

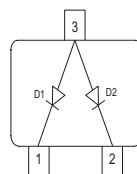
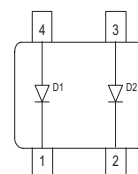
## Silicon Schottky Diode

- For mixer applications in VHF/UHF range
- For high-speed switching application
- Pb-free (RoHS compliant) package


**BAT17**

**BAT17-04  
BAT17-04W**

**BAT17-05  
BAT17-05W**

**BAT17-06W**

**BAT17-07**


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

| Type      | Package | Configuration  | $L_S$ (nH) | Marking |
|-----------|---------|----------------|------------|---------|
| BAT17     | SOT23   | single         | 1.8        | 53s     |
| BAT17-04  | SOT23   | series         | 1.8        | 54s     |
| BAT17-04W | SOT323  | series         | 1.4        | 54s     |
| BAT17-05  | SOT23   | common cathode | 1.8        | 55s     |
| BAT17-05W | SOT323  | common cathode | 1.4        | 55s     |
| BAT17-06W | SOT323  | common anode   | 1.4        | 56s     |
| BAT17-07  | SOT143  | parallel pair  | 2          | 57s     |

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

| Parameter                                         | Symbol           | Value       | Unit             |
|---------------------------------------------------|------------------|-------------|------------------|
| Diode reverse voltage                             | $V_R$            | 4           | V                |
| Forward current                                   | $I_F$            | 130         | mA               |
| Total power dissipation                           | $P_{\text{tot}}$ |             | mW               |
| BAT17, $T_S \leq 77^\circ\text{C}$                |                  | 150         |                  |
| BAT17-04, $T_S \leq 61^\circ\text{C}$             |                  | 150         |                  |
| BAT17-05, $T_S \leq 46^\circ\text{C}$             |                  | 150         |                  |
| BAT17-04W, -05W, -6W, $T_S \leq 92^\circ\text{C}$ |                  | 150         |                  |
| BAT17-07, $T_S \leq 60^\circ\text{C}$             |                  | 150         |                  |
| Junction temperature                              | $T_j$            | 150         | $^\circ\text{C}$ |
| Operating temperature range                       | $T_{\text{op}}$  | -55 ... 125 |                  |
| Storage temperature                               | $T_{\text{stg}}$ | -55 ... 150 |                  |

#### Thermal Resistance

| Parameter                                | Symbol            | Value      | Unit |
|------------------------------------------|-------------------|------------|------|
| Junction - soldering point <sup>1)</sup> | $R_{\text{thJS}}$ |            | K/W  |
| BAT17                                    |                   | $\leq 490$ |      |
| BAT17-04, BAT17-07                       |                   | $\leq 590$ |      |
| BAT17-05                                 |                   | $\leq 690$ |      |
| BAT17-04W, BAT17-05W, BAT17-06W          |                   | $\leq 390$ |      |

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

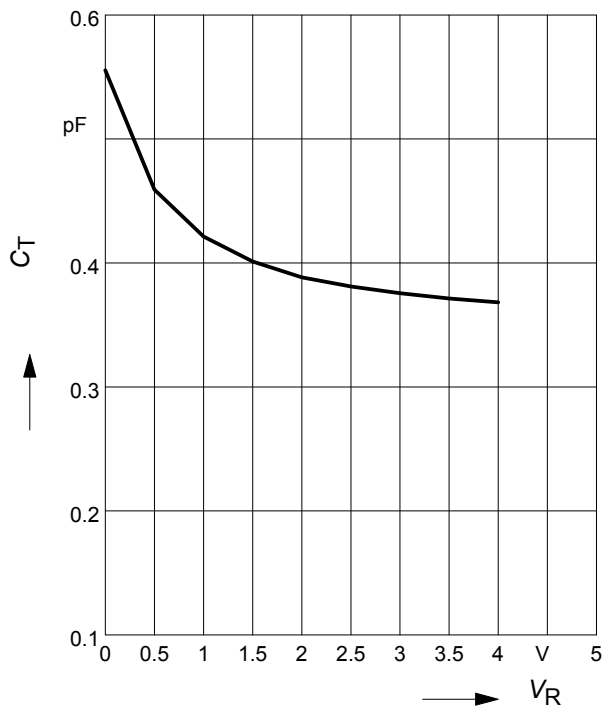
Electrical Characteristics at  $T_A = 25^\circ\text{C}$ , unless otherwise specified

