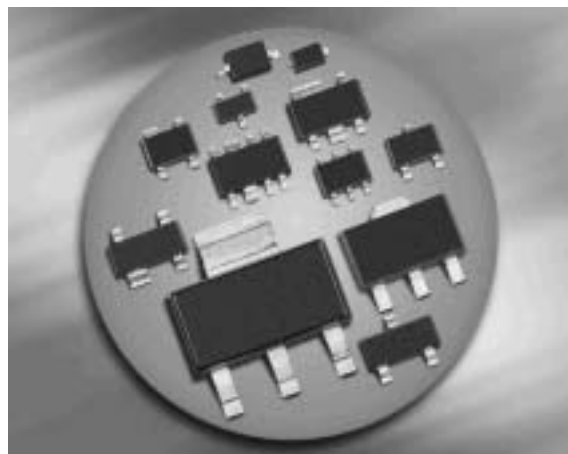
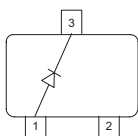
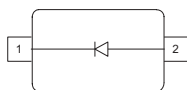
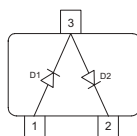
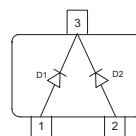
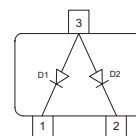


## Silicon Schottky Diodes

- For low-loss, fast-recovery, meter protection, bias isolation and clamping application
- Integrated diffused guard ring
- Low forward voltage
- Pb-free (RoHS compliant) package <sup>1)</sup>
- Qualified according AEC Q101


**BAT64**

**BAT64-02W**

**BAT64-04  
BAT64-04W**

**BAT64-05  
BAT64-05W**

**BAT64-06  
BAT64-06W**


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

| Type      | Package | Configuration  | $L_S$ (nH) | Marking |
|-----------|---------|----------------|------------|---------|
| BAT64     | SOT23   | single         | 1.8        | 63s     |
| BAT64-02W | SCD80   | single         | 0.6        | 64      |
| BAT64-04  | SOT23   | series         | 1.8        | 64s     |
| BAT64-04W | SOT323  | series         | 1.4        | 64s     |
| BAT64-05  | SOT23   | common cathode | 1.8        | 65s     |
| BAT64-05W | SOT323  | common cathode | 1.4        | 65s     |
| BAT64-06  | SOT23   | common anode   | 1.8        | 66s     |
| BAT64-06W | SOT323  | common anode   | 1.4        | 66s     |

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

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

| Parameter                                                             | Symbol    | Value       | Unit             |
|-----------------------------------------------------------------------|-----------|-------------|------------------|
| Diode reverse voltage                                                 | $V_R$     | 40          | V                |
| Forward current                                                       | $I_F$     | 250         | mA               |
| Non-repetitive peak surge forward current<br>( $t \leq 10\text{ms}$ ) | $I_{FSM}$ | 800         |                  |
| Average rectified forward current (50/60Hz, sinus)                    | $I_{FAV}$ | 120         |                  |
| Total power dissipation                                               | $P_{tot}$ |             | mW               |
| BAT64, $T_S \leq 86^\circ\text{C}$                                    |           | 250         |                  |
| BAT64-02W, $T_S \leq 121^\circ\text{C}$                               |           | 250         |                  |
| BAT64-04, BAT64-06, $T_S \leq 61^\circ\text{C}$                       |           | 250         |                  |
| BAT64-04W, BAT64-06W, $T_S \leq 111^\circ\text{C}$                    |           | 250         |                  |
| BAT64-05, $T_S \leq 36^\circ\text{C}$                                 |           | 250         |                  |
| BAT64-05W, $T_S \leq 104^\circ\text{C}$                               |           | 250         |                  |
| Junction temperature                                                  | $T_j$     | 150         | $^\circ\text{C}$ |
| Storage temperature                                                   | $T_{stg}$ | -55 ... 150 |                  |

**Thermal Resistance**

| Parameter                                | Symbol     | Value      | Unit |
|------------------------------------------|------------|------------|------|
| Junction - soldering point <sup>1)</sup> | $R_{thJS}$ |            | K/W  |
| BAT64                                    |            | $\leq 255$ |      |
| BAT64-02W                                |            | $\leq 115$ |      |
| BAT64-04, BAT64-06,                      |            | $\leq 355$ |      |
| BAT64-04W, BAT64-06W                     |            | $\leq 155$ |      |
| BAT64-05                                 |            | $\leq 455$ |      |
| BAT64-05W                                |            | $\leq 185$ |      |

