



## PEC3808AS-AU ~ PEC3836AS-AU Series

### ESD Protection

**Voltage**

**8~36 V**

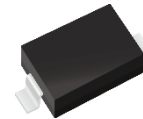
### Features

- ISO10605(C=330pF, R=330Ω) :  
-±30kV Air, ±30kV Contact for 8V ~ 24V  
-±25kV Air, ±20kV Contact for 36V
- HBM  $\geq \pm 8\text{KV}$  & CDM  $\geq \pm 2\text{KV}$
- ISO7637-3(Notes 3) :  
-Pulse 3a : VS = -150V  
-Pulse 3b : VS = +100V
- IEC61000-4-5(Lightning) : 8~1.5A(8/20uS)
- AEC-Q101 qualified
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

### Mechanical Data

- Case : SOD-123 Package
- Terminals : Solderable per MIL-STD-750, Method 2026
- Approx. Weight : 0.0004 ounces, 0.0104 grams

SOD-123



### Maximum Ratings and Thermal Characteristics (T<sub>A</sub> = 25 °C unless otherwise noted)

| PARAMETER                                      | SYMBOL           | LIMIT   | UNITS |
|--|------------------|---------|-------|
| ESD IEC61000-4-2(Air)                          | V <sub>ESD</sub> | ±30     | kV    |
| ESD IEC61000-4-2(Contact)                      |                  | ±30     |       |
| Typical Thermal Resistance <sup>(Note 1)</sup> | R <sub>θJA</sub> | 510     | °C/W  |
| Operating Junction Temperature Range           | T <sub>J</sub>   | -55~150 | °C    |
| Storage Temperature Range                      | T <sub>STG</sub> | -55~150 | °C    |



## PEC3808AS-AU ~ PEC3836AS-AU Series

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

| PEC3808AS-AU                                  |                  |   |      |      |      |       |
|---|------------------|---|------|------|------|-------|
| PARAMETER                                     | SYMBOL           | TEST CONDITION                                  | MIN. | TYP. | MAX. | UNITS |
| Reverse Stand-Off Voltage <sup>(Note 2)</sup> | V <sub>RWM</sub> | -   | -    | -    | 8    | V     |
| Reverse Breakdown Voltage                     | V <sub>BR</sub>  | I <sub>BR</sub> = 1 mA                          | 8.5  | -    | 12.5 | V     |
| Reverse Leakage Current                       | I <sub>R</sub>   | V <sub>R</sub> = 8 V                            | -    | -    | 500  | nA    |
| Clamping Voltage                              | V <sub>CL</sub>  | I <sub>PP</sub> = 1 A, t <sub>P</sub> = 8/20 us | -    | -    | 14   | V     |
|   |                  | I <sub>PP</sub> = 8 A, t <sub>P</sub> = 8/20 us | -    | -    | 18   | V     |
| Off State Junction Capacitance                | C <sub>J</sub>   | 0Vdc Bias f = 1 MHz                             | -    | -    | 70   | pF    |

| PEC3812AS-AU                                  |                  |   |      |      |      |       |
|---|------------------|---|------|------|------|-------|
| PARAMETER                                     | SYMBOL           | TEST CONDITION                                    | MIN. | TYP. | MAX. | UNITS |
| Reverse Stand-Off Voltage <sup>(Note 2)</sup> | V <sub>RWM</sub> | -   | -    | -    | 12   | V     |
| Reverse Breakdown Voltage                     | V <sub>BR</sub>  | I <sub>BR</sub> = 1 mA                            | 13   | -    | 18   | V     |
| Reverse Leakage Current                       | I <sub>R</sub>   | V <sub>R</sub> = 12 V                             | -    | -    | 500  | nA    |
| Clamping Voltage                              | V <sub>CL</sub>  | I <sub>PP</sub> = 1 A, t <sub>P</sub> = 8/20 us   | -    | -    | 19   | V     |
|   |                  | I <sub>PP</sub> = 4.5 A, t <sub>P</sub> = 8/20 us | -    | -    | 27   | V     |
| Off State Junction Capacitance                | C <sub>J</sub>   | 0Vdc Bias f = 1 MHz                               | -    | -    | 45   | pF    |