| Parameter                                                                                                                                               | Symbol                | Values            |                   |                    | Unit          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-------------------|-------------------|--------------------|---------------|
|                                                                                                                                                         |                       | min.              | typ.              | max.               |               |
| DC Characteristics                                                                                                                                      |                       |                   |                   |                    |               |
| Breakdown voltage<br>$I_{\text{(BR)}} = 10\text{ }\mu\text{A}$                                                                                          | $V_{\text{(BR)}}$     | 4                 | -                 | -                  | V             |
| Reverse current<br>$V_{\text{R}} = 3\text{ V}$<br>$V_{\text{R}} = 4\text{ V}$<br>$V_{\text{R}} = 3\text{ V}, T_{\text{A}} = 60\text{ }^{\circ}\text{C}$ | $I_{\text{R}}$        | -<br>-<br>-       | -<br>-<br>-       | 0.25<br>10<br>1.25 | $\mu\text{A}$ |
| Forward voltage<br>$I_{\text{F}} = 0.1\text{ mA}$<br>$I_{\text{F}} = 1\text{ mA}$<br>$I_{\text{F}} = 10\text{ mA}$                                      | $V_{\text{F}}$        | 200<br>250<br>350 | 275<br>340<br>425 | 350<br>450<br>600  | mV            |
| Forward voltage matching <sup>1)</sup><br>$I_{\text{F}} = 1\text{ mA}$                                                                                  | $\Delta V_{\text{F}}$ | -                 | -                 | 20                 |               |
| AC Characteristics                                                                                                                                      |                       |                   |                   |                    |               |
| Diode capacitance<br>$V_{\text{R}} = 0, f = 1\text{ MHz}$                                                                                               | $C_{\text{T}}$        | 0.4               | 0.55              | 0.75               | pF            |
| Differential forward resistance<br>$I_{\text{F}} = 5\text{ mA}, f = 10\text{ kHz}$                                                                      | $R_{\text{F}}$        | -                 | 8                 | 15                 | $\Omega$      |

<sup>1)</sup> $\Delta V_F$  is the difference between lowest and highest  $V_F$  in multiple diode component.