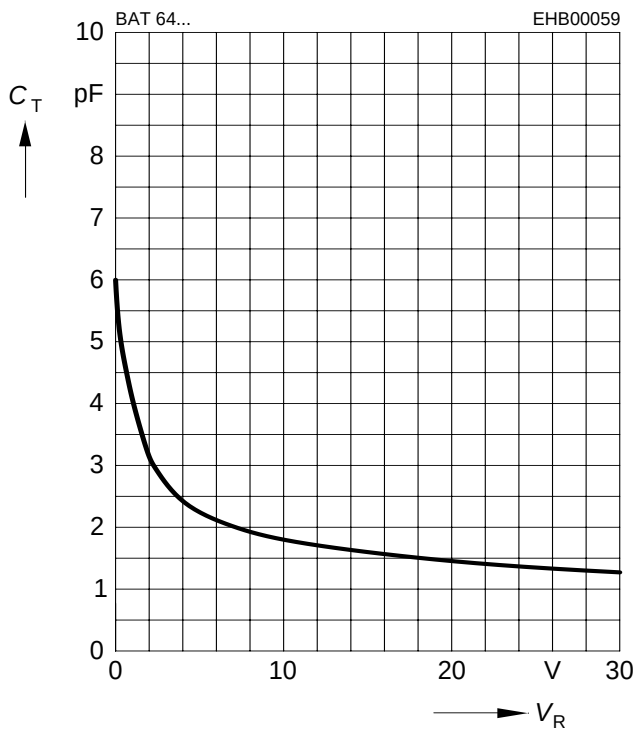
<sup>1)</sup>For calculation of  $R_{thJA}$  please refer to Application Note Thermal Resistance

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

| Parameter                                                                                                                    | Symbol     | Values                   |                          |                          | Unit          |
|------------------------------------------------------------------------------------------------------------------------------|------------|--------------------------|--------------------------|--------------------------|---------------|
|                                                                                                                              |            | min.                     | typ.                     | max.                     |               |
| DC Characteristics                                                                                                           |            |                          |                          |                          |               |
| Breakdown voltage<br>$I_{(BR)} = 10\ \mu\text{A}$                                                                            | $V_{(BR)}$ | 40                       | -                        | -                        | V             |
| Reverse current<br>$V_R = 30\ \text{V}$<br>$V_R = 30\ \text{V}, T_A = 85\ ^\circ\text{C}$                                    | $I_R$      | -<br>-                   | -<br>-                   | 2<br>200                 | $\mu\text{A}$ |
| Forward voltage<br>$I_F = 1\ \text{mA}$<br>$I_F = 10\ \text{mA}$<br>$I_F = 30\ \text{mA}$<br>$I_F = 100\ \text{mA}$          | $V_F$      | 270<br>310<br>370<br>500 | 320<br>385<br>440<br>570 | 350<br>430<br>520<br>750 | mV            |
| AC Characteristics                                                                                                           |            |                          |                          |                          |               |
| Diode capacitance<br>$V_R = 1\ \text{V}, f = 1\ \text{MHz}$                                                                  | $C_T$      | -                        | 4                        | 6                        | pF            |
| Reverse recovery time<br>$I_F = 10\ \text{mA}, I_R = 10\ \text{mA}$ , measured $I_R = 1\ \text{mA}$ ,<br>$R_L = 100\ \Omega$ | $t_{rr}$   | -                        | -                        | 5                        | ns            |

