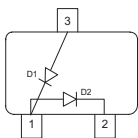


## High Voltage Schottky Diode

- Rectifier Schottky diode for telecommunication and industrial applications
- High reverse voltage: 240 V
- For power supply applications
- For clamping and protection in high voltage applications
- Pb-free (RoHS compliant) package <sup>1)</sup>
- Qualified according AEC Q101



### BAT240A



**ESD (Electrostatic discharge) sensitive device, observe handling precaution!**

| Type    | Package | Configuration | Marking |
|---------|---------|---------------|---------|
| BAT240A | SOT23   | half bridge   | 4Ms     |

**Maximum Ratings** at  $T_A = 25^\circ\text{C}$ , unless otherwise specified

| Parameter                                                             | Symbol    | Value       | Unit             |
|-----------------------------------------------------------------------|-----------|-------------|------------------|
| Diode reverse voltage <sup>2)</sup>                                   | $V_R$     | 240         | V                |
| Forward current <sup>2)</sup>                                         | $I_F$     | 400         | mA               |
| Non-repetitive peak surge forward current<br>( $t \leq 10\text{ms}$ ) | $I_{FSM}$ | 1           | A                |
| Total power dissipation<br>$T_S \leq 28^\circ\text{C}$                | $P_{tot}$ | 400         | mW               |
| Junction temperature                                                  | $T_j$     | 150         | $^\circ\text{C}$ |
| Operating temperature range                                           | $T_{op}$  | -55 ... 125 |                  |
| Storage temperature                                                   | $T_{stg}$ | -55 ... 150 |                  |

<sup>1)</sup>Pb-containing package may be available upon special request

<sup>2)</sup>For  $T_A > 25^\circ\text{C}$  the derating of  $V_R$  and  $I_F$  has to be considered. Please refer to the attached curves.

**Thermal Resistance**

| Parameter                                | Symbol     | Value      | Unit |
|------------------------------------------|------------|------------|------|
| Junction - soldering point <sup>1)</sup> | $R_{thJS}$ | $\leq 305$ | K/W  |

**Electrical Characteristics** at  $T_A = 25^\circ\text{C}$ , unless otherwise specified

| Parameter | Symbol | Values |      |      | Unit |
|-----------|--------|--------|------|------|------|
|           |        | min.   | typ. | max. |      |

**DC Characteristics**

|                                                                                                                                                                          |            |                                     |                                              |                                     |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-------------------------------------|----------------------------------------------|-------------------------------------|---------------|
| Breakdown voltage<br>$I_{(BR)} = 500 \mu\text{A}$                                                                                                                        | $V_{(BR)}$ | 240                                 | -                                            | -                                   | V             |
| Reverse current<br>$V_R = 100 \text{ V}$<br>$V_R = 200 \text{ V}$                                                                                                        | $I_R$      | -<br>-                              | 1<br>5                                       | 10<br>-                             | $\mu\text{A}$ |
| Forward voltage<br>$I_F = 10 \text{ mA}$<br>$I_F = 20 \text{ mA}$<br>$I_F = 50 \text{ mA}$<br>$I_F = 100 \text{ mA}$<br>$I_F = 200 \text{ mA}$<br>$I_F = 400 \text{ mA}$ | $V_F$      | 0.25<br>0.29<br>0.35<br>-<br>-<br>- | 0.325<br>0.37<br>0.47<br>0.58<br>0.72<br>0.9 | 0.36<br>0.41<br>0.52<br>-<br>-<br>- | V             |

