Elektronische Bauelemente

# SESDE05C-C

**50W, 5V**

**Bi-direction ESD Protection Diode**

RoHS Compliant Product

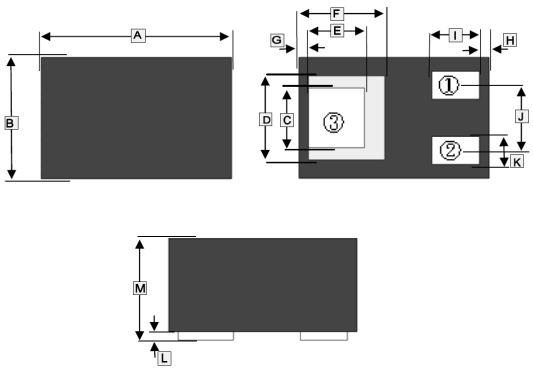
A suffix of “-C” specifies halogen and lead-free

## DESCRIPTION

Designed to protect voltage sensitive electronic components from ESD and other transients. Excellent clamping capability, low leakage, low capacitance, and fast response time provide best in class protection on designs that are exposed to ESD.

The combination of small size, low capacitance, and high level of ESD protection makes them a flexible solution for applications such as HDMI, Display Port TM, and MDDI interfaces. It is designed to replace multiplayer varistors (MLV) in consumer equipments applications such as mobile phone, notebook, PAD, STB, LCD TV etc.

**WBFBP-03E**

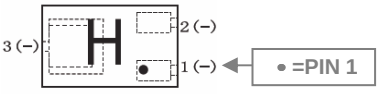



| REF. | Millimeter | | REF. | Millimeter | |
|---|---|---|---|---|---|
| | Min. | Max. | | Min. | Max. |
| A | 0.95 | 1.05 | H | 0.05 REF. | |
| B | 0.55 | 0.65 | I | 0.20 | 0.30 |
| C | 0.27 | 0.37 | J | 0.30 | 0.40 |
| D | 0.45 REF. | | K | 0.10 | 0.20 |
| E | 0.27 | 0.37 | L | 0.01 | 0.10 |
| F | 0.45 REF. | | M | 0.45 | 0.55 |
| G | 0.05 REF. | | | | |

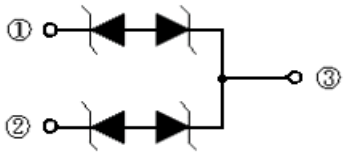
## FEATURES

- Bi-directional ESD Protection of two Lines
- Low Capacitance
- Low Reverse Stand−off Voltage
- Low Reverse Camping Voltage
- Low Leakage Current
- Fast Response Time
- IEC 61000-4-2 Level 4 ESD Protection
- JESD22-A114-B ESD Rating of Class 3B per Human Body Model

## MARKING




Front side




## PACKAGE INFORMATION

| Package | MPQ | Leader Size |
|---|---|---|
| WBFBP-03E | 10K | 7 inch |

## ORDER INFORMATION

| Part Number | Type |
|---|---|
| SESDE05C-C | Lead (Pb)-free and Halogen-free |

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

| Parameter | | Symbol | Limit | Unit |
|---|---|---|---|---|
| IEC 61000-4-2 ESD Voltage [1] | Air Model | $V_{ESD}$ | ±25 | kV |
| | Contact Model | | ±25 | |
| JESD22-A114-B ESD Voltage [1] | Per Human Body Model | | ±16 | |
| ESD Voltage [1] | Machine Model | | ±0.4 | |
| Peak Pulse Power [2] | | $P_{PP}$ | 50 | W |
| Peak Pulse Current [2] | | $I_{PP}$ | 5 | A |
| Maximum Lead Solder Temperature (10Sec. Duration) | | $T_L$ | 260 | ℃ |
| Operating Junction & Storage Temperature Range | | $T_J$ ,$T_{STG}$ | 150, -55~150 | ℃ |