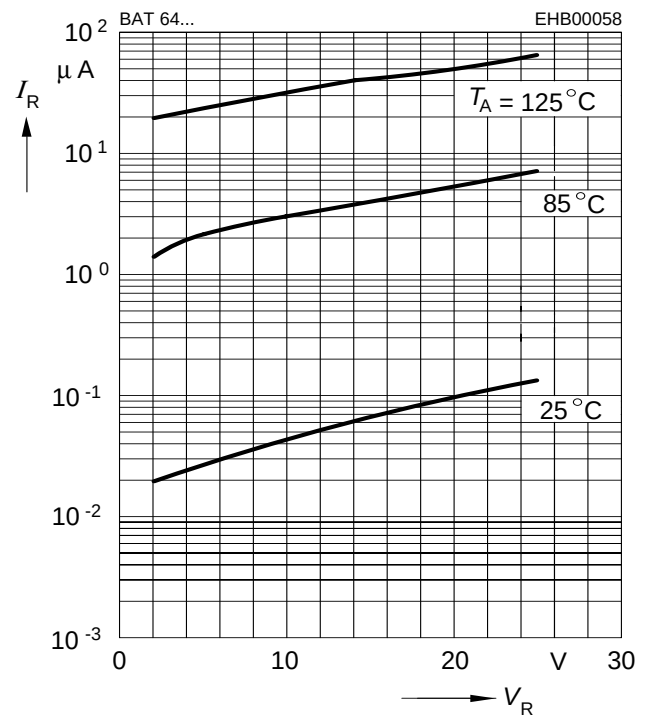
**Diode capacitance  $C_T = f(V_R)$**

$f = 1\text{MHz}$



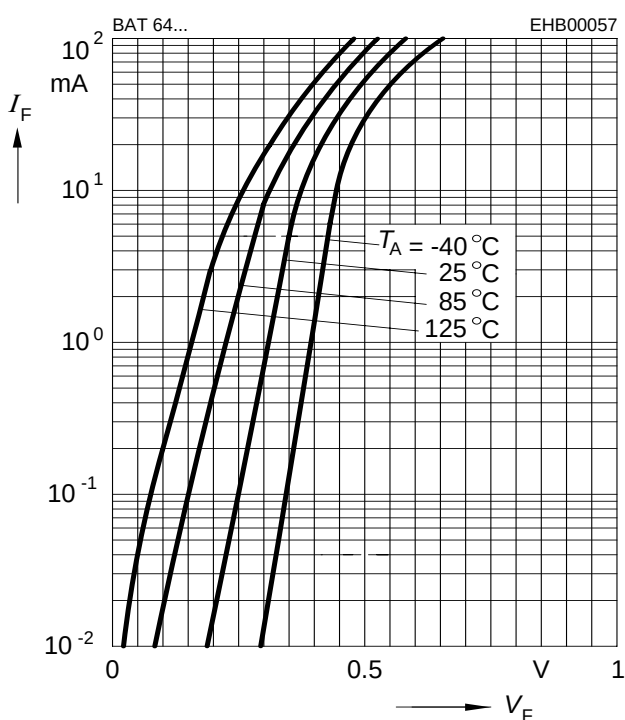
**Reverse current  $I_R = f(V_R)$**

$T_A = \text{Parameter}$



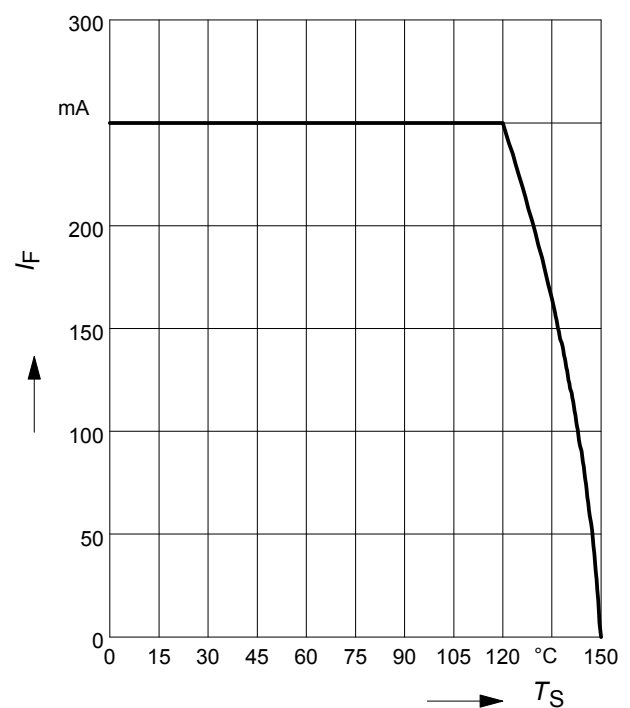
**Forward current  $I_F = f(V_F)$**

$T_A = \text{Parameter}$



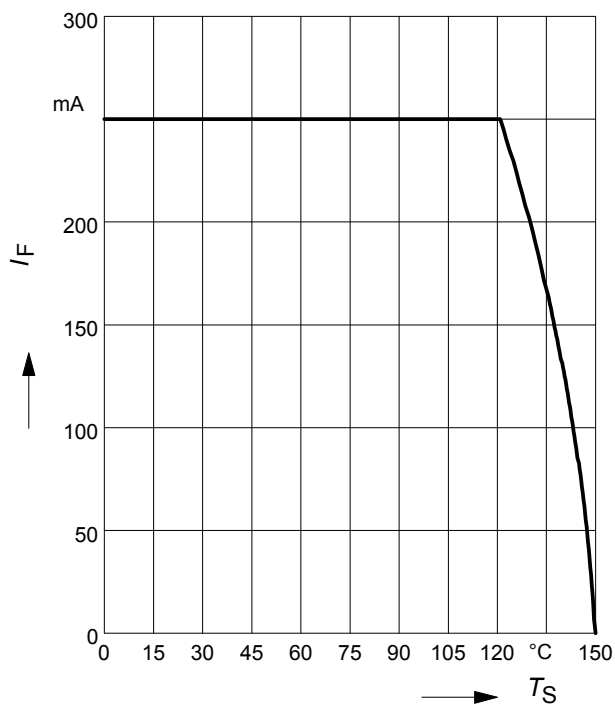
**Forward current  $I_F = f(T_S)$**

BAT64W



