Elektronische Bauelemente

# KSY05UL8E-C

**60W, 5V**

**Ultra Low Capacitance ESD Protection Array**

RoHS Compliant Product
A suffix of "-C" specifies halogen & lead-free

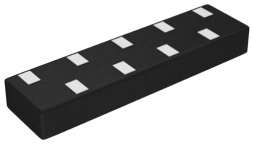
## DESCRIPTION

KSY05UL8E-C is an ultra-low capacitance Transient Voltage Suppressor (TVS) designed to protection for high-speed data interfaces. With typical capacitance of 0.2pF (I/O to I/O) only, it is designed to protect parasitic sensitive systems against over-voltage and over-current transient events. It complies with IEC61000-4-2 (ESD) Level 4, IEC61000-4-4 (EFT), very fast charged device model (CDM) ESD and cable discharge event (CDE), etc.

It uses ultra-small DFN3810-9L package. Each device can protect eight high-speed data lines. The combined features of ultra-low capacitance, ultra-small size and high ESD robustness make these parts ideal for high-speed data ports and high-frequency lines applications (e.g., HDMI &DVI).

The low clamping voltage of the KSY05UL8E-C guarantees a minimum stress on the protected IC.

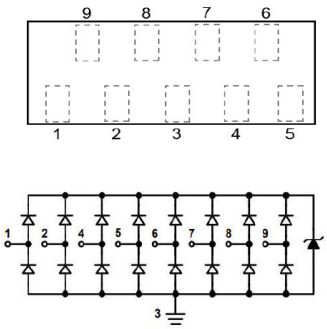
**DFN3810-9L**



## FEATURES

- Transient Protection for High-Speed Data Lines
- IEC61000-4-2 Level 4 ESD Protection
- IEC 61000-4-4(EFT): 40A (5/50ns)
- Protects eight data lines
- Low Capacitance and Clamping Voltage
- Low Leakage Current
- Flammability Rating: UL 94V-0

**Pin Diagram**




## MARKING

**0508P**

## PACKAGE INFORMATION

| Package | MPQ | Leader Size |
|---|---|---|
| DFN3810-9L | 3K | 7 inch |

## ORDER INFORMATION

| Part Number | Type |
|---|---|
| KSY05UL8E-C | Lead (Pb)-free and Halogen-free |

## ABSOLUTE MAXIMUM RATINGS ($T_A$=25℃ unless otherwise specified)

| Parameter | | Symbol | Value | Unit |
|---|---|---|---|---|
| IEC 61000-4-2 (ESD) | Air | $V_{ESD}$ | ±25 | kV |
| | Contact | | ±20 | |
| Peak Pulse Power @tp=8/20us | | $P_{PP}$ | 60 | W |
| Peak Pulse Current @tp=8/20us | | $I_{PP}$ | 4 | A |
| Maximum Lead Solder Temperature (10 Second Duration) | | $T_L$ | 260 | ℃ |
| Operating Junction Temperature Range | | $T_J$ | -55~125 | |
| Storage Temperature Range | | $T_{STG}$ | -55~150 | |

## ELECTRICAL CHARACTERISTICS ($T_A$=25°C unless otherwise specified)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Test Condition |
|---|---|---|---|---|---|---|
| Reverse Working Voltage | $V_{RWM}$ | - | - | 5 | V | Any I/O pin to GND |
| Breakdown Voltage | $V_{BR}$ | 6 | - | 9 | V | $I_T$=1mA, Any I/O pin to GND |
| Reverse Leakage Current | $I_R$ | - | - | 1 | μA | $V_{RWM}$=5V, Any I/O pin to GND |
| Surge Clamping Voltage @tp=8/20μs | $V_C$ | - | - | 10 | V | $I_{PP}$=1A, Any I/O pin to GND |
| | | - | - | 15 | | $I_{PP}$=4A, Any I/O pin to GND |
| Parasitic Capacitance @$V_R$=0V, f=1MHz | $C_{ESD}$ | - | 0.4 | 0.5 | pF | Between I/O and GND |
| | | - | 0.2 | 0.3 | | Between I/O and I/O |

Note:
1. I/O pins are pin 1, 2, 4, 5, 6, 7, 8, 9; GND pins are pin 3.

