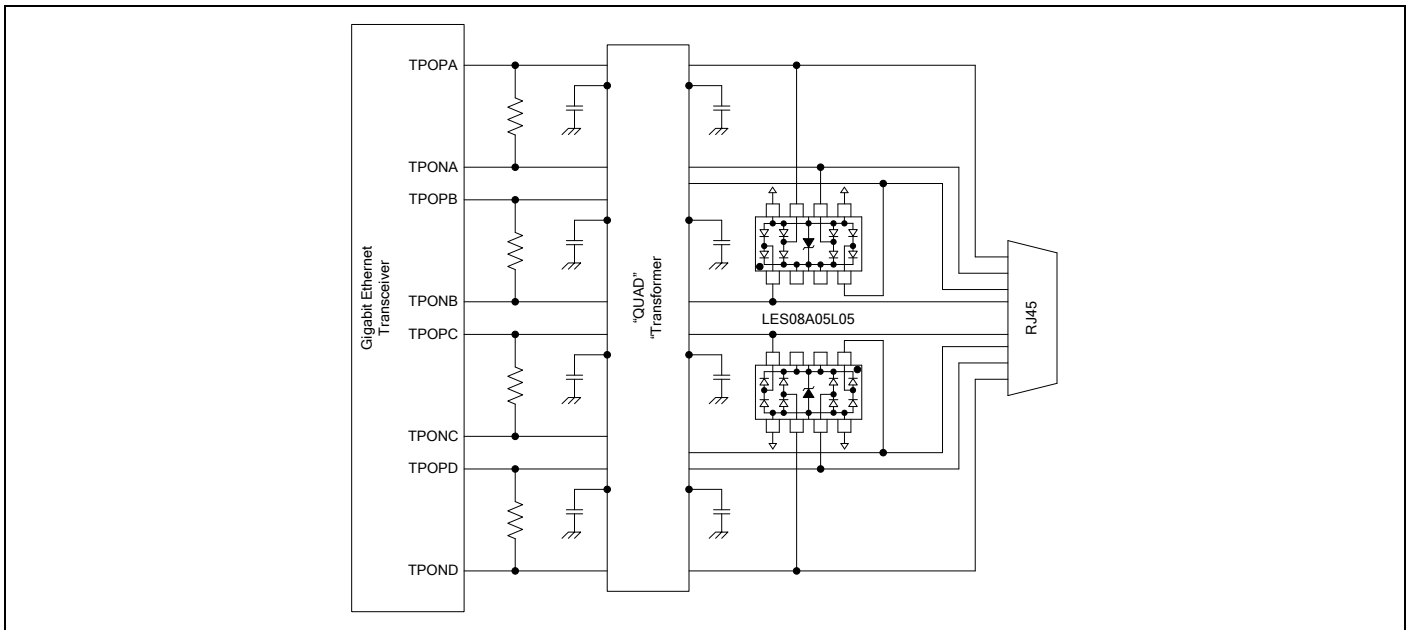
Rating	Symbol	Value	Unit
Peak pulse power ( $t_p=8/20\mu\text{s}$ waveform)	$P_{PP}$	500	W
ESD voltage (Contact discharge)	$V_{ESD}$	$\pm 30$	kV
ESD voltage (Air discharge)		$\pm 30$	
Storage & operating temperature range	$T_{STG}, T_J$	-55~+150	$^{\circ}\text{C}$

**Electrical Characteristics (T<sub>J</sub>=25°C)**

LES08A05L05(Marking: B RA05-4)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V <sub>RWM</sub>				5	V
Reverse breakdown voltage	V <sub>BR</sub>	I <sub>BR</sub> =1mA	6			V
Reverse leakage current	I <sub>R</sub>	V <sub>R</sub> =5V Each I/O pin			10	μA
Clamping voltage (tp=8/20μs)	V <sub>C</sub>	I <sub>PP</sub> =1A			9.8	V
Clamping voltage (tp=8/20μs)	V <sub>C</sub>	I <sub>PP</sub> =10A			13.5	V
Off state junction capacitance	C <sub>J</sub>	0Vdc, f=1MHz Between I/O pins and GND			15	pF

