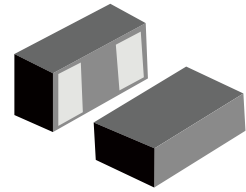


FEATURES

- | 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



0402



Schematic Symbol

APPLICATIONS

- | 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.

APPROVALS

| | |
|-------------|------------------------------------|
| RoHS | Compliance with 2011/65/EU |
| HF | Compliance with IEC61249-2-21:2003 |

ABSOLUTE MAXIMUM RATINGS

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

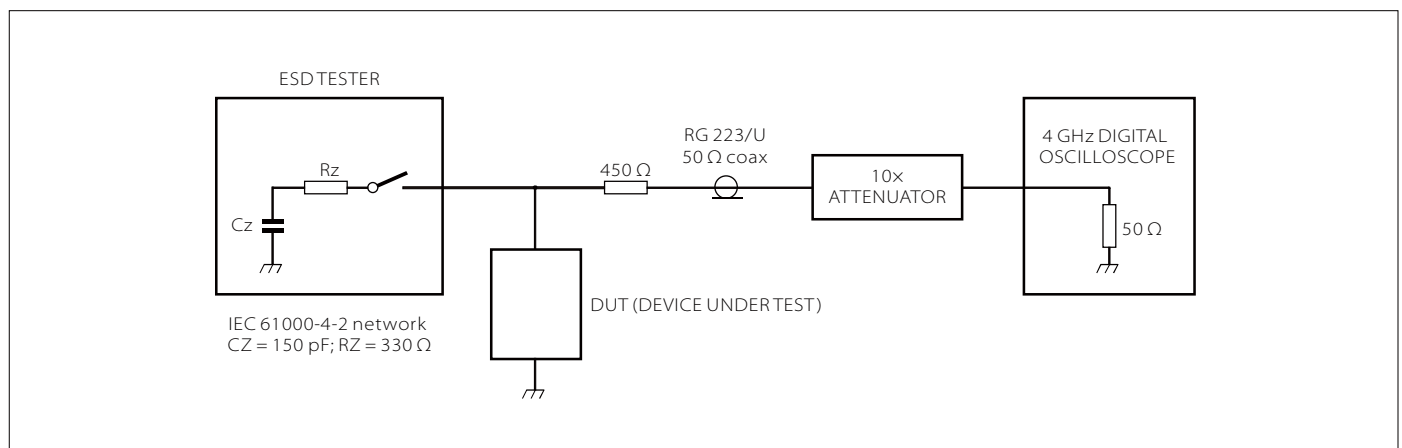
ELECTRICAL CHARACTERISTICS(T_A=25°C)

| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|----------------|------------------|-------------------------------------|------|------|------|------|
| V _R | Rated Voltage | - | - | - | 12 | V |
| V _T | Trigger Voltage | IEC61000-4-2 8KV contact discharge | - | 300 | - | V |
| V _C | Clamping Voltage | IEC61000-4-2 8KV contact discharge | - | 35 | - | V |
| I _L | Leakage Current | DC 5V shall be applied on component | - | 0.01 | 0.10 | μA |
| C _p | Capacitance | V _R = 0V, f = 1MHz | - | 0.05 | - | pF |

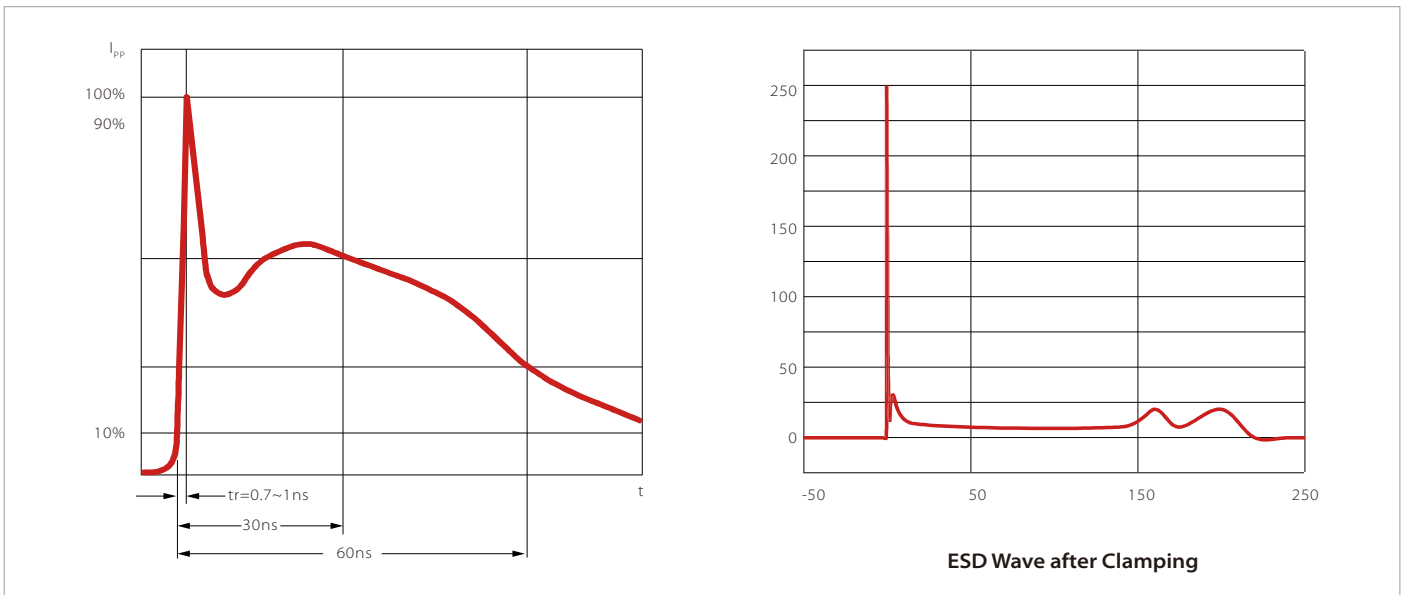
Note:

