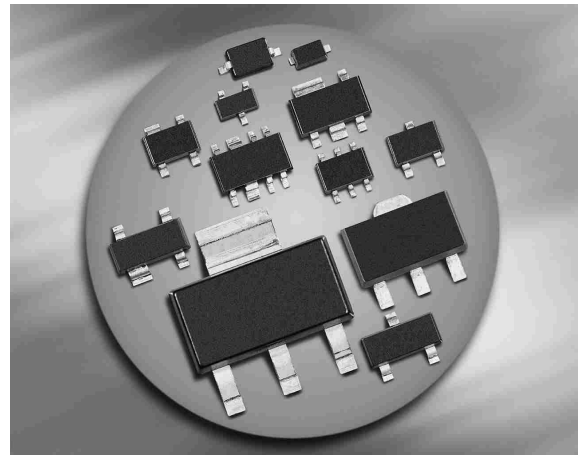
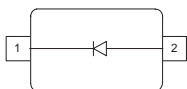


## Silicon Schottky Diode

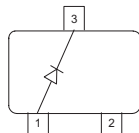
- General-purpose diode for high-speed switching
- Circuit protection
- Voltage clamping
- High-level detecting and mixing
- Pb-free (RoHS compliant) package
- Qualified according AEC Q101<sup>1)</sup>



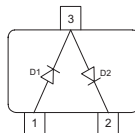
### **BAS140W** **BAS40-02L**



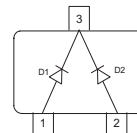
### **BAS40**



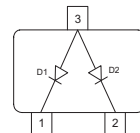
### **BAS40-04**



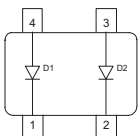
### **BAS40-05** **BAS40-05W**



### **BAS40-06** **BAS40-06W**



### **BAS40-07** **BAS40-07W**



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

Type	Package	Configuration	Marking
BAS140W	SOD323	single	white 4
BAS40	SOT23	single	43s
BAS40-02L *	TSLP-2-1	single, leadless	FF
BAS40-04	SOT23	series	44s
BAS40-05	SOT23	common cathode	45s
BAS40-05W	SOT323	common cathode	45s
BAS40-06	SOT23	common anode	46s
BAS40-06W	SOT323	common anode	46s
BAS40-07	SOT143	parallel pair	47s
BAS40-07W	SOT343	parallel pair	47s

<sup>1)</sup> BAS40-02L is not qualified according AEC Q101

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

Parameter	Symbol	Value	Unit
Diode reverse voltage	$V_R$	40	V
Forward current	$I_F$	120	mA
Non-repetitive peak surge forward current $t \leq 10\text{ms}$	$I_{FSM}$	200	
Total power dissipation BAS140W, $T_S \leq 113\text{°C}$ BAS40, BAS40-07, $T_S \leq 81\text{°C}$ BAS40-02L, $T_S \leq 127\text{°C}$ BAS40-04, BAS40-06, $T_S \leq 56\text{°C}$ BAS40-06W, $T_S \leq 106\text{°C}$ BAS40-05, $T_S \leq 31\text{°C}$ BAS40-05W, $T_S \leq 98\text{°C}$ BAS40-07W, $T_S \leq 118\text{°C}$	$P_{tot}$	250 250 250 250 250 250 250 250	mW
Junction temperature	$T_j$	150	°C
Operating temperature range	$T_{op}$	-55 ... 150	
Storage temperature	$T_{stg}$	-55 ... 150	

#### Thermal Resistance

Parameter	Symbol	Value	Unit
Junction - soldering point <sup>1)</sup> BAS140W BAS40, BAS40-07 BAS40-02L BAS40-04, BAS40-06 BAS40-06W BAS40-05 BAS40-05W BAS40-07W	$R_{thJS}$	$\leq 150$ $\leq 275$ $\leq 90$ $\leq 375$ $\leq 175$ $\leq 475$ $\leq 205$ $\leq 125$	K/W

