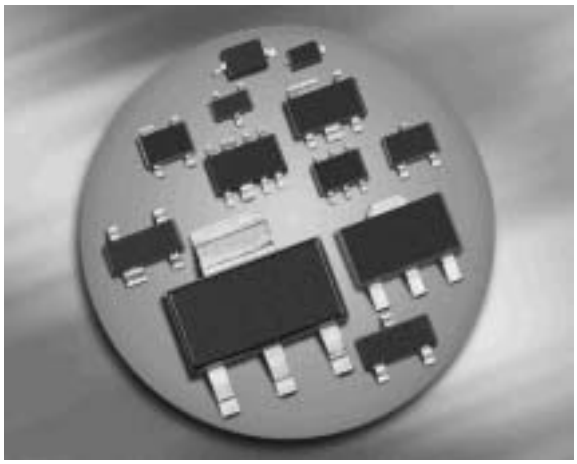
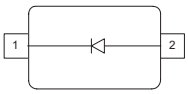
**Silicon Schottky Diode**

- 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[1)]
- Qualified according AEC Q101

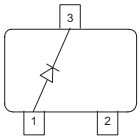


AEC Qualified RoHS

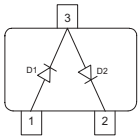
**BAS170W**
**BAS70-02L**
**BAS70-02W**



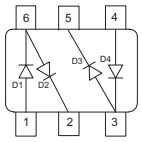

**BAS70**



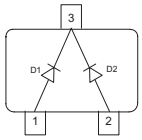

**BAS70-04**
**BAS70-04W**



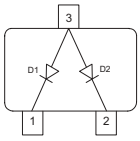

**BAS70-04S**



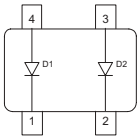

**BAS70-05**
**BAS70-05W**




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




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




[1]Pb-containing package may be available upon special request

| 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 |
| BAS70-02W | 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 |

**Maximum Ratings** at $T_A$ = 25°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>$t \leq$ 10ms | $I_{FSM}$ | 100 | |
| Total power dissipation | $P_{tot}$ | | mW |
| BAS70, BAS70-07, $T_S \leq$ 72 °C | | 250 | |
| BAS70-02L, $T_S \leq$ 117 °C | | 250 | |
| BAS70-02W, $T_S \leq$ 107 °C | | 250 | |
| BAS70-04, BAS70-06, $T_S \leq$ 48 °C | | 250 | |
| BAS70-04S/W/-06W, BAS170W, $T_S \leq$ 97 °C | | 250 | |
| BAS70-05, $T_S \leq$ 22 °C | | 250 | |
| BAS70-05W, $T_S \leq$ 90 °C | | 250 | |
| BAS70-07W, $T_S \leq$ 114 °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[1)] | $R_{thJS}$ | | K/W |
| BAS70, BAS70-07 | | ≤ 310 | |
| BAS70-02L, | | ≤ 130 | |
| BAS70-02W | | ≤ 170 | |
| BAS70-04, BAS70-06 | | ≤ 410 | |
| BAS70-04S/W, BAS70-06W | | ≤ 210 | |
| BAS70-05 | | ≤ 510 | |
| BAS70-05W | | ≤ 240 | |
| BAS70-07W | | ≤ 145 | |
| BAS170W | | ≤ 190 | |

**Electrical Characteristics** at $T_A$ = 25°C, unless otherwise specified

| Parameter | Symbol | Values | | | Unit |
|---|---|---|---|---|---|
| | | min. | typ. | max. | |
| **DC Characteristics** | | | | | |
| Breakdown voltage<br>$I_{(BR)}$ = 10 µA | $V_{(BR)}$ | 70 | - | - | V |
| Reverse current<br>$V_R$ = 50 V | $I_R$ | - | - | 0.1 | µA |
| Forward voltage | $V_F$ | | | | mV |
| $I_F$ = 1 mA | | 300 | 375 | 410 | |
| $I_F$ = 10 mA | | 600 | 705 | 750 | |
| $I_F$ = 15 mA | | 720 | 880 | 1000 | |
| Forward voltage matching[2)]<br>$I_F$ = 10 mA | $\Delta V_F$ | - | - | 20 | |

[1]For calculation of $R_{thJA}$ please refer to Application Note Thermal Resistance

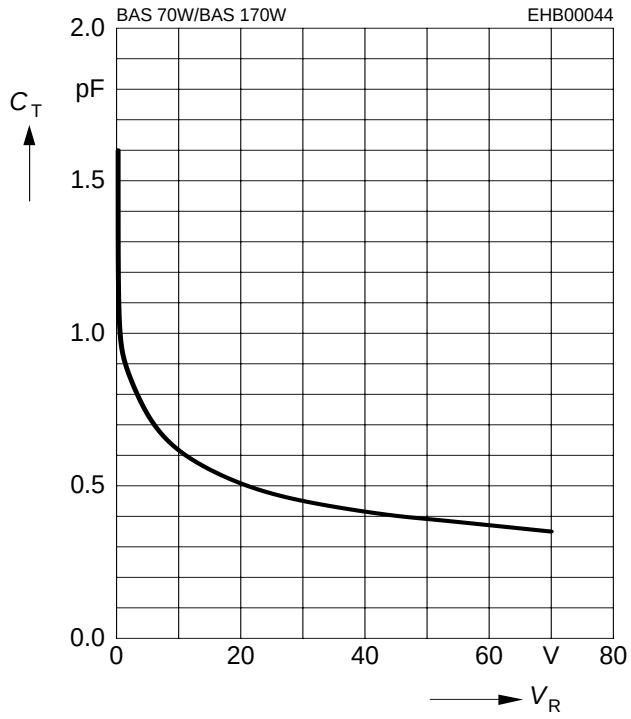
[2]$\Delta V_F$ is the difference between lowest and highest $V_F$ in a multiple diode component.

