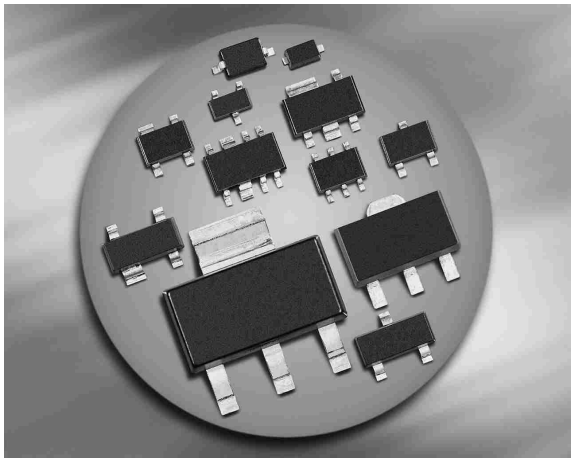
## Silicon Switching Diode

- For high-speed switching applications
- Pb-free (RoHS compliant) package[1)]
- Qualified according AEC Q101

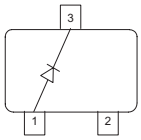


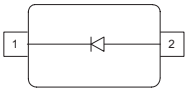
**BAS16**
**BAS16W**

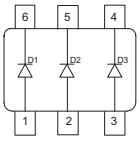
**BAS16-02L**
**BAS16-02V**
**BAS16-02W**
**BAS16-03W**

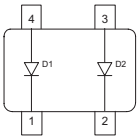
**BAS16S**
**BAS16U**

**BAS16-07L4**




| Type | Package | Configuration | Marking |
|---|---|---|---|
| BAS16 | SOT23 | single | A6s |
| BAS16-02L* | TSLP-2-1 | single, leadless | A6 |
| BAS16-02V | SC79 | single | 6 |
| BAS16-02W | SCD80 | single | A6 |
| BAS16-03W | SOD323 | single | white B |
| BAS16-07L4* | TSLP-4-4 | parallel pair, leadless | 6A |
| BAS16S | SOT363 | parallel triple | A6s |
| BAS16U | SC74 | parallel triple | A6s |
| BAS16W | SOT323 | single | A6s |

* Preliminary Data

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

**Maximum Ratings** at $T_A$ = 25 °C, unless otherwise specified

| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| Diode reverse voltage | $V_R$ | 80 | V |
| Peak reverse voltage | $V_{RM}$ | 85 | |
| Forward current | $I_F$ | | mA |
| BAS16 | | 250 | |
| BAS16-02L, -07L4 | | 200 | |
| BAS16-02V, -02W | | 200 | |
| BAS16-03W | | 250 | |
| BAS16S | | 200 | |
| BAS16U | | 200 | |
| BAS16W | | 250 | |
| Non-repetitive peak surge forward current | $I_{FSM}$ | | A |
| $t$ = 1 µs, BAS16/ S/ U/ W/ -03W | | 4.5 | |
| $t$ = 1 µs, BAS16-02L/ -02V/ -02W/ -07L4 | | 2.5 | |
| $t$ = 1 s | | 0.5 | |
| Total power dissipation | $P_{tot}$ | | mW |
| BAS16, $T_S \leq 54$ °C | | 370 | |
| BAS16-02L, -07L4, $T_S \leq 130$ °C | | 250 | |
| BAS16-02V, -02W, $T_S \leq 120$ °C | | 250 | |
| BAS16-03W, $T_S \leq 116$ °C | | 250 | |
| BAS16S, $T_S \leq 85$ °C | | 250 | |
| BAS16U, $T_S \leq 113$ °C | | 250 | |
| BAS16W, $T_S \leq 119$ °C | | 250 | |
| Junction temperature | $T_j$ | 150 | °C |
| Storage temperature | $T_{stg}$ | -65 ...150 | |

**Thermal Resistance**

| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| Junction - soldering point[1)] | $R_{thJS}$ | | K/W |
| BAS16, BAS16S | | ≤ 260 | |
| BAS16-02L, -07L4 | | ≤ 80 | |
| BAS16-02V, -02W | | ≤ 120 | |
| BAS16-03W | | ≤ 135 | |
| BAS16U | | ≤ 150 | |
| BAS16W | | ≤ 125 | |

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

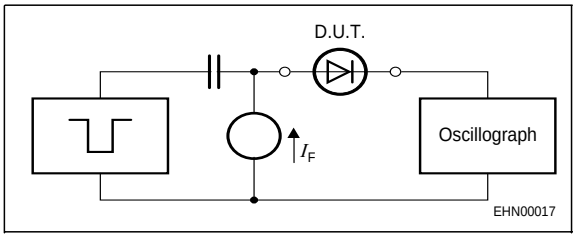
| Parameter | Symbol | Values | | | Unit |
|---|---|---|---|---|---|
| | | min. | typ. | max. | |
| **DC Characteristics** | | | | | |
| Breakdown voltage<br>$I_{(BR)}$ = 100 µA | $V_{(BR)}$ | 85 | - | - | V |
| Reverse current | $I_R$ | | | | µA |
| $V_R$ = 75 V | | - | - | 1 | |
| $V_R$ = 25 V, $T_A$ = 150 °C | | - | - | 30 | |
| $V_R$ = 75 V, $T_A$ = 150 °C | | - | - | 50 | |
| Forward voltage | $V_F$ | | | | mV |
| $I_F$ = 1 mA | | - | - | 715 | |
| $I_F$ = 10 mA | | - | - | 855 | |
| $I_F$ = 50 mA | | - | - | 1000 | |
| $I_F$ = 100 mA | | - | - | 1200 | |
| $I_F$ = 150 mA | | - | - | 1250 | |
| Forward recovery voltage<br>$I_F$ = 10 mA, $t_P$ = 20 ns | $V_{fr}$ | - | - | 1.75 | V |

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

**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 V, $f$ = 1 MHz | $C_T$ | - | - | 2 | pF |
| Reverse recovery time<br>$I_F$ = 10 mA, $I_R$ = 10 mA, measured at $I_R$ = 1mA ,<br>$R_L$ = 100 Ω | $t_{rr}$ | - | - | 4 | ns |