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

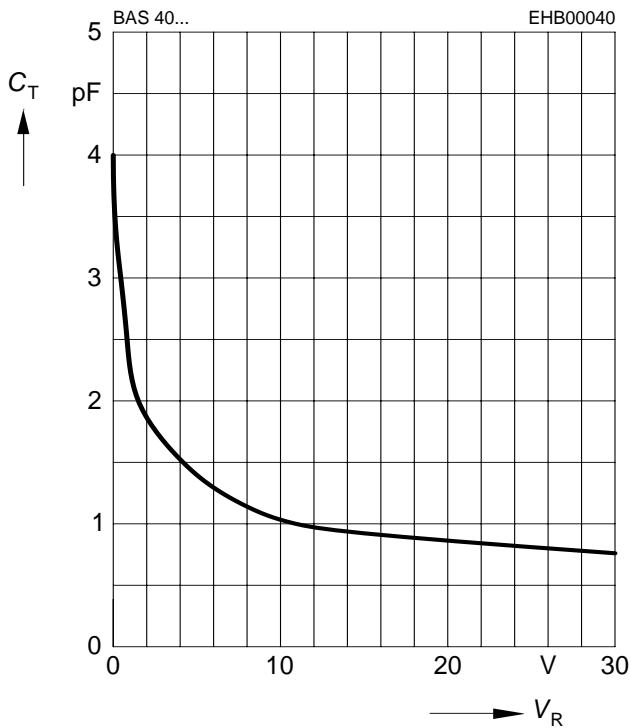
**Electrical Characteristics** at  $T_A = 25^\circ\text{C}$ , unless otherwise specified

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC Characteristics					
Breakdown voltage $I_{(BR)} = 10\ \mu\text{A}$	$V_{(BR)}$	40	-	-	V
Reverse current $V_R = 30\ \text{V}$	$I_R$	-	-	1	$\mu\text{A}$
Forward voltage $I_F = 1\ \text{mA}$ $I_F = 10\ \text{mA}$ $I_F = 40\ \text{mA}$	$V_F$	250 350 600	310 450 720	380 500 1000	mV
Forward voltage matching <sup>1)</sup> $I_F = 10\ \text{mA}$	$\Delta V_F$	-	-	20	
AC Characteristics					
Diode capacitance $V_R = 0$ , $f = 1\ \text{MHz}$	$C_T$	-	3	5	pF
Differential forward resistance $I_F = 10\ \text{mA}$ , $f = 10\ \text{kHz}$	$R_F$	-	10	-	$\Omega$
Charge carrier life time $I_F = 25\ \text{mA}$	$\tau_{rr}$	-	-	100	ps

