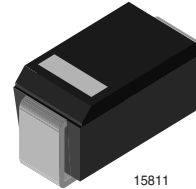


## Fast Avalanche SMD Rectifier

### Features

- Glass passivated junction
- Low reverse current
- Soft recovery characteristics
- Fast reverse recovery time
- Good switching characteristics
- Wave and reflow solderable



15811

### Applications

Surface mounting  
 Fast rectifier  
 Freewheeling diodes in SMPS and converters  
 Snubber diodes

### Parts Table

| Part   | Type differentiation                              | Package  |
|--------|---|----------|
| BYG21K | $V_R = 800 \text{ V @ } I_{FAV} = 1.5 \text{ A}$  | DO-214AC |
| BYG21M | $V_R = 1000 \text{ V @ } I_{FAV} = 1.5 \text{ A}$ | DO-214AC |

### Absolute Maximum Ratings

$T_{amb} = 25 \text{ }^\circ\text{C}$ , unless otherwise specified

| Parameter  | Test condition  | Part   | Symbol          | Value         | Unit             |
|--|---|--------|-----------------|---------------|------------------|
| Reverse voltage = Repetitive peak reverse voltage                          |   | BYG21K | $V_R = V_{RRM}$ | 800           | V                |
|  |   | BYG21M | $V_R = V_{RRM}$ | 1000          | V                |
| Peak forward surge current   | $t_p = 10 \text{ ms}$ , half sinewave                         |        | $I_{FSM}$       | 30            | A                |
| Average forward current  |   |        | $I_{FAV}$       | 1.5           | A                |
| Junction and storage temperature range                                     |   |        | $T_j = T_{stg}$ | - 55 to + 150 | $^\circ\text{C}$ |
| Pulse energy in avalanche mode, non repetitive (inductive load switch off) | $I_{(BR)R} = 1 \text{ A}$ , $T_j = 25 \text{ }^\circ\text{C}$ |        | $E_R$           | 20            | mJ               |

### Maximum Thermal Resistance

$T_{amb} = 25 \text{ }^\circ\text{C}$ , unless otherwise specified

| Parameter        | Test condition  | Part | Symbol     | Value | Unit |
|------------------|---|------|------------|-------|------|
| Junction lead    | $T_L = \text{const.}$   |      | $R_{thJL}$ | 25    | K/W  |
| Junction ambient | mounted on epoxy-glass hard tissue  |      | $R_{thJA}$ | 150   | K/W  |
|                  | mounted on epoxy-glass hard tissue, 50 mm <sup>2</sup> 35 μm Cu                           |      | $R_{thJA}$ | 125   | K/W  |
|                  | mounted on Al-oxid-ceramic (Al <sub>2</sub> O <sub>3</sub> ), 50 mm <sup>2</sup> 35 μm Cu |      | $R_{thJA}$ | 100   | K/W  |

### Electrical Characteristics

$T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified

| Parameter             | Test condition  | Part | Symbol   | Min | Typ. | Max | Unit          |
|-----------------------|---|------|----------|-----|------|-----|---------------|
| Forward voltage       | $I_F = 1\text{ A}$  |      | $V_F$    |     |      | 1.5 | V             |
|                       | $I_F = 1.5\text{ A}$  |      | $V_F$    |     |      | 1.6 | V             |
| Reverse current       | $V_R = V_{RRM}$   |      | $I_R$    |     |      | 1   | $\mu\text{A}$ |
|                       | $V_R = V_{RRM}, T_j = 100\text{ }^{\circ}\text{C}$          |      | $I_R$    |     |      | 10  | $\mu\text{A}$ |
| Reverse recovery time | $I_F = 0.5\text{ A}, I_R = 1\text{ A}, i_R = 0.25\text{ A}$ |      | $t_{rr}$ |     |      | 120 | ns            |

