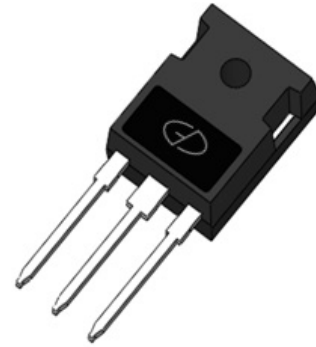


## 60A,600V Ultrafast Recovery Rectifier

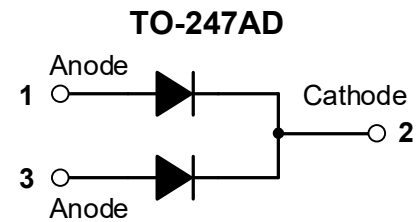
### Features

- FRED Wafer Construction
- Low forward drop voltage, low power loss
- High Surge Current Capability
- Plastic package has underwriters Laboratory Flammability Classification 94V-0
- Halogen-free according to IEC 61249-2-21



### Applications

- SMPS
- Inverter
- UPS



### Mechanical Data

- Case: Epoxy, Molded
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead Temperature for Soldering Purposes: 260°C Max. for 10 sec
- Shipped 30 units per plastic tube

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

| Parameter  | Symbol             | SMUR6060PT  | Unit |
|--|--------------------|-------------|------|
| Maximum repetitive peak reverse voltage  | V <sub>RRM</sub>   | 600         | V    |
| Working peak reverse voltage   | V <sub>RWM</sub>   | 600         | V    |
| Maximum average forward rectified current  | V <sub>DC</sub>    | 600         | V    |
| Maximum average forward rectified current  | I <sub>F(AV)</sub> | 60          | A    |
| Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load per diode | I <sub>FSM</sub>   | 300         | A    |
| Voltage rate of change (rated V <sub>R</sub> )   | dv/dt              | 10000       | V/uS |
| Operating junction temperature range   | T <sub>J</sub>     | -55 to +175 | °C   |
| Storage temperature range  | T <sub>STG</sub>   | -55 to +175 | °C   |

| Electrical Specifications (T <sub>A</sub> =25°C unless otherwise noted) |                 |   |      |      |      |
|---|-----------------|---|------|------|------|
| Parameter   | Symbol          | Test Conditions   | Typ  | Max  | Unit |
| Forward drop voltage <sup>(Note1)</sup>                                 | V <sub>F</sub>  | I <sub>F</sub> =30A, T <sub>J</sub> =25°C                             | 2.00 | 2.40 | V    |
|   |                 | I <sub>F</sub> =30A, T <sub>J</sub> =125°C                            | -    | 2.10 |      |
|   |                 | I <sub>F</sub> =60A, T <sub>J</sub> =25°C                             | -    | -    |      |
|   |                 | I <sub>F</sub> =60A, T <sub>J</sub> =125°C                            | -    | -    |      |
| Reverse leakage current @rated V <sub>R</sub> <sup>Note2</sup>          | I <sub>R</sub>  | T <sub>J</sub> =25°C  | -    | 10   | uA   |
|   |                 | T <sub>J</sub> =125°C   | -    | 500  |      |
| Reverse recovery time   | t <sub>rr</sub> | I <sub>F</sub> =0.5A,<br>I <sub>R</sub> =1.0A, I <sub>RR</sub> =0.25A | -    | 50   | ns   |

| Thermal-Mechanical Specifications (T <sub>A</sub> =25°C unless otherwise noted) |                  |      |       |
|---|------------------|------|-------|
| Parameter   | Symbol           | Typ  | Unit  |
| Thermal Resistance, Junction to Case  | R <sub>θJC</sub> | 0.8  | °C /W |
| Thermal Resistance, Junction to Ambient   | R <sub>θJA</sub> | 62.5 | °C /W |

Note:

1. Pulse test with PW=0.3ms, duty cycle=2%
2. Pulse test with PW=30ms

## Ratings and Characteristics Curves

( $T_A = 25^\circ\text{C}$  unless otherwise noted)