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

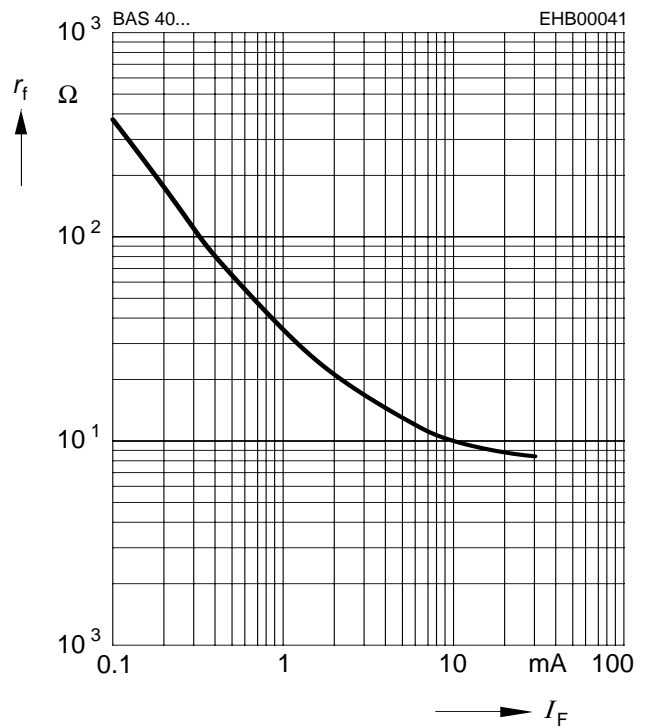
**Diode capacitance  $C_T = f(V_R)$**

$f = 1\text{MHz}$



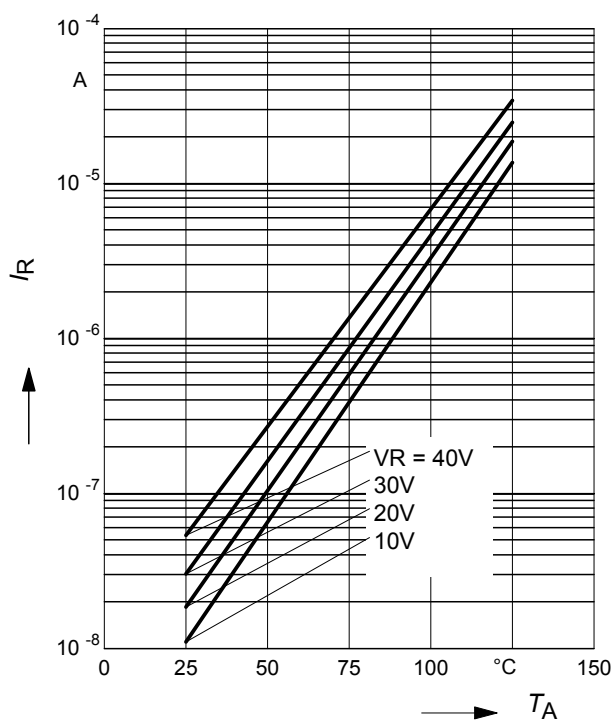
**Forward resistance  $r_f = f(I_F)$**

$f = 10\text{ kHz}$



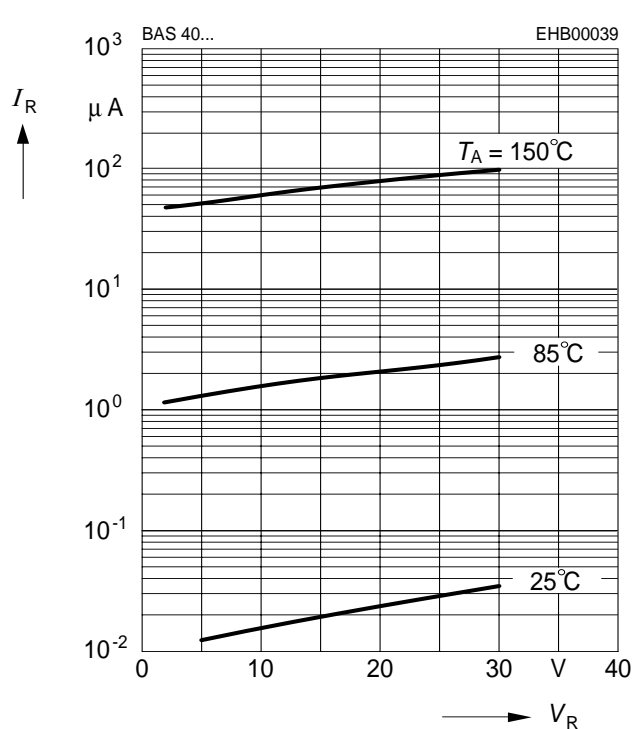