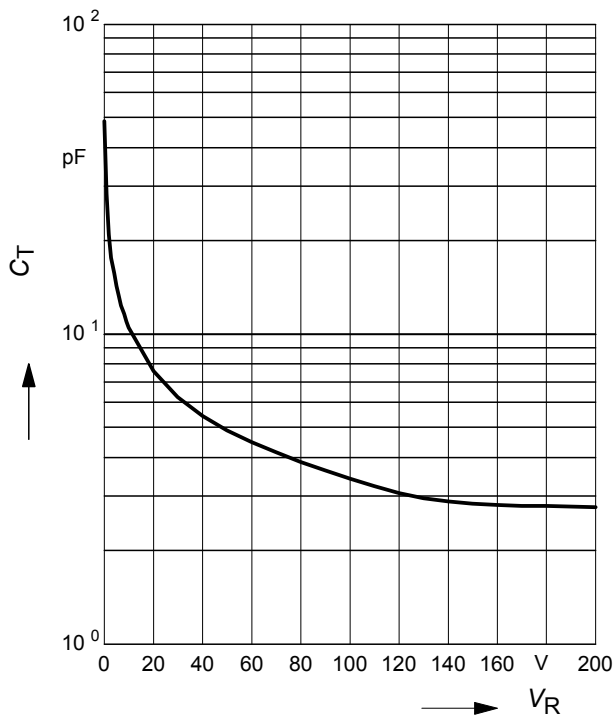
**AC Characteristics**

|                                                                                                        |       |        |          |          |    |
|--------------------------------------------------------------------------------------------------------|-------|--------|----------|----------|----|
| Diode capacitance<br>$V_R = 10 \text{ V}, f = 1 \text{ MHz}$<br>$V_R = 5 \text{ V}, f = 1 \text{ MHz}$ | $C_T$ | -<br>- | 11<br>15 | 15<br>20 | pF |
|--------------------------------------------------------------------------------------------------------|-------|--------|----------|----------|----|

<sup>1)</sup>For calculation of  $R_{thJA}$  please refer to Application Note Thermal Resistance

