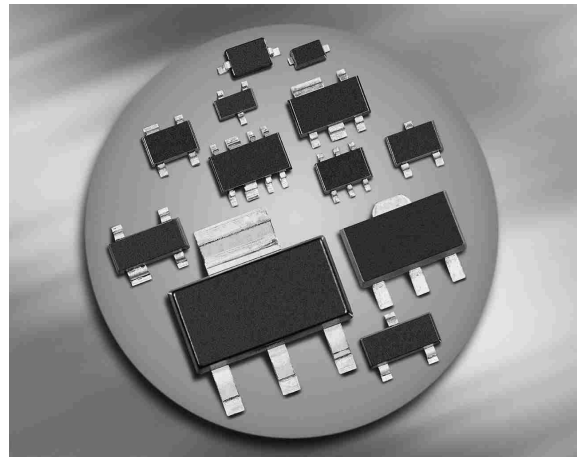
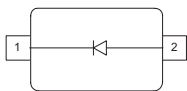


## Silicon Schottky Diode

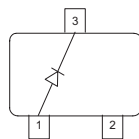
- General-purpose diode for high-speed switching
- Circuit protection
- Voltage clamping
- High-level detecting and mixing
- BAS70-04S: For orientation in reel see package information below
- Pb-free (RoHS compliant) package
- Qualified according AEC Q101<sup>1)</sup>



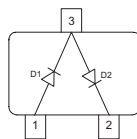
**BAS170W**  
**BAS70-02L**  
**BAS70-02W**  
**BAS70-02V**



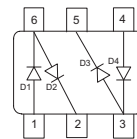
**BAS70**



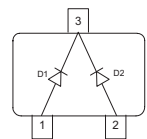
**BAS70-04**  
**BAS70-04W**



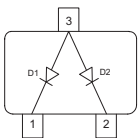
**BAS70-04S**



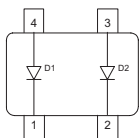
**BAS70-05**  
**BAS70-05W**



**BAS70-06**  
**BAS70-06W**



**BAS70-07**  
**BAS70-07W**



<sup>1)</sup>BAS70-02L is not qualified according AEC Q101

| Type       | Package  | Configuration    | $L_S$ (nH) | Marking |
|------------|----------|------------------|------------|---------|
| BAS170W    | SOD323   | single           | 1.8        | white 7 |
| BAS70      | SOT23    | single           | 1.8        | 73s     |
| BAS70-02L  | TSLP-2-1 | single, leadless | 0.4        | F       |
| BAS70-02V  | SC79     | single           | 0.6        | c       |
| BAS70-02W* | SCD80    | single           | 0.6        | 73      |
| BAS70-04   | SOT23    | series           | 1.8        | 74s     |
| BAS70-04S  | SOT363   | dual series      | 1.6        | 74s     |
| BAS70-04W  | SOT323   | series           | 1.4        | 74s     |
| BAS70-05   | SOT23    | common cathode   | 1.8        | 75s     |
| BAS70-05W  | SOT323   | common cathode   | 1.4        | 75s     |
| BAS70-06   | SOT23    | common anode     | 1.8        | 76s     |
| BAS70-06W  | SOT323   | common anode     | 1.4        | 76s     |
| BAS70-07   | SOT143   | parallel pair    | 2          | 77s     |
| BAS70-07W  | SOT343   | parallel pair    | 1.8        | 77s     |

\* Not for new design

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

| Parameter                                                         | Symbol    | Value       | Unit |
|-------------------------------------------------------------------|-----------|-------------|------|
| Diode reverse voltage                                             | $V_R$     | 70          | V    |
| Forward current                                                   | $I_F$     | 70          | mA   |
| Non-repetitive peak surge forward current<br>$t \leq 10\text{ms}$ | $I_{FSM}$ | 100         |      |
| Total power dissipation                                           | $P_{tot}$ |             | mW   |
| BAS70, BAS70-07, $T_S \leq 72\text{ °C}$                          |           | 250         |      |
| BAS70-02L, $T_S \leq 117\text{ °C}$                               |           | 250         |      |
| BAS70-02W, -02V, $T_S \leq 107\text{ °C}$                         |           | 250         |      |
| BAS70-04, BAS70-06, $T_S \leq 48\text{ °C}$                       |           | 250         |      |
| BAS70-04S/W/-06W, BAS170W, $T_S \leq 97\text{ °C}$                |           | 250         |      |
| BAS70-05, $T_S \leq 22\text{ °C}$                                 |           | 250         |      |
| BAS70-05W, $T_S \leq 90\text{ °C}$                                |           | 250         |      |
| BAS70-07W, $T_S \leq 114\text{ °C}$                               |           | 250         |      |
| Junction temperature                                              | $T_J$     | 150         | °C   |
| Operating temperature range                                       | $T_{op}$  | -55 ... 125 |      |
| Storage temperature                                               | $T_{Stg}$ | -55 ... 150 |      |

**Thermal Resistance**

| Parameter                                | Symbol     | Value      | Unit |
|------------------------------------------|------------|------------|------|
| Junction - soldering point <sup>1)</sup> | $R_{thJS}$ |            | K/W  |
| BAS70, BAS70-07                          |            | $\leq 310$ |      |
| BAS70-02L                                |            | $\leq 130$ |      |
| BAS70-02W, -02V                          |            | $\leq 170$ |      |
| BAS70-04, BAS70-06                       |            | $\leq 410$ |      |
| BAS70-04S/W, BAS70-06W                   |            | $\leq 210$ |      |
| BAS70-05                                 |            | $\leq 510$ |      |
| BAS70-05W                                |            | $\leq 240$ |      |
| BAS70-07W                                |            | $\leq 145$ |      |
| BAS170W                                  |            | $\leq 190$ |      |

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

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

**DC Characteristics**

|                                                                                           |              |                   |                   |                    |               |
|-------------------------------------------------------------------------------------------|--------------|-------------------|-------------------|--------------------|---------------|
| Breakdown voltage<br>$I_{(BR)} = 10\ \mu\text{A}$                                         | $V_{(BR)}$   | 70                | -                 | -                  | V             |
| Reverse current<br>$V_R = 50\ \text{V}$                                                   | $I_R$        | -                 | -                 | 0.1                | $\mu\text{A}$ |
| Forward voltage<br>$I_F = 1\ \text{mA}$<br>$I_F = 10\ \text{mA}$<br>$I_F = 15\ \text{mA}$ | $V_F$        | 300<br>600<br>720 | 375<br>705<br>880 | 410<br>750<br>1000 | mV            |
| Forward voltage matching <sup>2)</sup><br>$I_F = 10\ \text{mA}$                           | $\Delta V_F$ | -                 | -                 | 20                 |               |

<sup>1)</sup>For calculation of  $R_{thJA}$  please refer to Application Note AN077 (Thermal Resistance Calculation)

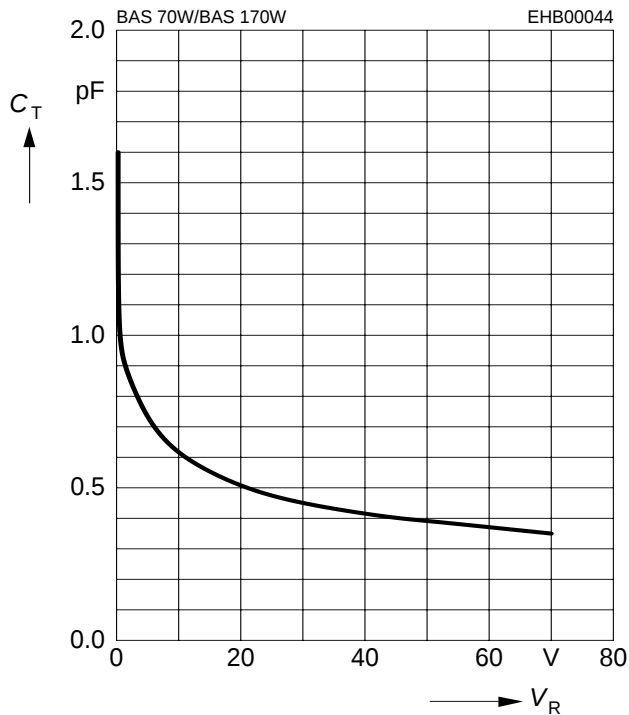
<sup>2)</sup> $\Delta V_F$  is the difference between lowest and highest  $V_F$  in a multiple diode component.

