

/ Descriptions

50V~600V                      3A                      SMAF

Surface Mount Superfast Recovery Rectifier, Reverse Voltage: 50 to 600V, Forward Current: 3A, SMAF thin package.

/ Features

RoHS                      2011/65/EU

Glass Passivated Chip Junction, Superfast reverse recovery time, Lead free in comply with EU R0HS 2011/65/EU directives, For surface mounted applications,HF Product.

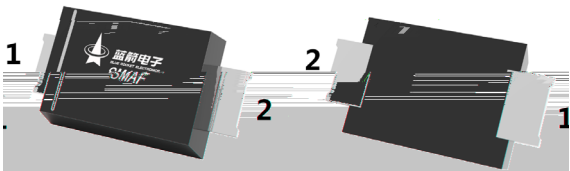
/ Applications

General purpose.

/ Equivalent Circuit

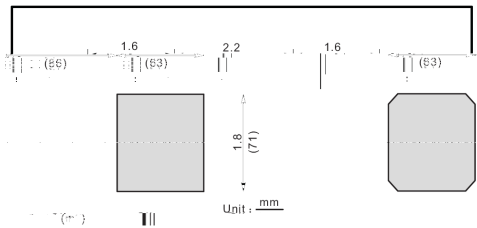


/ Pinning



| PIN | DESCRIPTION |
|-----|-------------|
| 1   | Cathode     |
| 2   | Anode       |

The recommended mounting pad size



/ Marking

See Marking Instructions.

## / Absolute Maximum Ratings(Ta=25 )

| Parameter                                                                                         | Symbol                            | Rating   |       |       |       |       |       |       | Unit             |
|---------------------------------------------------------------------------------------------------|-----------------------------------|----------|-------|-------|-------|-------|-------|-------|------------------|
|                                                                                                   |                                   | ES3AF    | ES3BF | ES3CF | ES3DF | ES3EF | ES3GF | ES3JF |                  |
| Maximum Repetitive Peak Reverse Voltage                                                           | V <sub>RRM</sub>                  | 50       | 100   | 150   | 200   | 300   | 400   | 600   | V                |
| Maximum RMS voltage                                                                               | V <sub>RMS</sub>                  | 35       | 70    | 105   | 140   | 210   | 280   | 420   | V                |
| Maximum DC Blocking Voltage                                                                       | V <sub>DC</sub>                   | 50       | 100   | 150   | 200   | 300   | 400   | 600   | V                |
| Maximum Average Forward Rectified Current @ Fig.1                                                 | I <sub>F(AV)</sub>                | 3        |       |       |       |       |       |       | A                |
| Peak Forward Surge Current 8.3 ms Single Half Sine-Wave Superimposed on Rated Load (JEDEC Method) | I <sub>FSM</sub>                  | 80       |       |       |       |       |       |       | A                |
| Peak Forward Surge Current,1.0ms Single Half Sine-wave Superimposed on Rated Load (JEDEC method)  | I <sub>FSM</sub>                  | 160      |       |       |       |       |       |       | A                |
| I <sup>2</sup> t Rating for fusing (3ms≤t≤8.3ms)                                                  | I <sup>2</sup> t                  | 26.5     |       |       |       |       |       |       | A <sup>2</sup> S |
| Typical Junction Capacitance <sup>(1)</sup>                                                       | C <sub>j</sub>                    | 89       |       |       |       | 52    |       | 41    | pF               |
| Typical Thermal Resistance <sup>(2)</sup>                                                         | R <sub>θJA</sub>                  | 100      |       |       |       |       |       |       | °C/W             |
|                                                                                                   | R <sub>θJC</sub>                  | 20       |       |       |       |       |       |       | °C/W             |
|                                                                                                   | R <sub>θJL</sub>                  | 30       |       |       |       |       |       |       | °C/W             |
| Operating and Storage Temperature Range                                                           | T <sub>j</sub> , T <sub>stg</sub> | -55~+150 |       |       |       |       |       |       | °C               |

Note:

- 1) Measured at 1 MHz and applied reverse voltage of 4 V D.C
- 2) P.C.B. mounted with 0.2" X 0.2" (5 X 5 mm) copper pad areas.