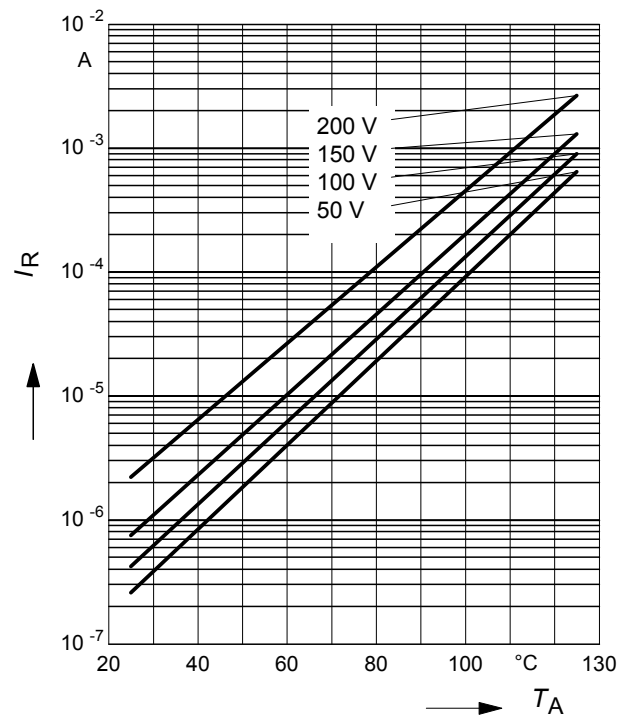
**Diode capacitance  $C_T = f(V_R)$**

$f = 1\text{MHz}$



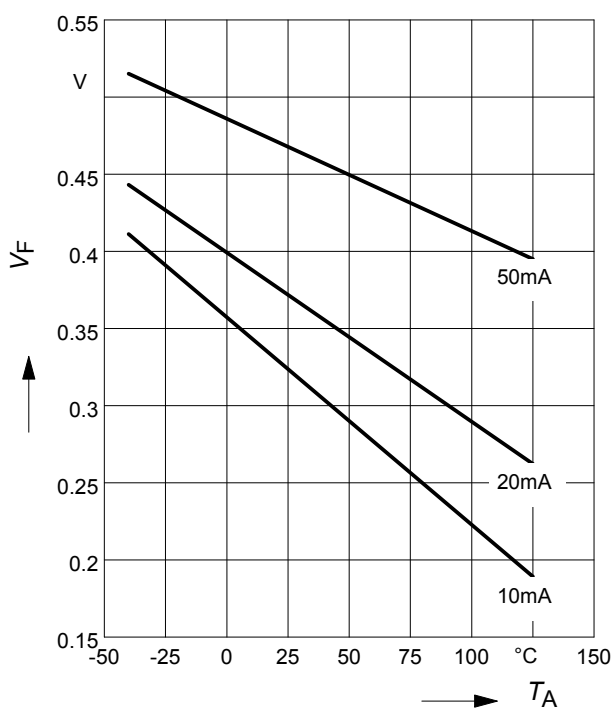
**Reverse current  $I_R = f(T_A)$**

$V_R = \text{Parameter}$