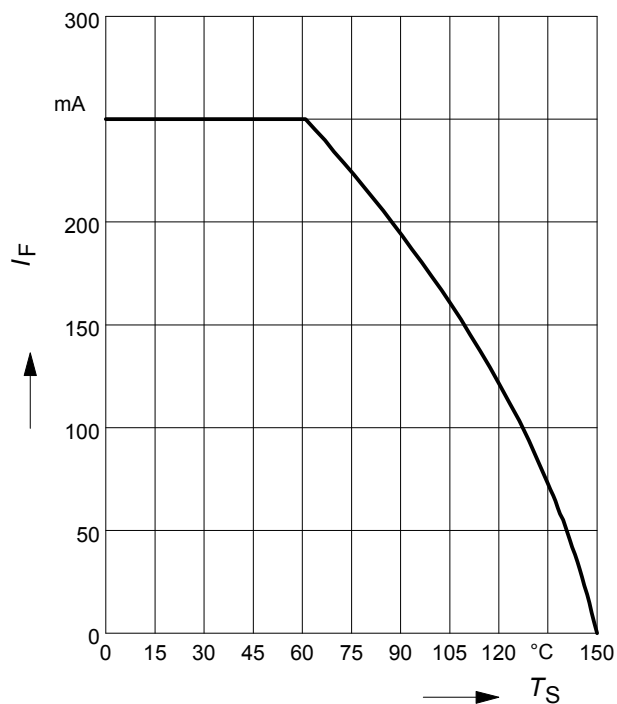
**Forward current  $I_F = f(T_S)$**

BAT64-02W



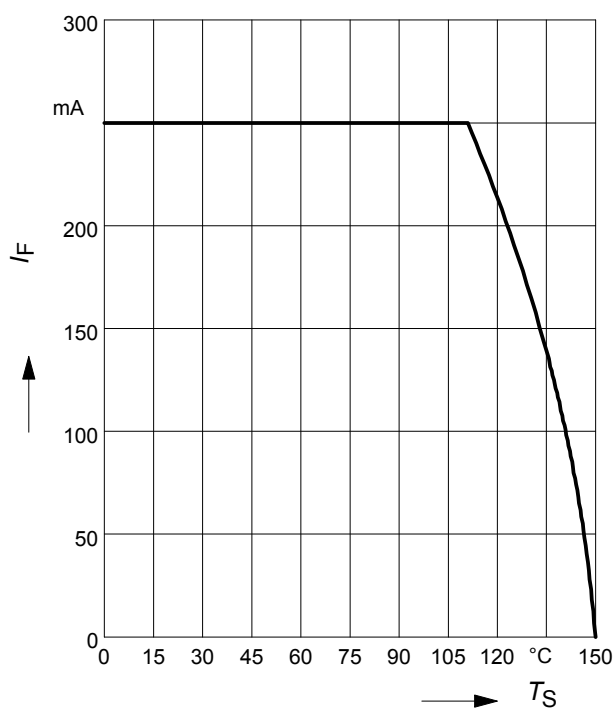
**Forward current  $I_F = f(T_S)$**

BAT64-04, BAT64-06



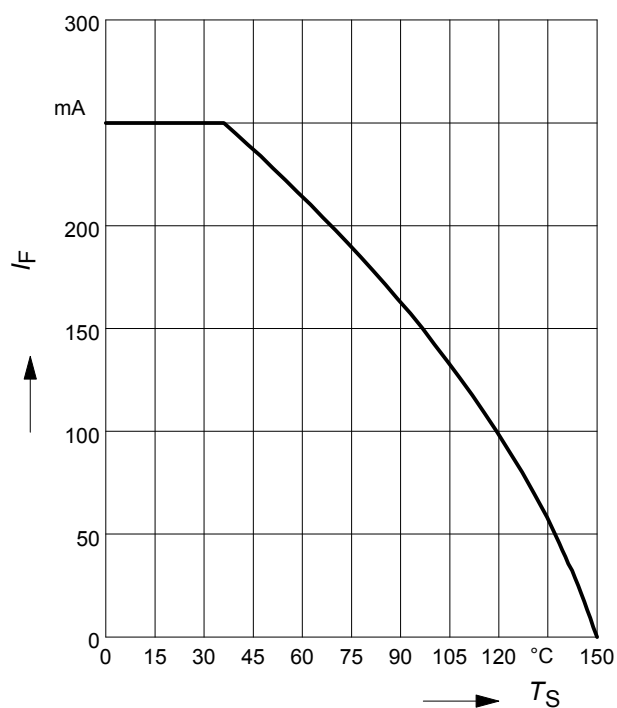
**Forward current  $I_F = f(T_S)$**

BAT64-04W, BAT64-06W



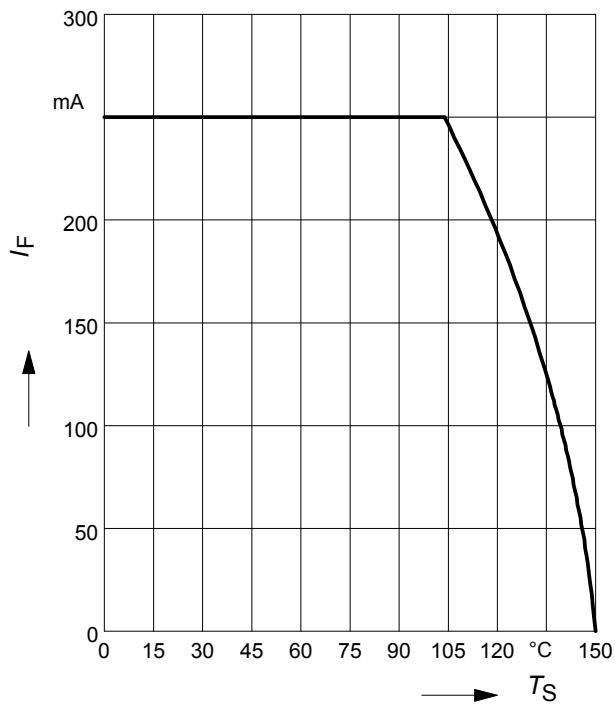
**Forward current  $I_F = f(T_S)$**

BAT64-05



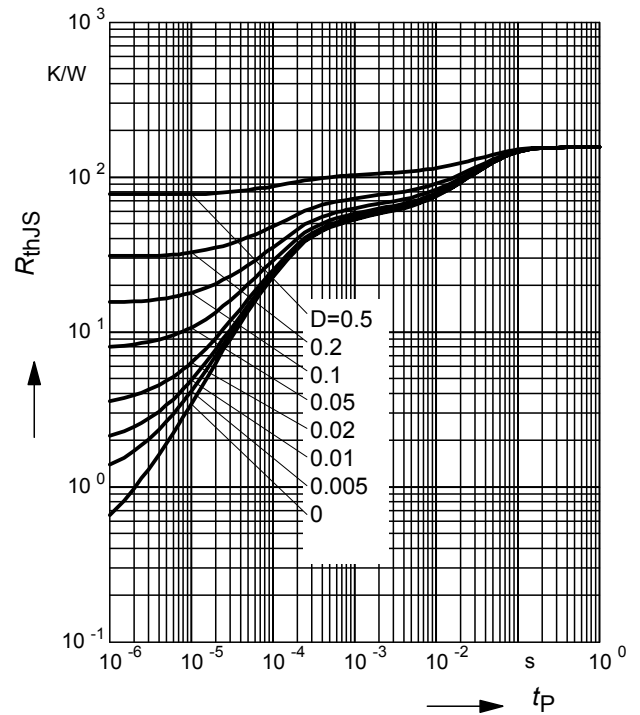