**Applications Information**



### Typical Characteristics Curves

Figure 1. Power Derating Curve

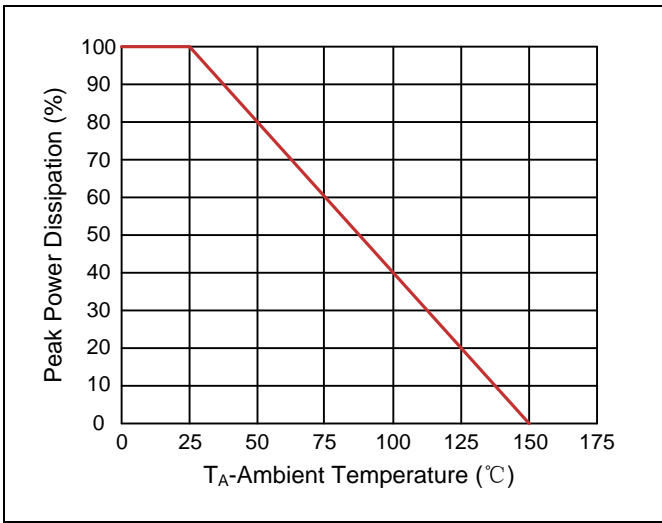


Figure 2. Pulse Waveforms

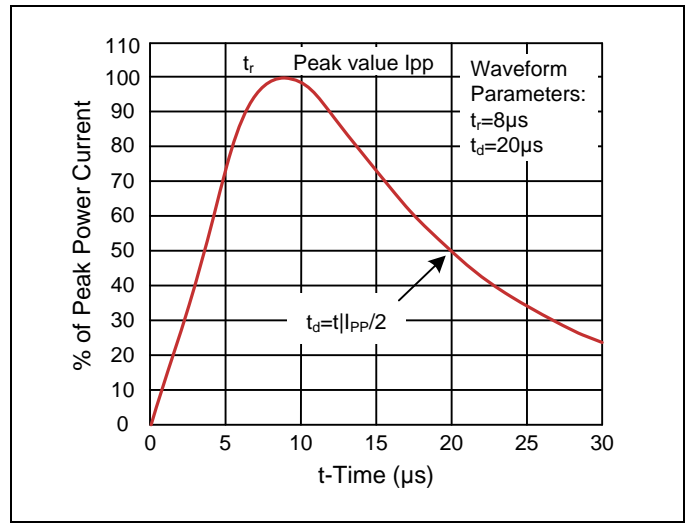


