



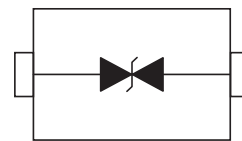
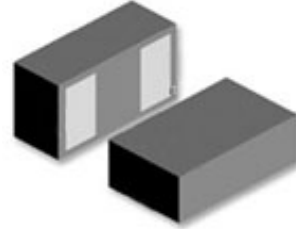
## Description

■ This device is an ultra low capacitance PESD product designed to protect very high speed data interfaces. ESDPSA0603V24 has a typical capacitance of only 0.05pf (I/O to GND), and it can be used to meet the ESD immunity requirements of IEC61000-4-2 (15KV air, 8KV contact discharge).

## Feature

- ESD protection for high speed data lines to IEC61000-4-2
- ESD contact discharge typical 8KV, max 15KV
- ESD air discharge typical 15KV, max 25KV
- Surface mount
- Extremely low capacitance
- Very low leakage current
- Fast response time
- Bi-directional ESD protection
- Lead free solder termination
- The best ESD protection for high frequency, low voltage applications

## ESDPSA0603V12



Schematic Diagram

## Application

- High Definition Multi-Media Interface (HDMI)
- Digital Visual Interface (DVI)
- Display Port Interface (DP)
- Unified Display Interface (UDI)
- Mobile Display Digital Interface (MDDI)
- Gigabit Ethernet
- USB2.0 and USB3.0
- IEEE1394 interface

### Caution:

This component is designed for signal line protection only,  
Not intended to be used under bias, not for application with a power line.



## Absolute Maximum Ratings

| Parameter  | Symbol            | Value       | Unit |
|--|-------------------|-------------|------|
| Maximum Contact discharge voltage Per IEC61000-4-2 | ---               | 15KV        | V    |
| Maximum Air discharge voltage Per IEC61000-4-2     | ---               | 25KV        | V    |
| Maximum Operating temperature                      | T <sub>OPER</sub> | -40 to +90  | °C   |
| Maximum Storage temperature                        | T <sub>STG</sub>  | -55 to +125 | °C   |
| Maximum lead temperature for soldering during 10s  | T <sub>L</sub>    | 260         | °C   |

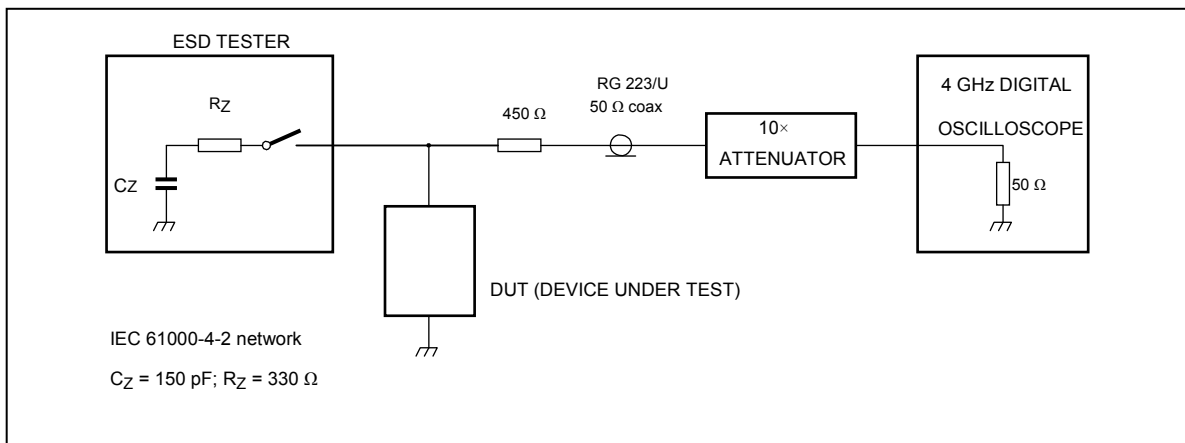
## Electrical Characteristics(T<sub>A</sub>=25°C)

| Parameter        | Symbol         | Test Conditions                      | Min | Typ  | Max  | Units |
|------------------|----------------|--------------------------------------|-----|------|------|-------|
| Rated Voltage    | V <sub>R</sub> | ---                                  | --- | ---  | 12   | V     |
| Trigger voltage  | V <sub>T</sub> | IEC61000-4-2 8KV contact discharge   | --- | 350  | ---  | V     |
| Clamping voltage | V <sub>C</sub> | IEC61000-4-2 8KV contact discharge   | --- | 35   | ---  | V     |
| Leakage current  | I <sub>L</sub> | DC 24V shall be applied on component | --- |      | 0.10 | uA    |
| Capacitance      | C <sub>P</sub> | V <sub>R</sub> = 0V, f = 1MHz        | --- | 0.05 |      | pF    |