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

| Parameter                                                        | Symbol      | Values |      |      | Unit     |
|------------------------------------------------------------------|-------------|--------|------|------|----------|
|                                                                  |             | min.   | typ. | max. |          |
| AC Characteristics                                               |             |        |      |      |          |
| Diode capacitance<br>$V_R = 0$ , $f = 1\text{ MHz}$              | $C_T$       | -      | 1.5  | 2    | pF       |
| Forward resistance<br>$I_F = 10\text{ mA}$ , $f = 10\text{ kHz}$ | $r_f$       | -      | 34   | -    | $\Omega$ |
| Charge carrier life time<br>$I_F = 25\text{ mA}$                 | $\tau_{rr}$ | -      | -    | 100  | ps       |

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

$f = 1\text{ MHz}$



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

$f = 10\text{ kHz}$



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

$T_A = \text{Parameter}$



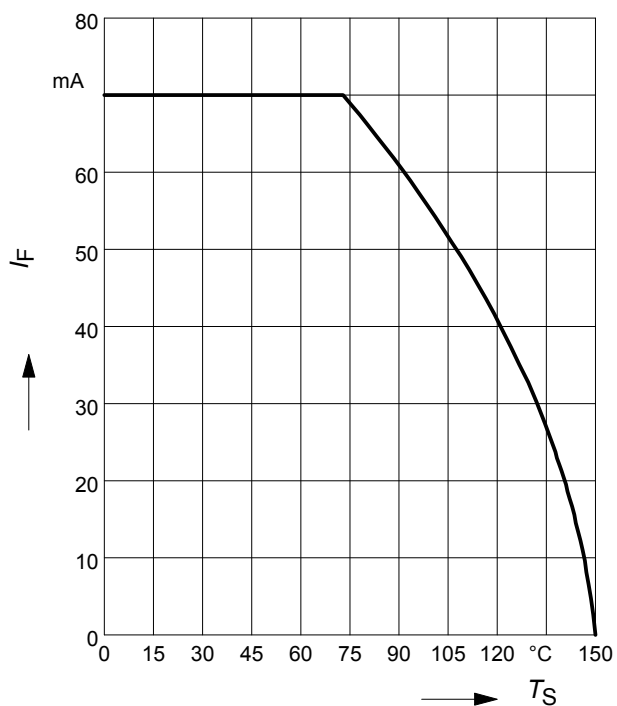
**Forward current  $I_F = f(V_F)$**

$T_A = \text{Parameter}$



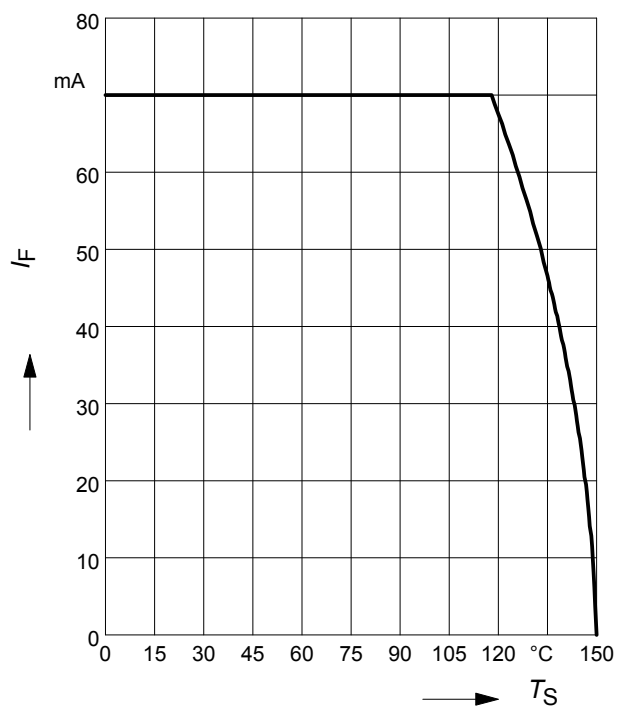
**Forward current  $I_F = f(T_S)$**

BAS70, BAS70-07



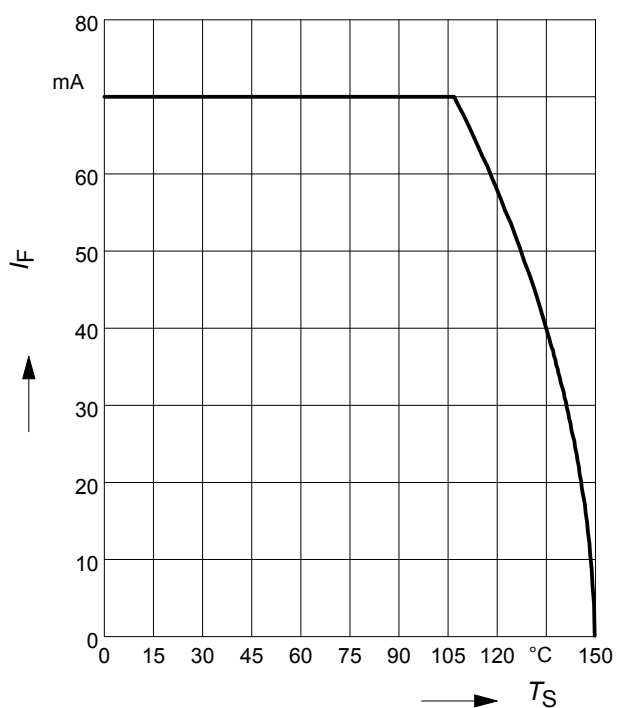
**Forward current  $I_F = f(T_S)$**

BAS70-02L



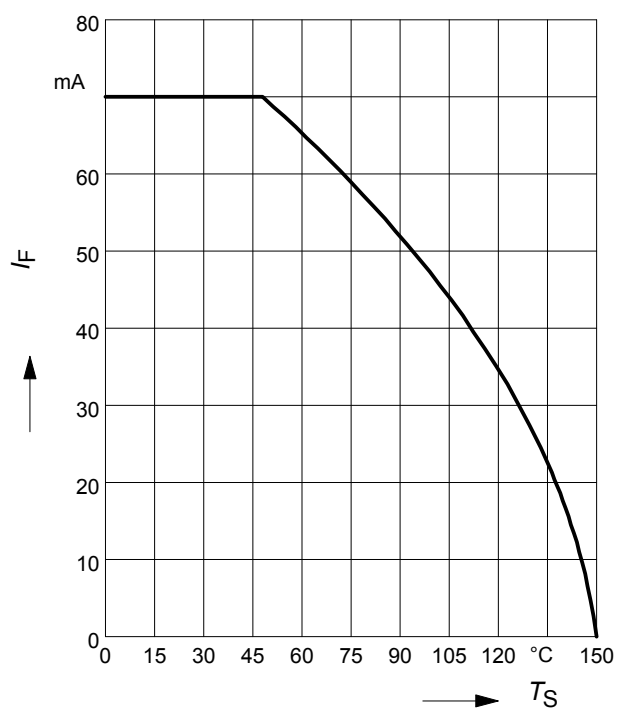
**Forward current  $I_F = f(T_S)$**

BAS70-02W, -02V



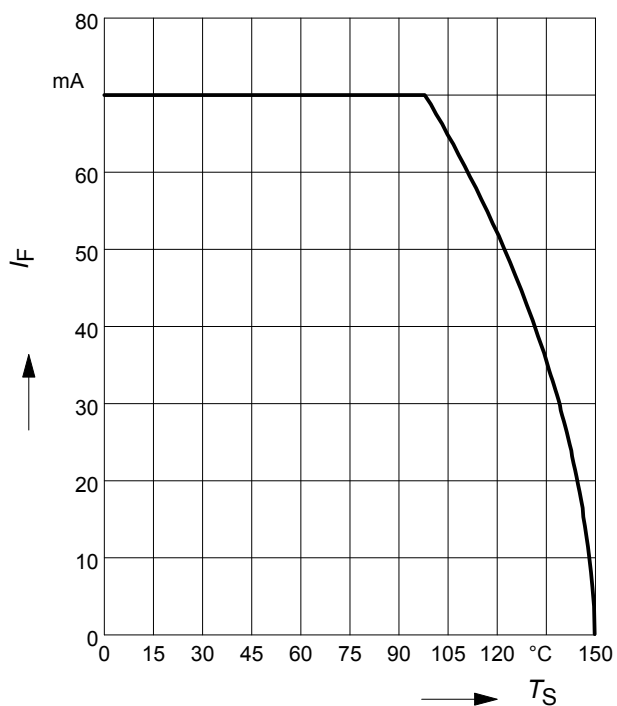
**Forward current  $I_F = f(T_S)$**

BAS70-04, BAS70-06



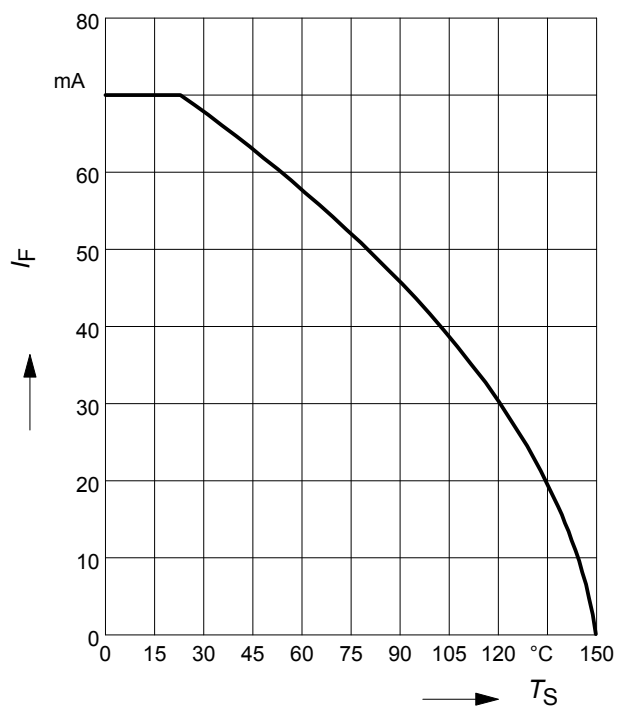
**Forward current  $I_F = f(T_S)$**

BAS70-04S/W, BAS70-06W, BAS170W



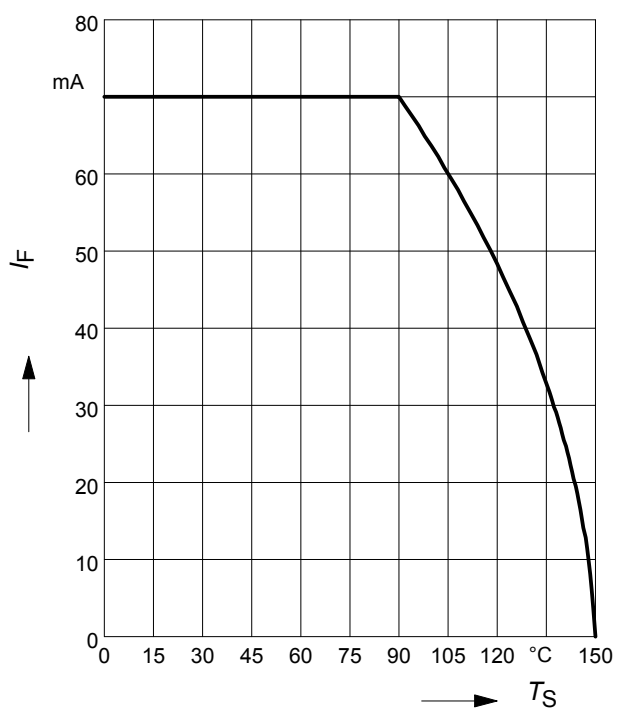
**Forward current  $I_F = f(T_S)$**

BAS70-05



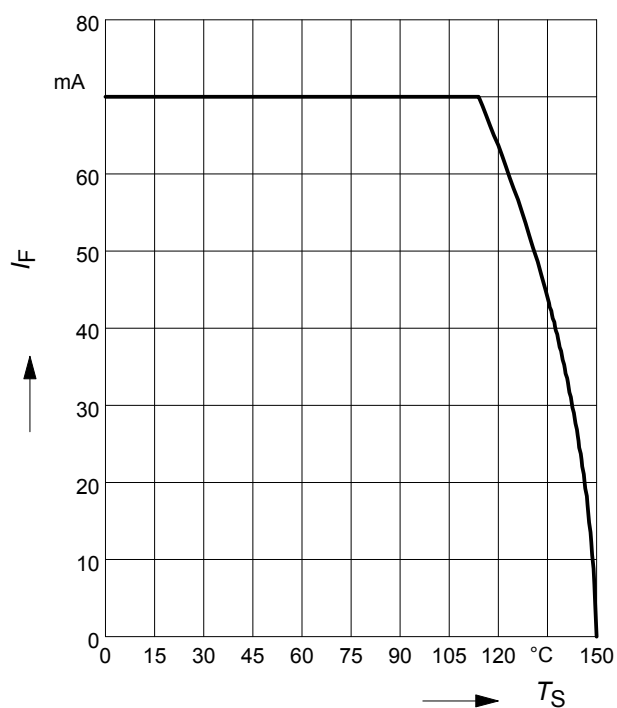