Figure 3. Non-Repetitive Peak Pulse vs. Pulse Time

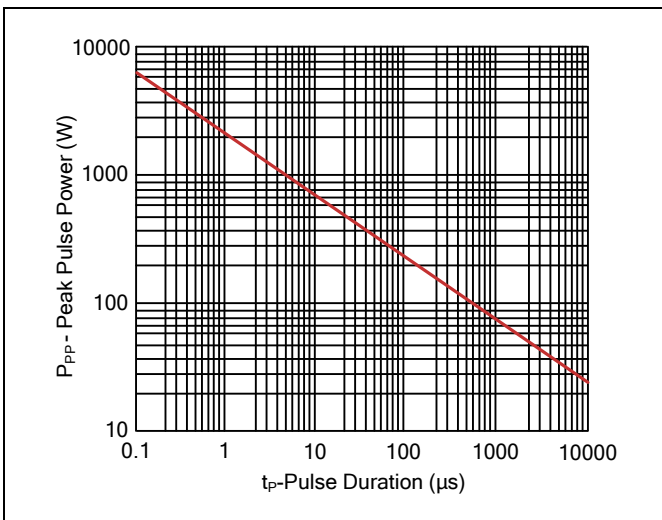
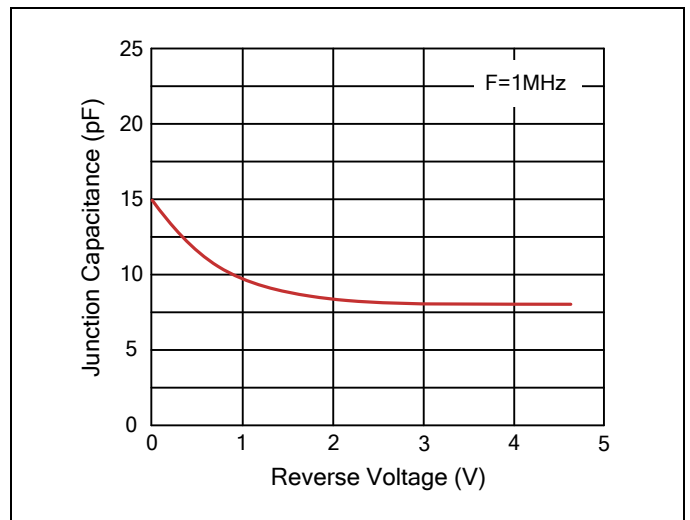
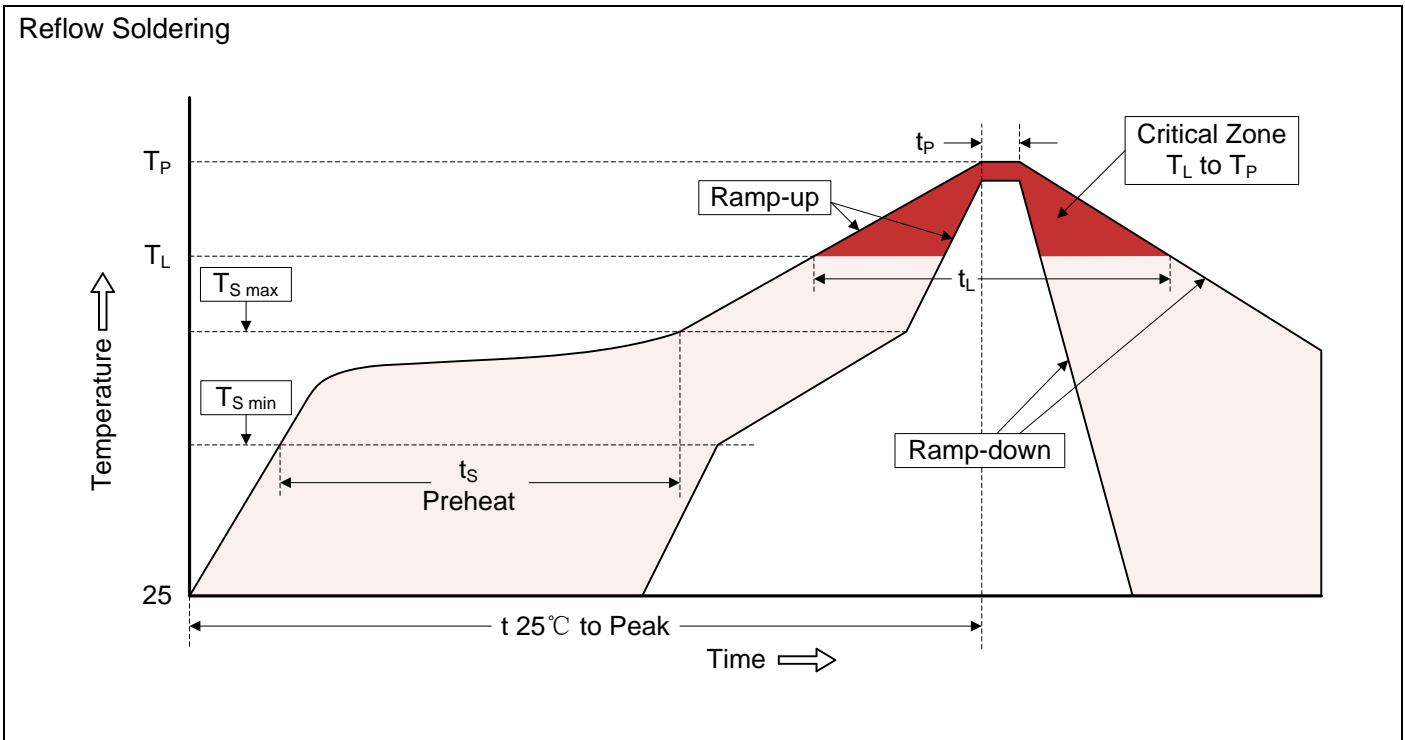