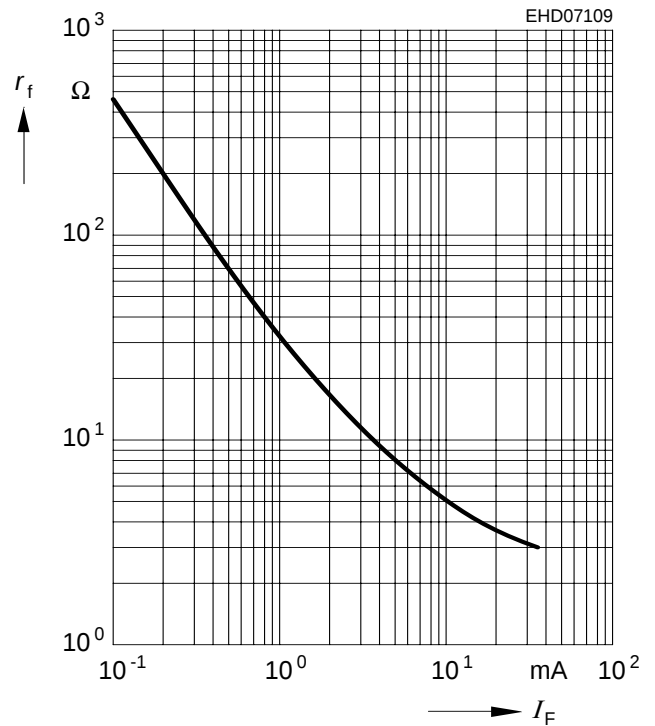
**Diode capacitance  $C_T = f(V_R)$**

$f = 1\text{MHz}$



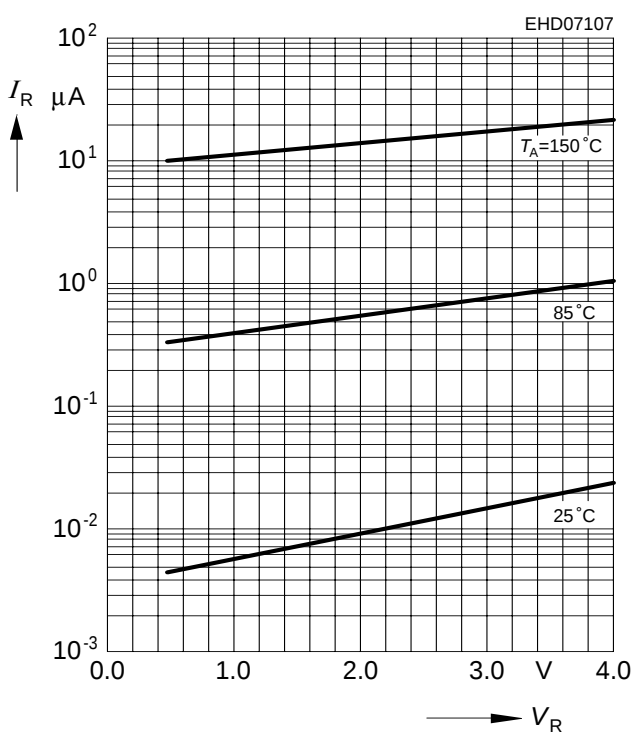
**Forward resistance  $r_f = f(I_F)$**

$f = 10\text{kHz}$



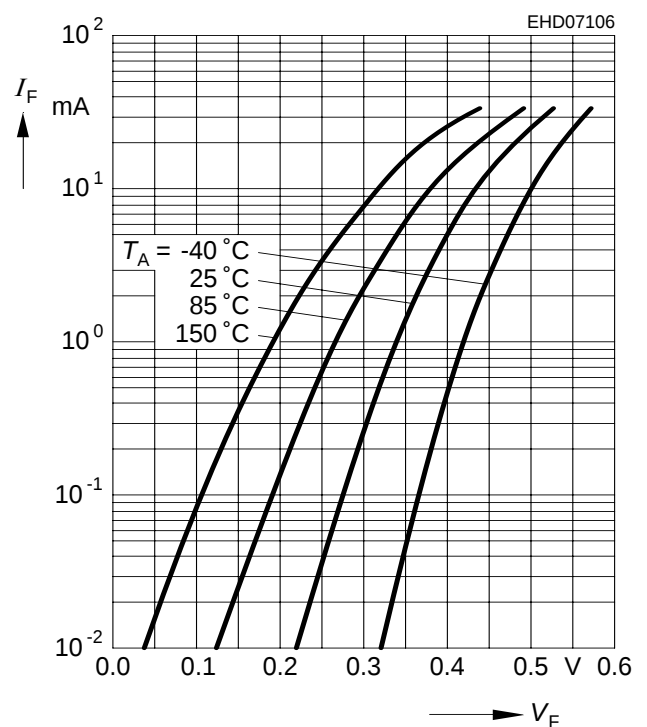
**Reverse current  $I_R = f(V_R)$**

$T_A = \text{Parameter}$



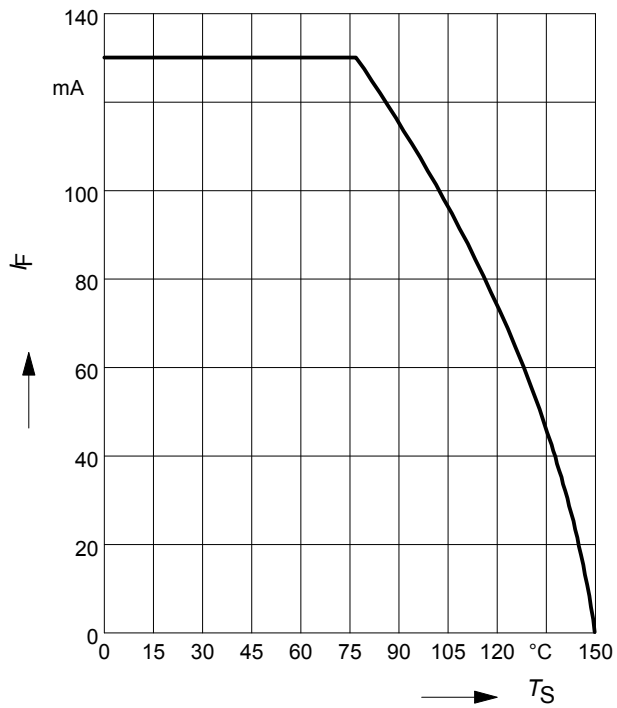
**Forward current  $I_F = f(V_F)$**

$T_A = \text{Parameter}$



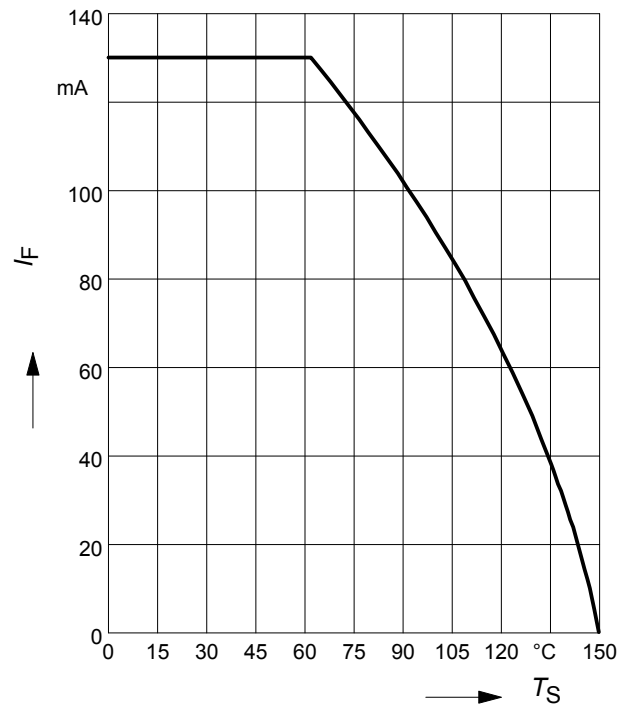
**Forward current  $I_F = f(T_S)$**

BAT17



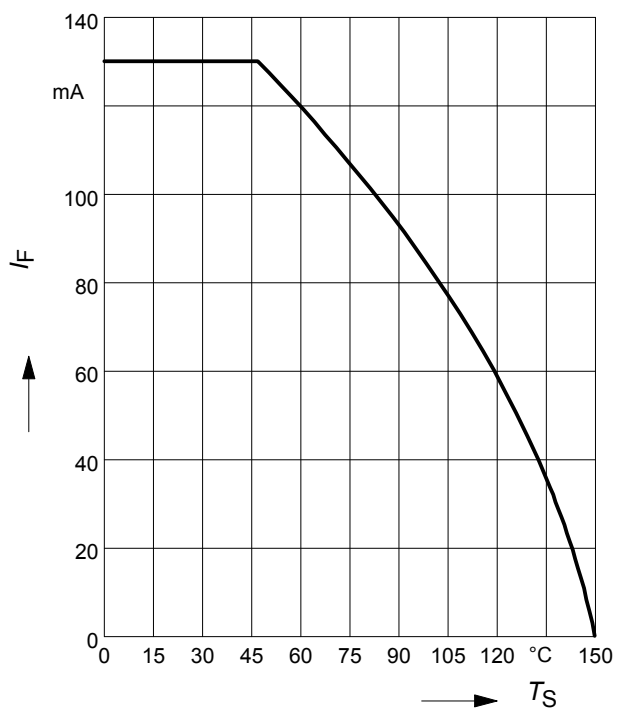