**Forward current  $I_F = f(T_S)$**

BAS70-05W



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

BAS70-07W



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

BAS170W



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

BAS70



**Permissible Pulse Load**

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

BAS70



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

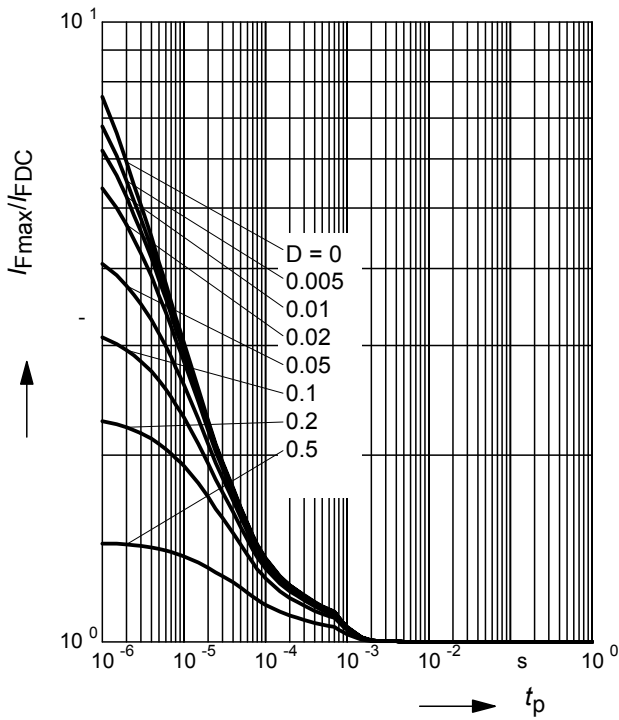
BAS70-02L



### Permissible Pulse Load

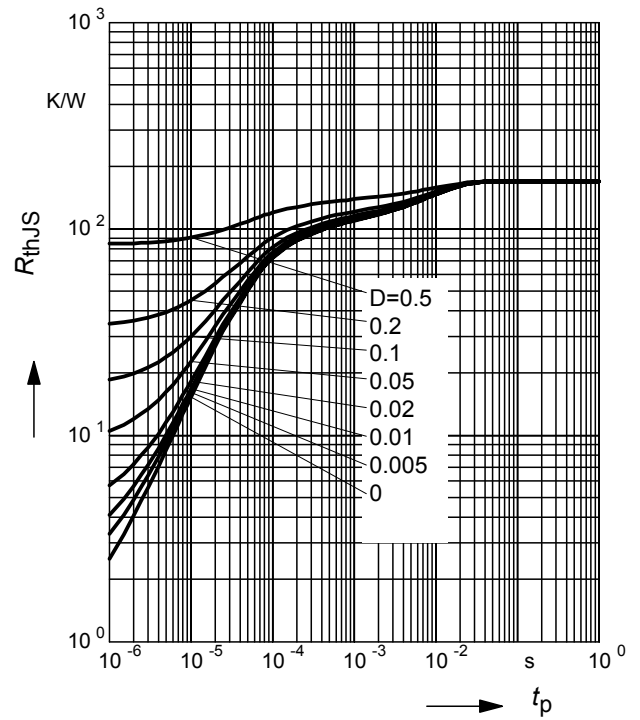
$$I_{Fmax}/I_{FDC} = f(t_p)$$

BAS70-02L



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

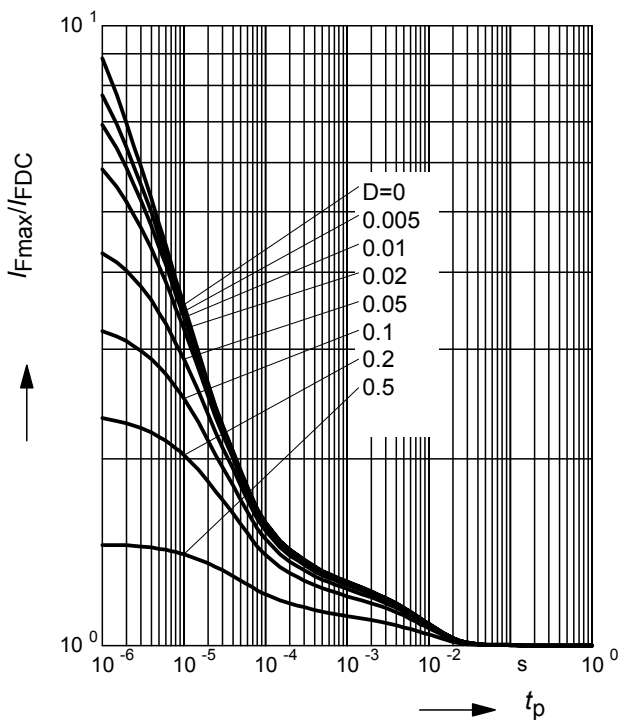
BAS70-02W, -02V



### Permissible Pulse Load

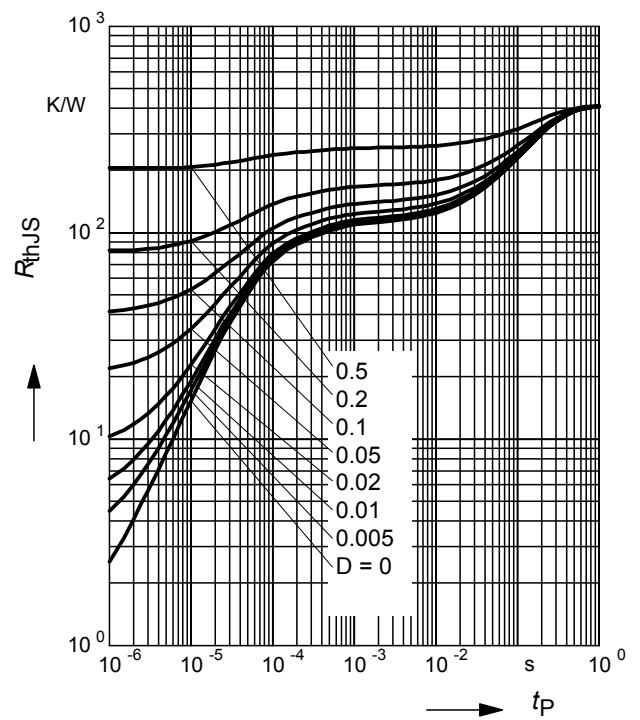
$$I_{Fmax}/I_{FDC} = f(t_p)$$

BAS70-02W, -02V



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

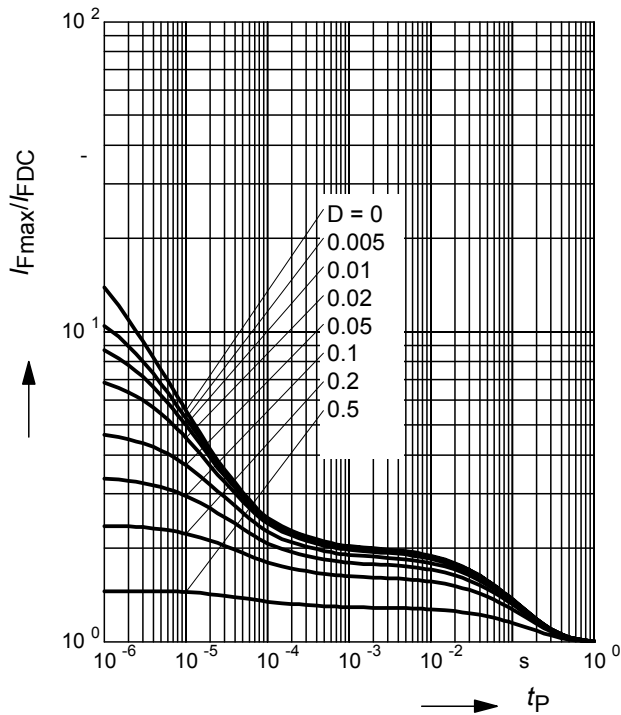
BAS70-04, BAS70-06