**Electrical Characteristics** at $T_A$ = 25°C, unless otherwise specified

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

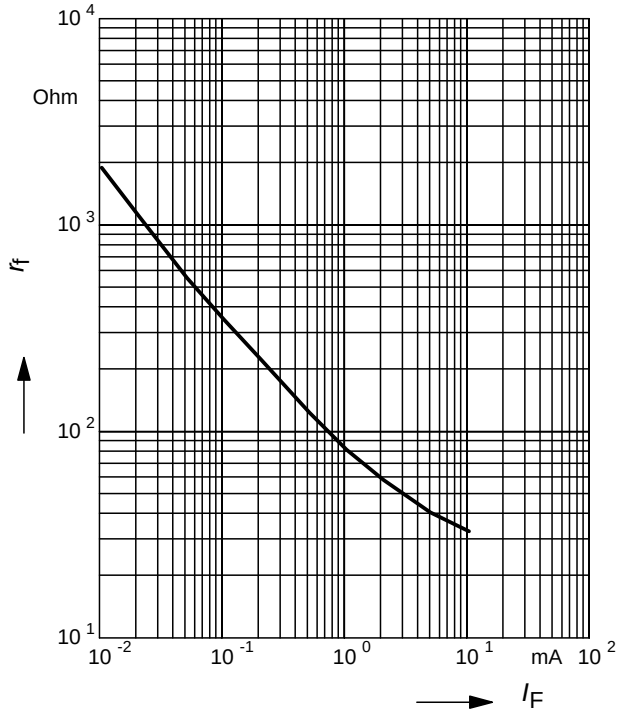
**Diode capacitance** $C_T = f(V_R)$

$f$ = 1MHz



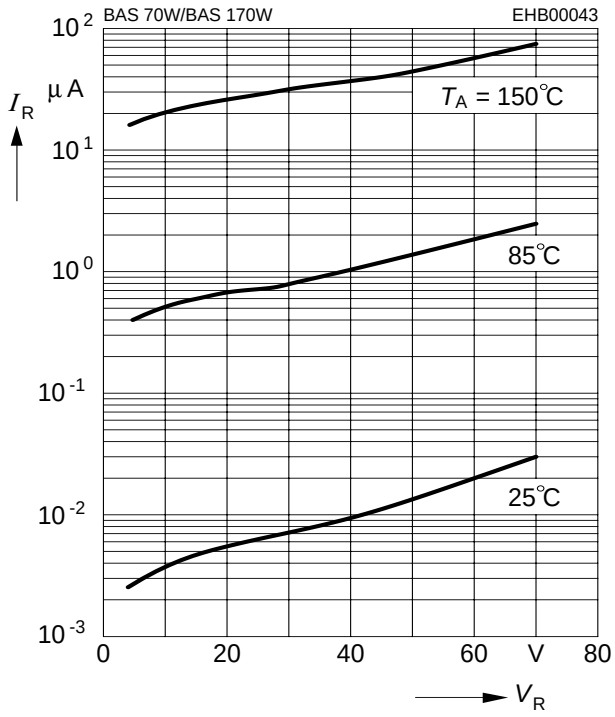

**Forward resistance** $r_f = f(I_F)$

$f$ = 10 kHz



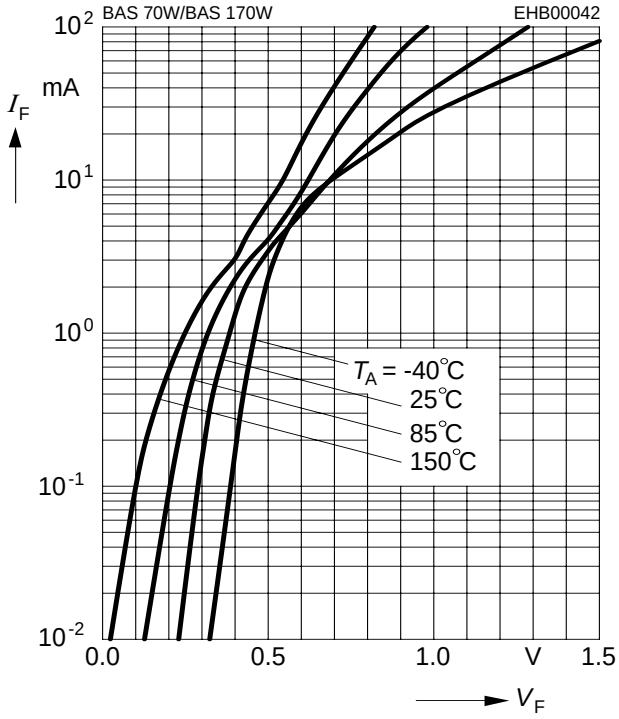

**Reverse current** $I_R = f(V_R)$

$T_A$ = Parameter



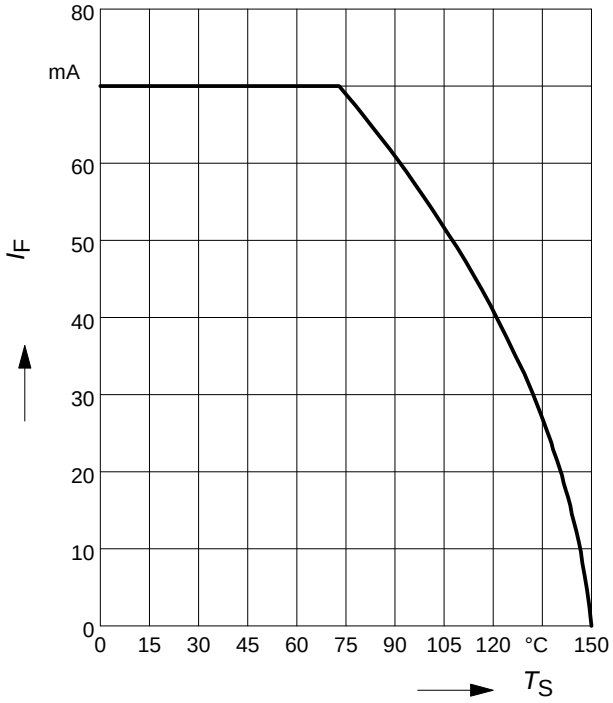

**Forward current** $I_F = f(V_F)$

$T_A$ = Parameter



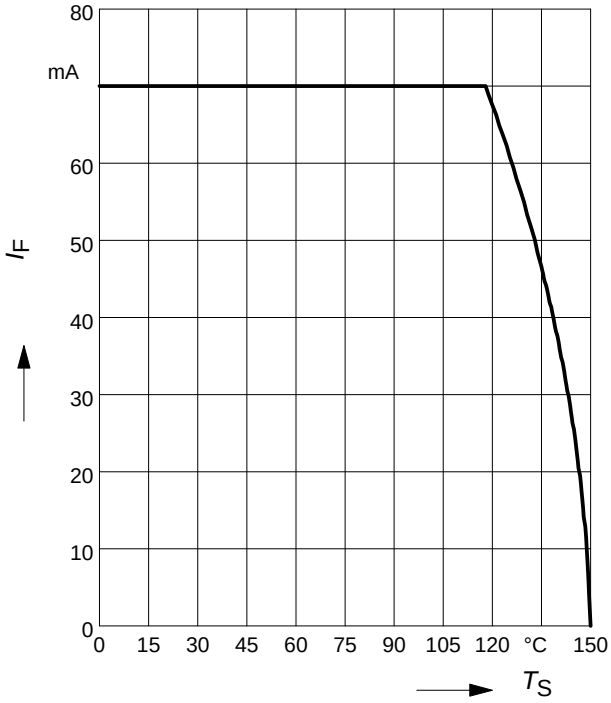
**Forward current $I_F = f(T_S)$**

BAS70, BAS70-07



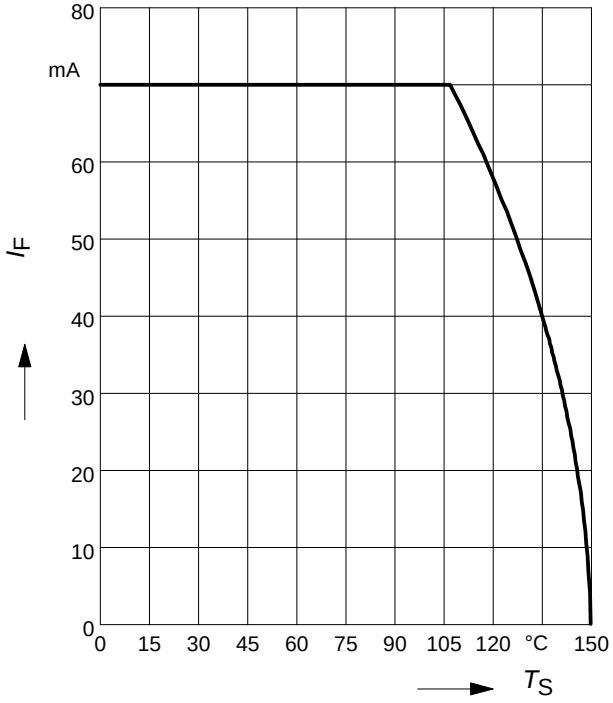

**Forward current $I_F = f(T_S)$**

BAS70-02L



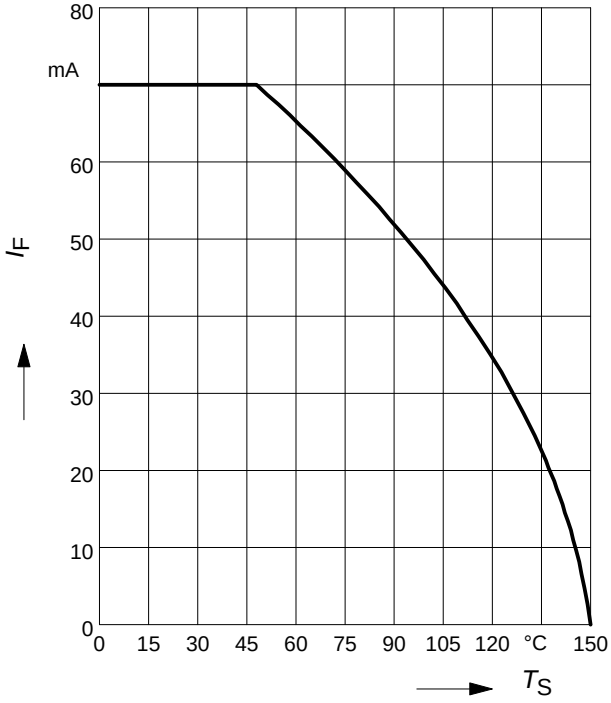

**Forward current $I_F = f(T_S)$**

BAS70-02W