**Test circuit for reverse recovery time**

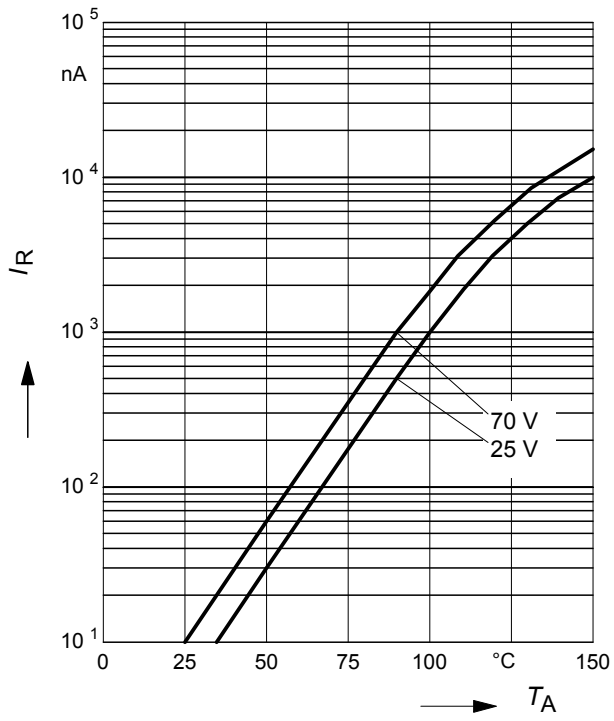



Pulse generator: $t_p$ = 100ns, $D$ = 0.05, $t_r$ = 0.6ns, $R_i$ = 50Ω

Oscillograph: $R$ = 50Ω, $t_r$ = 0.35ns, $C$ = 0.05pF

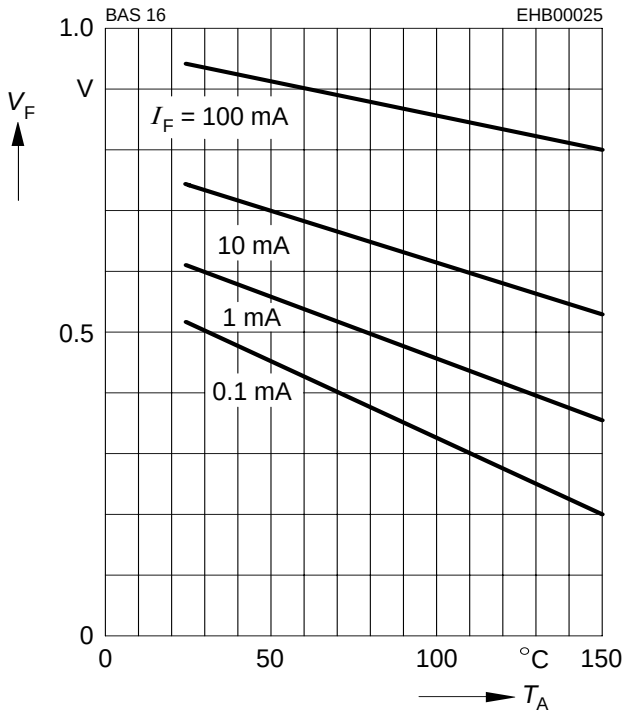
**Reverse current** $I_R = f\ (T_A)$

$V_R$ = Parameter



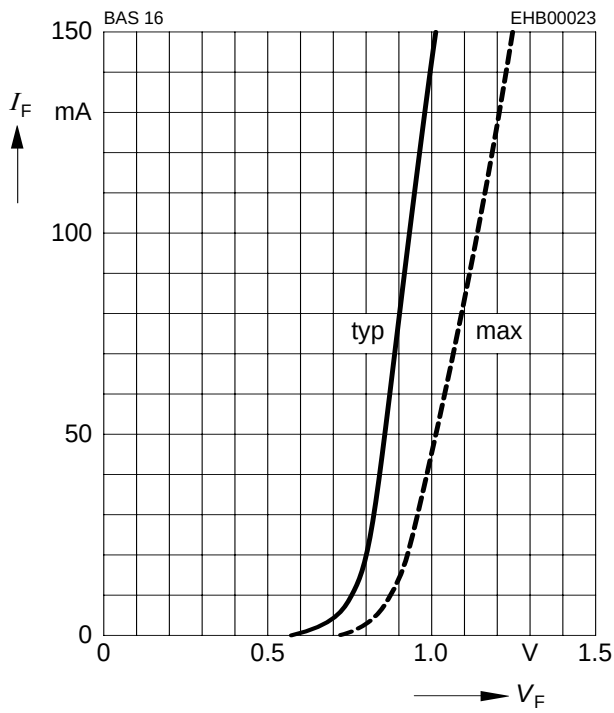

**Forward Voltage** $V_F = f\ (T_A)$

$I_F$ = Parameter



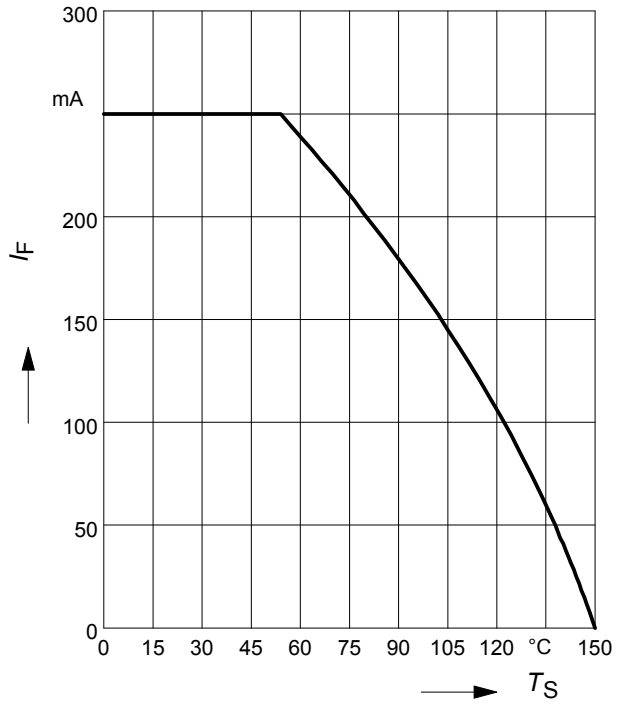

**Forward current** $I_F = f\ (V_F)$

$T_A$ = 25°C



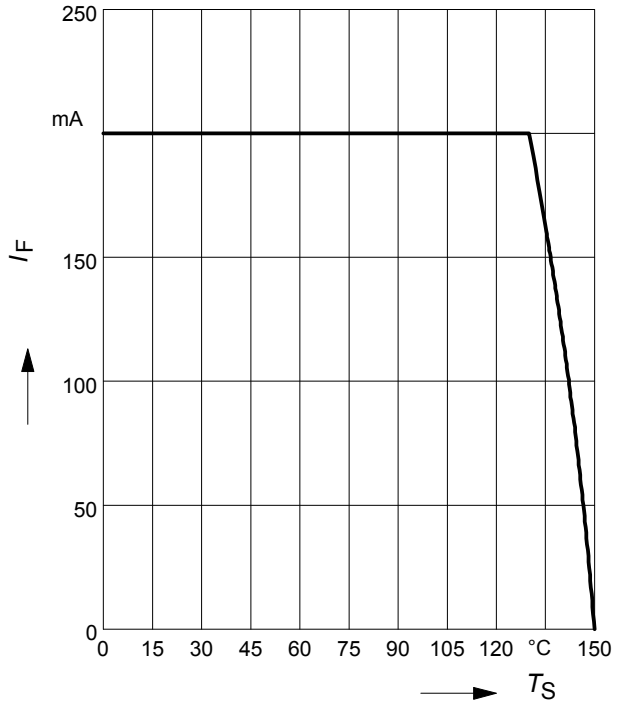

