

## Transient Voltage Suppressors for ESD Protection

### ESDXXV88D-A Series

#### Description

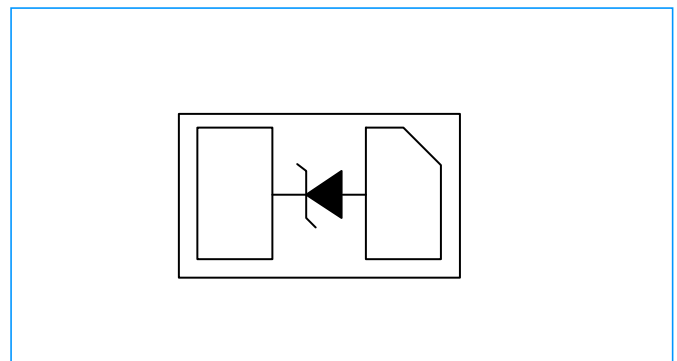
The ESDXXV88D-A Series is designed to protect voltage sensitive components from ESD and transient voltage events. Excellent clamping capability, low leakage, and fast response time, make these parts ideal for ESD protection on designs where board space is at a premium.



#### Feature

- ◆ 288~400 Watts Peak Pulse Power per Line ( $t_p=8/20\mu s$ )
- ◆ Protects One unidirectional I/O Line
- ◆ Low clamping voltage
- ◆ Working voltages : 3.3V ~ 36V
- ◆ Low leakage current
- ◆ IEC61000-4-4 (EFT) 40A (5/50ns)
- ◆ IEC61000-4-2(ESD): $\pm 30kV$ (air), $\pm 30kV$ (contact):3.3V/5V/7.5V/12V/15V/18V
- ◆ IEC61000-4-2(ESD): $\pm 15kV$ (air), $\pm 15kV$ (contact):24V,36V

#### Functional Diagram



#### Applications

- ◆ Cellular Handsets & Accessories
- ◆ Keypads, Side Keys, Audio Ports
- ◆ Wireless Network Systems
- ◆ Digit Video Interface (DVI)
- ◆ Portable Instrumentation

#### Mechanical Data

- ◆ SOD-882/DFN1006 (1.0x0.6x0.5mm) Package
- ◆ Molding Compound Flammability Rating : UL 94V-O
- ◆ Weight 0.5 Milligrams (Approximate)
- ◆ Lead Finish : Lead Free

#### Mechanical Characteristics

| Symbol    | Parameter                                    | Value         | Units |
|-----------|--|---------------|-------|
| $P_{PP}$  | Peak Pulse Power ( $t_p=8/20\mu s$ waveform) | 288 ~ 400     | Watts |
| $T_L$     | Lead Soldering Temperature                   | 260 (10 sec.) | °C    |
| $T_{STG}$ | Storage Temperature Range                    | -55 to +150   | °C    |
| $T_J$     | Operating Junction Temperature Range         | -40 to +125   | °C    |

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Electrical Characteristics (@ 25°C Unless Otherwise Specified )

| Part Number  | Device Marking Code | Stand-Off Voltage $V_{RWM}$ (V) | Breakdown Voltage $V_{BR}(Min)$ | Test Current $I_T$ (mA) | $V_C@1A$ (V) Max. | $V_C$  |      | Maximum Reverse Leakage $I_R$ @ $V_{RWM}$ (uA) | Typ Junction Capacitance (pF) |
|--------------|---------------------|---------------------------------|---------------------------------|-------------------------|-------------------|--------|------|--|-------------------------------|
|              |                     |                                 |                                 |                         |                   | (Max.) | (@A) |  |                               |
| ESD3.3V88D-A | N3                  | 3.3                             | 4.0                             | 1.0                     | 6.5               | 12.5   | 32.0 | 20.0   | 320                           |
| ESD05V88D-A  | NA                  | 5.0                             | 6.0                             | 1.0                     | 8.2               | 15.0   | 26.0 | 5.0  | 230                           |
| ESD7.5V88D-A | NC                  | 7.5                             | 8.0                             | 1.0                     | 9.5               | 16.5   | 25.0 | 1.0  | 150                           |
| ESD12V88D-A  | NF                  | 12                              | 13.2                            | 1.0                     | 16.0              | 23.0   | 16.0 | 1.0  | 120                           |
| ESD15V88D-A  | NH                  | 15                              | 16.5                            | 1.0                     | 18.3              | 27.0   | 12.0 | 1.0  | 80                            |
| ESD18V88D-A  | ND                  | 18                              | 18.7                            | 1.0                     | 23.0              | 32.0   | 11.0 | 1.0  | 65                            |
| ESD24V88D-A  | NK                  | 24                              | 25.5                            | 1.0                     | 32.0              | 48.0   | 7.5  | 1.0  | 50                            |
| ESD36V88D-A  | NN                  | 36                              | 40.0                            | 1.0                     | 53.0              | 72.0   | 4.0  | 1.0  | 40                            |