Figure 4. Capacitance vs. Reverse Voltage



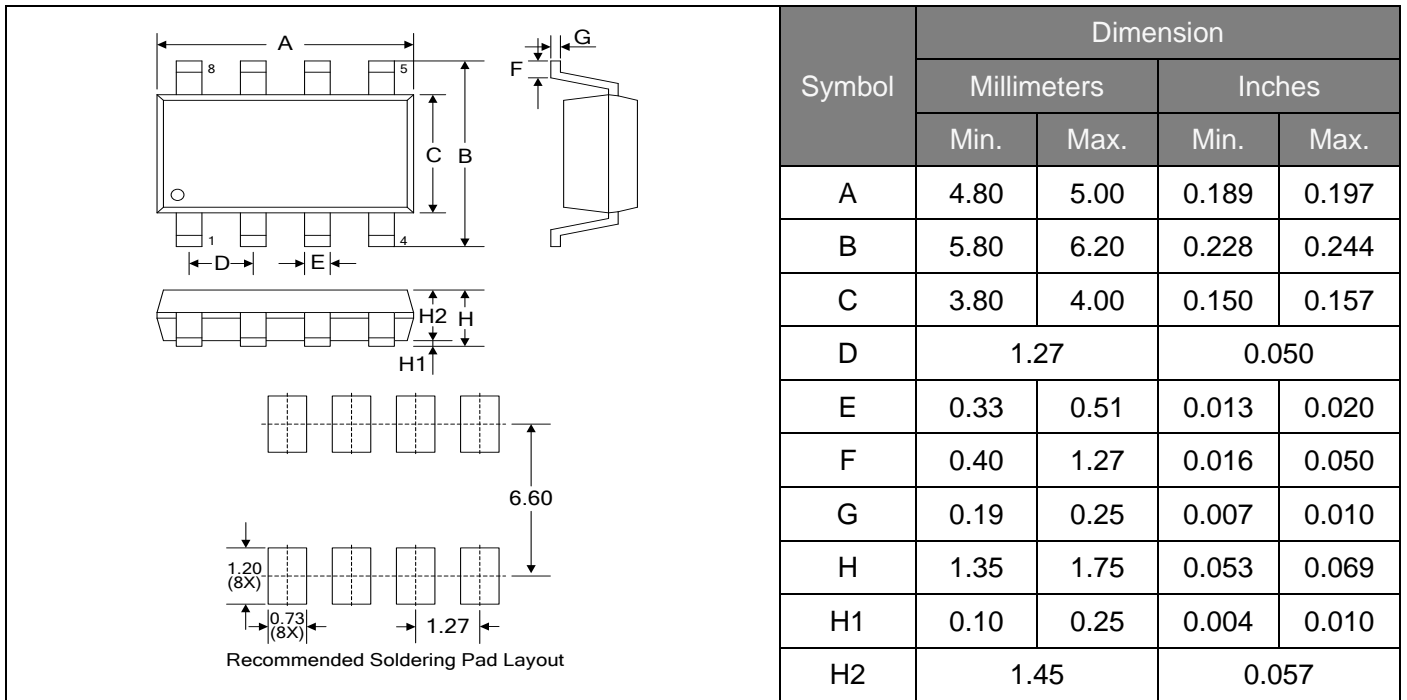
### Recommended Soldering Conditions



#### 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)**



**Packaging**