**Forward current** $I_F = f\ (T_S)$

BAS16



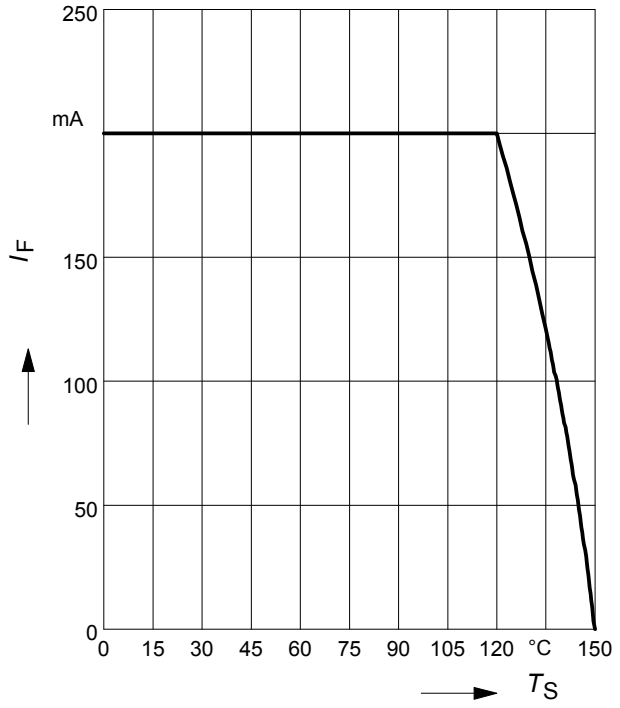
**Forward current** $I_F = f\ (T_S)$

BAS16-02L, -07L4



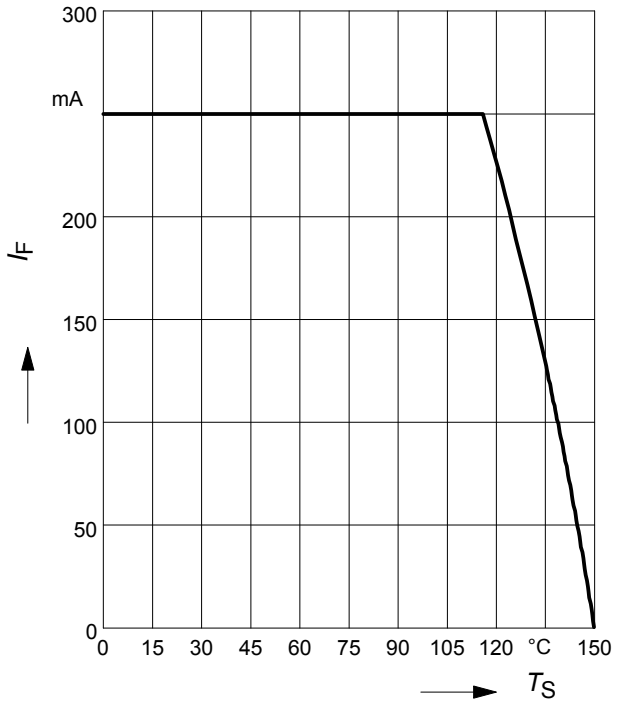

**Forward current** $I_F = f\ (T_S)$

BAS16-02V, -02W



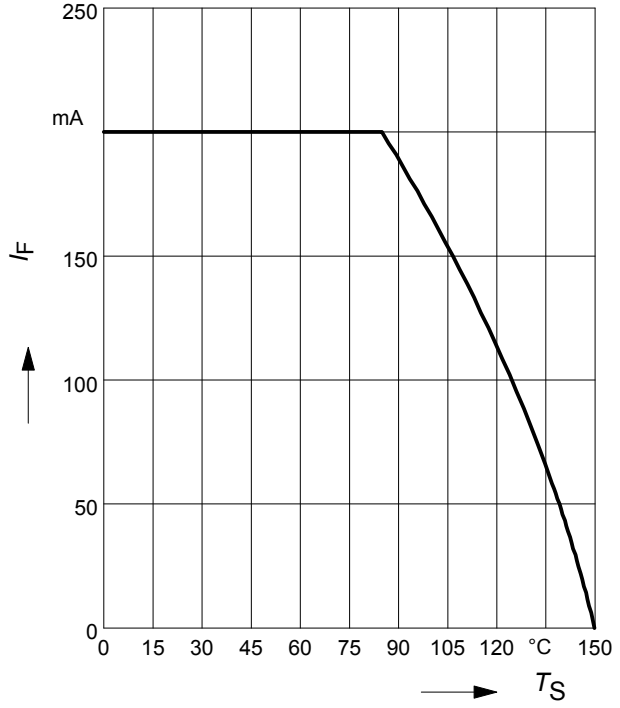

**Forward current** $I_F = f\ (T_S)$

BAS16-03W

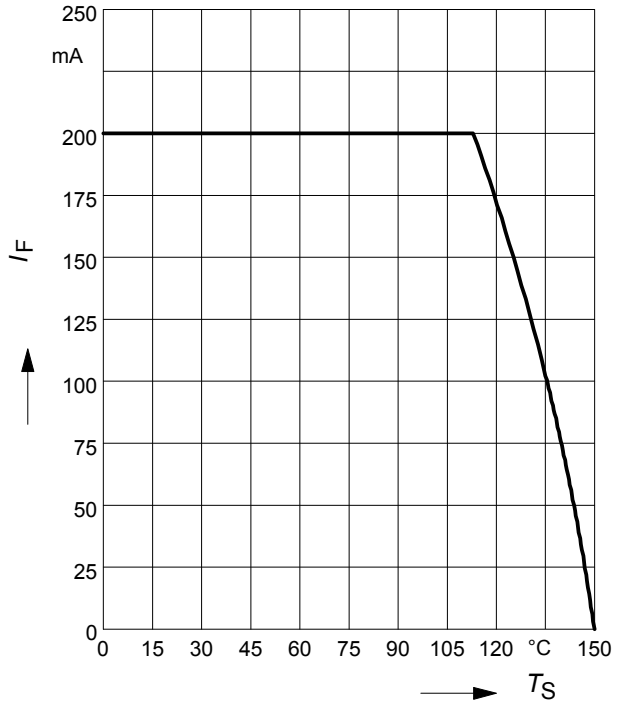



**Forward current** $I_F = f\ (T_S)$

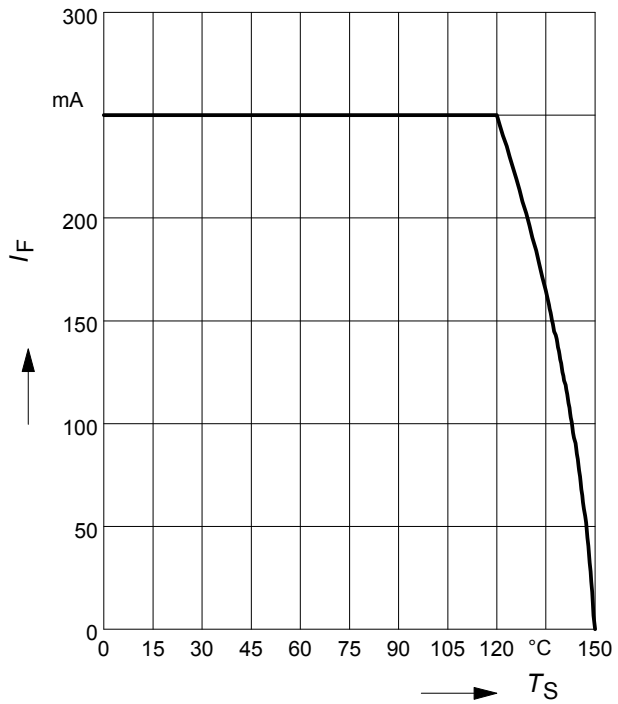
BAS16S



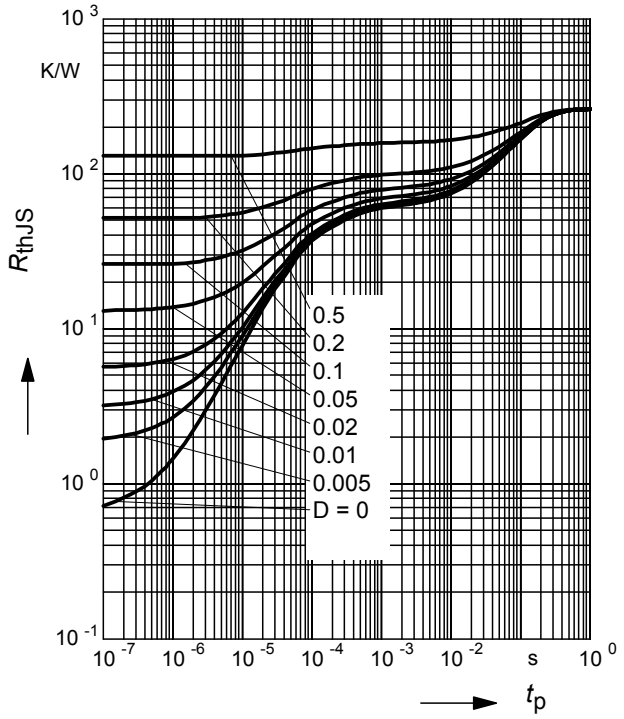
**Forward current $I_F = f(T_S)$**
BAS16U