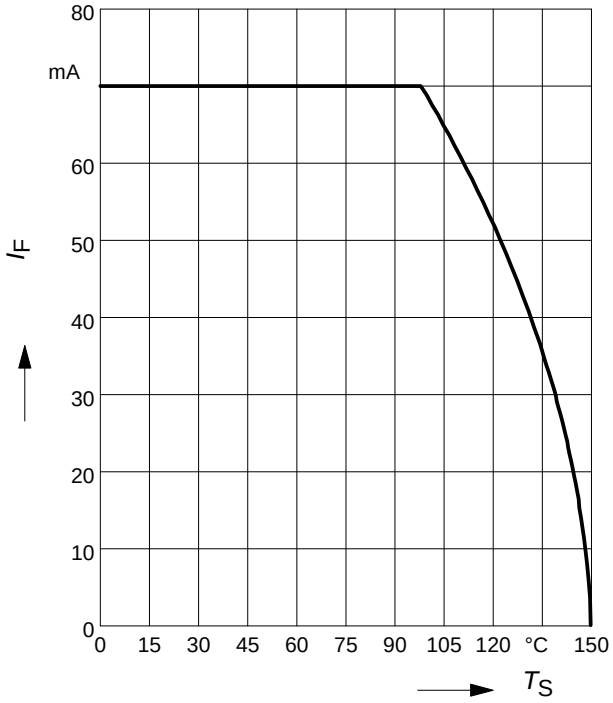

**Forward current $I_F = f(T_S)$**

BAS70-04, BAS70-06



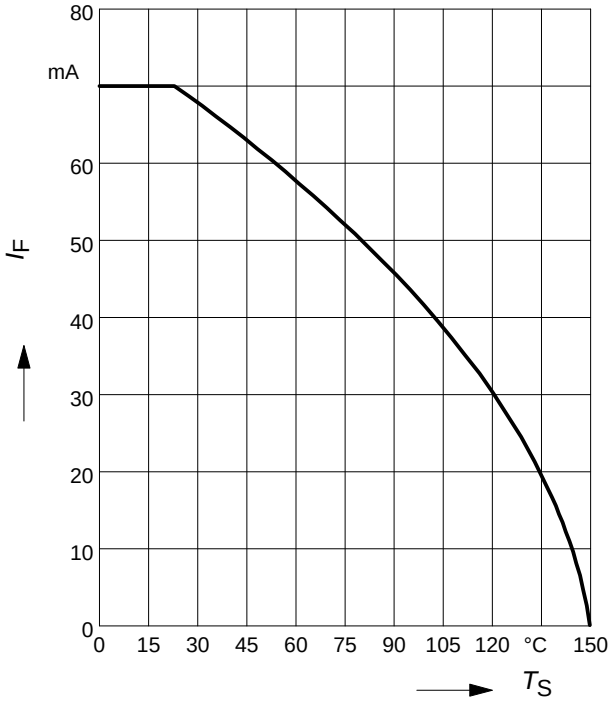
**Forward current** $I_F = f(T_S)$

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



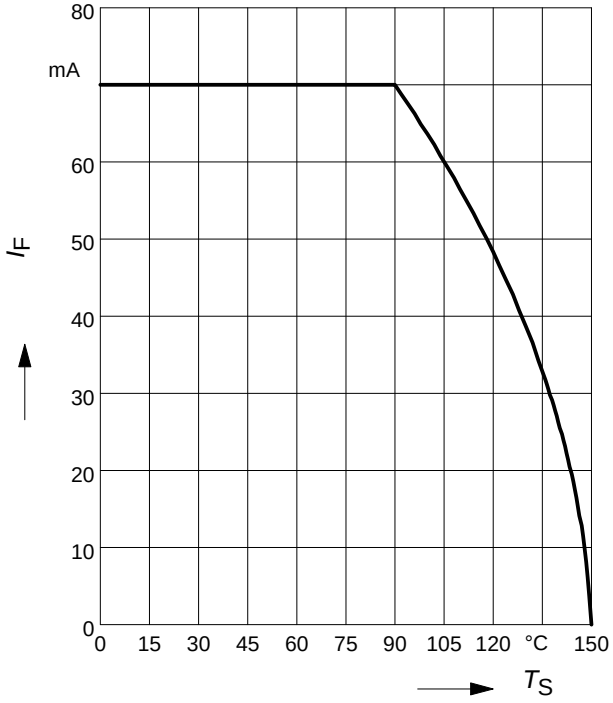

**Forward current** $I_F = f(T_S)$

BAS70-05



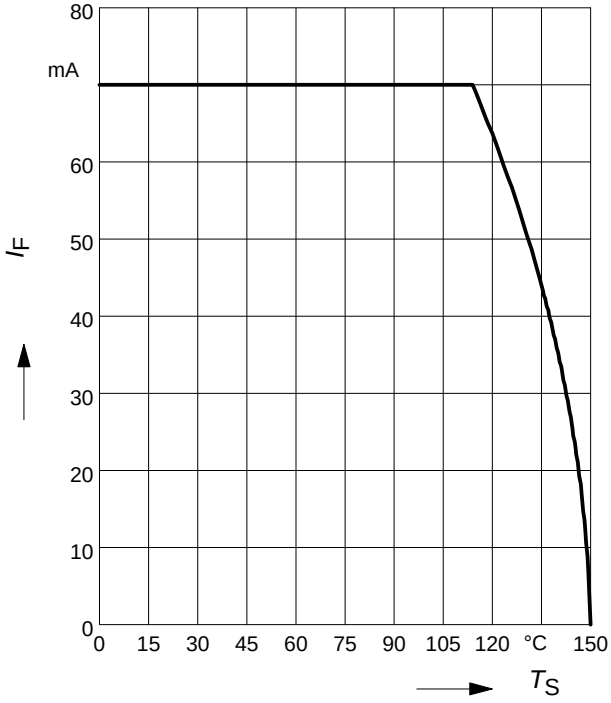

**Forward current** $I_F = f(T_S)$

BAS70-05W



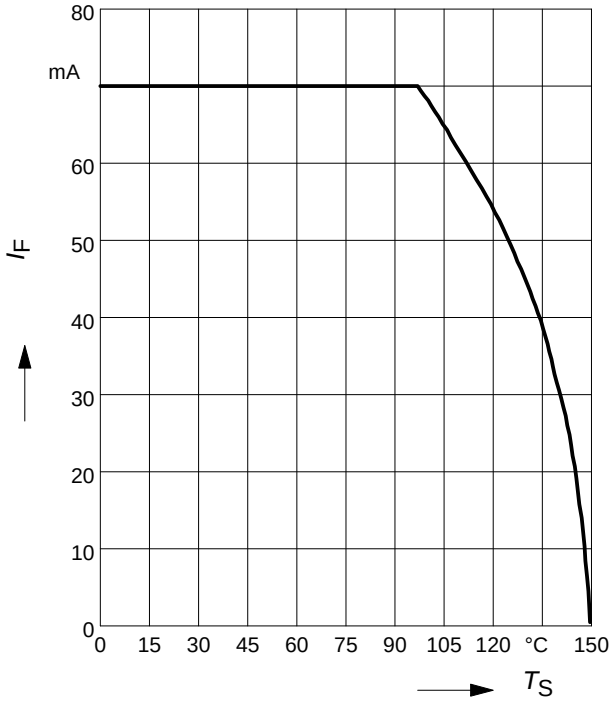

**Forward current** $I_F = f(T_S)$

BAS70-07W



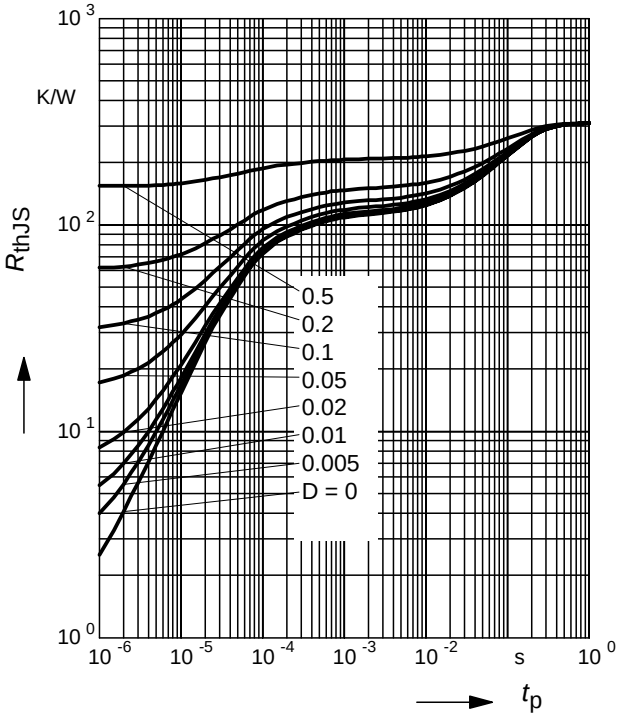
**Forward current** $I_F = f(T_S)$

BAS170W




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

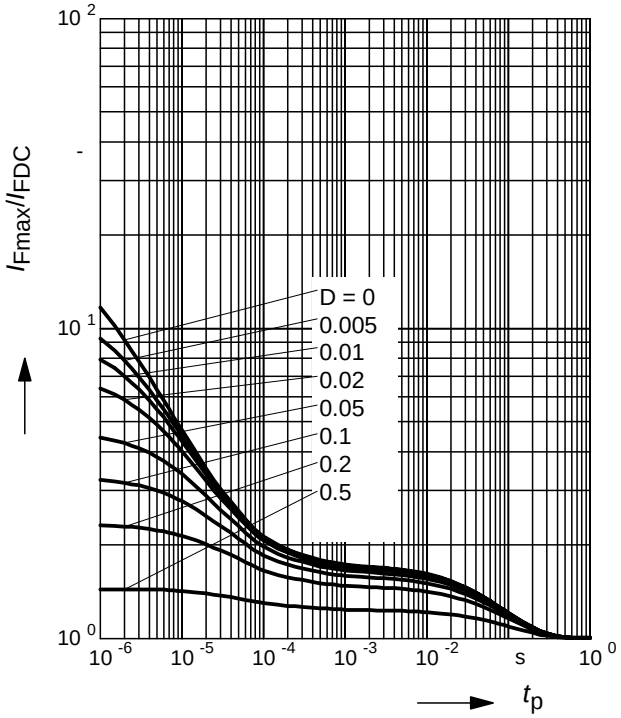
BAS70




**Permissible Pulse Load**

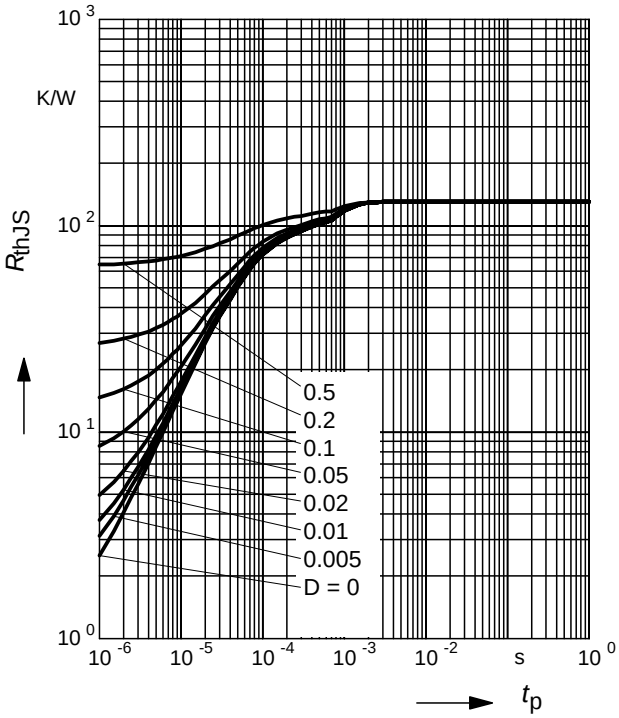
