

## PJSD05CW SERIES

### Single Line TVS Diode for ESD Protection in Portable Electronics

**VOLTAGE**

**5 to 36 Volt**

**POWER**

**350 Watt**

**SOD-323**

Unit : inch(mm)

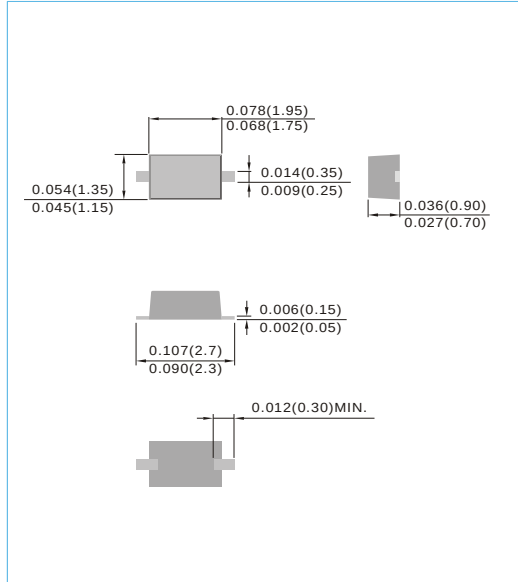
#### FEATURES

- Transient protection for data lines to  
IEC 61000-4-2 (ESD)<sub>L</sub>+ 15kV (air)<sub>L</sub>+ 8kV (contact)  
IEC 61000-4-5 (Lightning) 24A (8/20μs)
- Small package for use in portable electronics
- Suitable replacement for MLV's in ESD protection applications
- Protects one I/O or power line
- Low clamping voltage
- Solid-state silicon avalanche technology
- Lead free in compliance with EU RoHS 2011/65/EU directive
- Green molding compound as per IEC61249 Std. . (Halogen Free)

#### MECHANICAL DATA

- Case : SOD-323, Plastic
- Terminals : Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 0.00014 ounces, 0.0041 grams
- Marking Code :

|              |              |              |
|--------------|--------------|--------------|
| PJSD05CW=EZB | PJSD12CW=EZD | PJSD15CW=EZE |
| PJSD24CW=EZF | PJSD36CW=EZG |              |



#### ABSOLUTE MAXIMUM RATINGS

| PARAMETER                             | SYMBOL    | VALUE        | UNITS |
|---------------------------------------|-----------|--------------|-------|
| Peak Pulse Power ( $t_P=8/20 \mu s$ ) | $P_{PK}$  | 350          | Watts |
| Lead Soldering Temperature            | $T_L$     | 260(10 sec.) | °C    |
| Operating Temperature                 | $T_J$     | -55 to +125  | °C    |
| Storage Temperature                   | $T_{STG}$ | -55 to +150  | °C    |