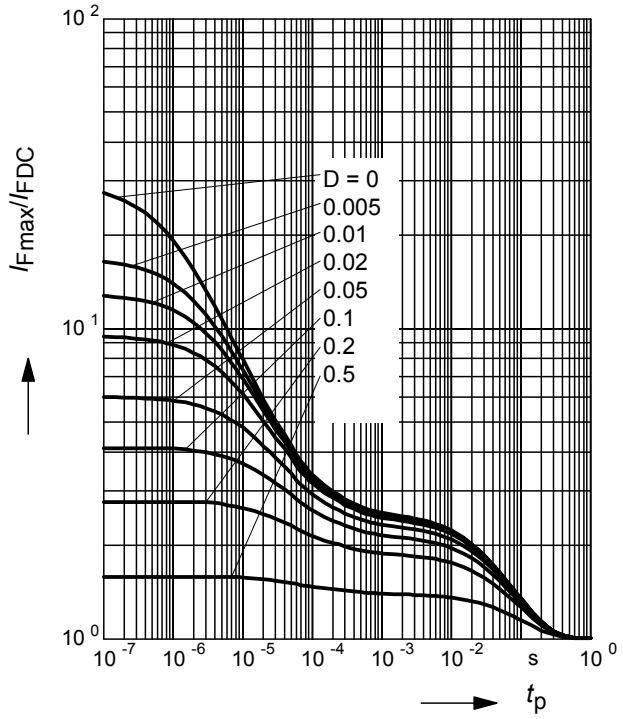

**Forward current $I_F = f(T_S)$**
BAS16W




**Permissible Puls Load $R_{thJS} = f(t_p)$**
BAS16

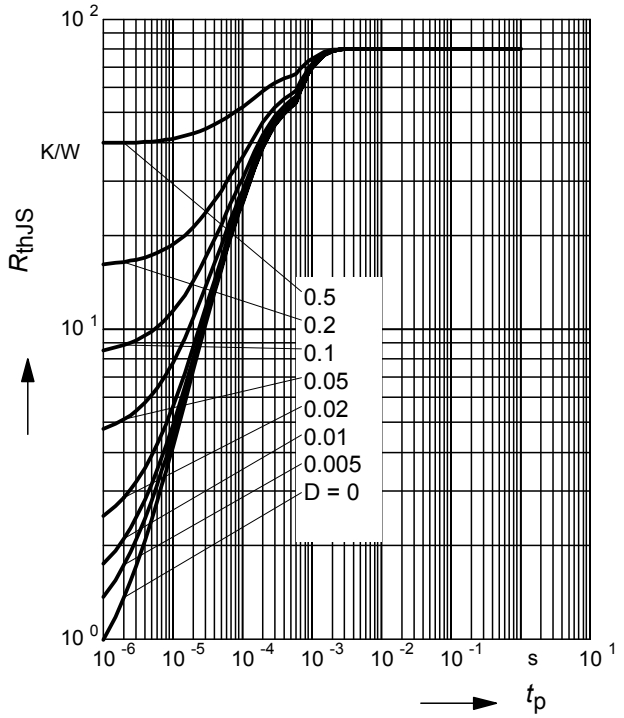



**Permissible Pulse Load**
$I_{Fmax}/I_{FDC} = f(t_p)$
BAS16



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

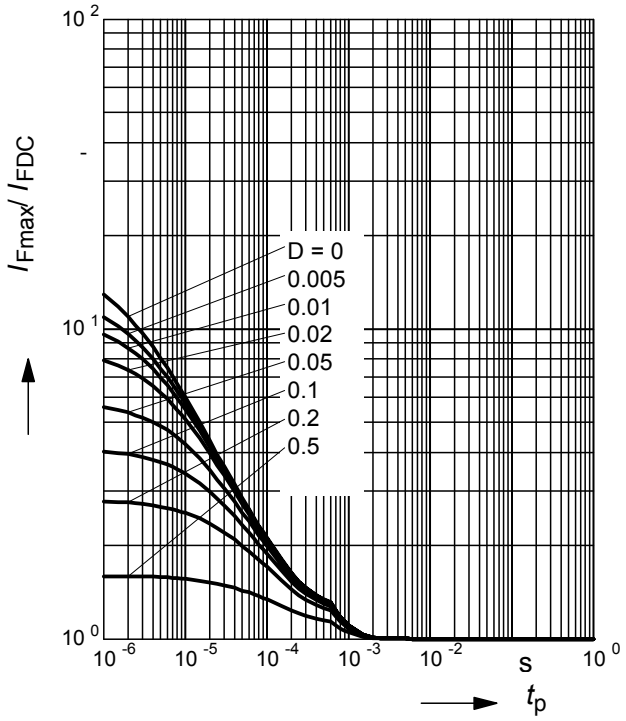
BAS16-02L, -07L4




**Permissible Pulse Load**

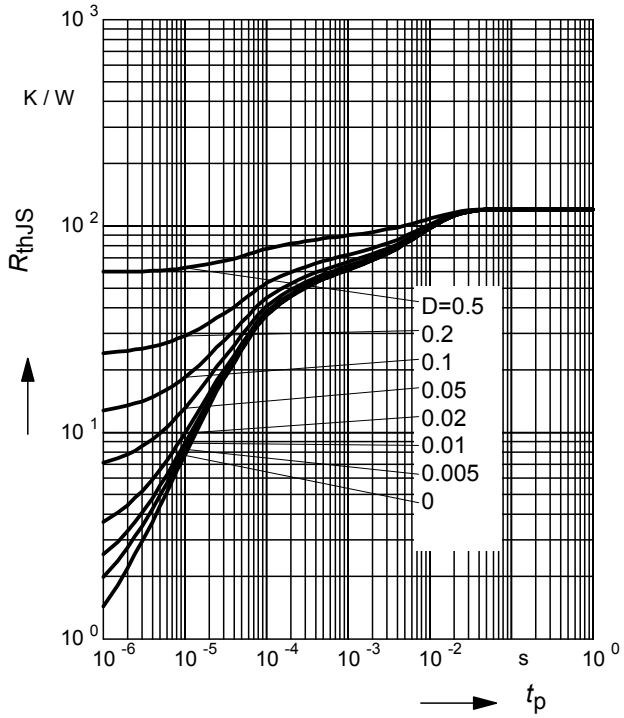
$I_{Fmax}/I_{FDC} = f(t_p)$

BAS16-02L, -07L4




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

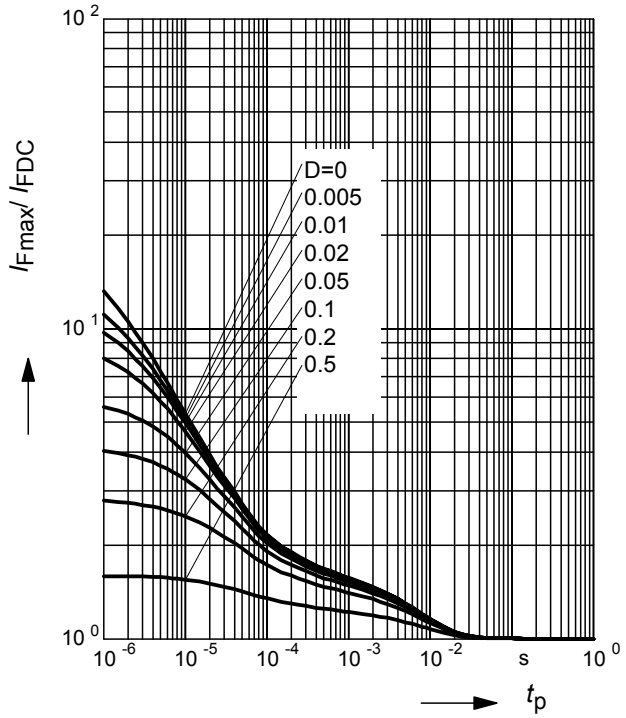
BAS16-02V, -02W