### Permissible Pulse Load

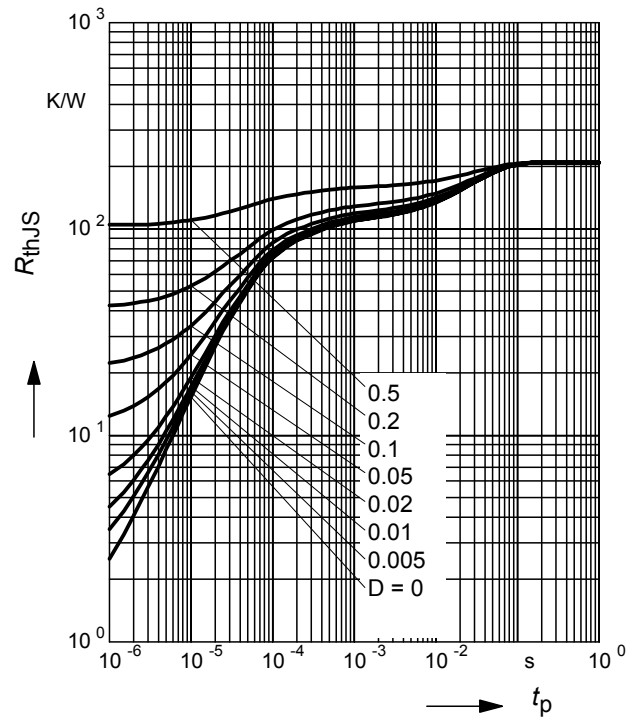
$$I_{Fmax}/I_{FDC} = f(t_p)$$

BAS70-04, BAS70-06



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

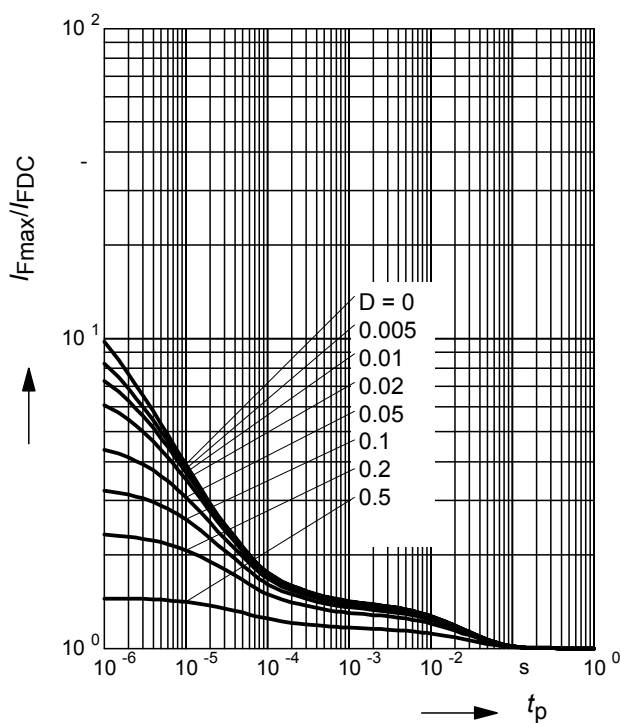
BAS70-04S



### Permissible Pulse Load

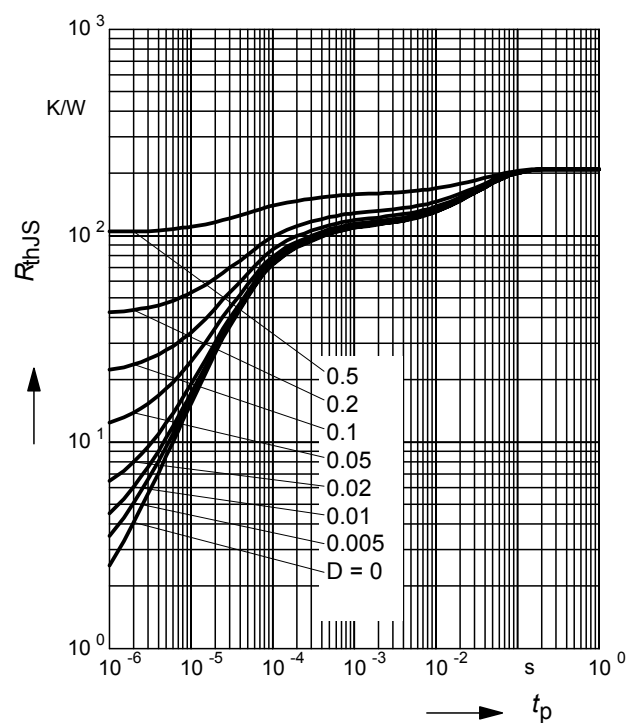
$$I_{Fmax}/I_{FDC} = f(t_p)$$

BAS70-04S



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

BAS70-04W, BAS70-06W



### Permissible Pulse Load

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

BAS70-04W, BAS70-06W



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

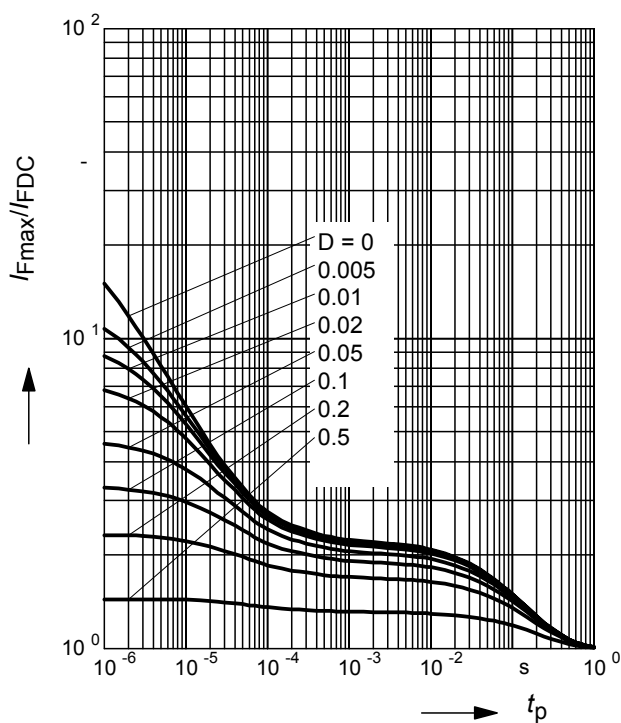
BAS70-05



### Permissible Pulse Load

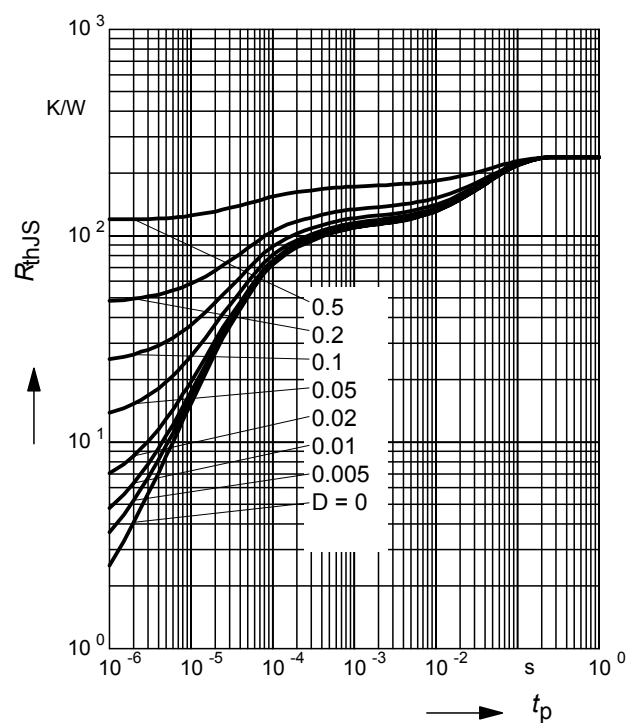
$$I_{Fmax}/I_{FDC} = f(t_p)$$

BAS70-05



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

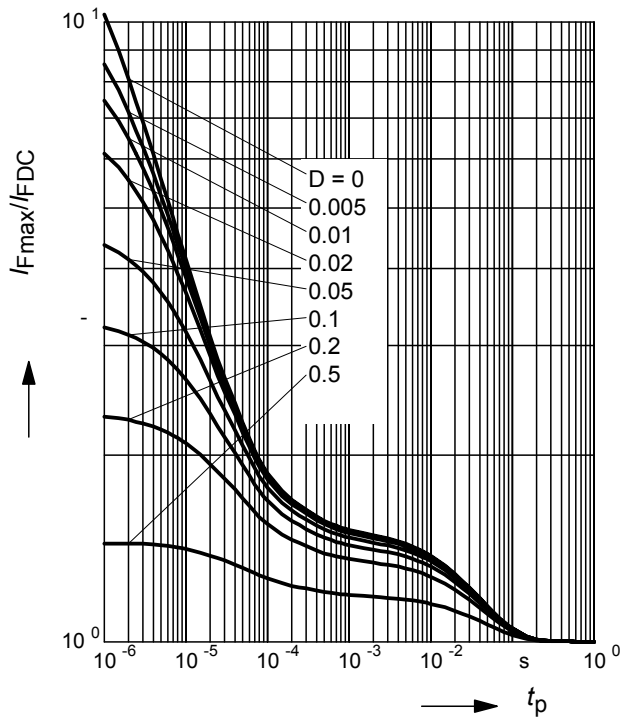
BAS70-05W



### Permissible Pulse Load

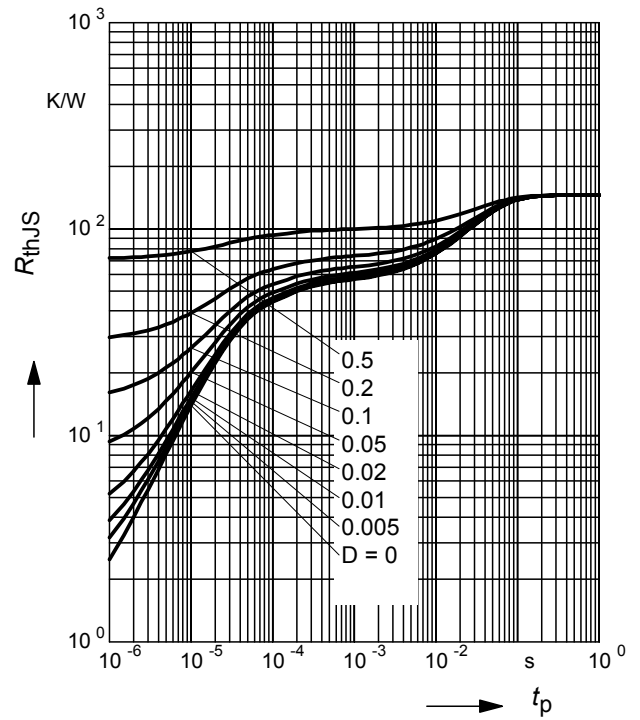