**Note:** 1 Trigger and clamping voltage are measured per IEC 61000-4-2, 8KV contact discharge method.

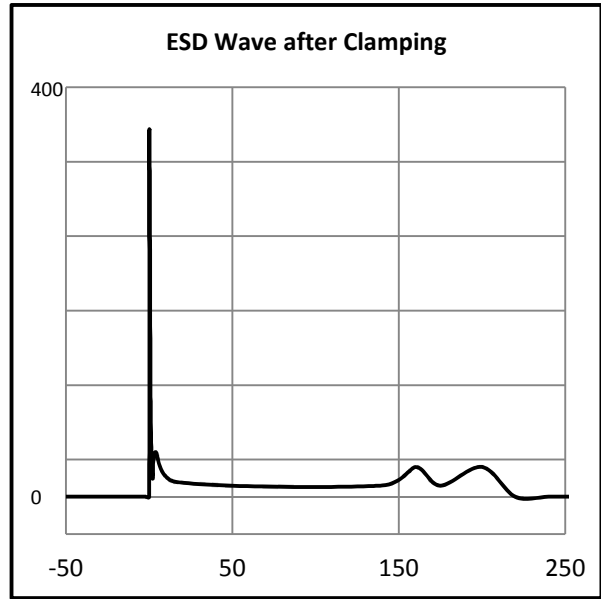
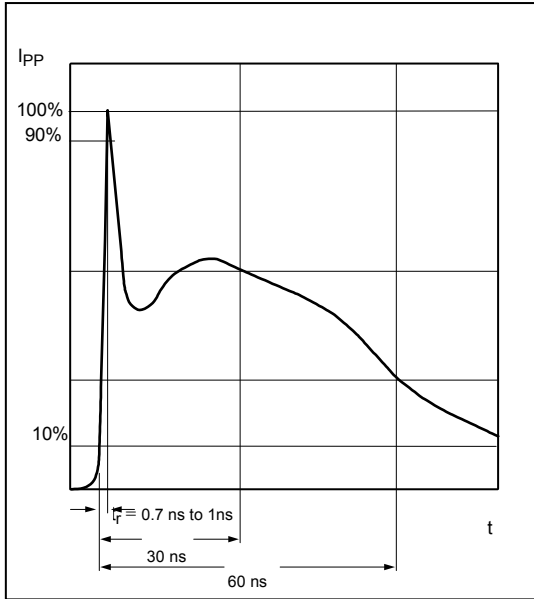
2 After reliability tests such as high temp storage, temp cycles, continuous ESD strike etc, the maximum leakage current is less than 10uA.

## ESD Clamping Test

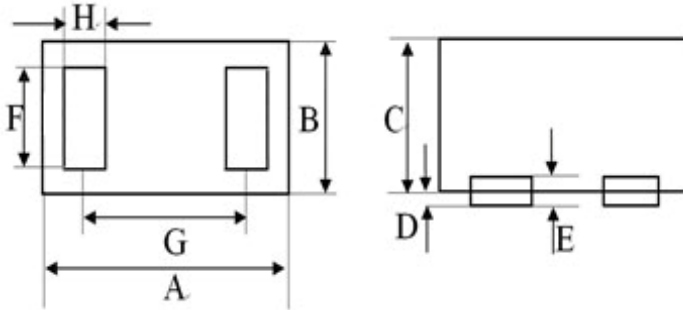




### ESD Clamping Test Waveforms

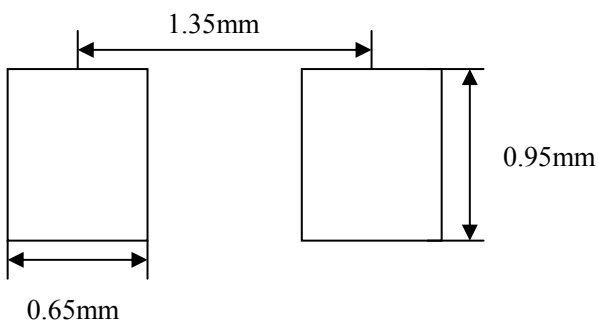


### Product Dimension



| Dim | millimeters |      |
|-----|-------------|------|
|     | min         | max  |
| A   | 1.45        | 1.75 |
| B   | 0.70        | 0.95 |
| C   | 0.43        | 0.63 |
| D   | 0.00        | 0.05 |
| E   | 0.125REF    |      |
| F   | 0.70        | 0.80 |
| G   | 1.30BSC     |      |
| H   | 0.45        | 0.55 |