Forward current  $I_F = f(T_S)$

BAT64-05W



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

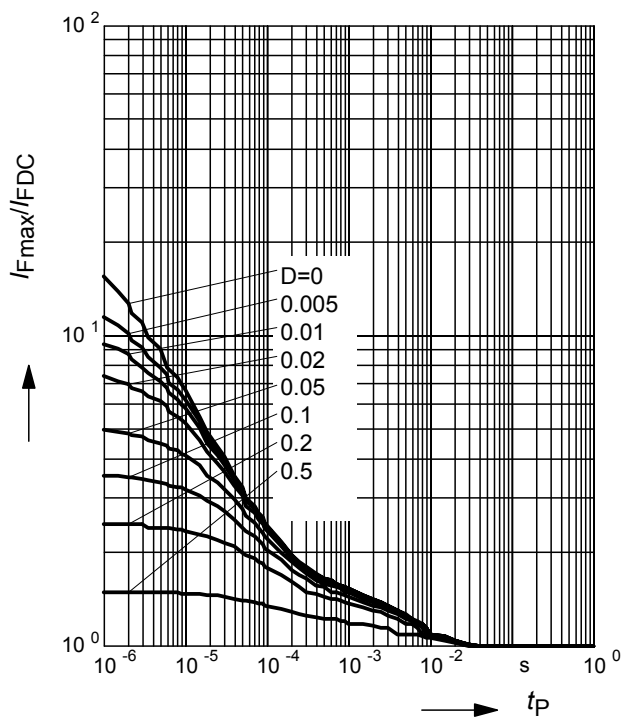
BAT64-02W



Permissible Pulse Load

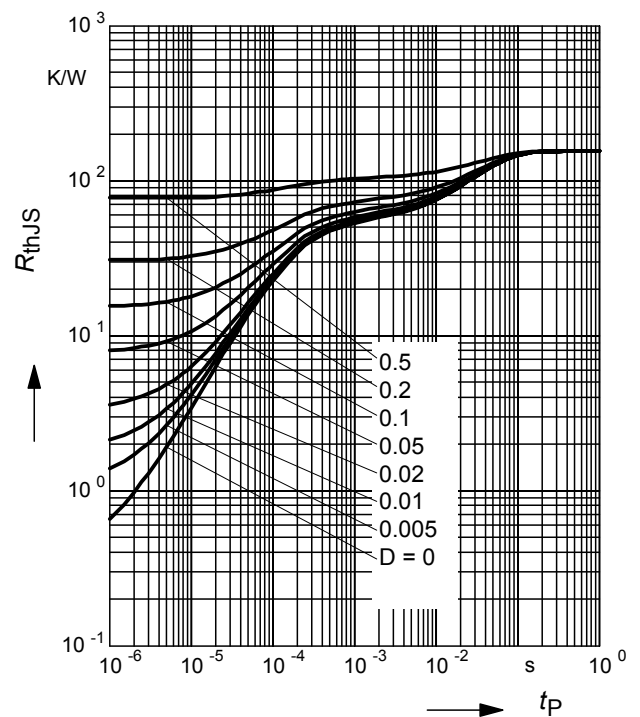
$I_{Fmax}/I_{FDC} = f(t_p)$

BAT64-02W



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

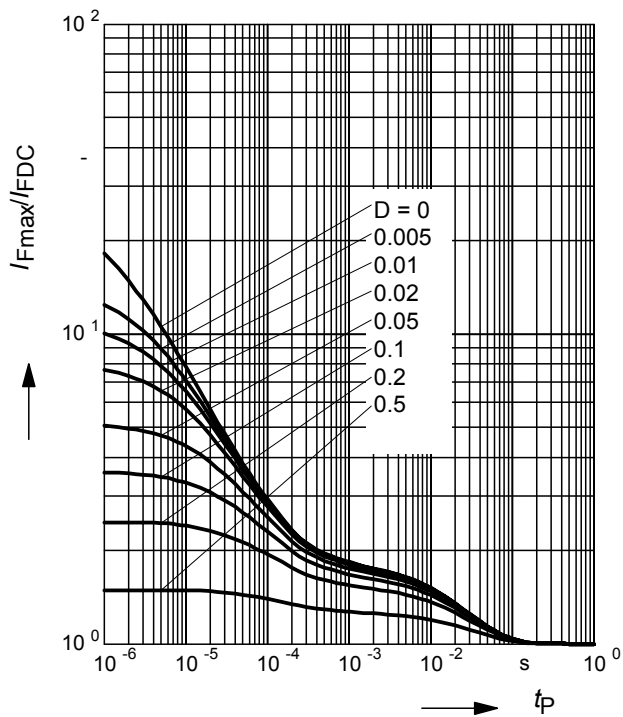
BAT64-04W, BAT64-06W