$$I_{Fmax}/I_{FDC} = f(t_p)$$

BAS70-05W



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

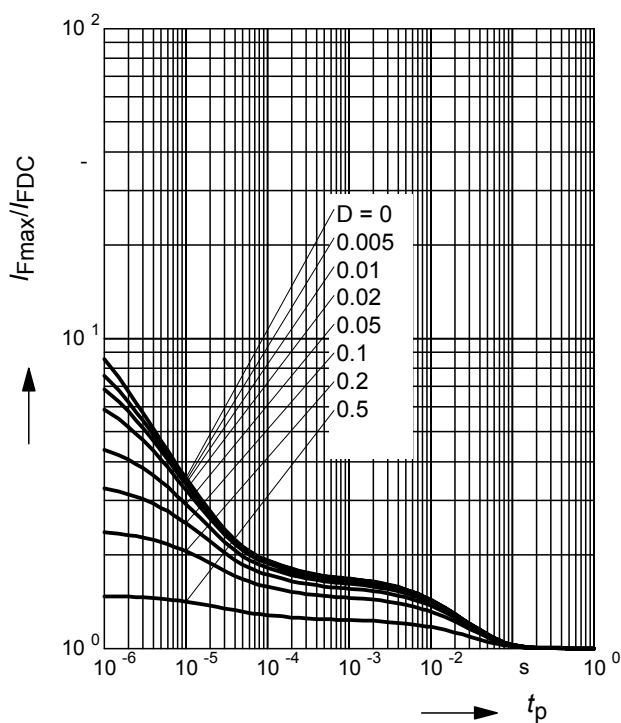
BAS70-07W



### Permissible Pulse Load

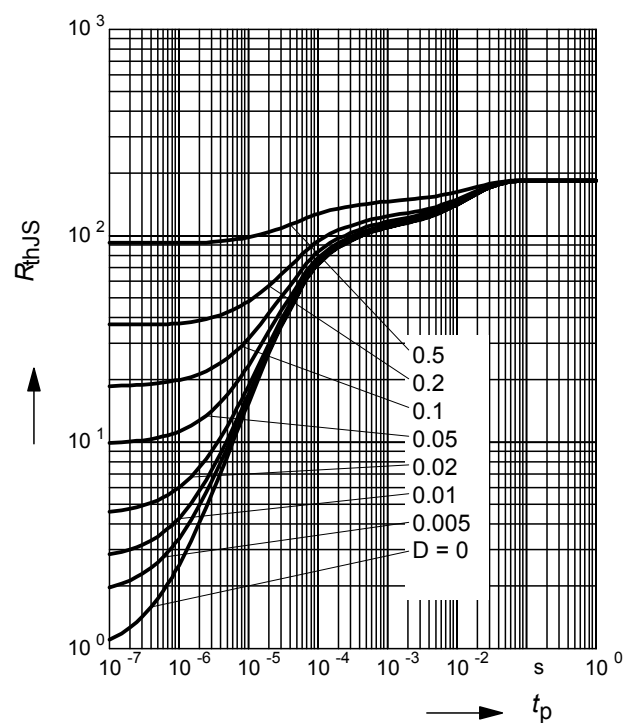
$$I_{Fmax}/I_{FDC} = f(t_p)$$

BAS70-07W



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

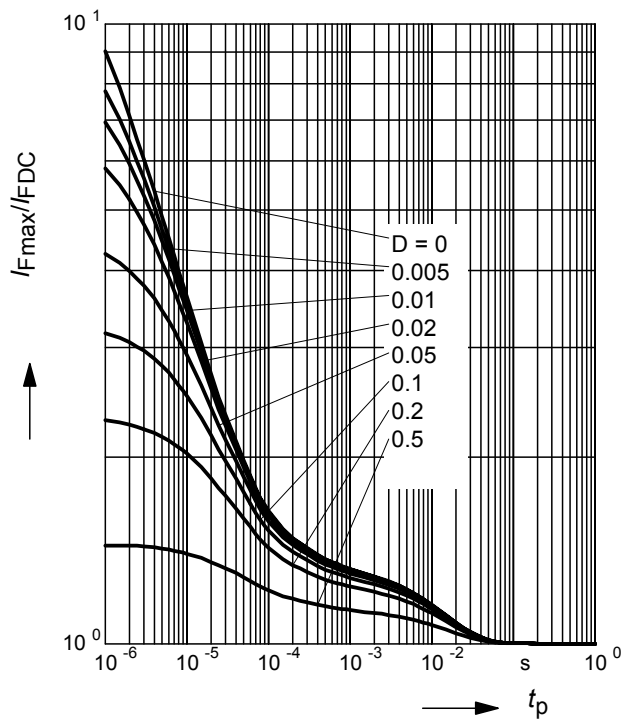
BAS170W



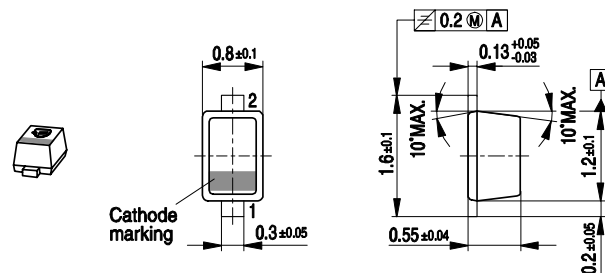
# Permissible Pulse Load

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

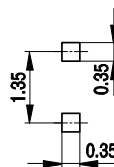
BAS170W



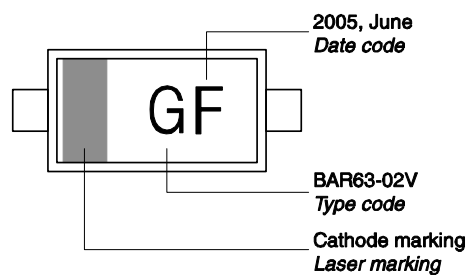
## Package Outline



## Foot Print

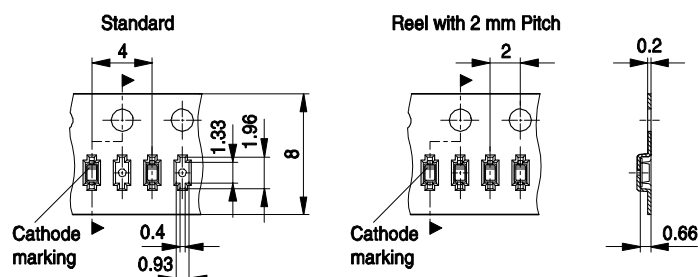


## Marking Layout (Example)

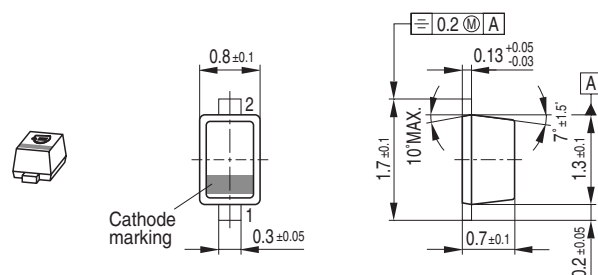


## Standard Packing

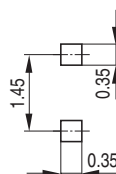
Reel ø180 mm = 3.000 Pieces/Reel  
 Reel ø180 mm = 8.000 Pieces/Reel (2 mm Pitch)  
 Reel ø330 mm = 10.000 Pieces/Reel