**Reverse current  $I_R = f(T_A)$**

$V_R = \text{Parameter}$



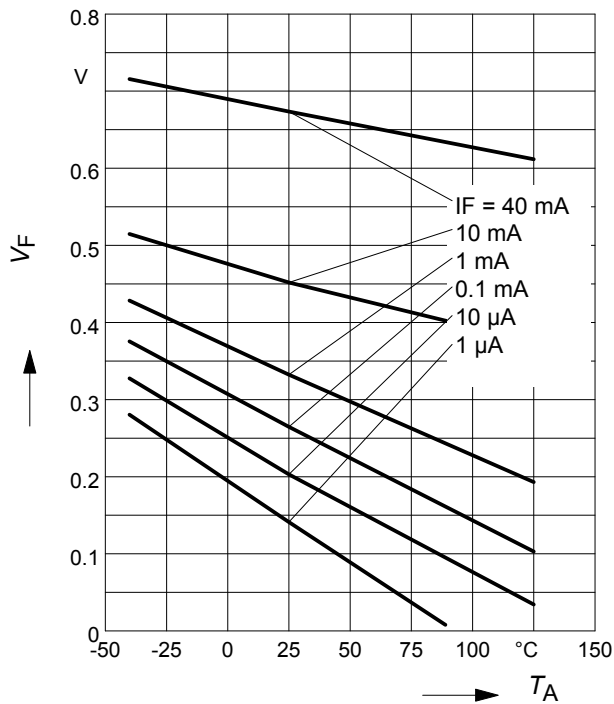
**Reverse current  $I_R = f(V_R)$**

$T_A = \text{Parameter}$



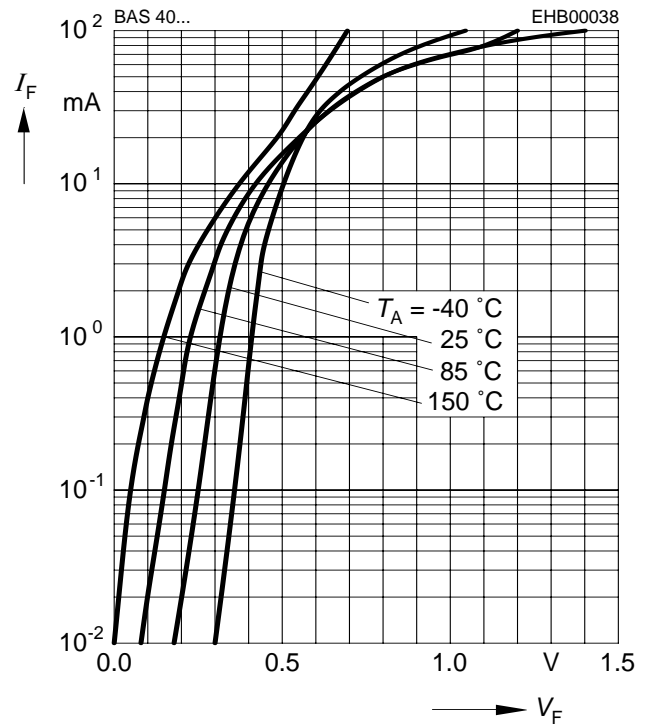
**Forward Voltage  $V_F = f(T_A)$**

$I_F$  = Parameter