### Permissible Pulse Load

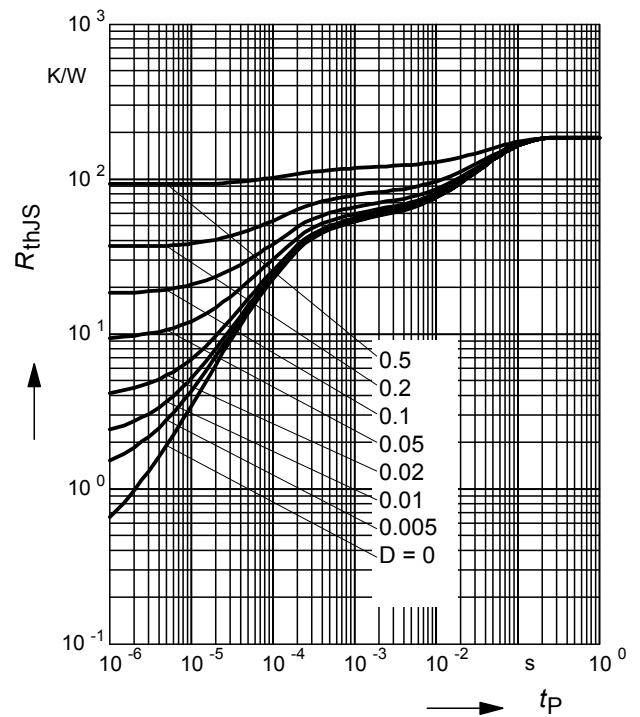
$$I_{Fmax}/I_{FDC} = f(t_p)$$

BAT64-04W, BAT64-06W



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

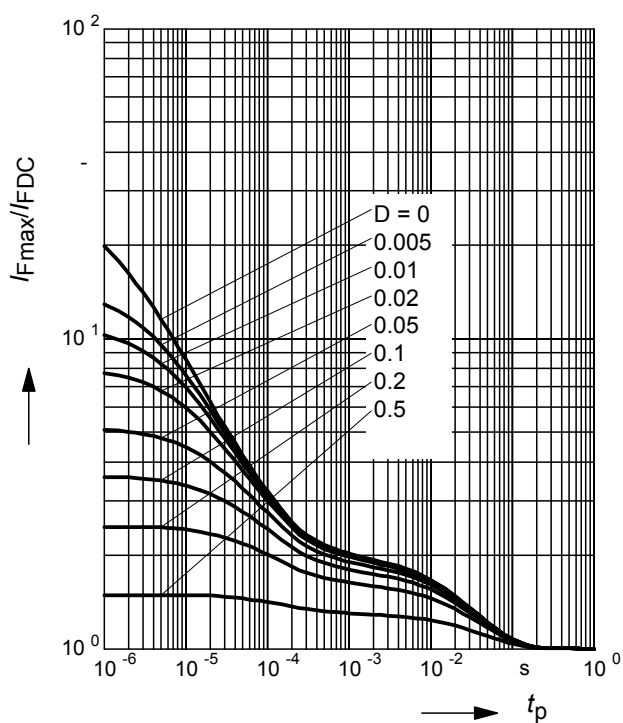
BAT64-05W



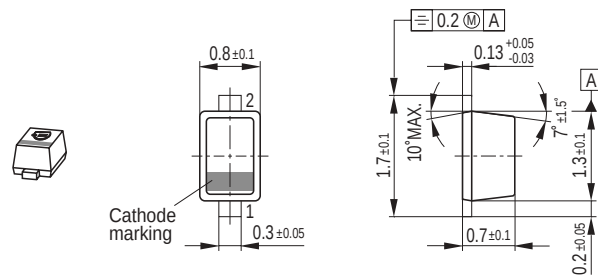
### Permissible Pulse Load

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

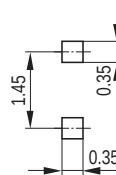
BAT64-05W



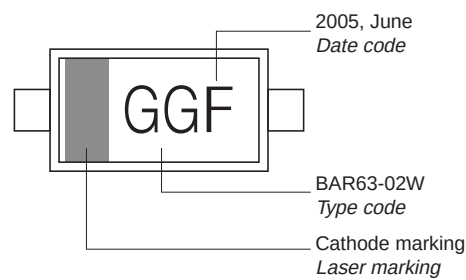