### Typical Characteristics ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ unless otherwise specified)

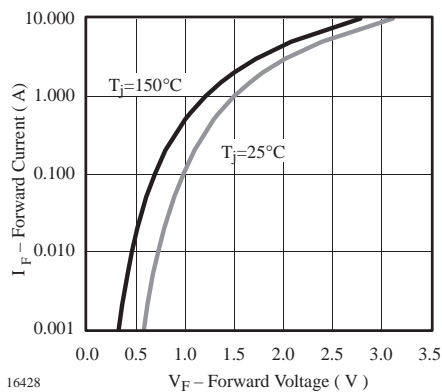


Figure 1. Forward Current vs. Forward Voltage

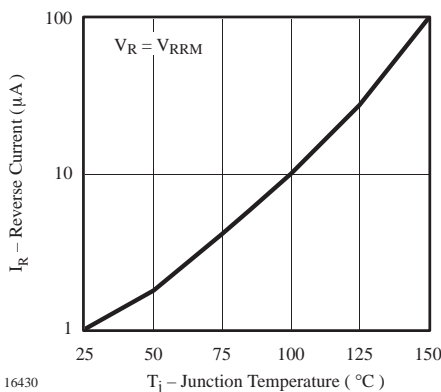


Figure 3. Reverse Current vs. Junction Temperature

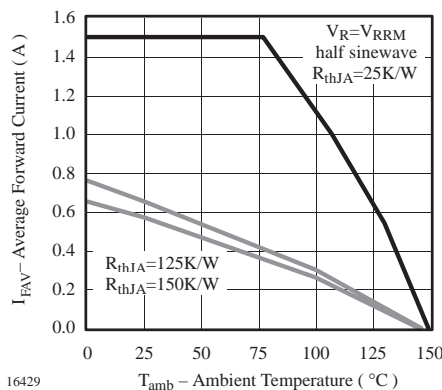


Figure 2. Max. Average Forward Current vs. Ambient Temperature

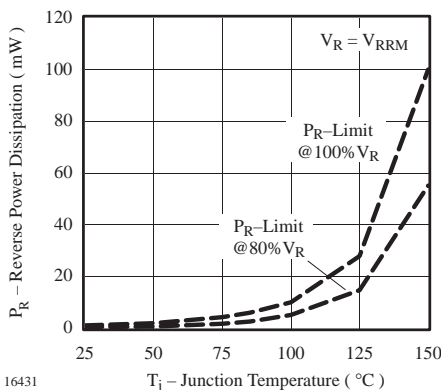


Figure 4. Max. Reverse Power Dissipation vs. Junction Temperature

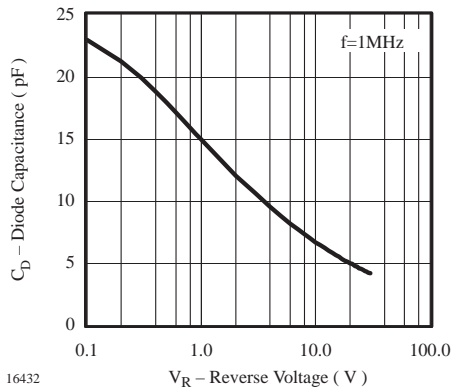


Figure 5. Diode Capacitance vs. Reverse Voltage

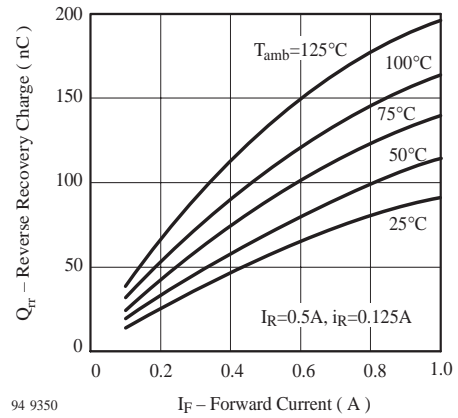


Figure 6. Max. Reverse Recovery Charge vs. Forward Current

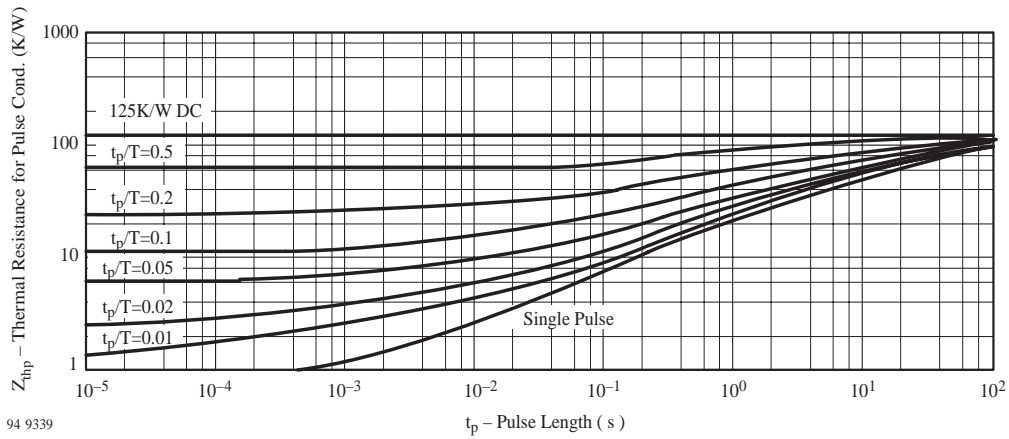
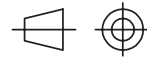
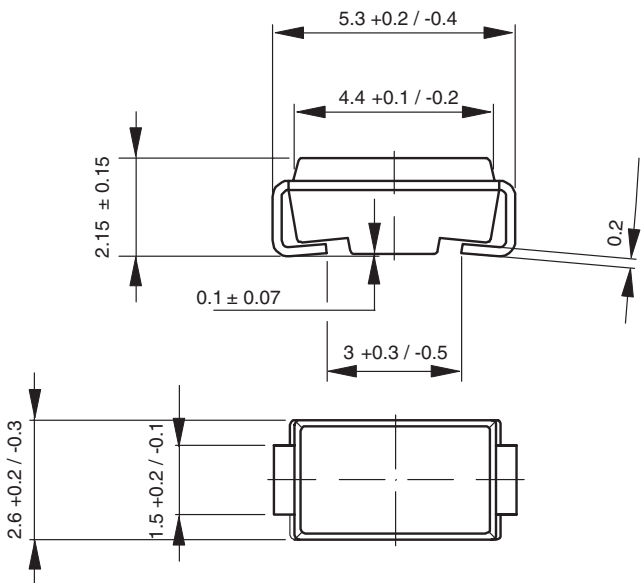


Figure 7. Thermal Response

## Package Dimensions in mm



ISO Method E

technical drawings  
according to DIN  
specifications



Plastic case JEDEC DO 214  
similar to SMA  
Cathode indicated by a band

14275-1