Fig.130



## PJSD05CW SERIES

### ELECTRICAL CHARACTERISTICS

| PJSD 05CW                 |           |                              |       |         |       |         |
|---------------------------|-----------|------------------------------|-------|---------|-------|---------|
| Parameter                 | Symbol    | Conditions                   | Min.  | Typical | Max.  | Units   |
| Reverse Stand-Off Voltage | $V_{RWM}$ | -                            | -     | -       | 5     | V       |
| Reverse Breakdown Voltage | $V_{BR}$  | $I_C=1mA$                    | 6.37  | -       | 7.04  | V       |
| Reverse Leakage Current   | $I_R$     | $V_{RWM}=5V, T=25^{\circ}C$  | -     | -       | 5     | $\mu A$ |
| Clamping Voltage          | $V_C$     | $I_{PP}=5A, t_p=8/20\mu s$   | -     | -       | 9.8   | V       |
| Clamping Voltage          | $V_C$     | $I_{PP}=24A, t_p=8/20\mu s$  | -     | -       | 14.5  | V       |
| Junction Capacitance      | $C_J$     | $V_R=0V, f=1MHz$             | -     | -       | 200   | pF      |
| PJSD 12CW                 |           |                              |       |         |       |         |
| Parameter                 | Symbol    | Conditions                   | Min.  | Typical | Max.  | Units   |
| Reverse Stand-Off Voltage | $V_{RWM}$ | -                            | -     | -       | 12    | V       |
| Reverse Breakdown Voltage | $V_{BR}$  | $I_C=1mA$                    | 13.3  | -       | 14.7  | V       |
| Reverse Leakage Current   | $I_R$     | $V_{RWM}=12V, T=25^{\circ}C$ | -     | -       | 1     | $\mu A$ |
| Clamping Voltage          | $V_C$     | $I_{PP}=5A, t_p=8/20\mu s$   | -     | -       | 19    | V       |
| Clamping Voltage          | $V_C$     | $I_{PP}=15A, t_p=8/20\mu s$  | -     | -       | 24    | V       |
| Junction Capacitance      | $C_J$     | $V_R=0V, f=1MHz$             | -     | -       | 100   | pF      |
| PJSD 15CW                 |           |                              |       |         |       |         |
| Parameter                 | Symbol    | Conditions                   | Min.  | Typical | Max.  | Units   |
| Reverse Stand-Off Voltage | $V_{RWM}$ | -                            | -     | -       | 15    | V       |
| Reverse Breakdown Voltage | $V_{BR}$  | $I_C=1mA$                    | 16.72 | -       | 18.48 | V       |
| Reverse Leakage Current   | $I_R$     | $V_{RWM}=15V, T=25^{\circ}C$ | -     | -       | 1     | $\mu A$ |
| Clamping Voltage          | $V_C$     | $I_{PP}=5A, t_p=8/20\mu s$   | -     | -       | 24    | V       |
| Clamping Voltage          | $V_C$     | $I_{PP}=10A, t_p=8/20\mu s$  | -     | -       | 29    | V       |
| Junction Capacitance      | $C_J$     | $V_R=0V, f=1MHz$             | -     | -       | 75    | pF      |
| PJSD 24CW                 |           |                              |       |         |       |         |
| Parameter                 | Symbol    | Conditions                   | Min.  | Typical | Max.  | Units   |
| Reverse Stand-Off Voltage | $V_{RWM}$ | -                            | -     | -       | 24    | V       |
| Reverse Breakdown Voltage | $V_{BR}$  | $I_C=1mA$                    | 26.6  | -       | 29.4  | V       |
| Reverse Leakage Current   | $I_R$     | $V_{RWM}=24V, T=25^{\circ}C$ | -     | -       | 1     | $\mu A$ |
| Clamping Voltage          | $V_C$     | $I_{PP}=1A, t_p=8/20\mu s$   | -     | -       | 36    | V       |
| Clamping Voltage          | $V_C$     | $I_{PP}=4A, t_p=8/20\mu s$   | -     | -       | 42    | V       |
| Junction Capacitance      | $C_J$     | $V_R=0V, f=1MHz$             | -     | -       | 50    | pF      |
| PJSD 36CW                 |           |                              |       |         |       |         |
| Parameter                 | Symbol    | Conditions                   | Min.  | Typical | Max.  | Units   |
| Reverse Stand-Off Voltage | $V_{RWM}$ | -                            | -     | -       | 36    | V       |
| Reverse Breakdown Voltage | $V_{BR}$  | $I_C=1mA$                    | 40.57 | -       | 44.84 | V       |
| Reverse Leakage Current   | $I_R$     | $V_{RWM}=36V, T=25^{\circ}C$ | -     | -       | 1     | $\mu A$ |
| Clamping Voltage          | $V_C$     | $I_{PP}=1A, t_p=8/20\mu s$   | -     | -       | 58    | V       |
| Clamping Voltage          | $V_C$     | $I_{PP}=3A, t_p=8/20\mu s$   | -     | -       | 71    | V       |
| Junction Capacitance      | $C_J$     | $V_R=0V, f=1MHz$             | -     | -       | 45    | pF      |