## Package Outline



## Foot Print

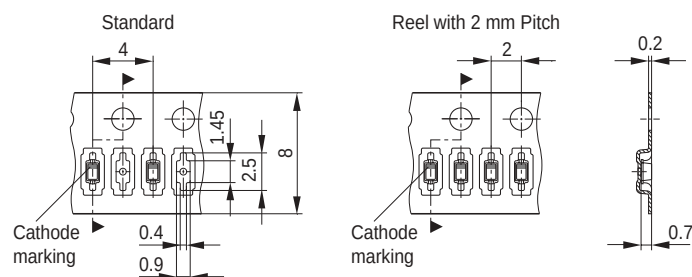


## Marking Layout (Example)



## Standard Packing

Reel ø180 mm = 3.000 Pieces/Reel  
 Reel ø180 mm = 8.000 Pieces/Reel (2 mm Pitch)  
 Reel ø330 mm = 10.000 Pieces/Reel

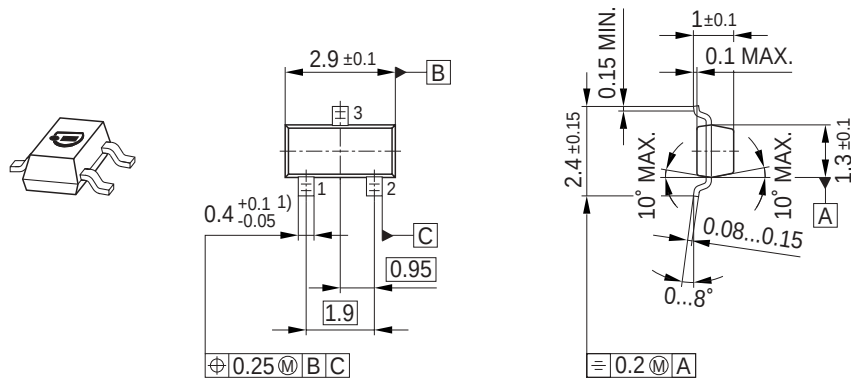


Date Code marking for discrete packages with one digit (SCD80, SC79, SC75<sup>1)</sup>) CES-Code