**Permissible Pulse Load**

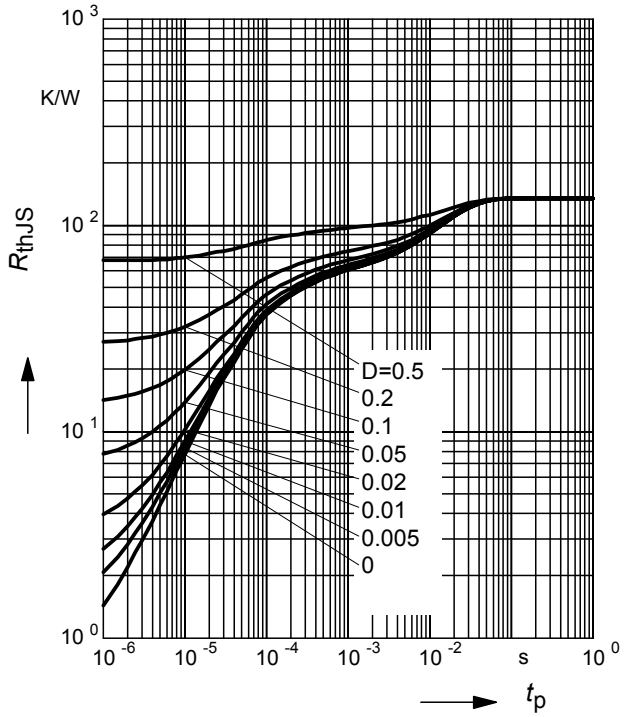
$I_{Fmax}/I_{FDC} = f(t_p)$

BAS16-02V, -02W



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

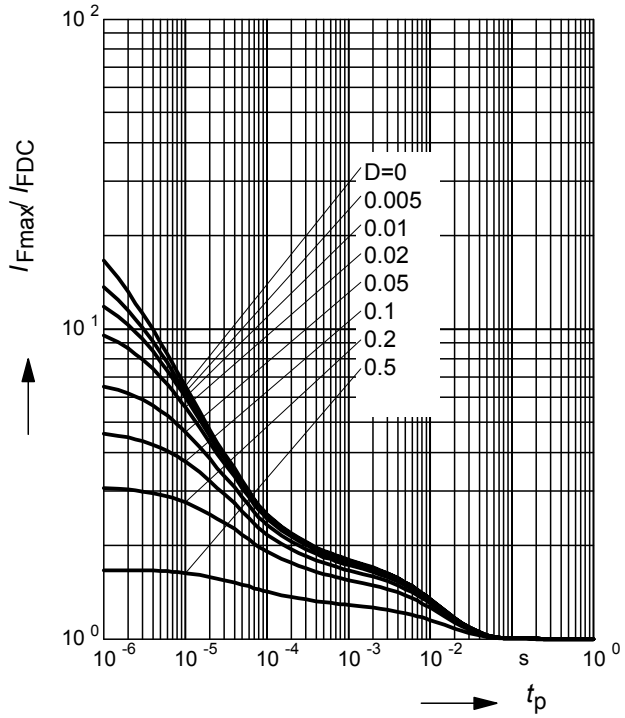
BAS16-03W




**Permissible Pulse Load**

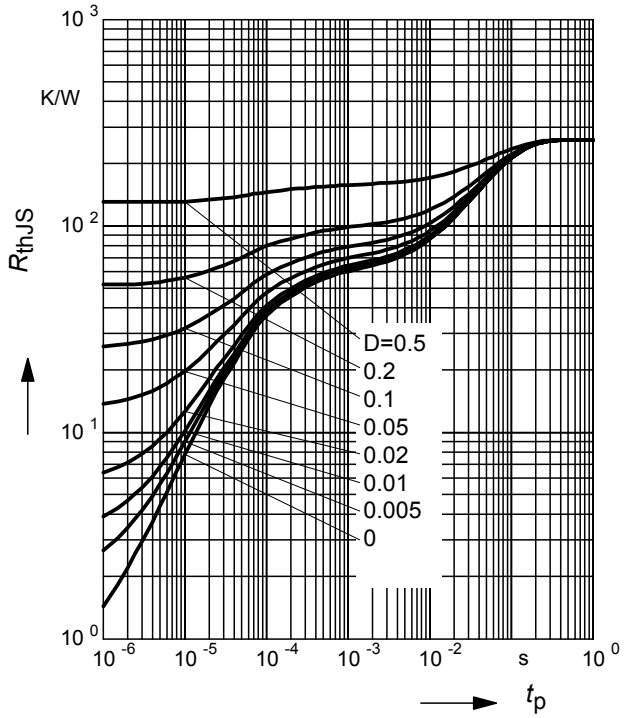
$I_{Fmax}/I_{FDC} = f(t_p)$

BAS16-03W




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

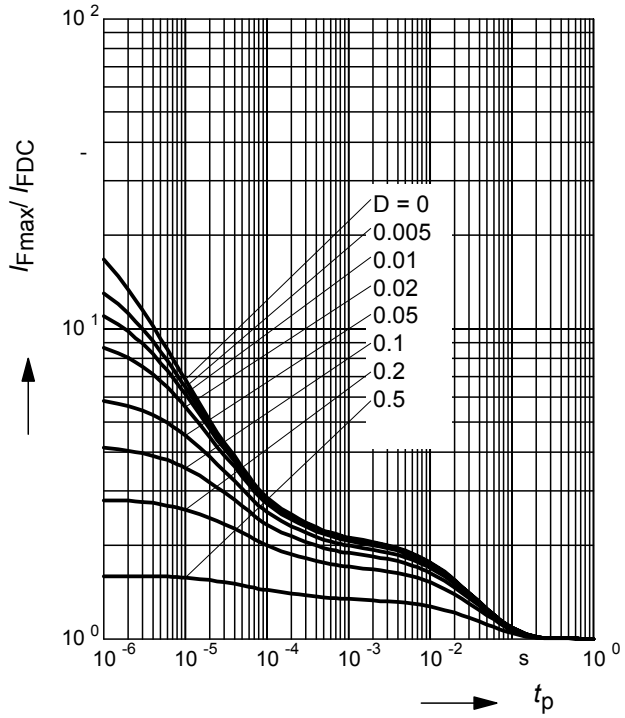
BAS16S




**Permissible Pulse Load**

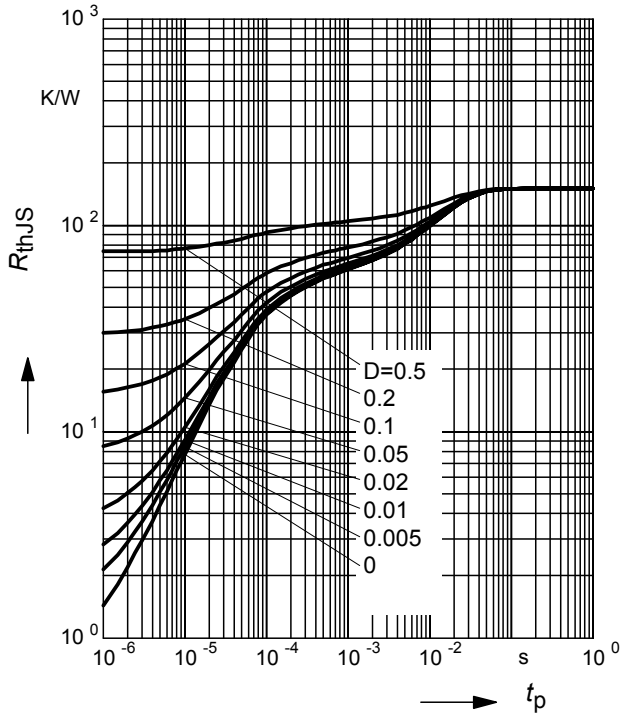
$I_{Fmax}/I_{FDC} = f(t_p)$

BAS16S



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

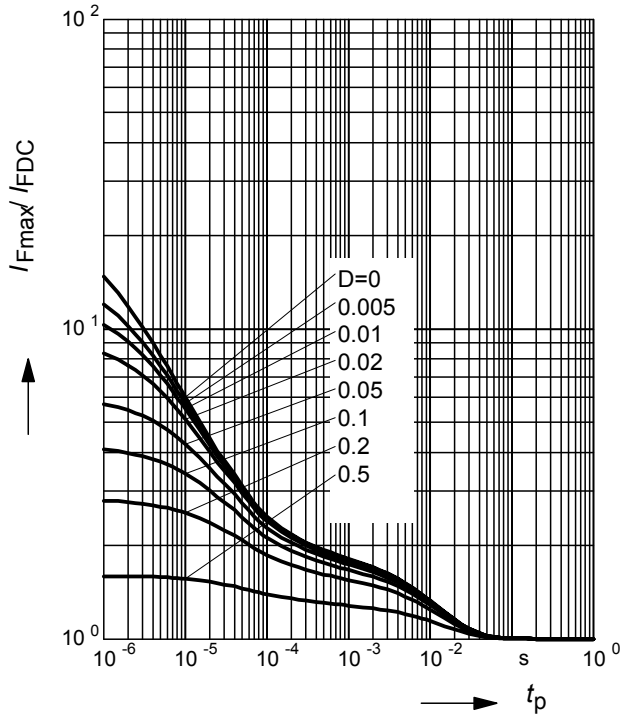
BAS16U