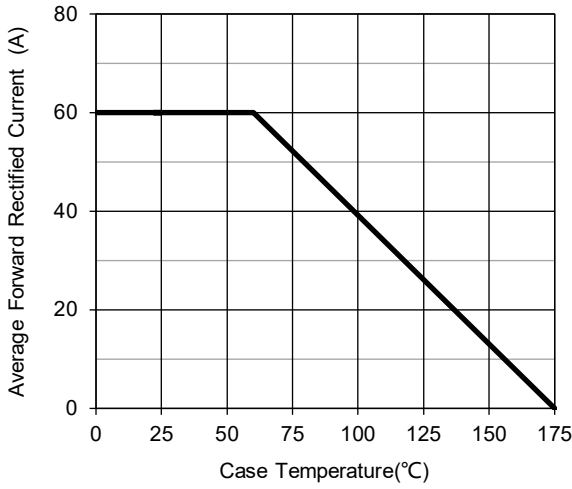


Fig.1 – Forward Current Derating Curve

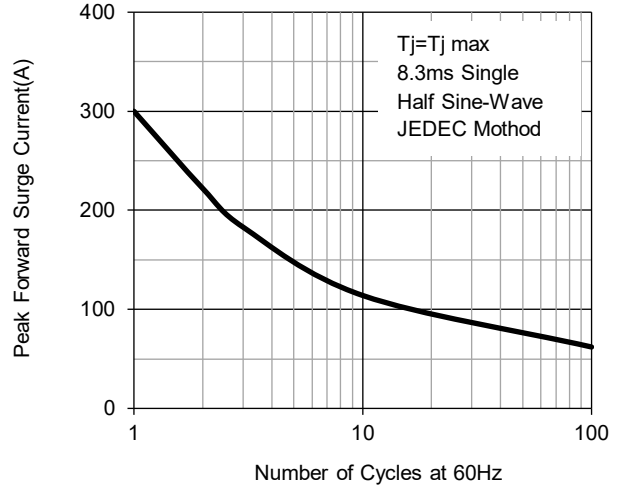


Fig.2 – Maximum Non-Repetitive Surge Current

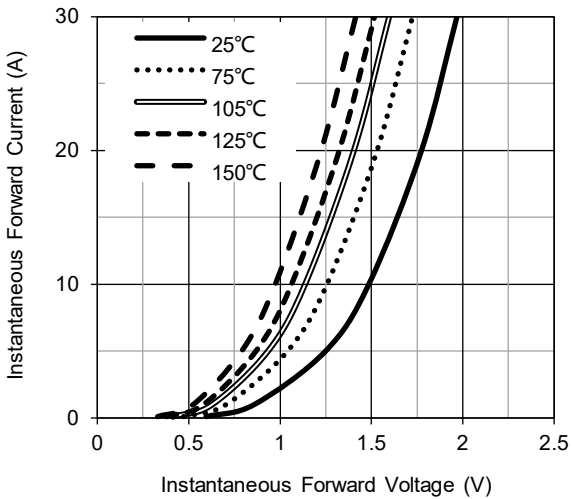


Fig.3 – Typical Forward Voltage Characteristics

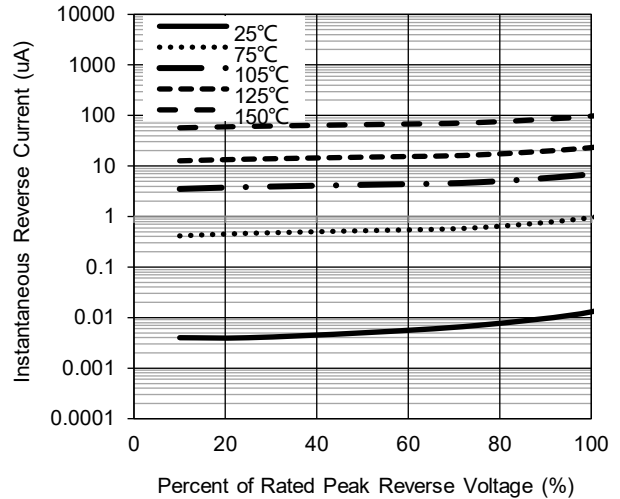


Fig.4 – Typical Reverse Current Characteristics

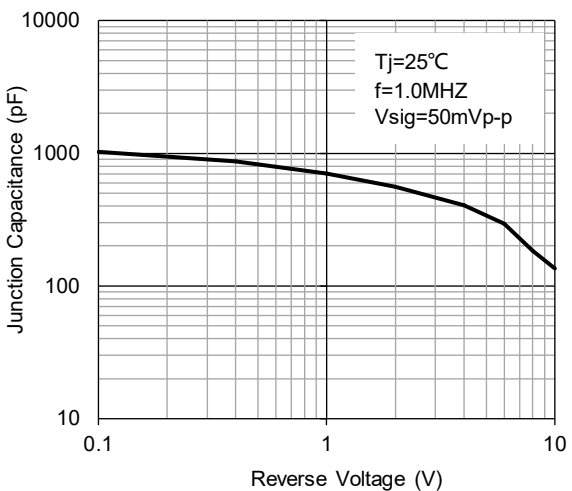
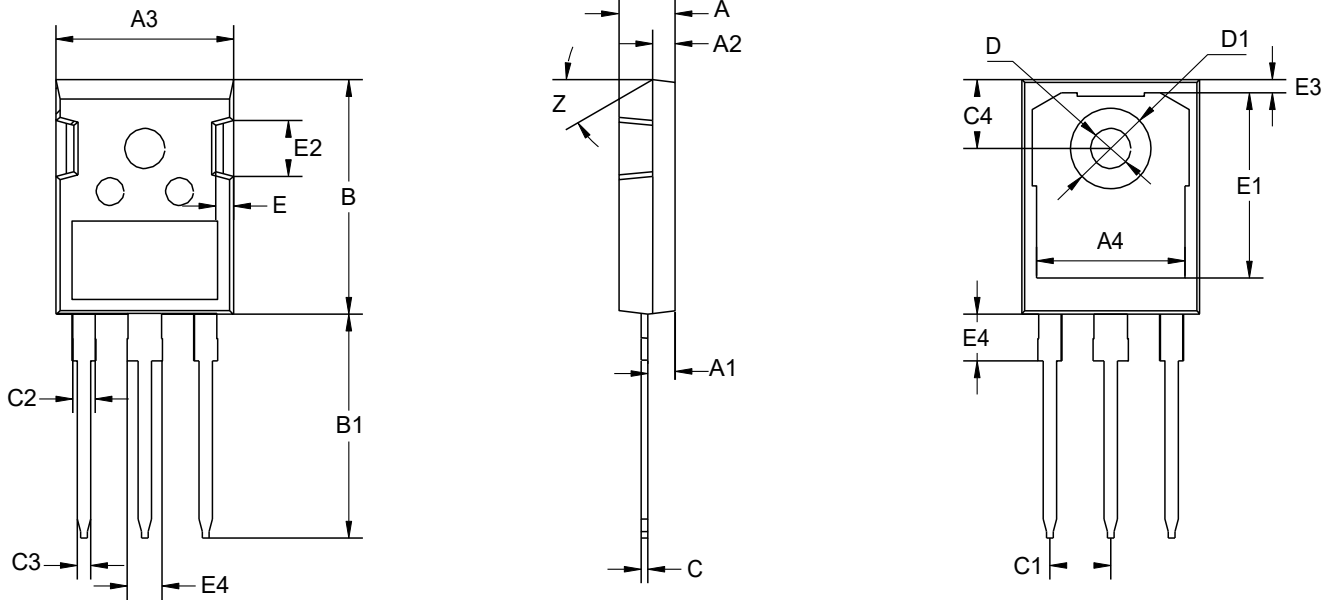


Fig.5 – Typical Junction Capacitance

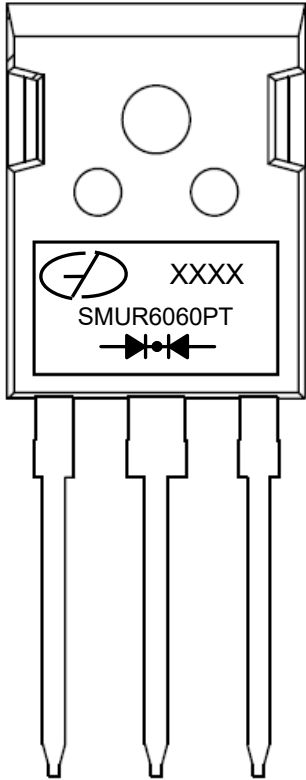
**Package Outline Dimensions** (Unit: millimeters)



**TO-247AD**



| TO-247AD |       |       |       |    |      |       |      |
|----------|-------|-------|-------|----|------|-------|------|
|          | Min.  | Nom.  | Max.  |    | Min. | Nom.  | Max. |
| A        | 4.7   | 5     | 5.2   | C3 | 1.1  | 1.2   | 1.3  |
| A1       | 2.3   |       | 2.5   | C4 | 6.04 | 6.15  | 6.30 |
| A2       | 1.9   | 2     | 2.1   | D  | 3.5  | 3.6   | 3.7  |
| A3       | 15.48 | 15.88 | 16.28 | D1 | 7    | 7.19  | 7.4  |
| A4       | 13.06 | 13.26 | 13.56 | E  | 1.5  | 1.6   | 1.7  |
| B        | 20.8  | 20.95 | 21.1  | E1 |      | 16.55 |      |
| B1       | 19.8  | 20    | 20.32 | E2 | 4.9  | 5.0   | 5.1  |
| C        | 0.5   | 0.6   | 0.7   | E3 | 0.95 | 1.17  | 1.35 |
| C1       | 5.34  | 5.44  | 5.54  | E4 |      | 4.17  | 4.5  |
| C2       |       | 2     |       | Z  |      | 30°   |      |

## Marking Outline



1. Logo Mark: 
2. Part Name: SMUR6060PT
3. Date Code: XXXX
4. Polarity : 

## Revision History

| Document Version | Date of release | Description of changes |
|------------------|-----------------|------------------------|
| Rev.A            | 2021.12.06      | Released Datasheet     |
|                  |                 |                        |
|                  |                 |                        |

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