$I_{Fmax}/I_{FDC} = f(t_p)$

BAS70




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

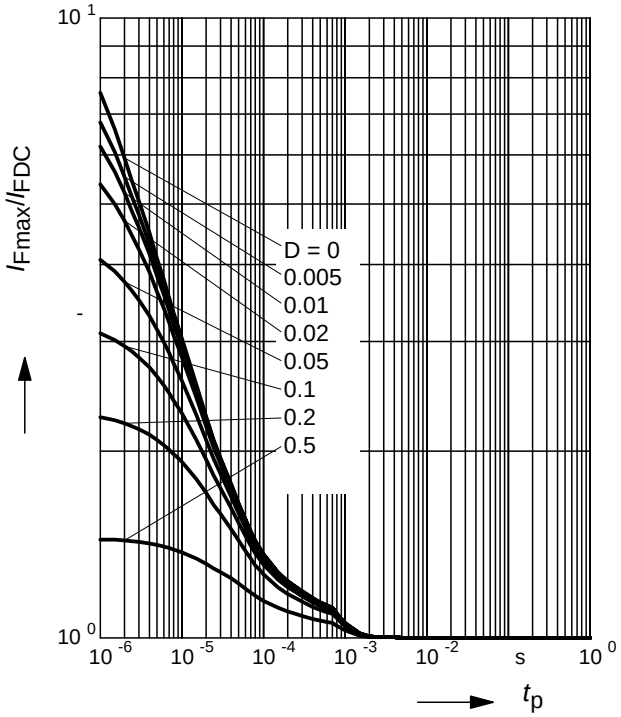
BAS70-02L



**Permissible Pulse Load**

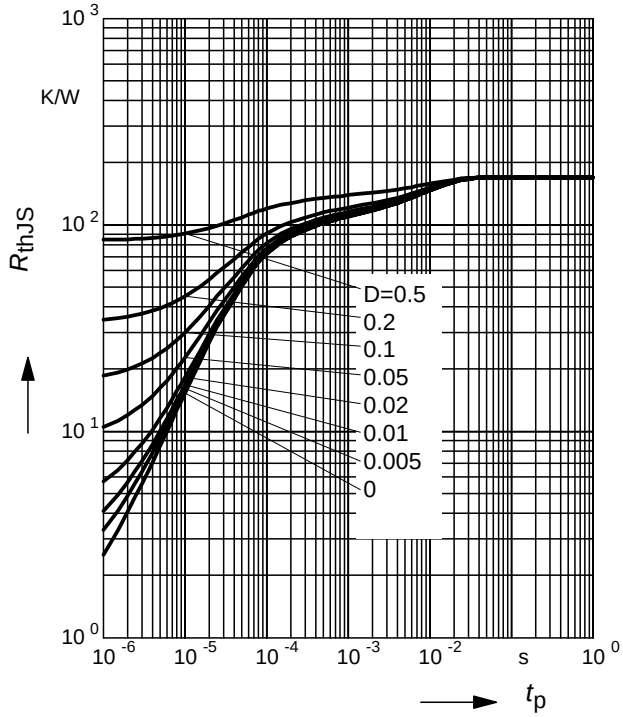
$I_{Fmax}/ I_{FDC} = f(t_p)$

BAS70-02L




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

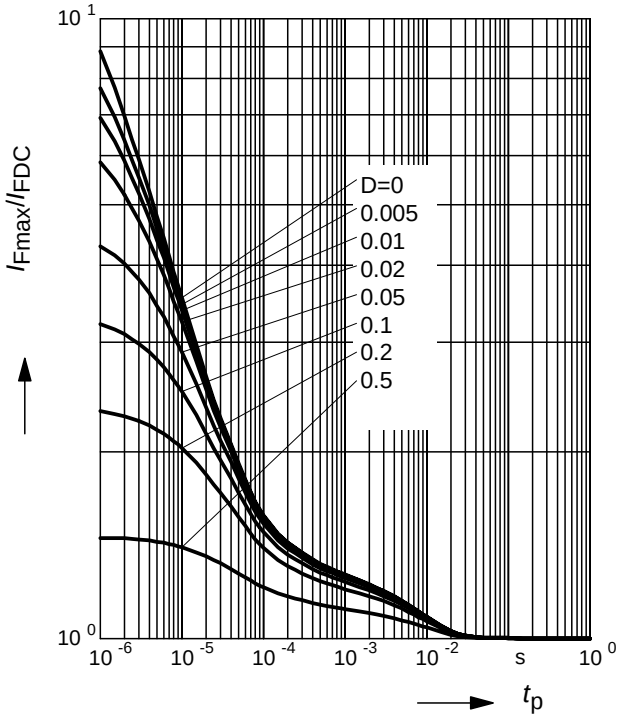
BAS70-02W




**Permissible Pulse Load**

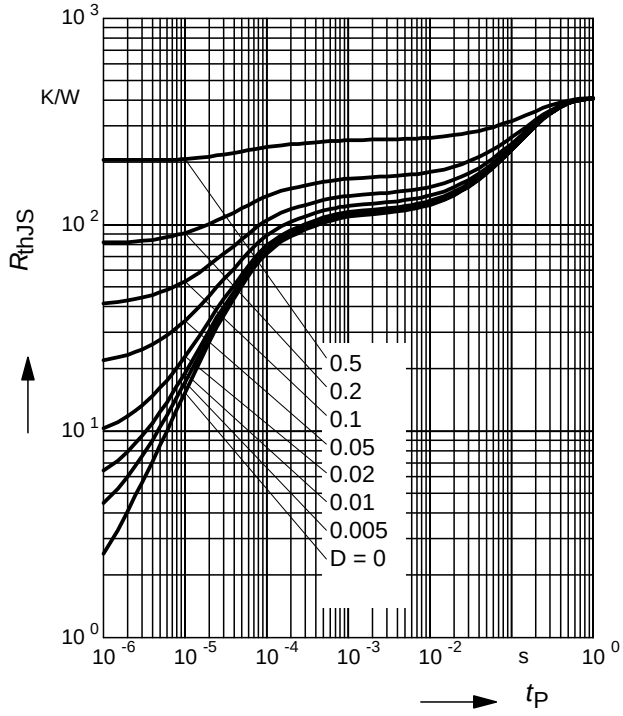
$I_{Fmax}/ I_{FDC} = f(t_p)$

BAS70-02W




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

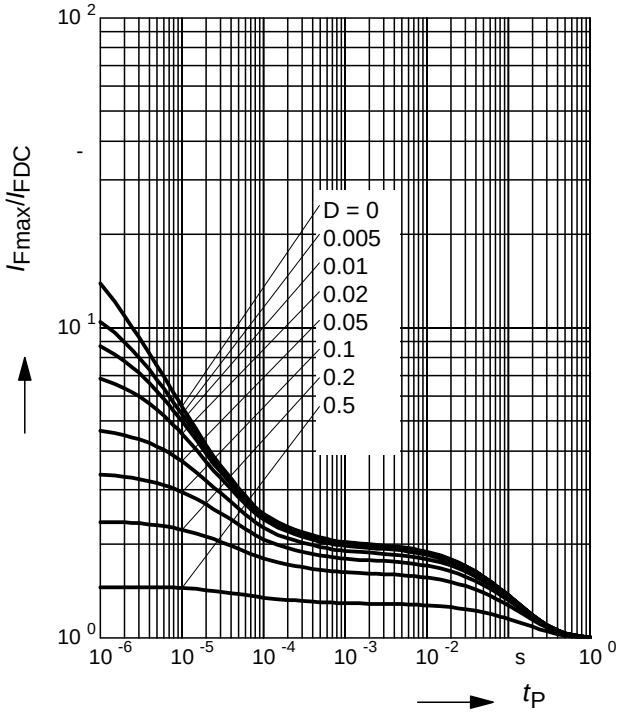
BAS70-04, BAS70-06



**Permissible Pulse Load**

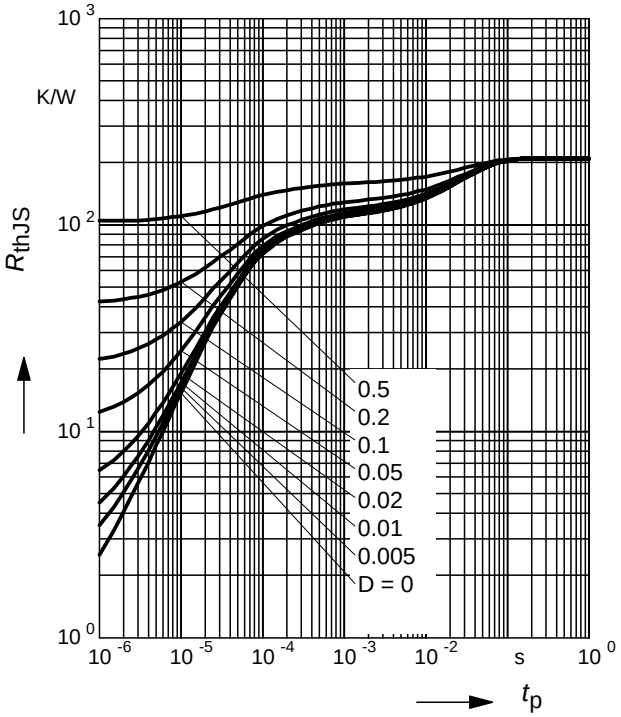
$I_{Fmax}/ I_{FDC} = f(t_p)$

BAS70-04, BAS70-06




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