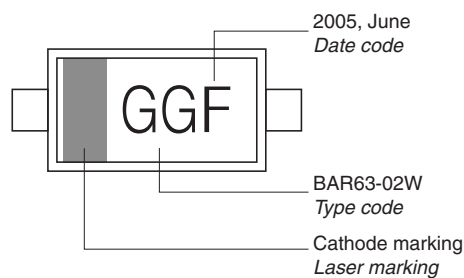
## Package Outline



## Foot Print

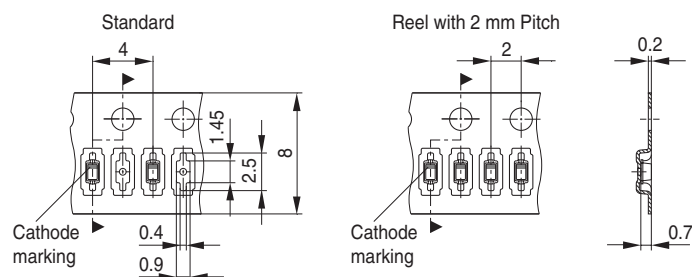


## Marking Layout (Example)



## 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

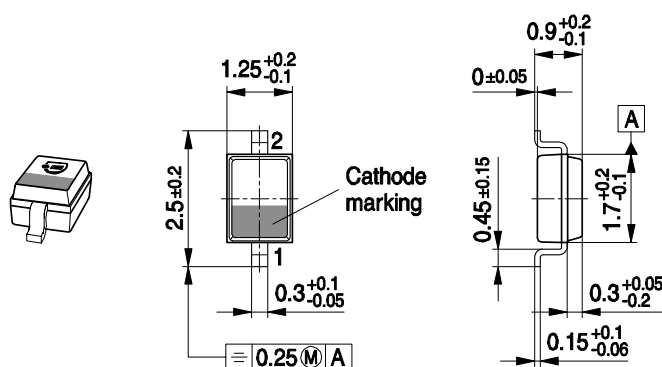


Date Code marking for discrete packages with one digit (SCD80, SC79, SC75<sup>1)</sup>) CES-Code

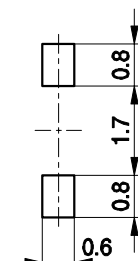
| Month | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|-------|------|------|------|------|------|------|------|------|------|------|------|------|
| 01    | a    | p    | A    | P    | a    | p    | A    | P    | a    | p    | A    | P    |
| 02    | b    | q    | 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.

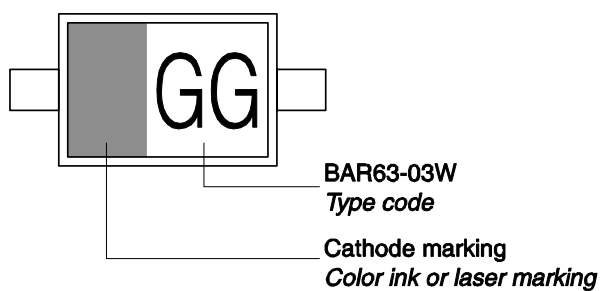
## Package Outline



## Foot Print

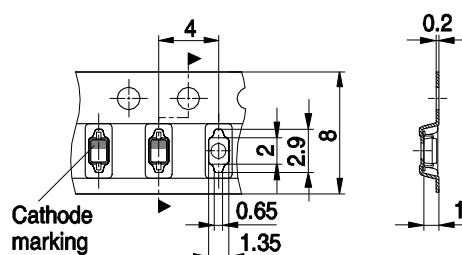


## Marking Layout (Example)

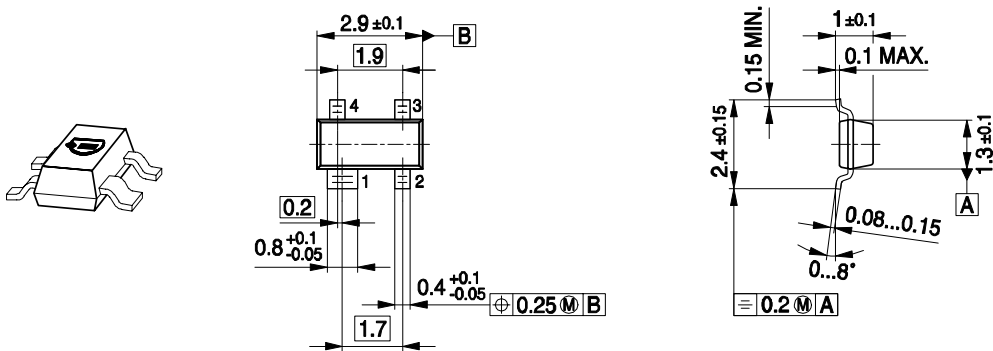


## Standard Packing

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



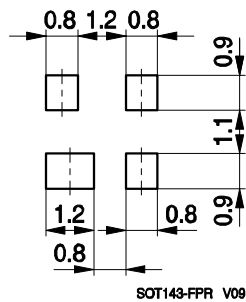
## Package Outline



Note: Mold flash, protrusions or gate burrs of 0,2 mm max. per side are not included

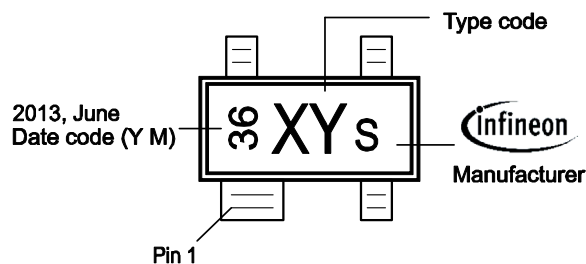
SOT143-PO V09

## Foot Print



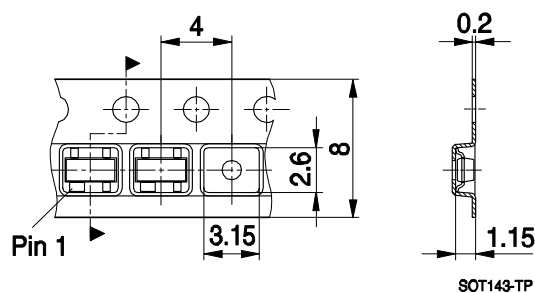
SOT143-FPR V09

## Marking Layout (Example)



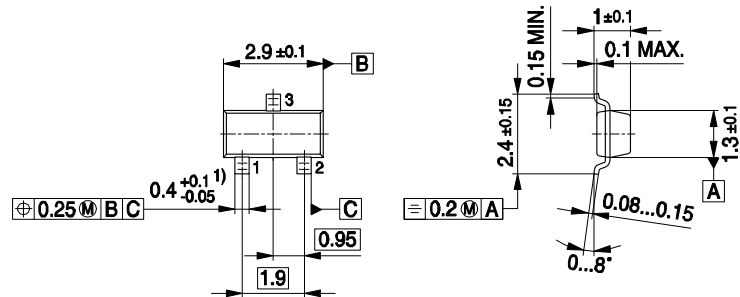
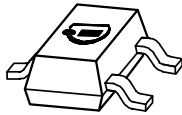
## Standard Packing