### PAD Dimension

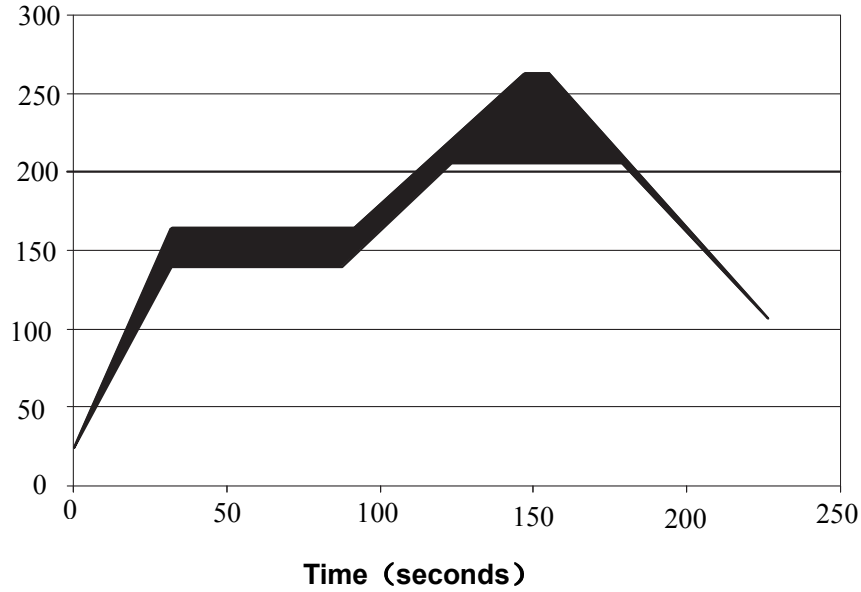


Solder thickness 0.15 to 0.2mm

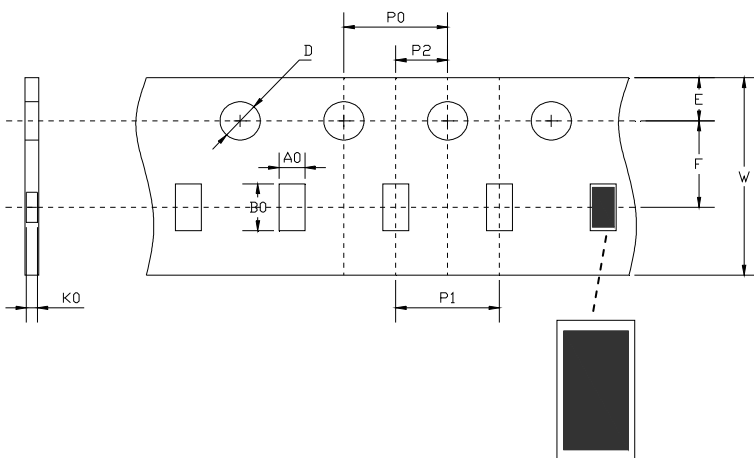


## Solder Reflow Recommendations

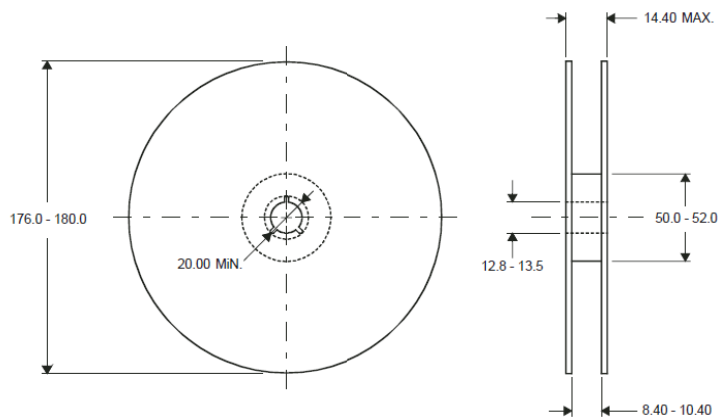
Temperatures (°C)



## Package Information



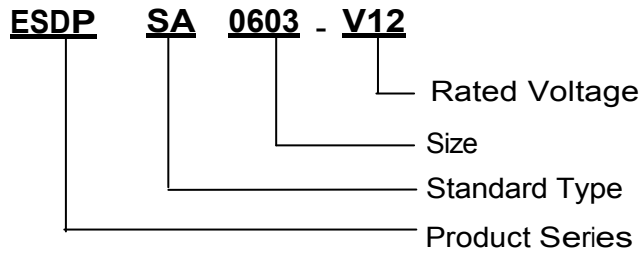
| Dimension | Typical | Unit |
|-----------|---------|------|
| A0        | 1.10    | mm   |
| B0        | 1.90    |      |
| K0        | 0.60    |      |
| D         | 1.55    |      |
| P0        | 4.00    |      |
| P1        | 4.00    |      |
| P2        | 2.00    |      |
| E         | 1.75    |      |
| F         | 3.50    |      |
| W         | 8.00    |      |



DIMENSIONS ARE: MILLIMETERS



## Part Number System



## Order Information

| Device        | Package | Net Weight | Carrier     | Quantity      | HSF Status     |
|---------------|---------|------------|-------------|---------------|----------------|
| ESDPSA0603V12 | 0603    | 0.9 mg     | Tape & Reel | 5,000pcs/reel | RoHS compliant |

## Revision history

| Date       | Revision | Description of changes    |
|------------|----------|---------------------------|
| 1-Mar-2013 | 3.0      | Change Dimensions, Low Vt |

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