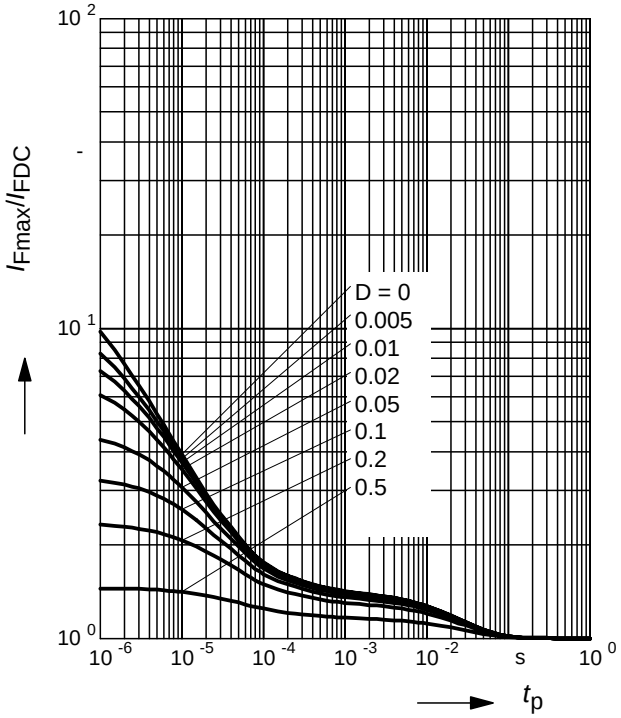
BAS70-04S




**Permissible Pulse Load**

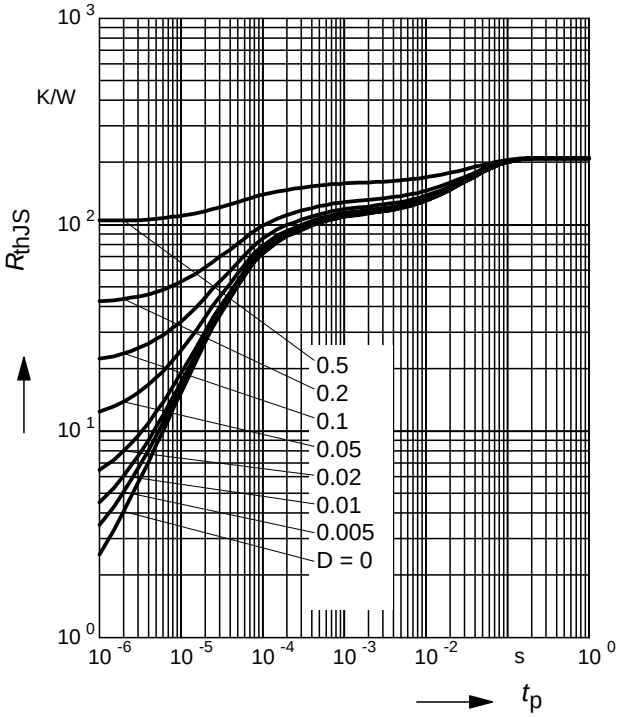
$I_{Fmax}/ I_{FDC} = f(t_p)$

BAS70-04S




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

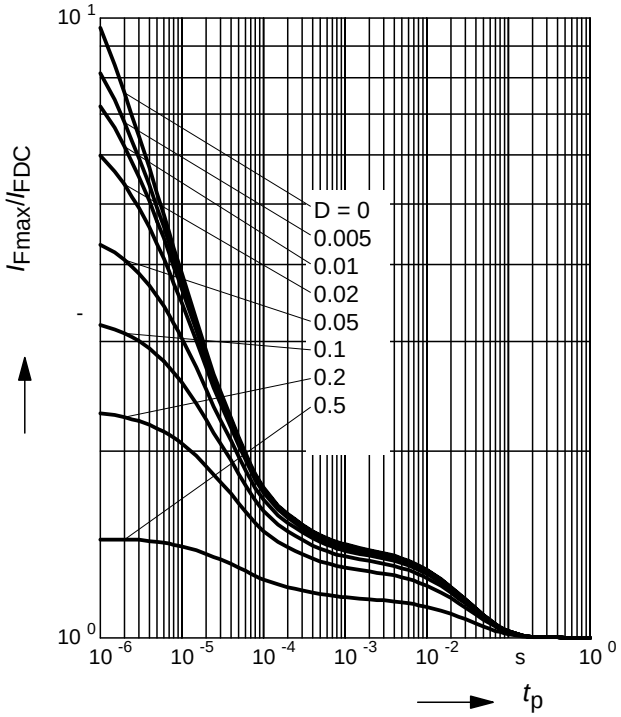
BAS70-04W, BAS70-06W



**Permissible Pulse Load**

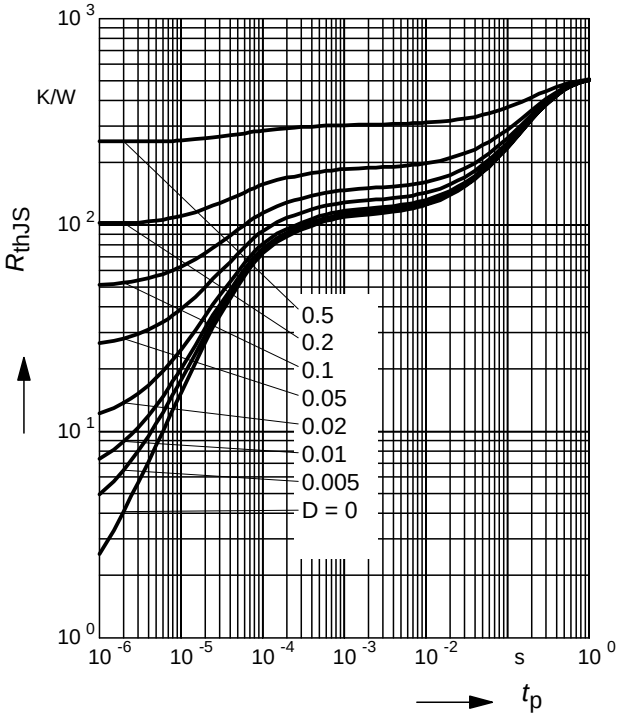
$I_{Fmax}/ I_{FDC} = f(t_p)$

BAS70-04W, BAS70-06W




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

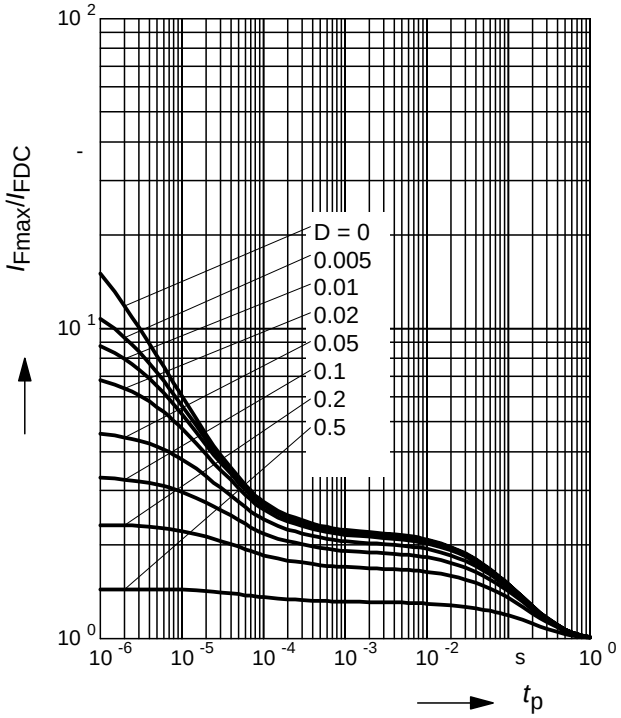
BAS70-05




**Permissible Pulse Load**

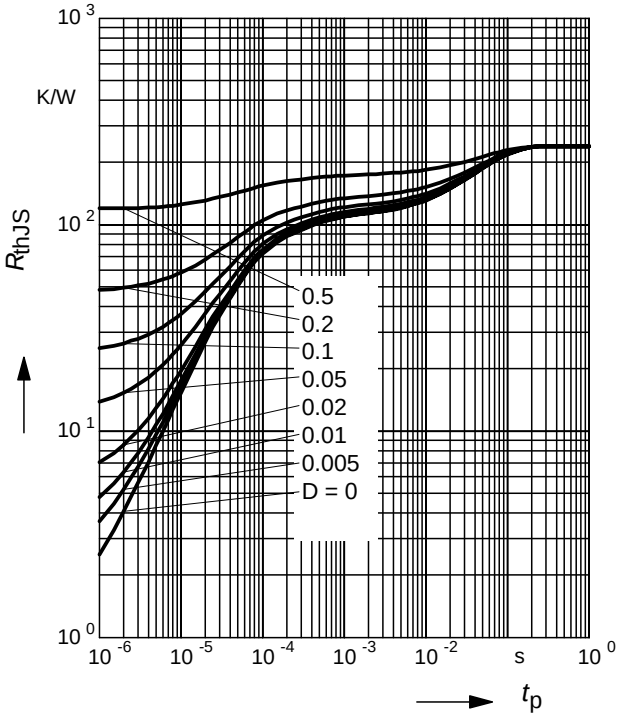
$I_{Fmax}/ I_{FDC} = f(t_p)$

BAS70-05




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

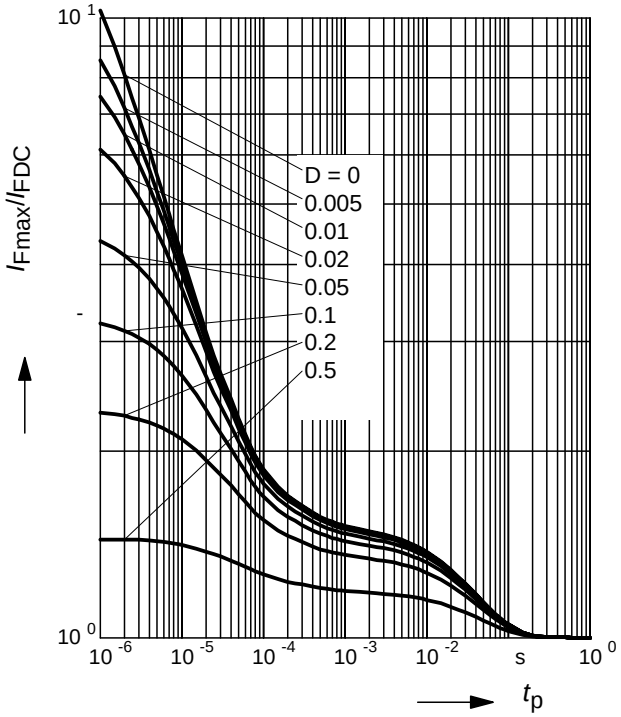
BAS70-05W



**Permissible Pulse Load**

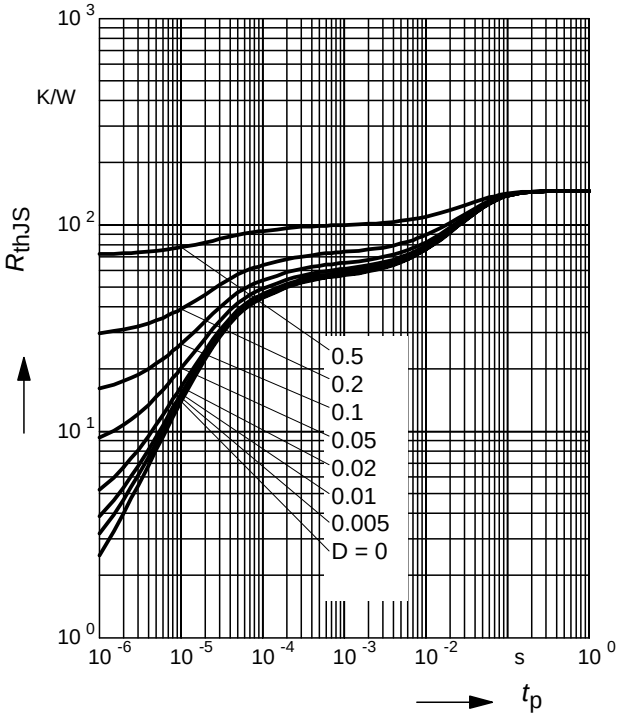