## / Electrical Characteristics(Ta=25 )

| Parameter                                               | Symbol          | Test Conditions                                                        | 数值<br>Rating |       |       |       |       |       |       | Unit |
|---------------------------------------------------------|-----------------|------------------------------------------------------------------------|--------------|-------|-------|-------|-------|-------|-------|------|
|                                                         |                 |                                                                        | ES3AF        | ES3BF | ES3CF | ES3DF | ES3EF | ES3GF | ES3JF |      |
| Maximum Forward Voltage                                 | V <sub>F</sub>  | I <sub>F</sub> =3A                                                     | 1            |       |       |       | 1.25  |       | 1.68  | V    |
| Maximum DC Reverse Current at Rated DC Blocking Voltage | I <sub>R</sub>  | T <sub>a</sub> =25℃                                                    | 5            |       |       |       |       |       |       | μA   |
|                                                         |                 | T <sub>a</sub> =125℃                                                   | 100          |       |       |       |       |       |       | μA   |
| Maximum Reverse Recovery Time                           | t <sub>rr</sub> | I <sub>F</sub> =0.5A<br>I <sub>R</sub> =1.0A<br>I <sub>rr</sub> =0.25A | 35           |       |       |       |       |       |       | ns   |

## / Electrical Characteristic Curve

Fig.1 Reverse Recovery Time Characteristic And Test Circuit Diagram

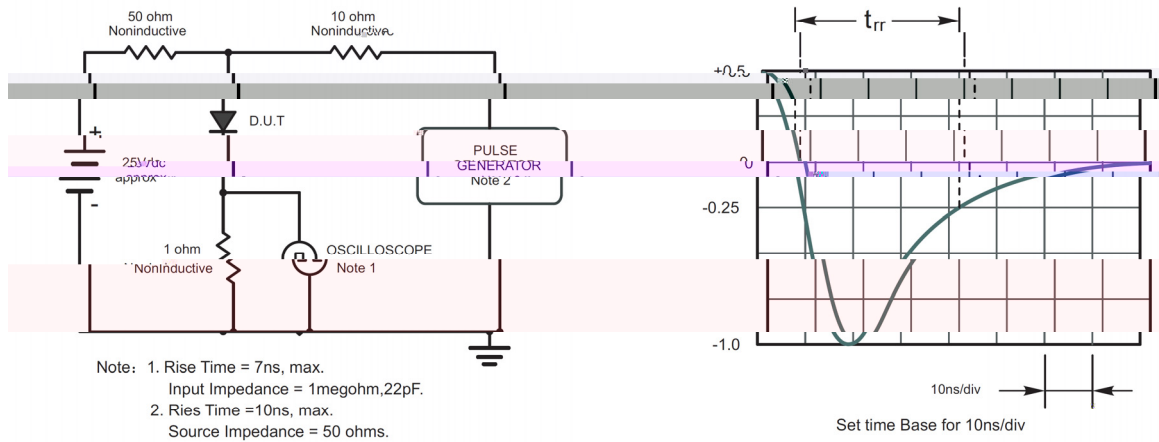


Fig.1 Forward Current Derating Curve

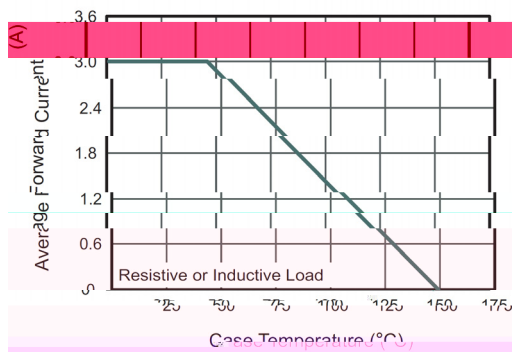


Fig.2 Typical Reverse Characteristics

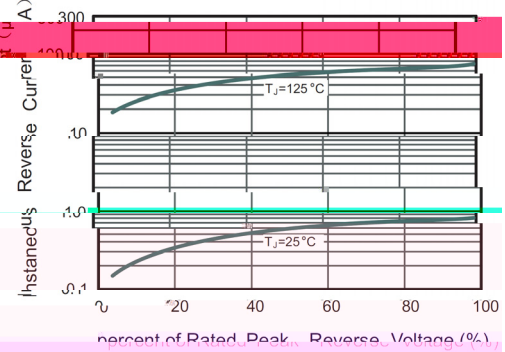


Fig.3 Typical Forward Characteristics

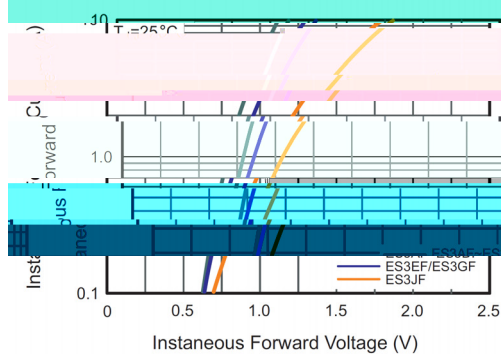


Fig.4 Typical Junction Capacitance

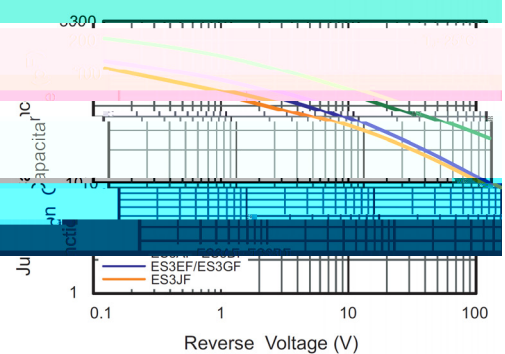
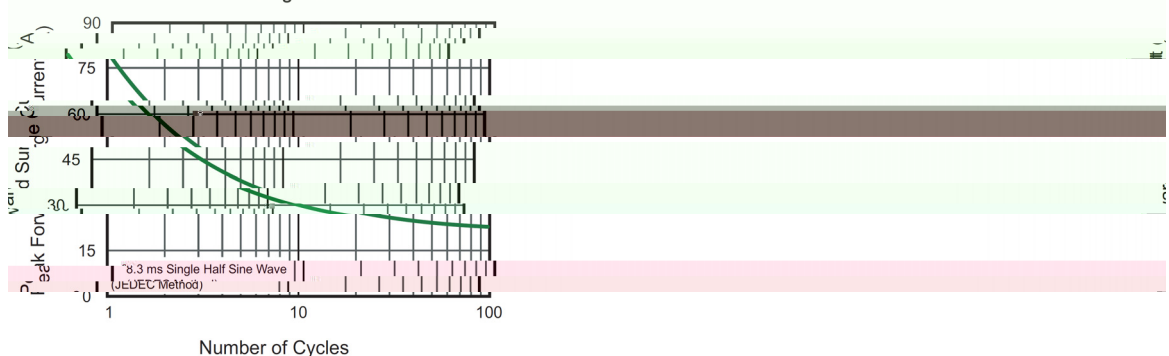
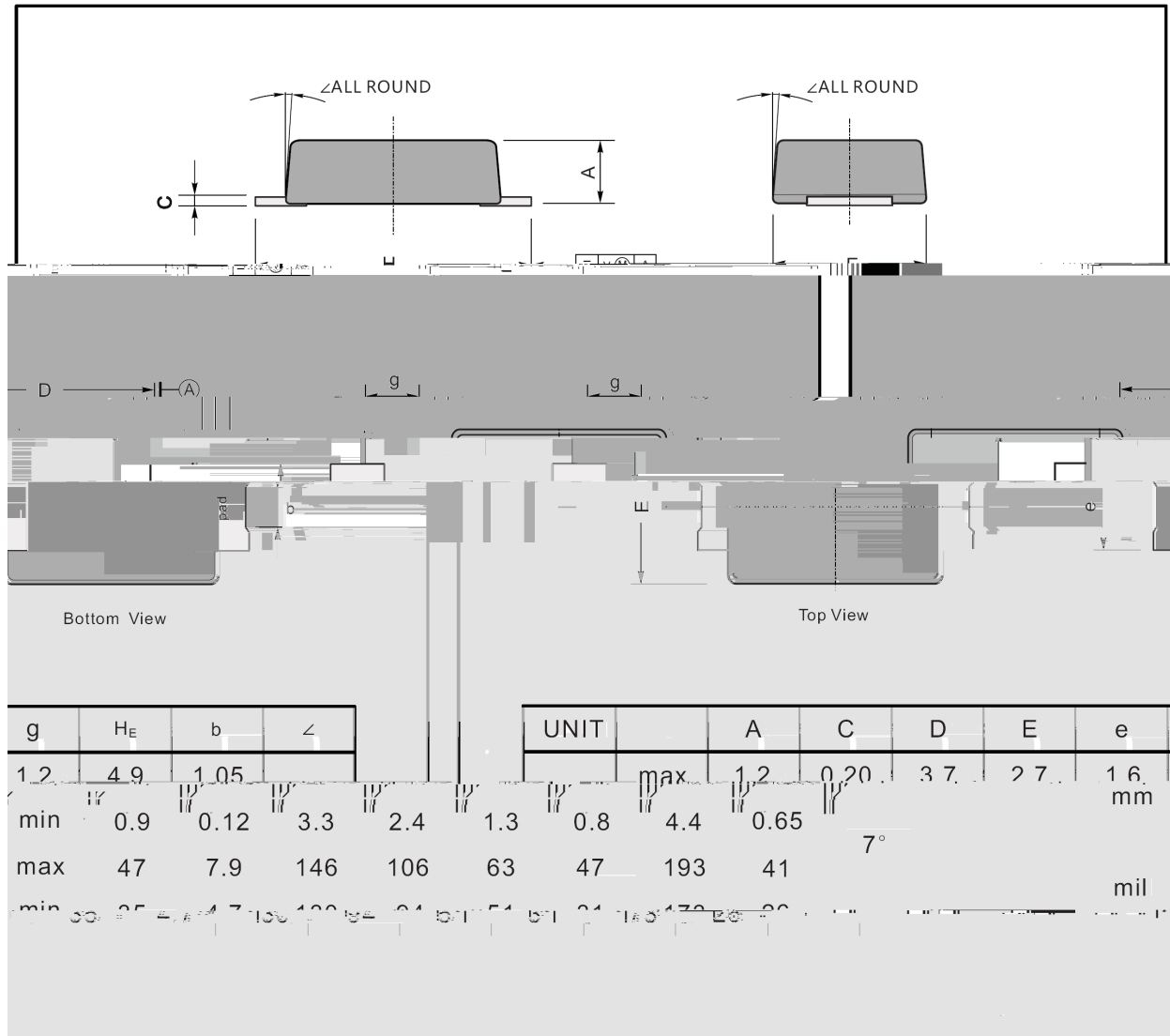