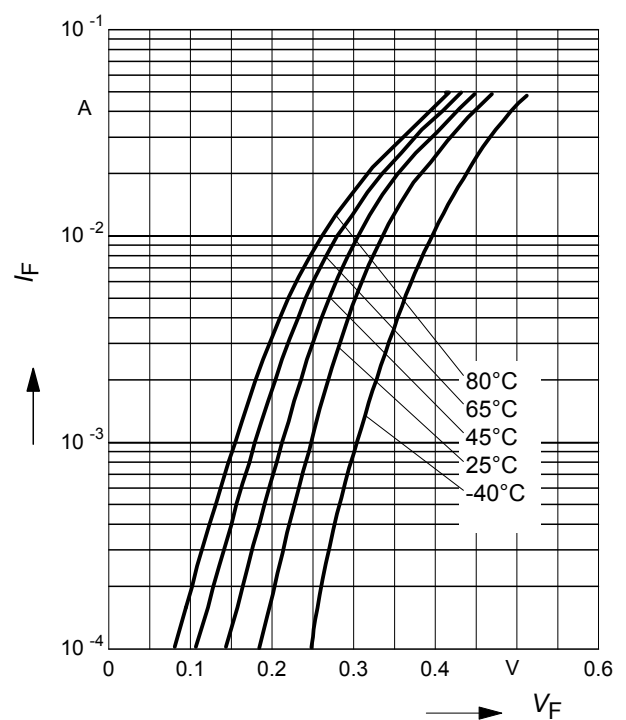
**Forward Voltage  $V_F = f(T_A)$**

$I_F = \text{Parameter}$

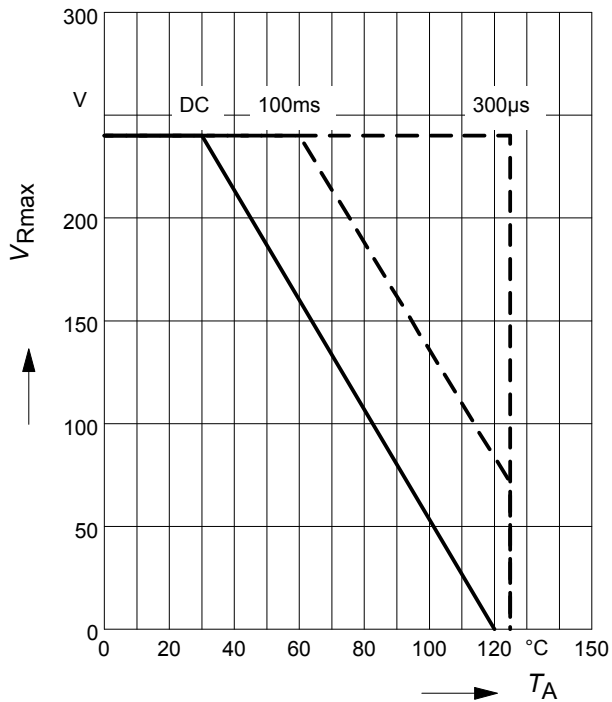
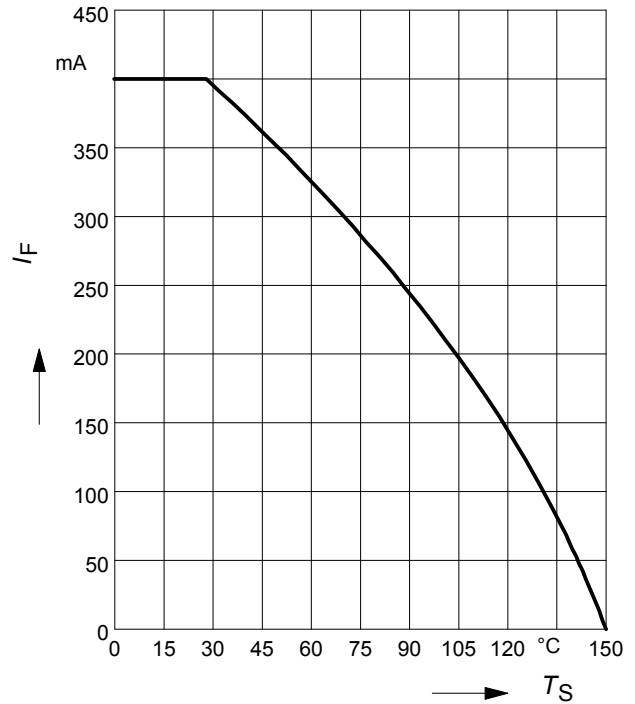
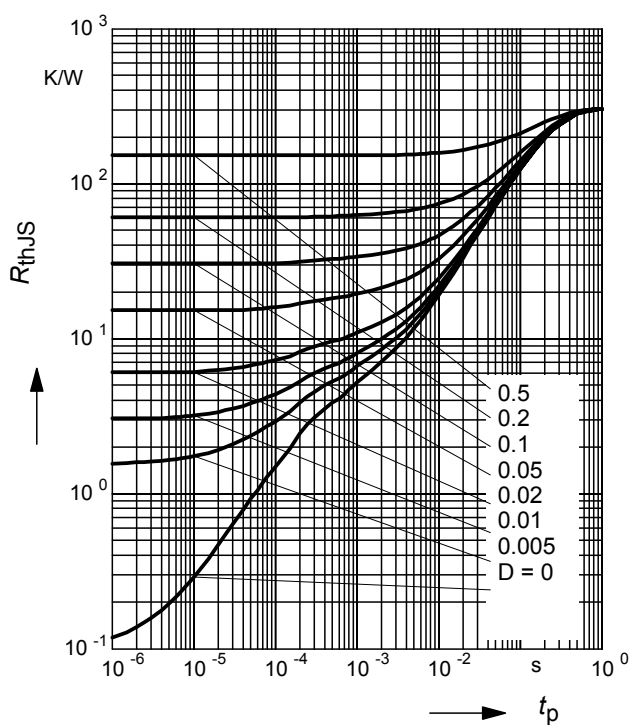