**Permissible Pulse Load**

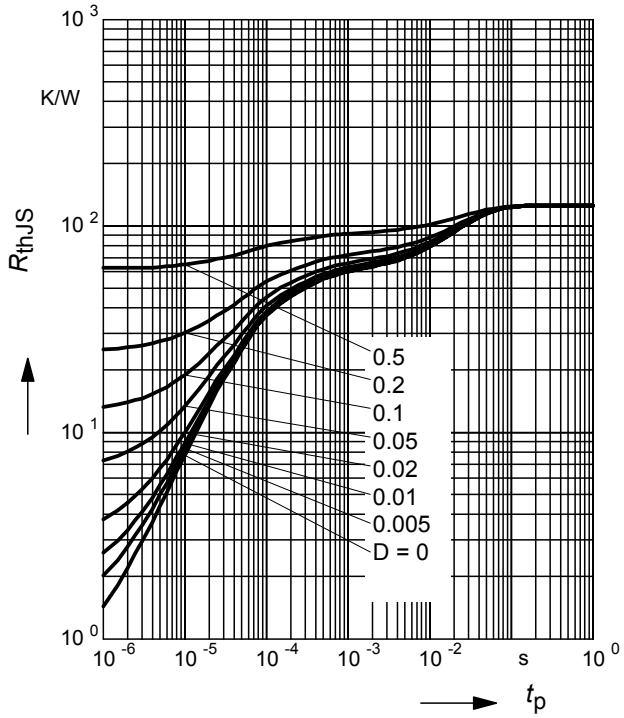
$I_{Fmax}/I_{FDC} = f(t_p)$

BAS16U




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

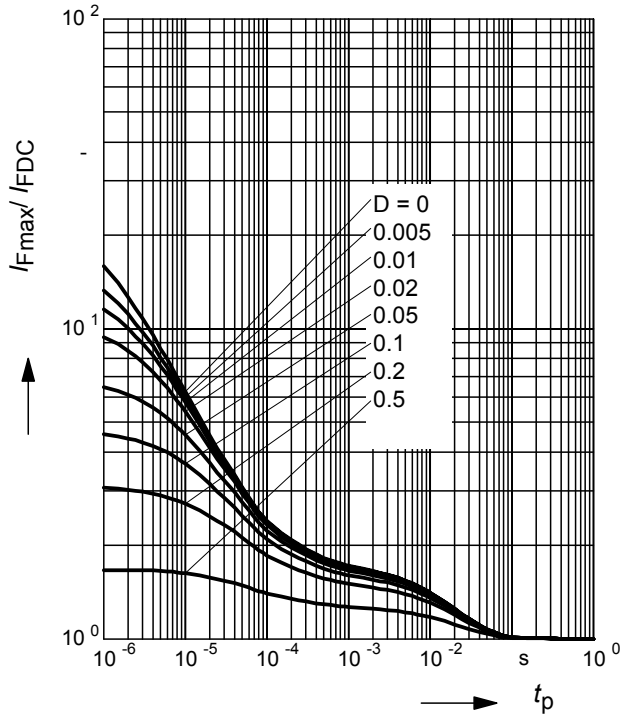
BAS16W



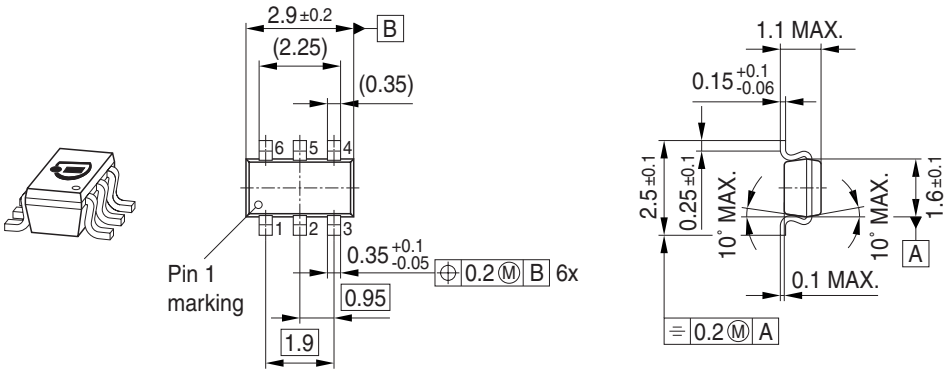

**Permissible Pulse Load**

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

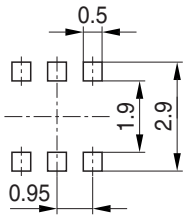
BAS16W



## Package Outline

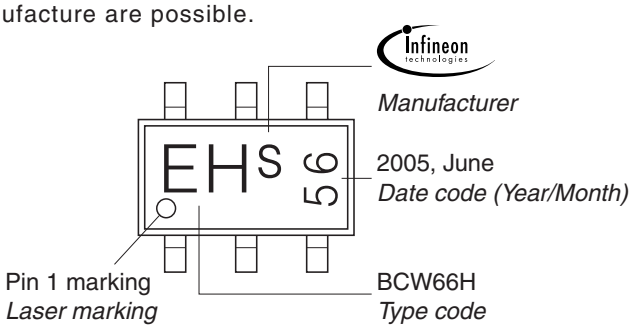



## Foot Print




## Marking Layout (Example)

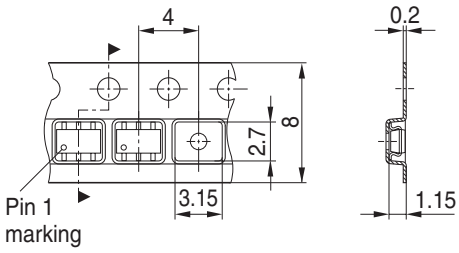
Small variations in positioning of
Date code, Type code and Manufacture are possible.