## RATINGS AND CHARACTERISTICS CURVES

Fig 1 Power Derating Curve

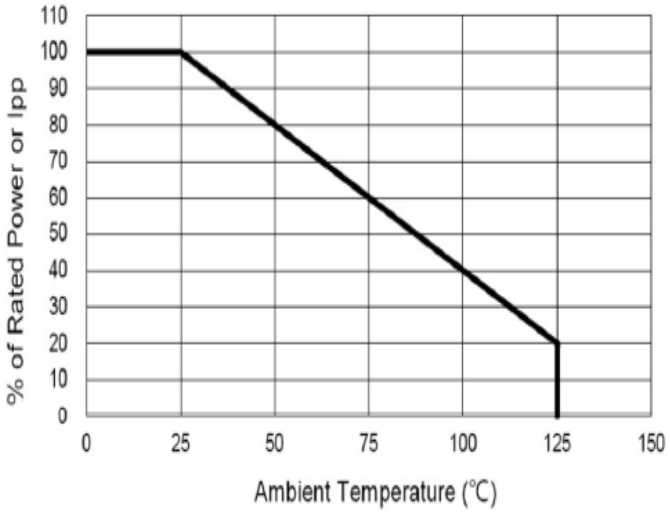



Fig 2 Clamping Voltage vs Peak Pulse Current

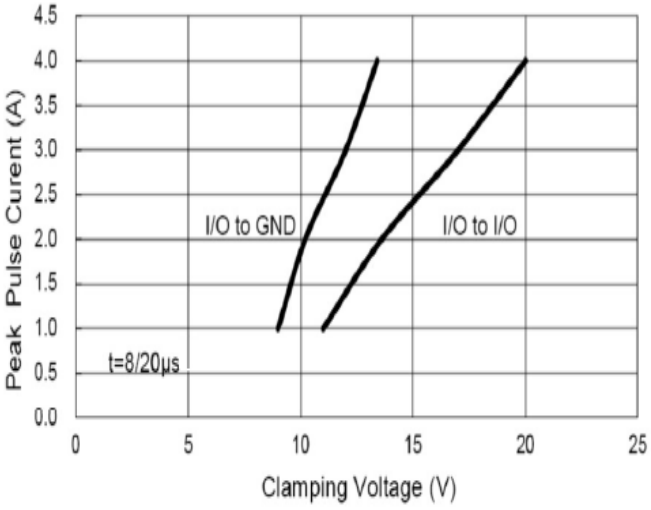



Fig 3 Voltage Sweeping of I/O to I/O

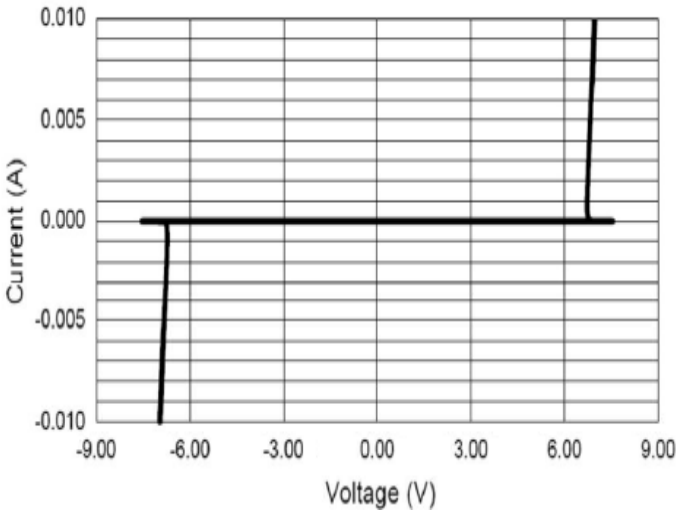
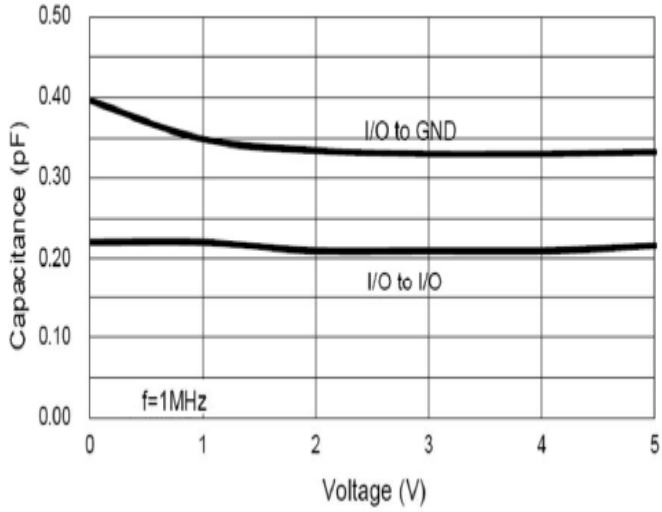



Fig 4 Voltage vs Capacitance



## RATINGS AND CHARACTERISTICS CURVES

Fig 5 ESD Clamping of I/O to GND
(+8kV Contact per IEC 61000-4-2)

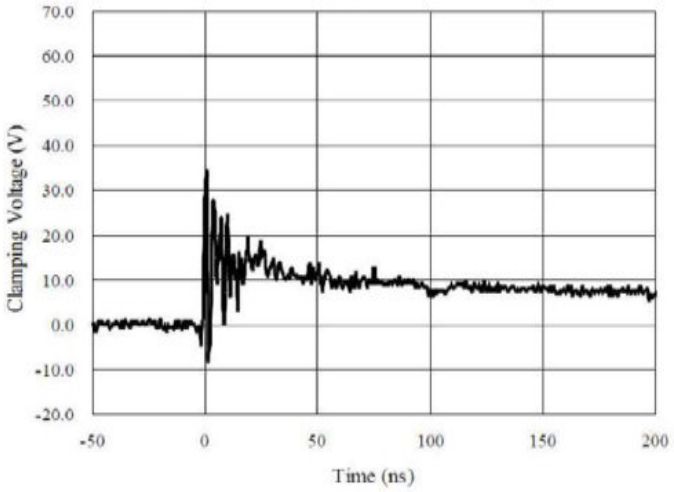



Fig 6 ESD Clamping of I/O to GND
(-8kV Contact per IEC 61000-4-2)