$I_{Fmax}/ I_{FDC} = f(t_p)$

BAS70-05W




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

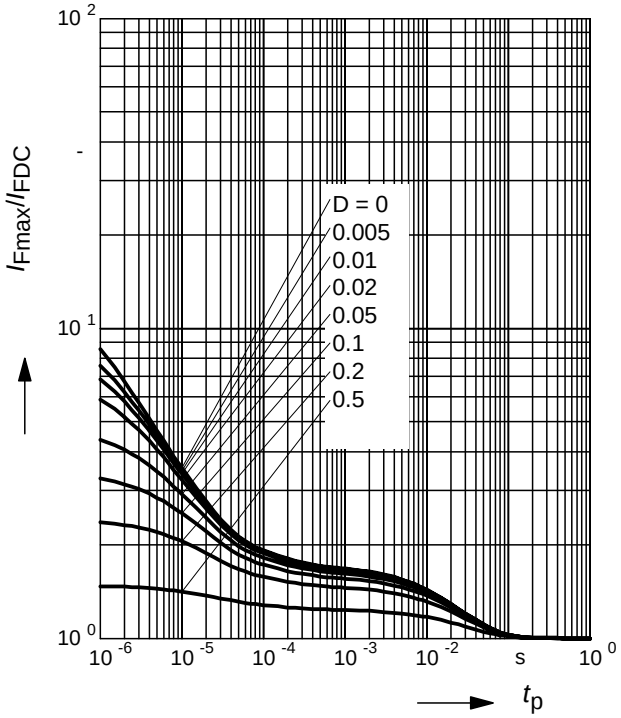
BAS70-07W




**Permissible Pulse Load**

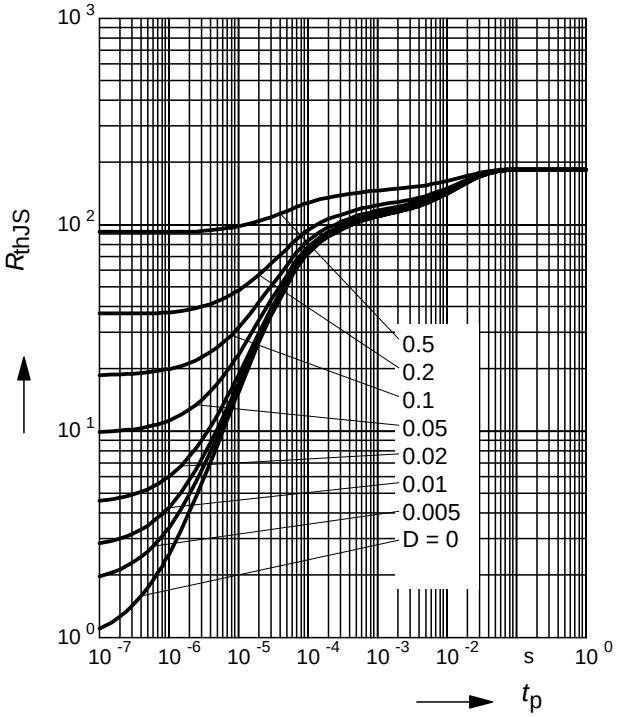
$I_{Fmax}/ I_{FDC} = f(t_p)$

BAS70-07W




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

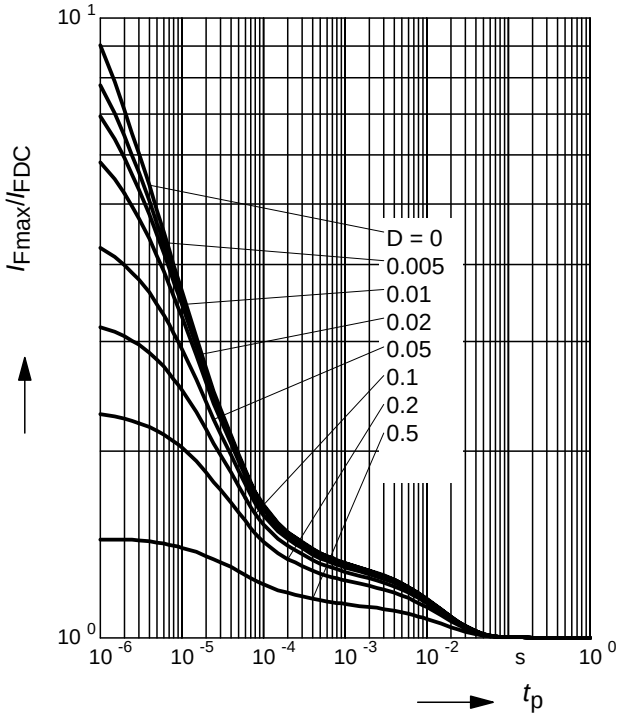
BAS170W



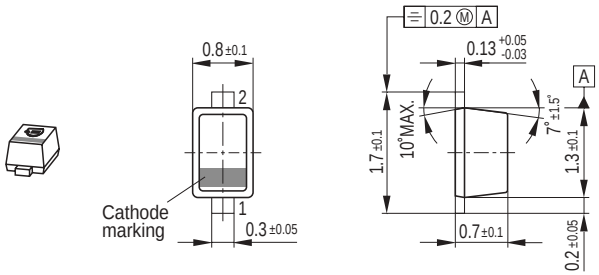
## Permissible Pulse Load

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

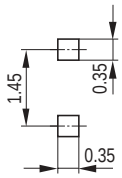
BAS170W



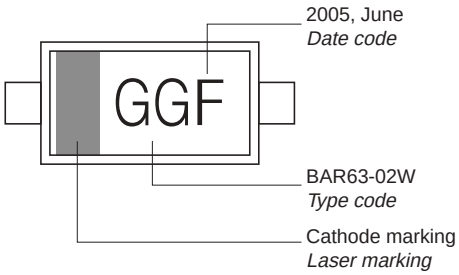
## Package Outline




## Foot Print

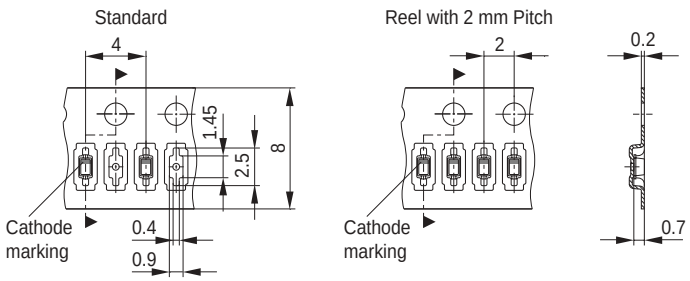



## Marking Layout (Example)




## 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

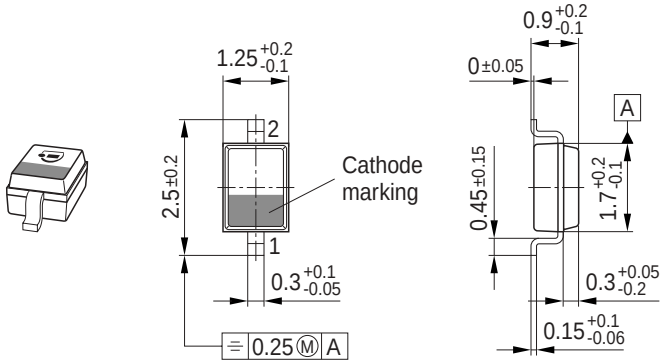