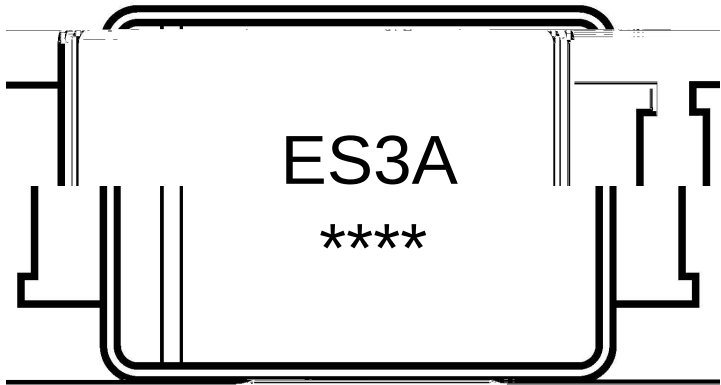
Fig.5 Maximum Non-Repetitive Peak Forward Surge Current



/ Package Dimensions



/ Marking Instructions



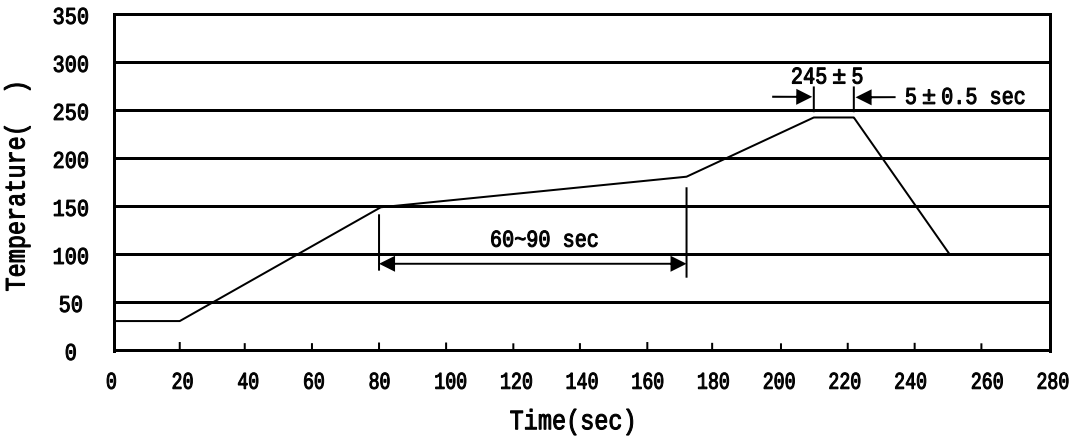
ES3A  
\*\*\*\*

Note:  
ES3A      Product Type Code  
\*\*\*\*      Lot No. Code, code change with Lot No

Marking

| Type number | Marking code |
|-------------|--------------|
| ES3AF       | ES3A         |
| ES3BF       | ES3B         |
| ES3CF       | ES3C         |
| ES3DF       | ES3D         |
| ES3EF       | ES3E         |
| ES3GF       | ES3G         |
| ES3JF       | ES3J         |

( ) /



Note:

- 1

150 180

60 90sec;

1.Preheating:150~180 , Time:60~90sec.
- 2

245±5

5±0.5sec;

2.Peak Temp.:245±5 , Duration:5±0.5sec.
- 3

2 10 /sec.

3. Cooling Speed: 2~10 /sec.

/ Resistance to Soldering Heat Test Conditions

260±5                      10±1 sec.                      Temp.:260±5                      Time:10±1 sec

/ Packaging SPEC.

/ REEL

| Package Type | Units |   |        |   |        | Dimension (unit mm <sup>3</sup> ) |             |             |
|--------------|-------|---|--------|---|--------|-----------------------------------|-------------|-------------|
|              |       |   |        |   |        |                                   |             |             |
| SMAF         | 3,000 | 5 | 15,000 | 6 | 90,000 | 7" ×12                            | 185×180×105 | 390×385×205 |

/ Notices