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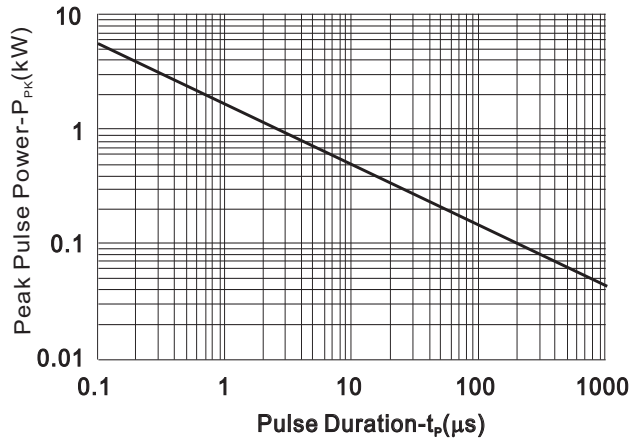


FIG.1 Non-Repetitive Peak Pulse Power vs. Pulse Time

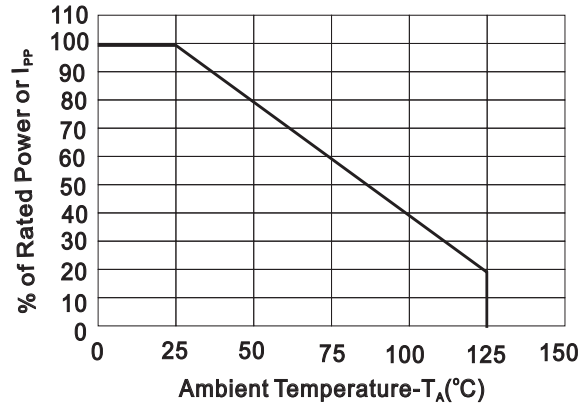


FIG.2 Power Derating Curve

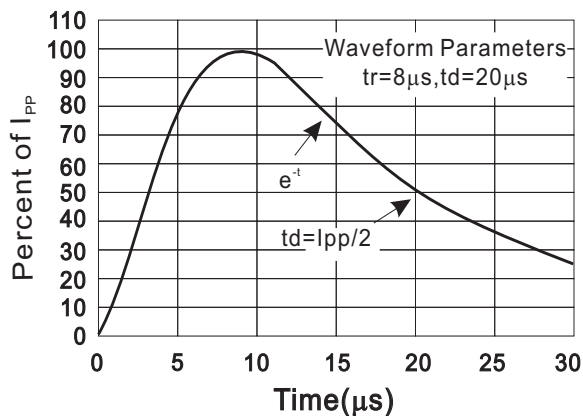


FIG.3 Pulse Waveform

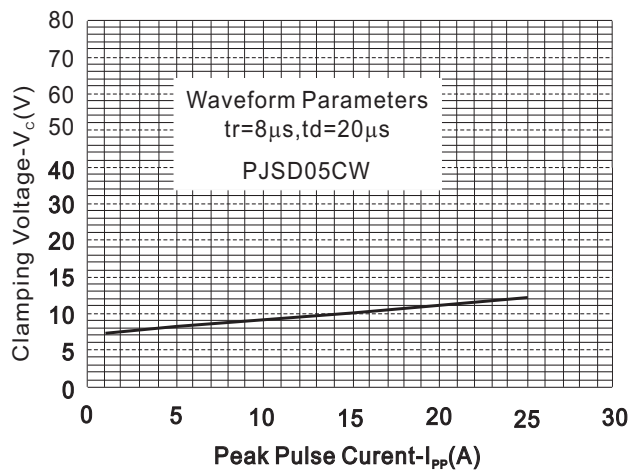


FIG.4 Clamping Voltage vs. Peak Pulse Current

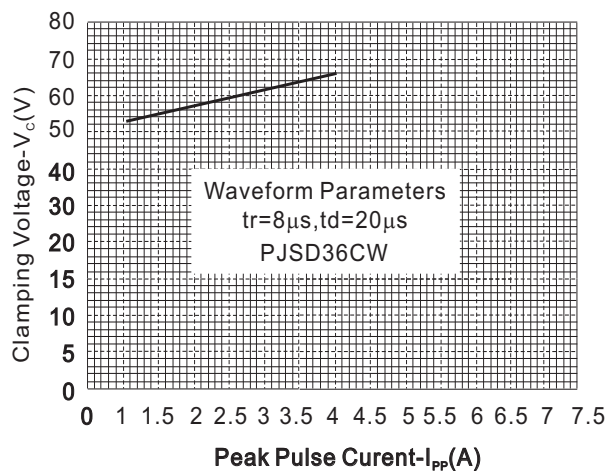
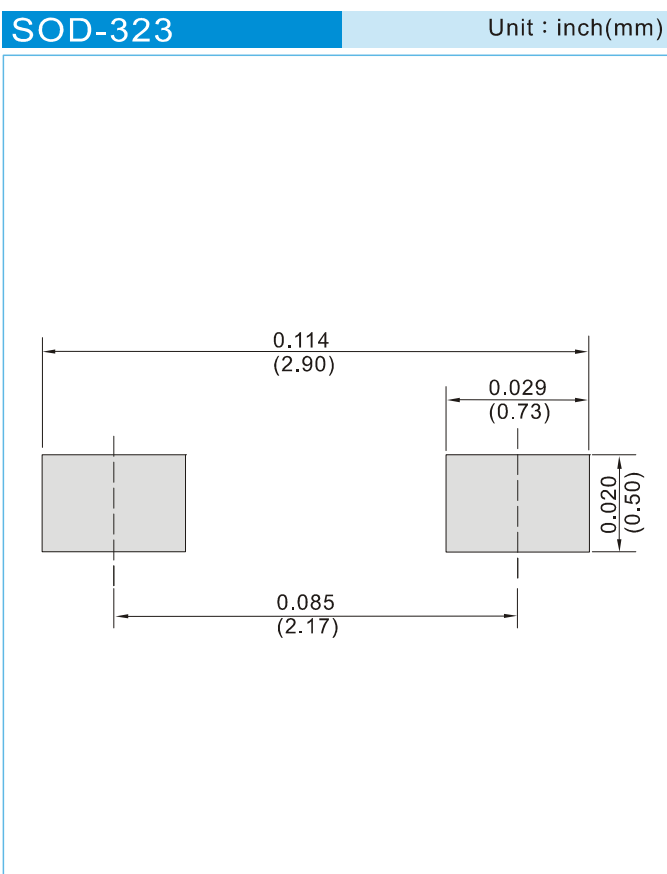


FIG.5 Clamping Voltage vs. Peak Pulse Current

## PJSD05CW SERIES

### MOUNTING PAD LAYOUT



### ORDER INFORMATION

- Packing information
  - T/R - 12K per 13" plastic Reel
  - T/R - 5K per 7" plastic Reel

## PJSD05CW SERIES

### Part No\_packing code\_Version

PJSD05CW\_R1\_00001

PJSD05CW\_R2\_00001

For example :

**RB500V-40\_R2\_00001**



| Packing Code <b>XX</b>               |                      |                                  |                      | Version Code <b>XXXXXX</b> |                      |                                       |
|--------------------------------------|----------------------|----------------------------------|----------------------|----------------------------|----------------------|---------------------------------------|
| Packing type                         | 1 <sup>st</sup> Code | Packing size code                | 2 <sup>nd</sup> Code | HF or RoHS                 | 1 <sup>st</sup> Code | 2 <sup>nd</sup> ~5 <sup>th</sup> Code |
| Tape and Ammunition Box (T/B)        | <b>A</b>             | N/A                              | <b>0</b>             | HF                         | <b>0</b>             | serial number                         |
| Tape and Reel (T/R)                  | <b>R</b>             | 7"                               | <b>1</b>             | RoHS                       | <b>1</b>             | serial number                         |
| Bulk Packing (B/P)                   | <b>B</b>             | 13"                              | <b>2</b>             |                            |                      |                                       |
| Tube Packing (T/P)                   | <b>T</b>             | 26mm                             | <b>X</b>             |                            |                      |                                       |
| Tape and Reel (Right Oriented) (TRR) | <b>S</b>             | 52mm                             | <b>Y</b>             |                            |                      |                                       |
| Tape and Reel (Left Oriented) (TRL)  | <b>L</b>             | PANASERT T/B CATHODE UP (PBCU)   | <b>U</b>             |                            |                      |                                       |
| FORMING                              | <b>F</b>             | PANASERT T/B CATHODE DOWN (PBCD) | <b>D</b>             |                            |                      |                                       |



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