| PEC3815AS-AU                                  |                  |   |      |      |      |       |
|---|------------------|---|------|------|------|-------|
| PARAMETER                                     | SYMBOL           | TEST CONDITION                                    | MIN. | TYP. | MAX. | UNITS |
| Reverse Stand-Off Voltage <sup>(Note 2)</sup> | V <sub>RWM</sub> | -   | -    | -    | 15   | V     |
| Reverse Breakdown Voltage                     | V <sub>BR</sub>  | I <sub>BR</sub> = 1 mA                            | 16   | -    | 22.5 | V     |
| Reverse Leakage Current                       | I <sub>R</sub>   | V <sub>R</sub> = 15 V                             | -    | -    | 500  | nA    |
| Clamping Voltage                              | V <sub>CL</sub>  | I <sub>PP</sub> = 1 A, t <sub>P</sub> = 8/20 us   | -    | -    | 24   | V     |
|   |                  | I <sub>PP</sub> = 3.5 A, t <sub>P</sub> = 8/20 us | -    | -    | 33   | V     |
| Off State Junction Capacitance                | C <sub>J</sub>   | 0Vdc Bias f = 1 MHz                               | -    | -    | 40   | pF    |



## PEC3808AS-AU ~ PEC3836AS-AU Series

### PEC3824AS-AU

| PARAMETER                                     | SYMBOL    | TEST CONDITION                                | MIN. | TYP. | MAX. | UNITS |
|---|-----------|---|------|------|------|-------|
| Reverse Stand-Off Voltage <sup>(Note 2)</sup> | $V_{RWM}$ | -   | -    | -    | 24   | V     |
| Reverse Breakdown Voltage                     | $V_{BR}$  | $I_{BR} = 1 \text{ mA}$                       | 25.5 | -    | 35.5 | V     |
| Reverse Leakage Current                       | $I_R$     | $V_R = 24 \text{ V}$                          | -    | -    | 50   | nA    |
| Clamping Voltage                              | $V_{CL}$  | $I_{PP} = 1 \text{ A}, t_P = 8/20 \text{ us}$ | -    | -    | 40   | V     |
|   |           | $I_{PP} = 3 \text{ A}, t_P = 8/20 \text{ us}$ | -    | -    | 45   | V     |
| Off State Junction Capacitance                | $C_J$     | 0Vdc Bias $f = 1 \text{ MHz}$                 | -    | -    | 20   | pF    |

### PEC3836AS-AU

| PARAMETER                                     | SYMBOL    | TEST CONDITION                                  | MIN. | TYP. | MAX. | UNITS |
|---|-----------|---|------|------|------|-------|
| Reverse Stand-Off Voltage <sup>(Note 2)</sup> | $V_{RWM}$ | -   | -    | -    | 36   | V     |
| Reverse Breakdown Voltage                     | $V_{BR}$  | $I_{BR} = 1 \text{ mA}$                         | 37.5 | -    | 52.5 | V     |
| Reverse Leakage Current                       | $I_R$     | $V_R = 36 \text{ V}$                            | -    | -    | 50   | nA    |
| Clamping Voltage                              | $V_{CL}$  | $I_{PP} = 1 \text{ A}, t_P = 8/20 \text{ us}$   | -    | -    | 61   | V     |
|   |           | $I_{PP} = 1.5 \text{ A}, t_P = 8/20 \text{ us}$ | -    | -    | 70   | V     |
| Off State Junction Capacitance                | $C_J$     | 0Vdc Bias $f = 1 \text{ MHz}$                   | -    | -    | 15   | pF    |

**NOTES :**

1. Mounted on a FR4 PCB, single-sided copper, standard footprint.
2. A transient suppressor is selected according to the working peak reverse voltage( $V_{RWM}$ ), which should be equal to or greater than the DC or continuous peak operation voltage level.
3. Not applicable to parts with  $V_{RWM}$  lower than battery voltage.



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## TYPICAL CHARACTERISTIC CURVES