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# SESDE05C-C

**50W, 5V**

**Bi-direction ESD Protection Diode**

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

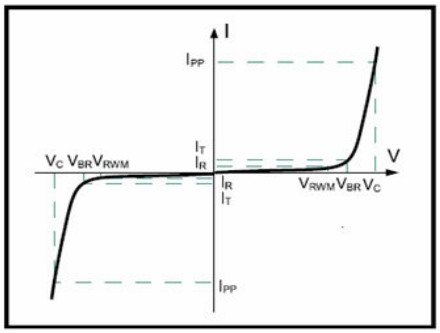
| Parameter | Symbol | Min. | Typ. | Max. | Unit | Test Conditions |
|---|---|---|---|---|---|---|
| Reverse Stand−off Voltage | $V_{RWM}$ | - | - | 5 | V | |
| Breakdown Voltage | $V_{BR}$ | 5.8 | - | 8.3 | V | $I_T$=1mA |
| Reverse Leakage Current | $I_R$ | - | - | 0.1 | μA | $V_{RWM}$=5V |
| Clamping Voltage [2] | $V_C$ | - | - | 10 | V | $I_{PP}$=5A |
| Junction Capacitance | $C_J$ | - | 10 | - | pF | $V_R$=0, f=1MHz |

Notes:

1. Device stressed with ten non-repetitive ESD pulses.
2. Non-repetitive current pulse 8/20μs exponential decay waveform according to IEC61000-4-5.

## ELECTRICAL PARAMETER

| Symbol | Parameter |
|---|---|
| $V_C$ | Clamping Voltage @ $I_{PP}$ |
| $I_{PP}$ | Peak Pulse Current |
| $V_{BR}$ | Breakdown Voltage @ $I_T$ |
| $I_T$ | Test Current |
| $I_R$ | Reverse Leakage Current @ $V_{RWM}$ |
| $V_{RWM}$ | Reverse Standoff Voltage |

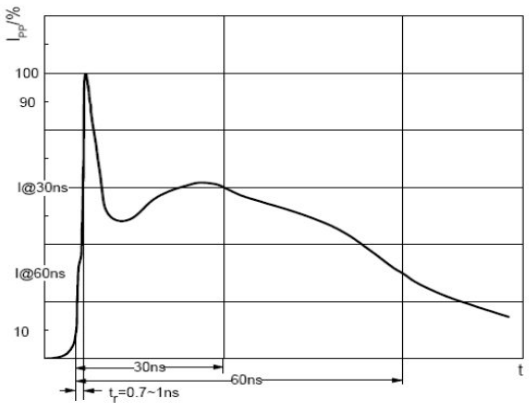



**V-I characteristics for a Bi-directional TVS**

## ESD STANDARDS COMPLIANCE

### IEC61000-4-2 Standard

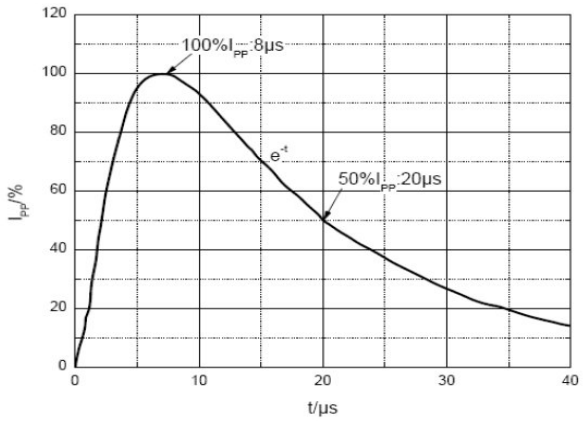
| Contact Discharge | | Air Discharge | |
|---|---|---|---|
| Level | Test Voltage kV | Level | Test Voltage kV |
| 1 | 2 | 1 | 2 |
| 2 | 4 | 2 | 4 |
| 3 | 6 | 3 | 8 |
| 4 | 8 | 4 | 15 |




**ESD pulse waveform according to IEC61000-4-2**

### JESD22-A114-B Standard

| ESD Class | Human Body Discharge V |
|---|---|
| 0 | 0～249 |
| 1A<br>1B<br>1C | 250～499<br>500～999<br>1000～1999 |
| 2 | 2000～3999 |
| 3A<br>3B | 4000～7999<br>8000～15999 |




**8/20μs pulse waveform according to IEC 61000-4-5**

## RATINGS AND CHARACTERISTICS CURVES