### Characteristic Curves

Fig1. 8/20µs Pulse Waveform

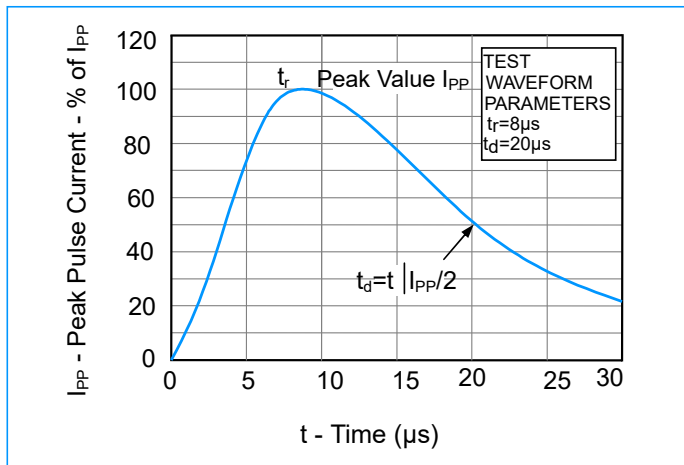


Fig2. Power Rating Derating Curve

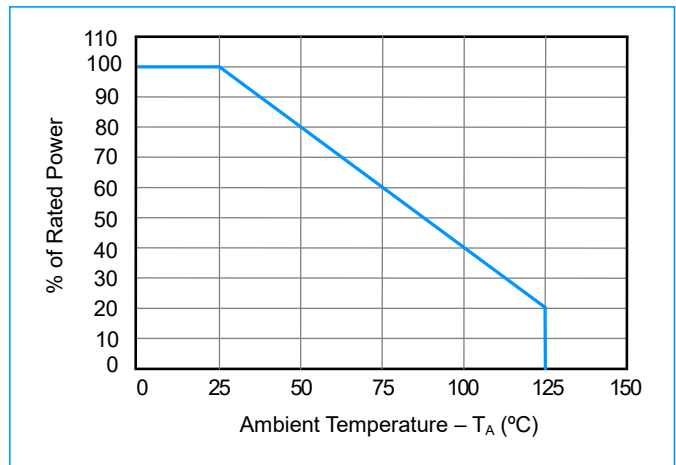
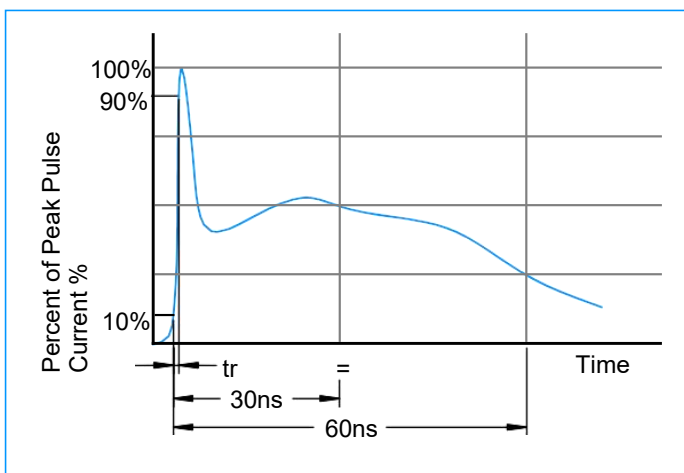


Fig3. ESD Pulse Waveform (according to IEC61000-4-2)

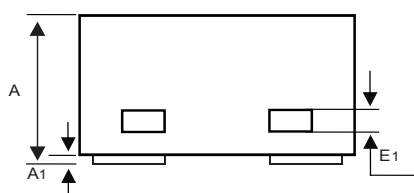
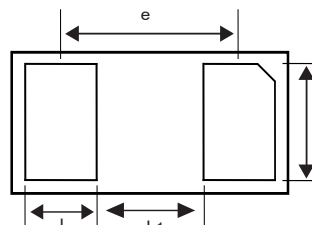
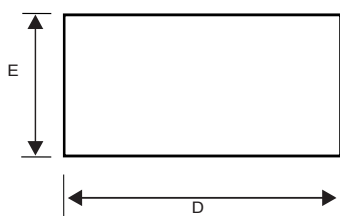


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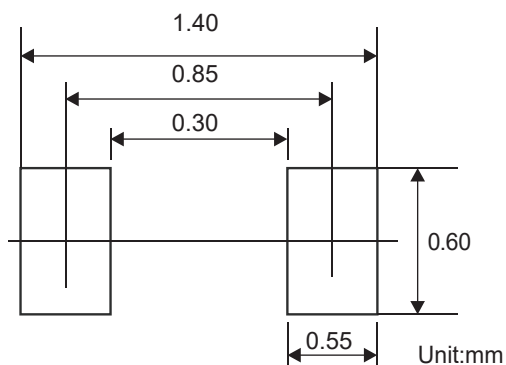
### ESDXXV88D-A Series

#### SOD-882/DFN1006 Package Outline & Dimensions

#### SOD-882/DFN1006



#### Suggested PAD Layout



| Symbol | Millimeters |       |       |
|--------|-------------|-------|-------|
|        | Min         | Nom   | Max   |
| A      | 0.450       | 0.500 | 0.550 |
| A1     | 0           | 0.020 | 0.050 |
| E1     | 0.013       | 0.063 | 0.113 |
| D      | 0.900       | 1.000 | 1.100 |
| E      | 0.500       | 0.600 | 0.700 |
| e      | 0.65BSC     |       |       |
| L      | 0.150       | 0.250 | 0.350 |
| b      | 0.400       | 0.500 | 0.600 |
| L1     | 0.300       | 0.400 | 0.500 |

#### Ordering Information

| Device             | Package         | Quantity       | Reel Size |
|--------------------|-----------------|----------------|-----------|
| ESDXXV88D-A Series | SOD-882/DFN1006 | 12,000pcs/Reel | 7 inch    |