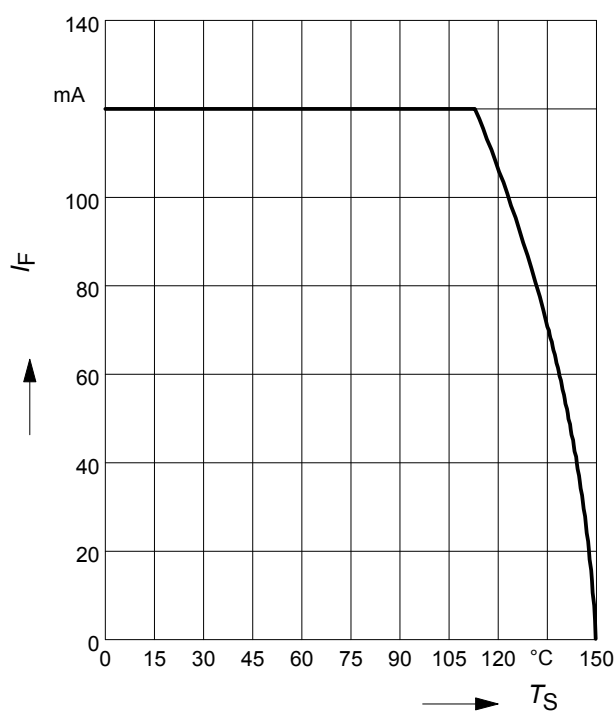
**Forward current  $I_F = f(V_F)$**

$T_A$  = Parameter



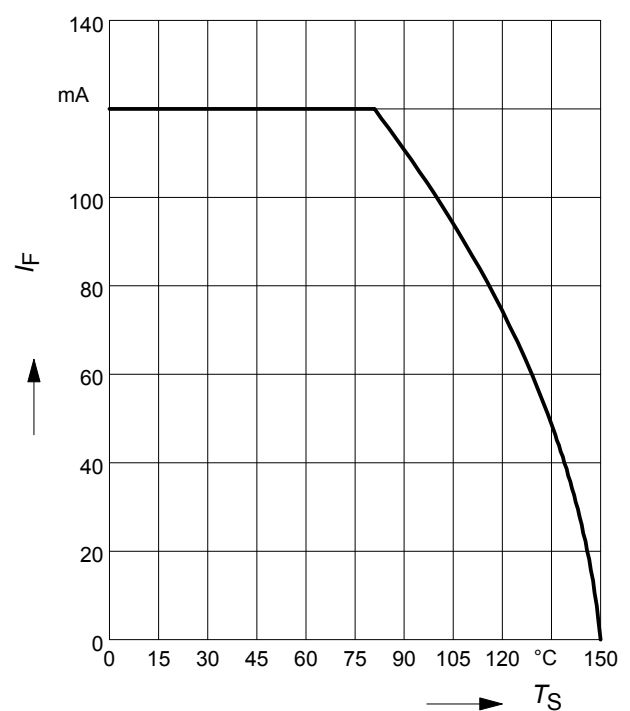
**Forward current  $I_F = f(T_S)$**

BAS140W



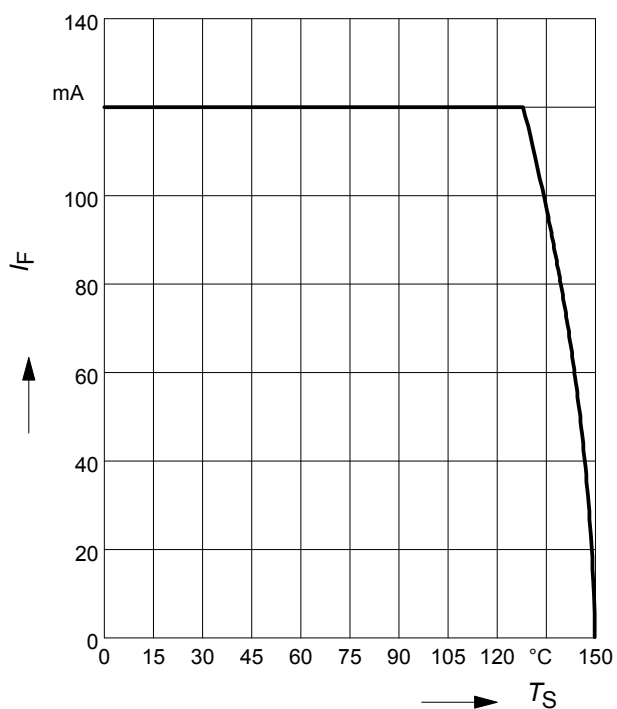
**Forward current  $I_F = f(T_S)$**

BAS40, BAS40-07