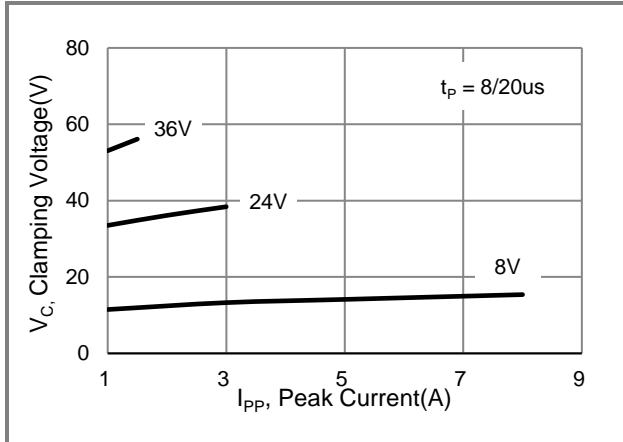


Fig.1 Typical Peak Clamping Voltage

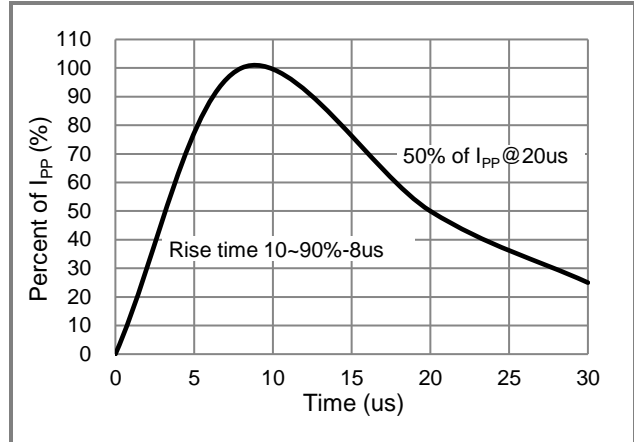


Fig.2 Pulse Waveform

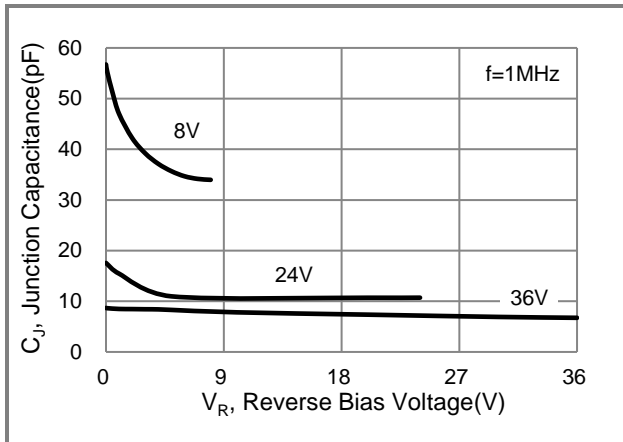


Fig.3 Typical Junction Capacitance

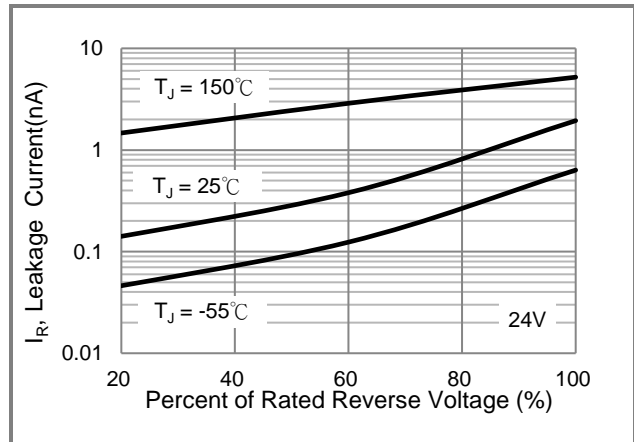


Fig.4 Typical Reverse Characteristics



## PEC3808AS-AU ~ PEC3836AS-AU Series

### Part No. Packing Code Version

| Part No. Packing Code | Package Type | Packing Type     | Marking | Version                        |
|-----------------------|--------------|------------------|---------|--------------------------------|
| PEC3808AS-AU_R1_000A1 | SOD-123      | 3K pcs / 7" reel | 5AS     | Halogen free<br>RoHS compliant |
| PEC3812AS-AU_R1_000A1 | SOD-123      | 3K pcs / 7" reel | 6AS     | Halogen free<br>RoHS compliant |
| PEC3815AS-AU_R1_000A1 | SOD-123      | 3K pcs / 7" reel | 7AS     | Halogen free<br>RoHS compliant |
| PEC3824AS-AU_R1_000A1 | SOD-123      | 3K pcs / 7" reel | 8AS     | Halogen free<br>RoHS compliant |
| PEC3836AS-AU_R1_000A1 | SOD-123      | 3K pcs / 7" reel | 9AS     | Halogen free<br>RoHS compliant |

### Packaging Information & Mounting Pad Layout