## Date Code marking for discrete packages with one digit (SCD80, SC79, SC75[1)]) CES-Code

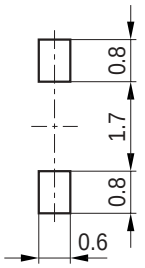
| Month | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 01 | a | p | A | P | a | p | A | P | a | p | A | P |
| 02 | b | q | B | Q | b | q | B | Q | b | q | B | Q |
| 03 | c | r | C | R | c | r | C | R | c | 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.

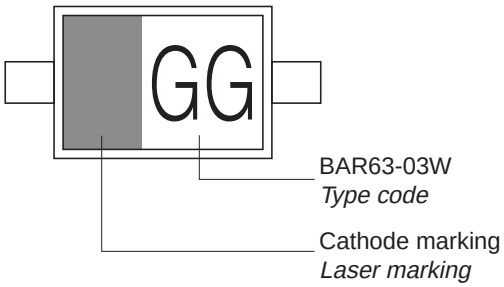
## Package Outline




## Foot Print

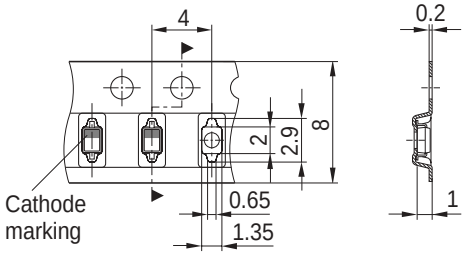



## Marking Layout (Example)

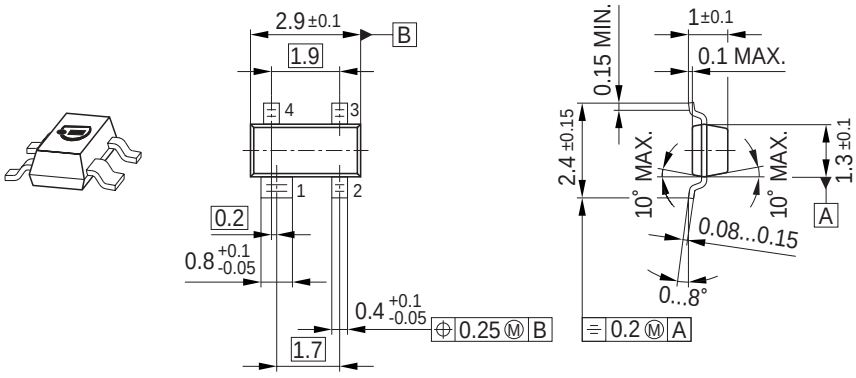



## Standard Packing

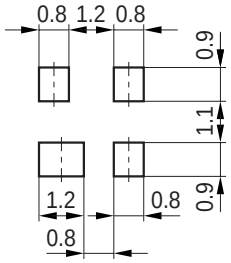
Reel ø180 mm = 3.000 Pieces/Reel
Reel ø330 mm = 10.000 Pieces/Reel