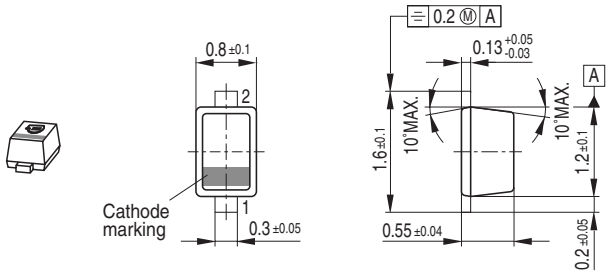

## Standard Packing

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

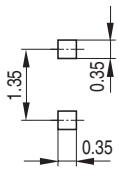
For symmetric types no defined Pin 1 orientation in reel.



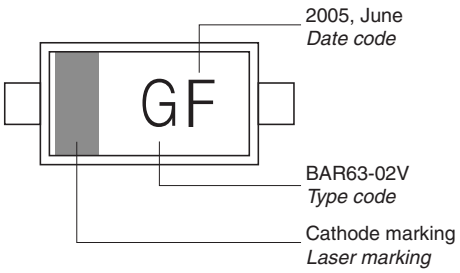
## Package Outline




## Foot Print

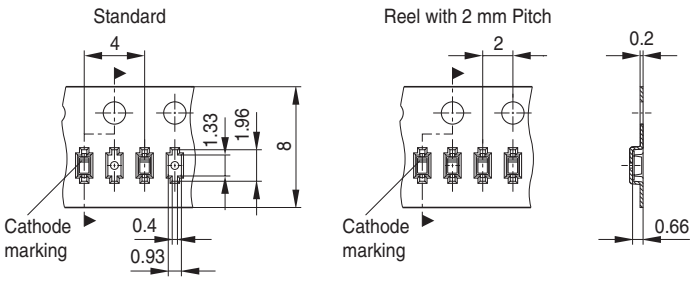



## Marking Layout (Example)

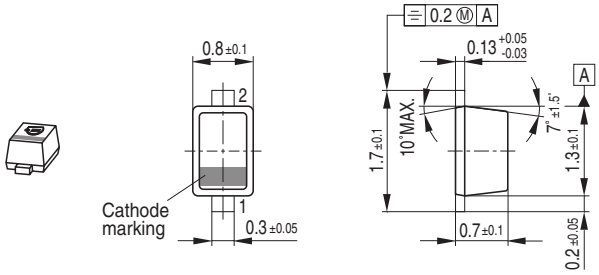



## Standard Packing

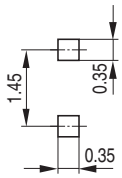
Reel ø180 mm = 3.000 Pieces/Reel
Reel ø180 mm = 8.000 Pieces/Reel (2 mm Pitch)
Reel ø330 mm = 10.000 Pieces/Reel



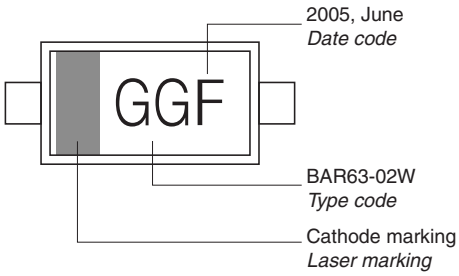
## Package Outline




## Foot Print

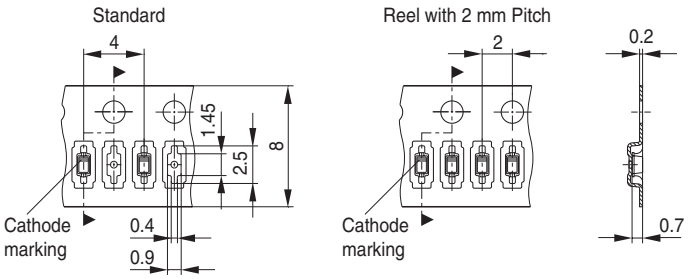



## Marking Layout (Example)




## 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

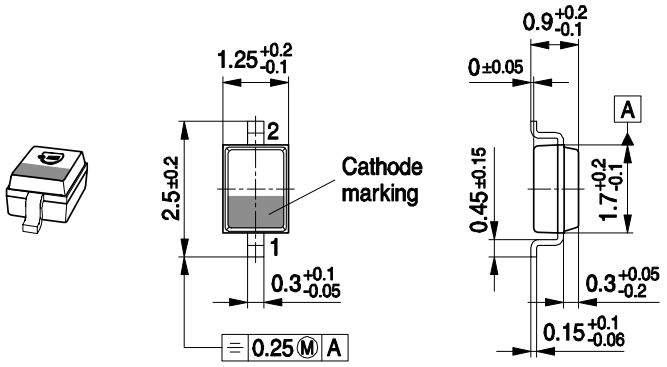


## Date Code marking for discrete packages with one digit (SCD80, SC79, SC75[1]) CES-Code

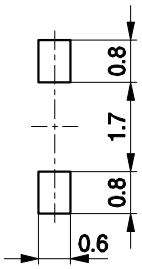
| Month | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 01 | a | p | A | P | a | p | A | P | a | p | A | P |
| 02 | b | q | B | Q | b | q | B | Q | b | q | B | Q |
| 03 | c | r | C | R | c | r | C | R | c |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