**Forward current  $I_F = f(T_S)$**

BAT17-04, BAT17-07

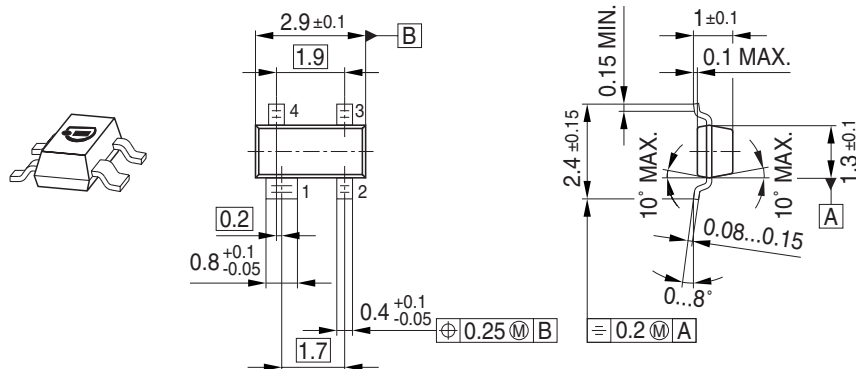


**Forward current  $I_F = f(T_S)$**

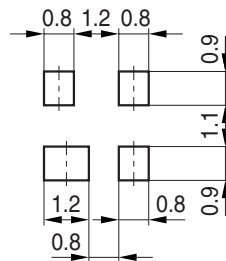
BAT17-05



## Package Outline



## Foot Print

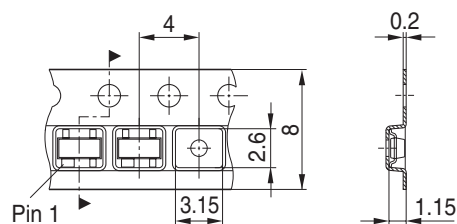


## Marking Layout (Example)

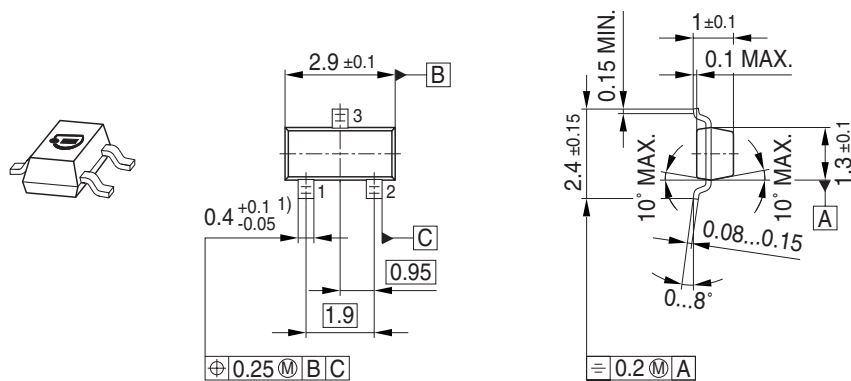


## Standard Packing

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

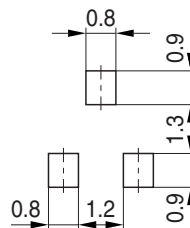


## Package Outline

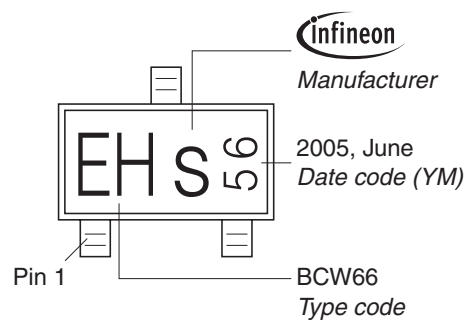


1) Lead width can be 0.6 max. in dambar area