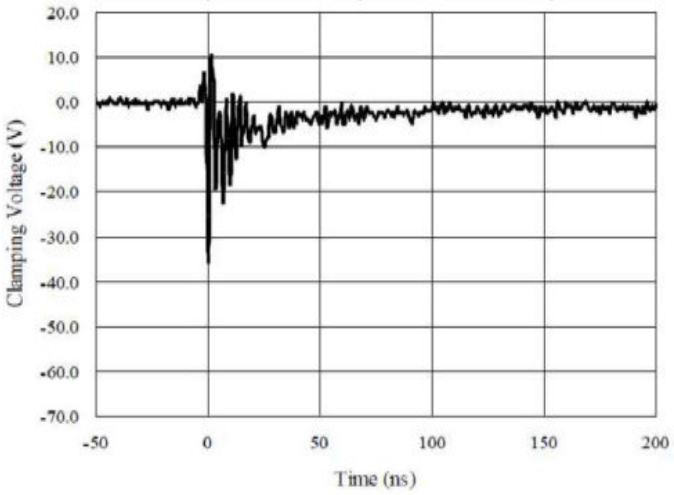
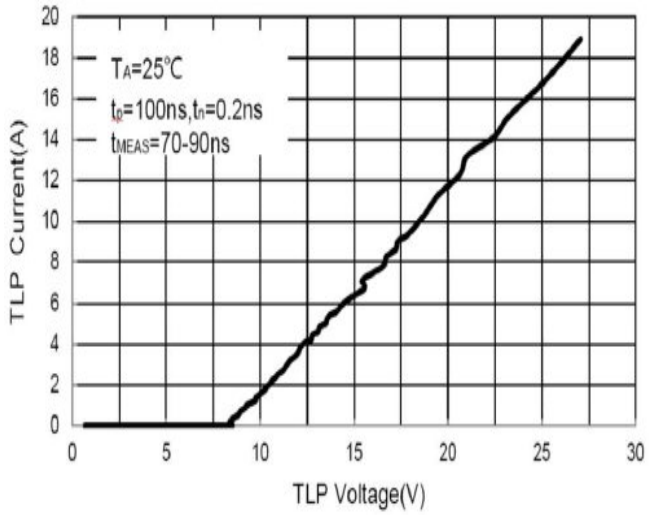
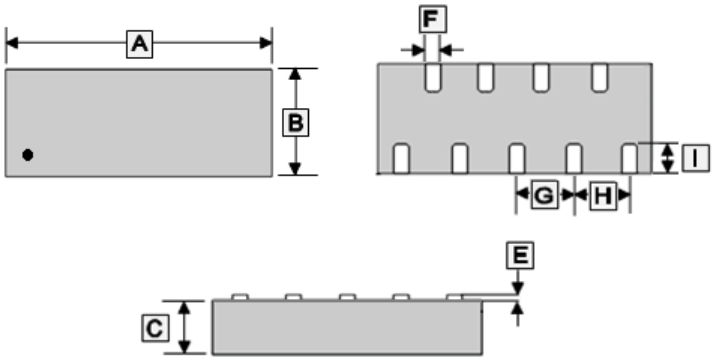



Fig7 Transmission Line Pulsing (TLP) Measurement



## PACKAGE OUTLINE DIMENSIONS

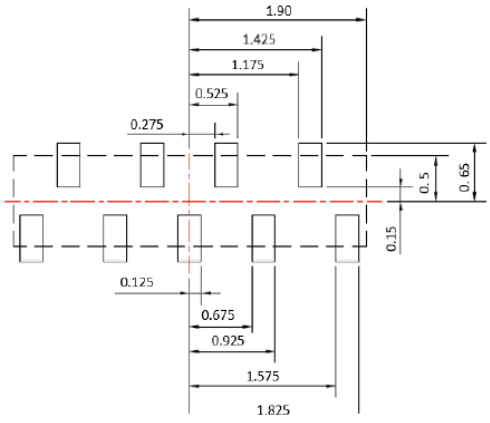
**DFN3810-9L**




| REF. | Millimeter | |
|---|---|---|
| | Min. | Max. |
| A | 3.70 | 3.90 |
| B | 0.90 | 1.10 |
| C | 0.45 | 0.60 |
| E | - | 0.05 |
| F | 0.15 | 0.25 |
| G | 0.80 REF. | |
| H | 0.90 REF. | |
| I | 0.20 | 0.40 |

## MOUNTING PAD LAYOUT

**DFN3810-9L**




*Dimensions in millimeters