| Month | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|-------|------|------|------|------|------|------|------|------|------|------|------|------|
| 01    | a    | p    | A    | P    | a    | p    | A    | P    | a    | p    | A    | P    |
| 02    | b    | q    | B    | Q    | b    | q    | B    | Q    | b    | q    | B    | Q    |
| 03    | c    | r    | C    | R    | c    | r    | C    | R    | c    | r    | C    | R    |
| 04    | d    | s    | D    | S    | d    | s    | D    | S    | d    | s    | D    | S    |
| 05    | e    | t    | E    | T    | e    | t    | E    | T    | e    | t    | E    | T    |
| 06    | f    | u    | F    | U    | f    | u    | F    | U    | f    | u    | F    | U    |
| 07    | g    | v    | G    | V    | g    | v    | G    | V    | g    | v    | G    | V    |
| 08    | h    | x    | H    | X    | h    | x    | H    | X    | h    | x    | H    | X    |
| 09    | j    | y    | J    | Y    | j    | y    | J    | Y    | j    | y    | J    | Y    |
| 10    | k    | z    | K    | Z    | k    | z    | K    | Z    | k    | z    | K    | Z    |
| 11    | l    | 2    | L    | 4    | l    | 2    | L    | 4    | l    | 2    | L    | 4    |
| 12    | n    | 3    | N    | 5    | n    | 3    | N    | 5    | n    | 3    | N    | 5    |

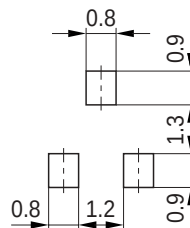
1) New Marking Layout for SC75, implemented at October 2005.

## Package Outline

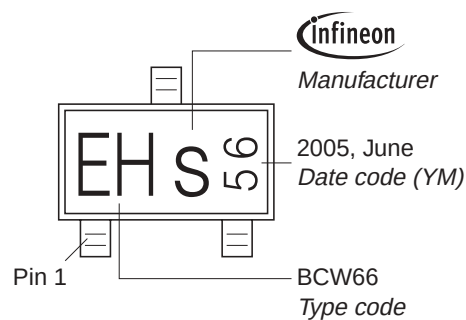


1) Lead width can be 0.6 max. in dambar area

## Foot Print

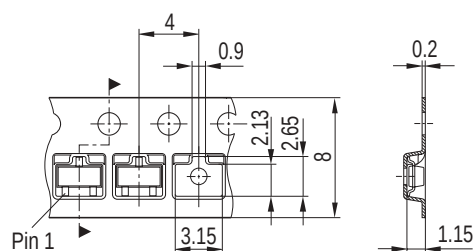


## Marking Layout (Example)

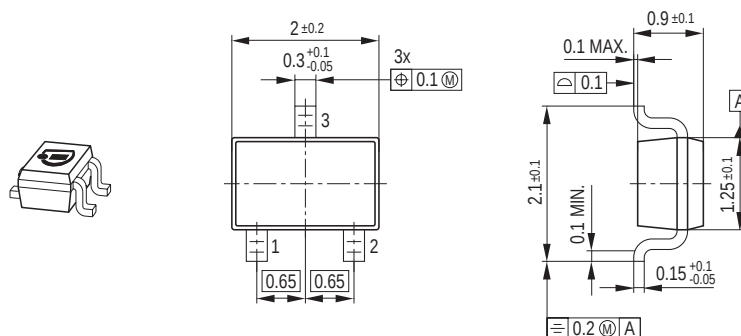


## Standard Packing

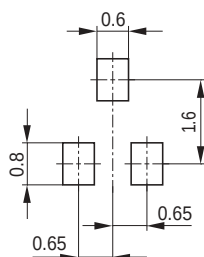
Reel ø180 mm = 3.000 Pieces/Reel  
Reel ø330 mm = 10.000 Pieces/Reel



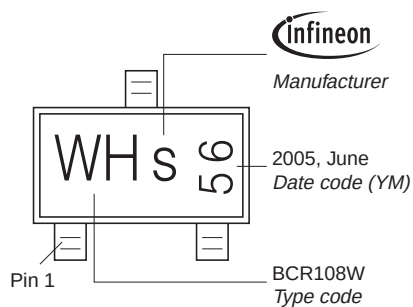
## Package Outline



## Foot Print

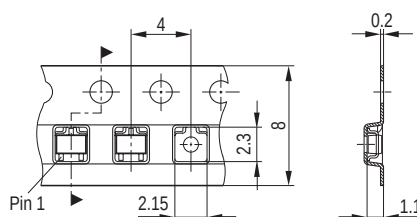


## Marking Layout (Example)



## Standard Packing

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



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