## Foot Print



## Marking Layout (Example)

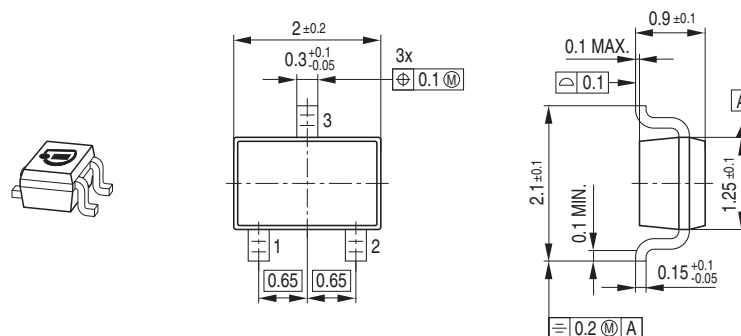


## Standard Packing

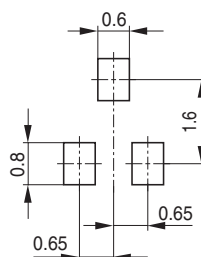
Reel ø180 mm = 3.000 Pieces/Reel  
Reel ø330 mm = 10.000 Pieces/Reel



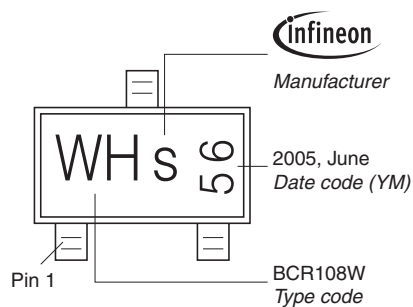
## Package Outline



## Foot Print

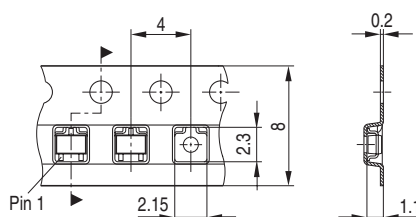


## Marking Layout (Example)



## Standard Packing

Reel  $\varnothing 180 \text{ mm}$  = 3.000 Pieces/Reel  
 Reel  $\varnothing 330 \text{ mm}$  = 10.000 Pieces/Reel



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