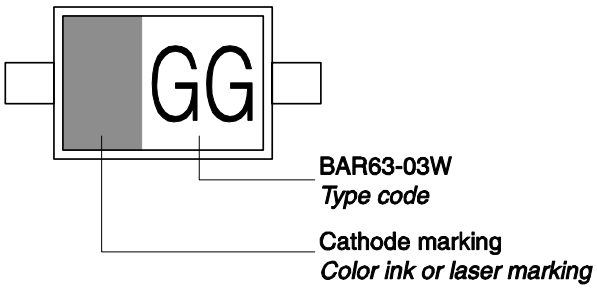
## Package Outline




## Foot Print

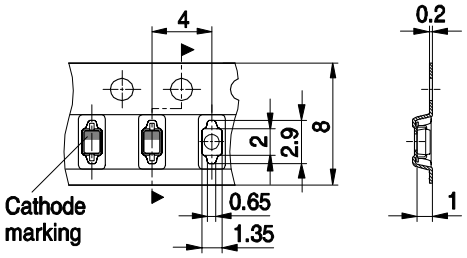



## Marking Layout (Example)

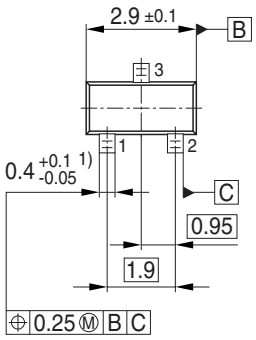


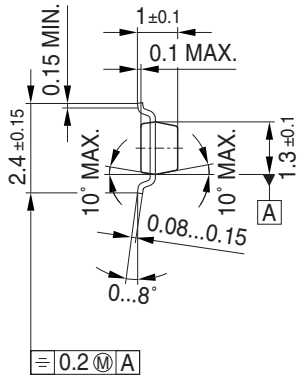

## Standard Packing

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



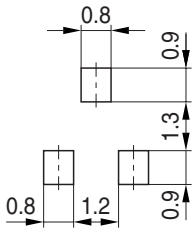
## Package Outline



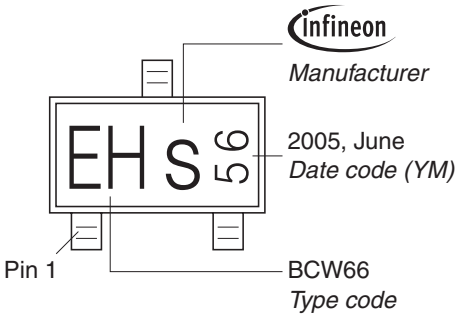




1) Lead width can be 0.6 max. in dambar area

## Foot Print

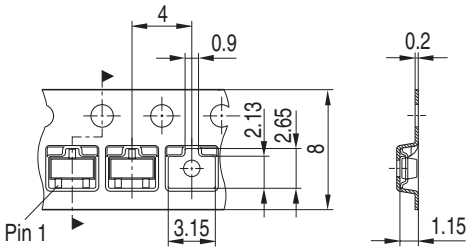



## Marking Layout (Example)

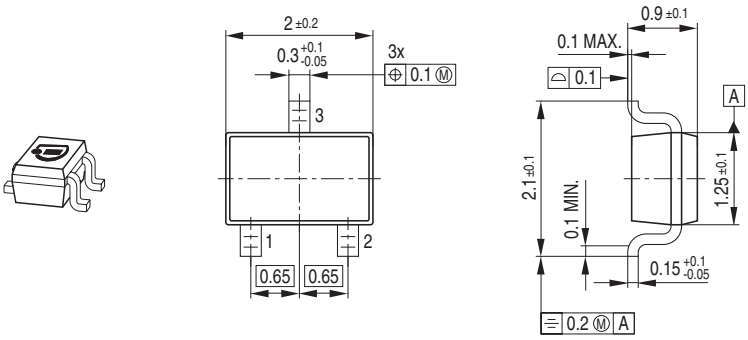



## Standard Packing

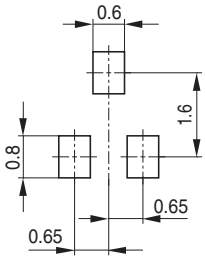
Reel ø180 mm = 3.000 Pieces/Reel
Reel ø330 mm = 10.000 Pieces/Reel



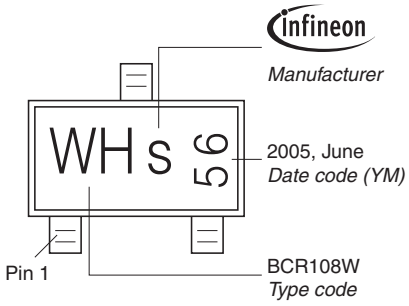
## Package Outline




## Foot Print

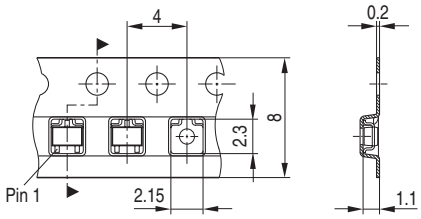



## Marking Layout (Example)

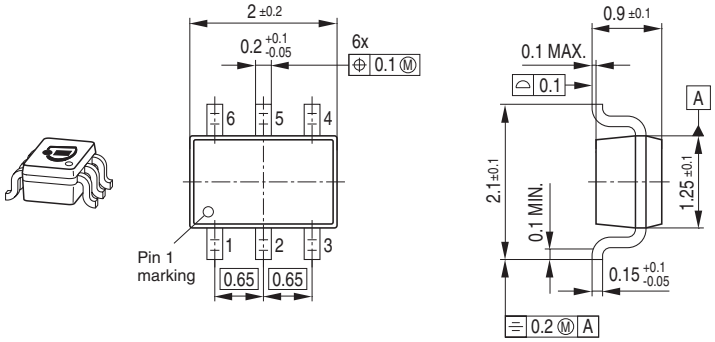



## Standard Packing

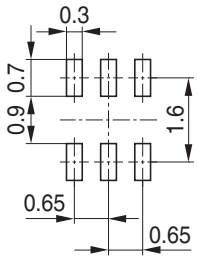
Reel ø180 mm = 3.000 Pieces/Reel
Reel ø330 mm = 10.000 Pieces/Reel



## Package Outline

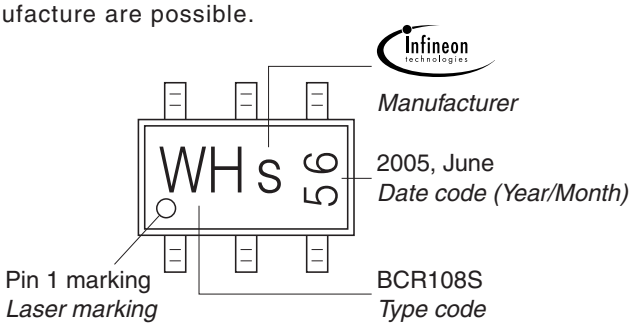



## Foot Print




## Marking Layout (Example)

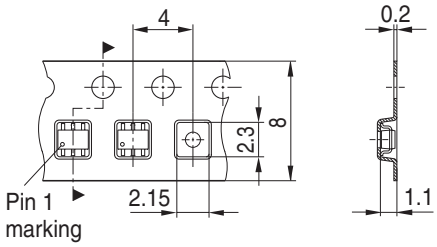
Small variations in positioning of
Date code, Type code and Manufacture are possible.



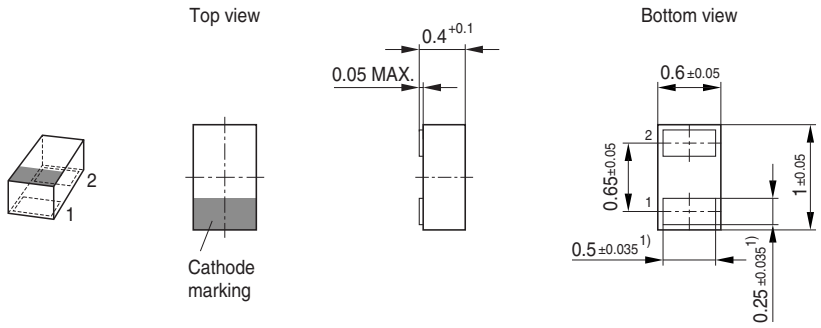

## Standard Packing

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

For symmetric types no defined Pin 1 orientation in reel.



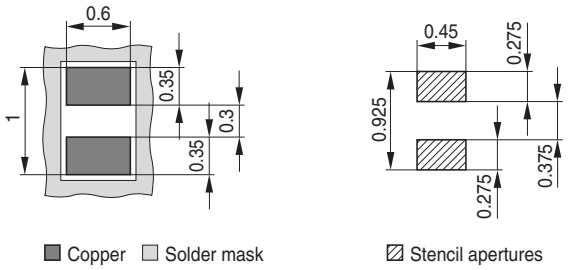
## Package Outline



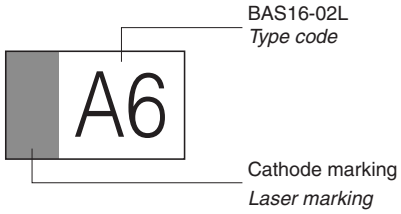

1) Dimension applies to plated terminal

## Foot Print

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

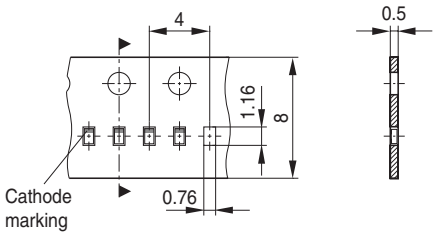



## Marking Layout (Example)




## Standard Packing

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



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