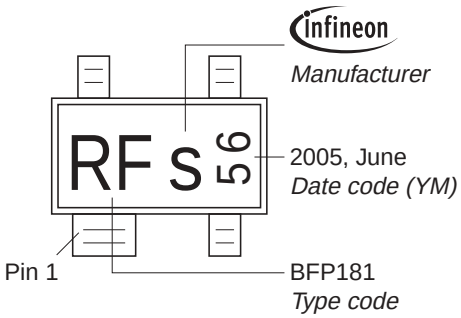
## Package Outline




## Foot Print

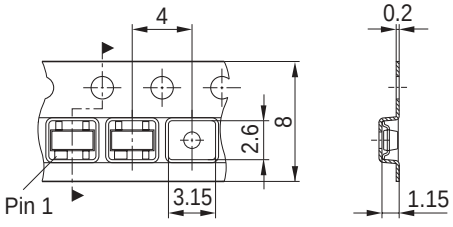



## Marking Layout (Example)

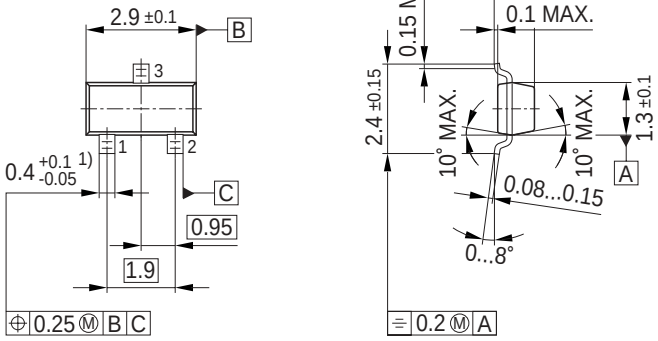



## Standard Packing

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

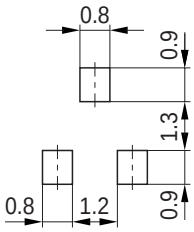


## Package Outline

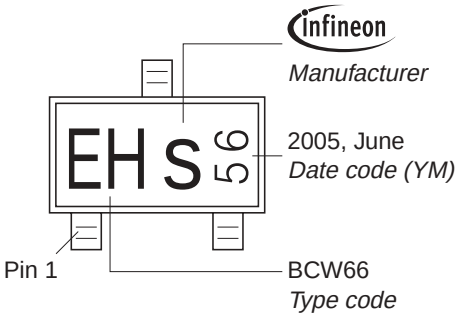



1) Lead width can be 0.6 max. in dambar area

## Foot Print

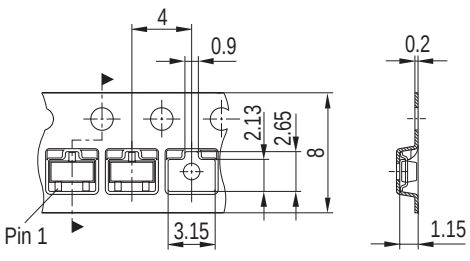



## Marking Layout (Example)

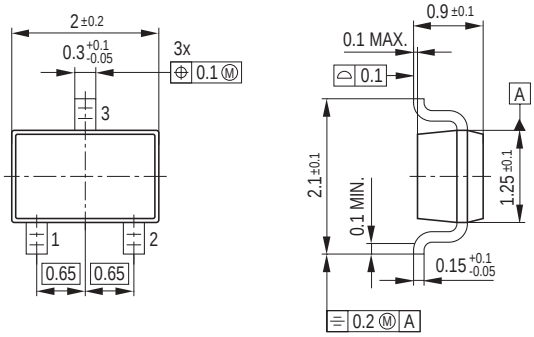



## Standard Packing

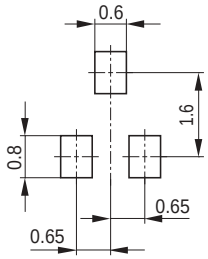
Reel ø180 mm = 3.000 Pieces/Reel
Reel ø330 mm = 10.000 Pieces/Reel



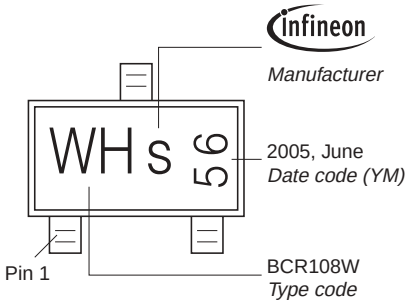
## Package Outline




## Foot Print

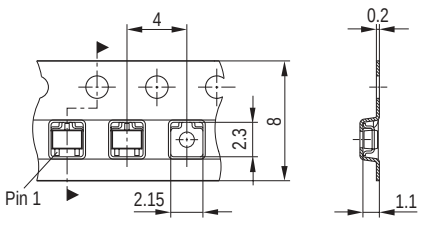



## Marking Layout (Example)

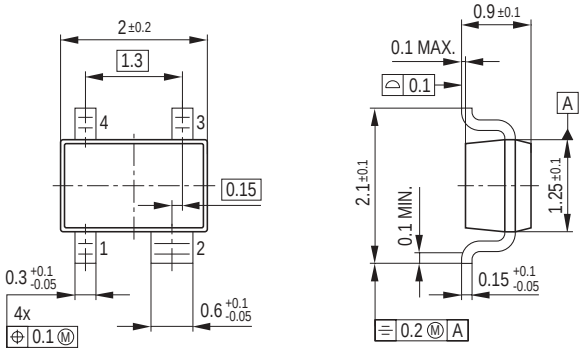



## Standard Packing

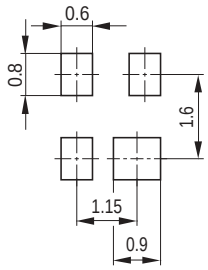
Reel ø180 mm = 3.000 Pieces/Reel
Reel ø330 mm = 10.000 Pieces/Reel



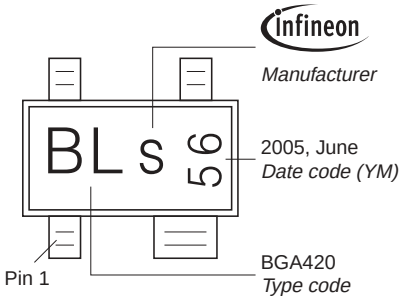
## Package Outline




## Foot Print

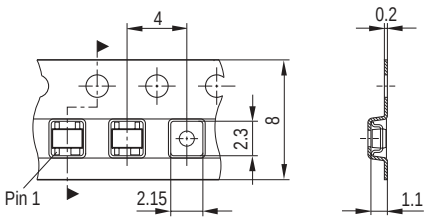



## Marking Layout (Example)

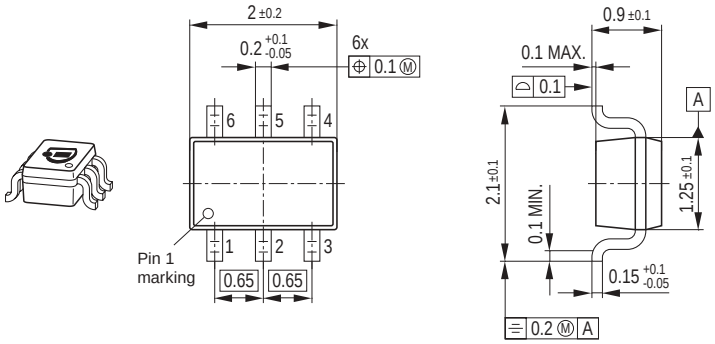



## Standard Packing

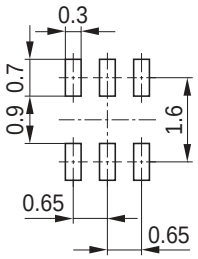
Reel ø180 mm = 3.000 Pieces/Reel
Reel ø330 mm = 10.000 Pieces/Reel



## Package Outline

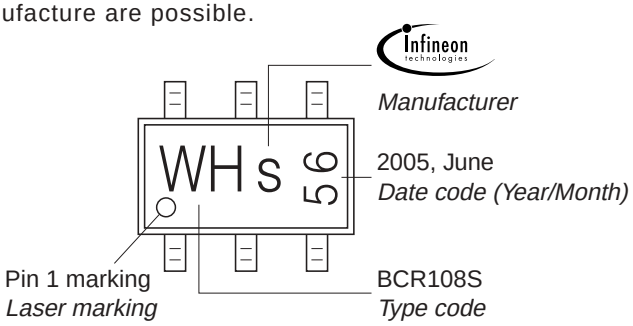



## Foot Print




## Marking Layout (Example)

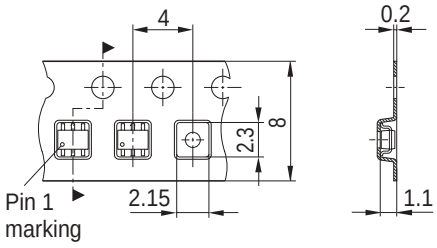
Small variations in positioning of
Date code, Type code and Manufacture are possible.



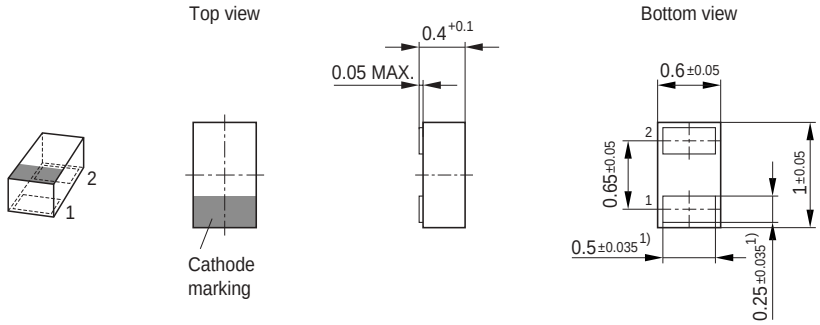

## Standard Packing

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

For symmetric types no defined Pin 1 orientation in reel.



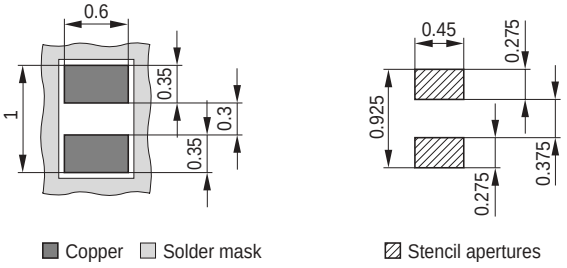
## Package Outline



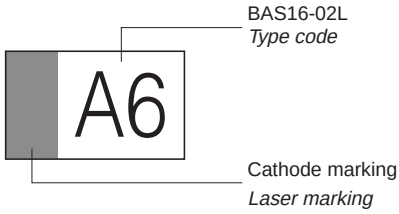

1) Dimension applies to plated terminal

## Foot Print

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

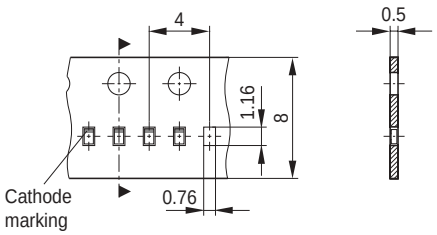



## Marking Layout (Example)




## Standard Packing

Reel ø180 mm = 15.000 Pieces/Reel
Reel ø330 mm = 50.000 Pieces/Reel (optional)



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