- 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



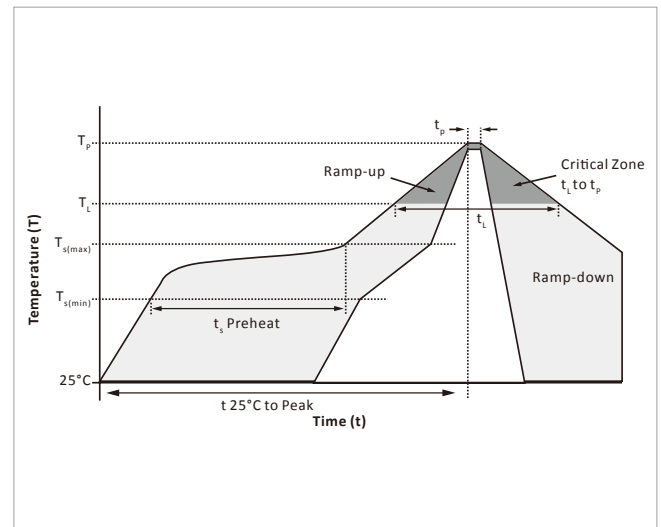
CHARACTERISTIC CURVES



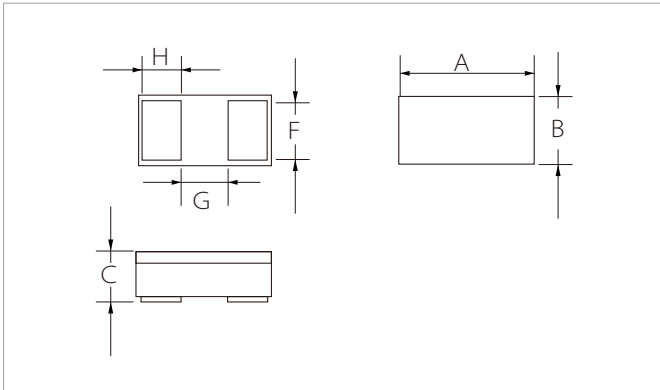
ESD Wave after Clamping

SOLDERING PARAMETERS

| Reflow Condition | | Lead-free assembly |
|--|----------------------------------|--------------------|
| Pre Heat | Temperature Max ($T_{s(min)}$) | 150°C |
| | Temperature Max ($T_{s(max)}$) | 200°C |
| | Time (min to max) (t_s) | 60 – 180 secs |
| Average ramp up rate (Liquidus Temp (T_L) to peak) | | 3°C/second max |
| $T_{s(max)}$ to T_L - Ramp-up Rate | | 3°C/second max |
| Reflow | Temperature (T_L) (Liquidus) | 217°C |
| | Time (min to max) (t_l) | 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 (T_p) | | 8 minutes max. |
| Do not exceed | | 260°C |

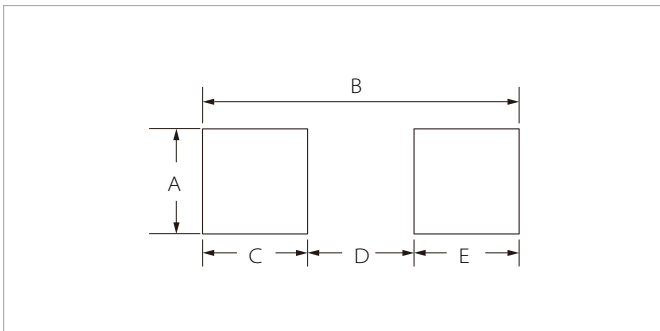


PACKAGE INFORMATION



| Ref. | Dimension | | | Unit |
|------|-----------|------|------|------|
| | Min. | Typ. | Max. | |
| A | 0.95 | 1.0 | 1.05 | mm |
| B | 0.45 | 0.50 | 0.55 | |
| C | 0.32 | 0.36 | 0.40 | |
| H | 0.28 | 0.30 | 0.32 | |
| F | 0.41 | 0.43 | 0.45 | |
| G | 0.32 | 0.34 | 0.36 | |

RECOMMENDED PAD LAYOUT DIMENSIONS



| Ref. | Dimension | Unit |
|------|-----------|------|
| A | 0.55 | mm |
| B | 1.05 | |
| C | 0.40 | |
| D | 0.25 | |
| E | 0.40 | |

ORDERING INFORMATION

| Part Number | Component Package | QTY/Reel | Reel Size |
|--------------|-------------------|----------|-----------|
| SAE0402B12UA | 0402 | 10000PCS | 7" |

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