**Forward current  $I_F = f(V_F)$**

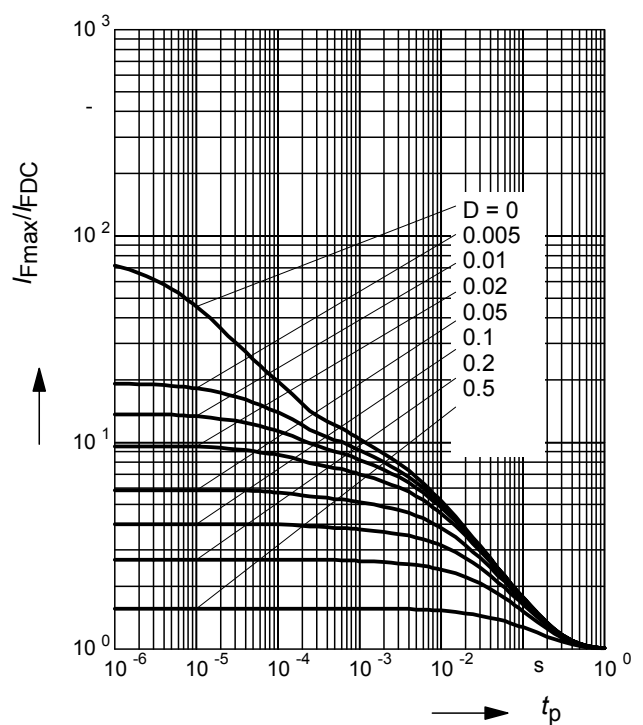
$T_A = \text{Parameter}$



**Permissible Reverse voltage  $V_R = f(T_A)$** 
 $t_p$  = Parameter, Duty cycle < 0.01

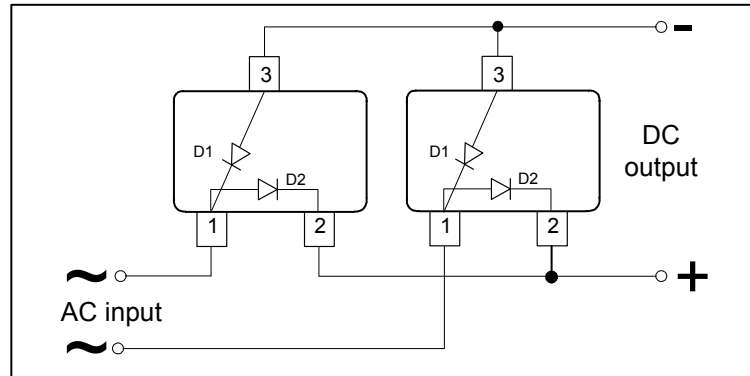
Device mounted on PCB with  $R_{th} = 160 \text{ k/W}$ 

**Forward current  $I_F = f(T_S)$** 

**Permissible Puls Load  $R_{thJS} = f(t_p)$** 

**Permissible Pulse Load**

$$I_{Fmax}/I_{FDC} = f(t_p)$$

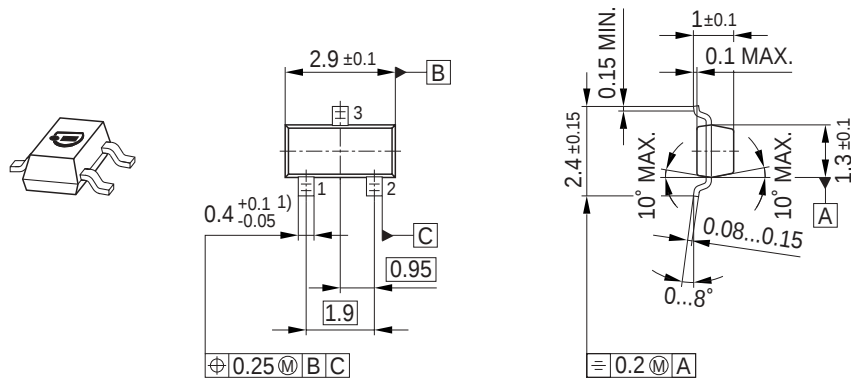


# Application example BAT240A

Energy efficient bridge rectification for 110 V / 60 Hz power lines

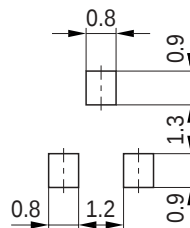


## Package Outline

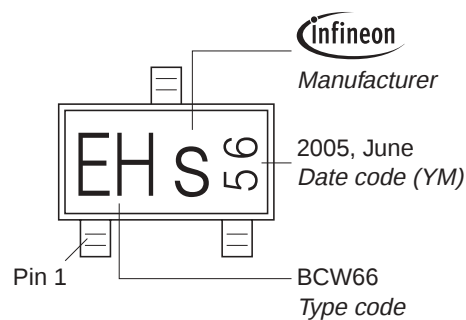


1) Lead width can be 0.6 max. in dambar area

## Foot Print

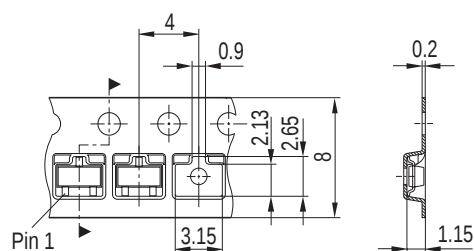


## Marking Layout (Example)



## Standard Packing

Reel ø180 mm = 3.000 Pieces/Reel  
Reel ø330 mm = 10.000 Pieces/Reel



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