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



SOT143-TP

## Package Outline



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

SOT23-PO V08

## Foot Print



SOT23-FPR V08

## Marking Layout



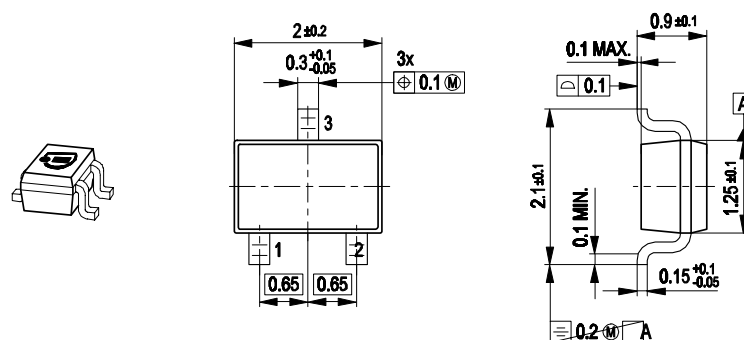
## Standard Packing

Reel o 180 mm: 3.000 Pieces / Reel  
Reel o 330 mm = 10.000 Pieces / Reel

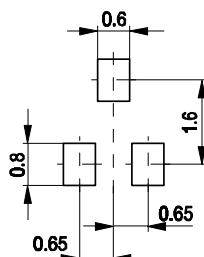


SOT23-TP V02

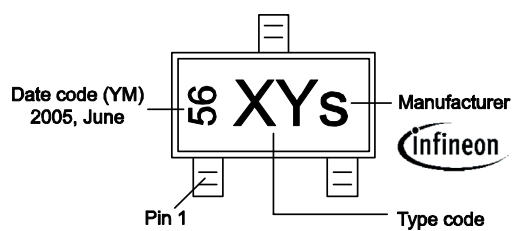
## Package Outline



## Foot Print

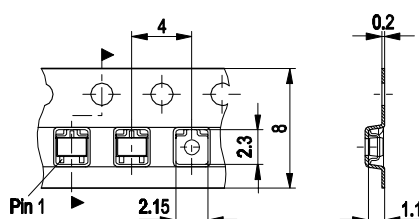


## Marking Layout (Example)

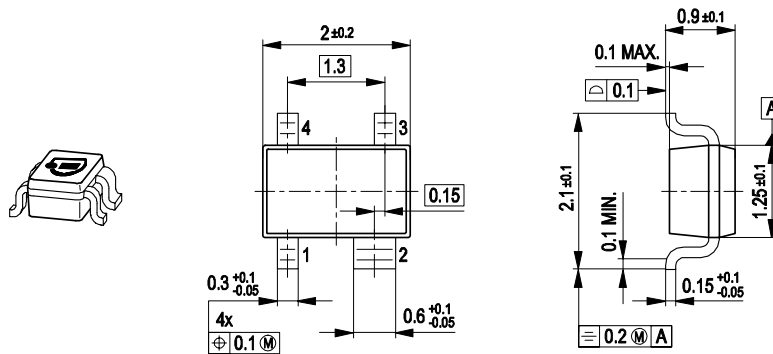


## Standard Packing

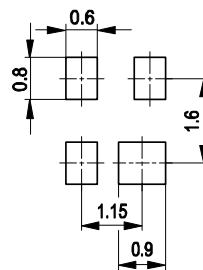
Reel  $\varnothing 180$  mm = 3.000 Pieces/Reel  
 Reel  $\varnothing 330$  mm = 10.000 Pieces/Reel



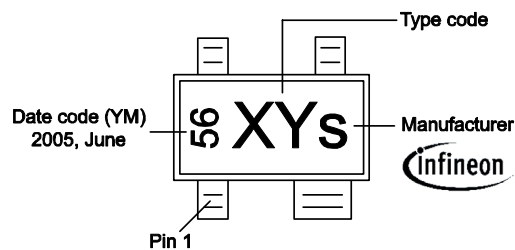
## Package Outline



## Foot Print

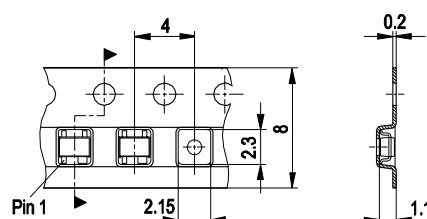


## Marking Layout (Example)

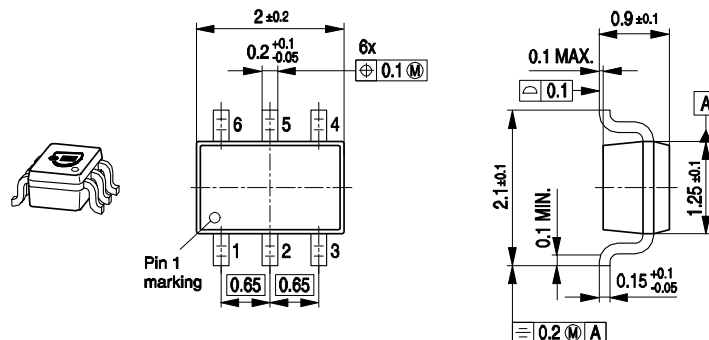


## Standard Packing

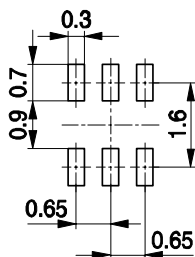
Reel  $\phi 180 \text{ mm}$  = 3.000 Pieces/Reel  
 Reel  $\phi 330 \text{ mm}$  = 10.000 Pieces/Reel



## Package Outline

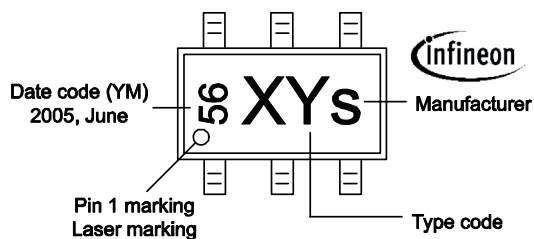


## Foot Print



## Marking Layout (Example)

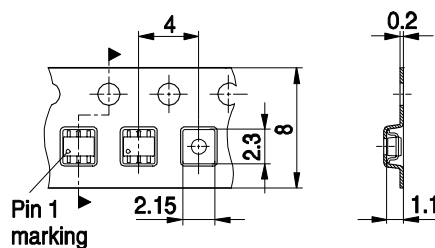
Small variations in positioning of  
Date code, Type code and Manufacturer are possible.



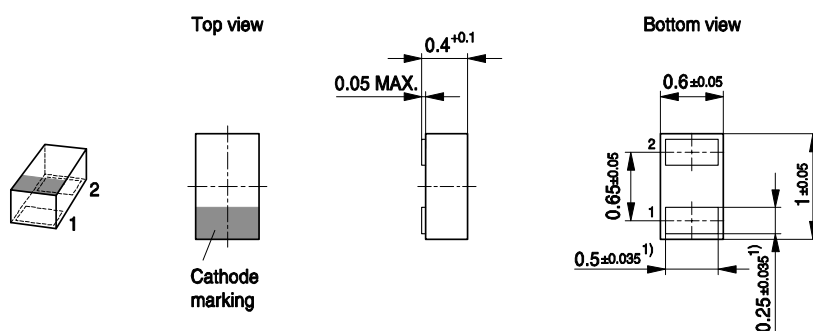
## Standard Packing

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

For symmetric types no defined Pin 1 orientation in reel.



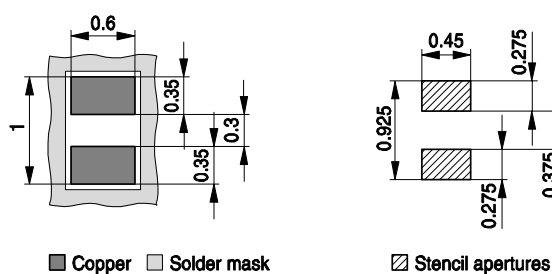
## Package Outline



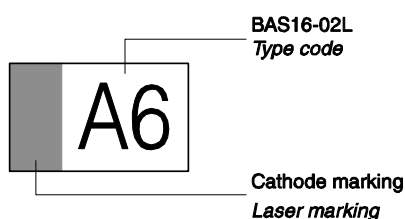
1) Dimension applies to plated terminal

## Foot Print

For board assembly information please refer to Infineon website "Packages"



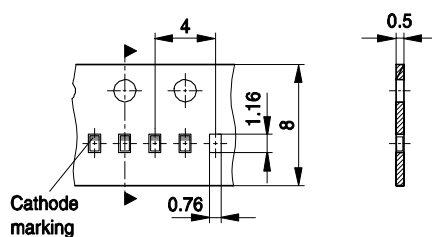
## Marking Layout (Example)



## Standard Packing

Reel ø180 mm = 15.000 Pieces/Reel

Reel ø330 mm = 50.000 Pieces/Reel (optional)



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