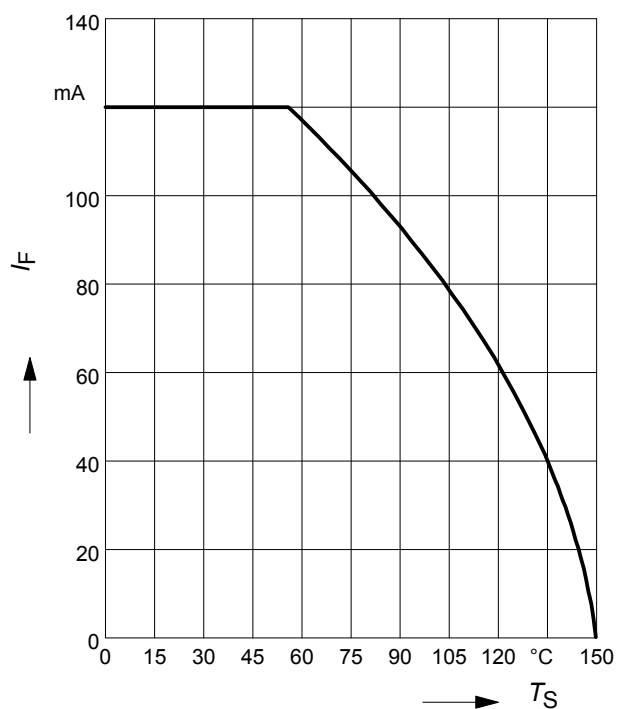
**Forward current  $I_F = f(T_S)$**

BAS40-02L



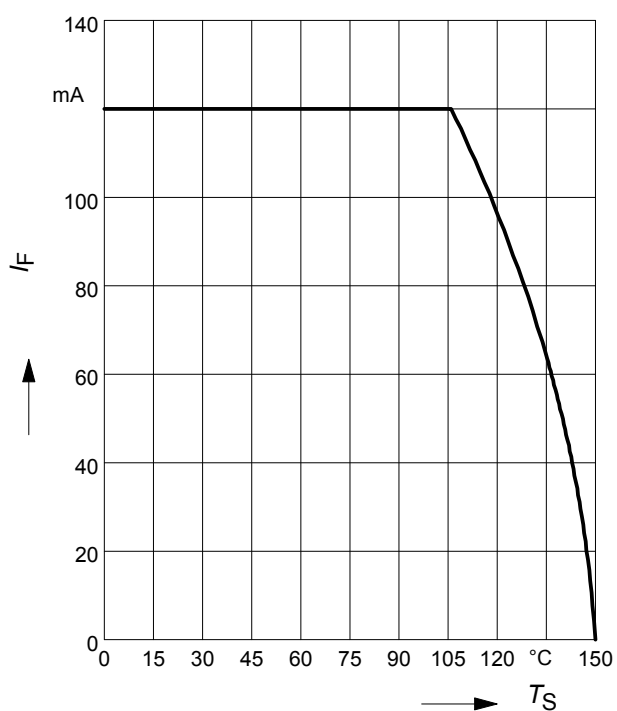
**Forward current  $I_F = f(T_S)$**

BAS40-04, BAS40-06



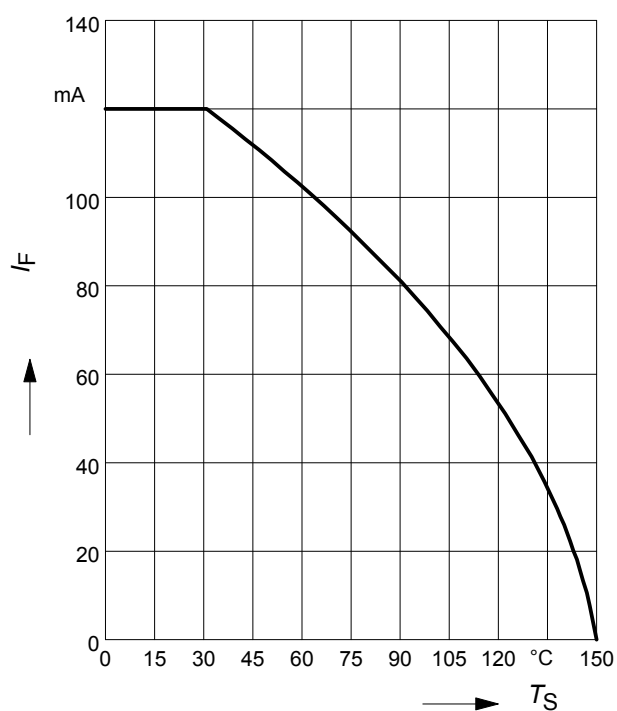
**Forward current  $I_F = f(T_S)$**

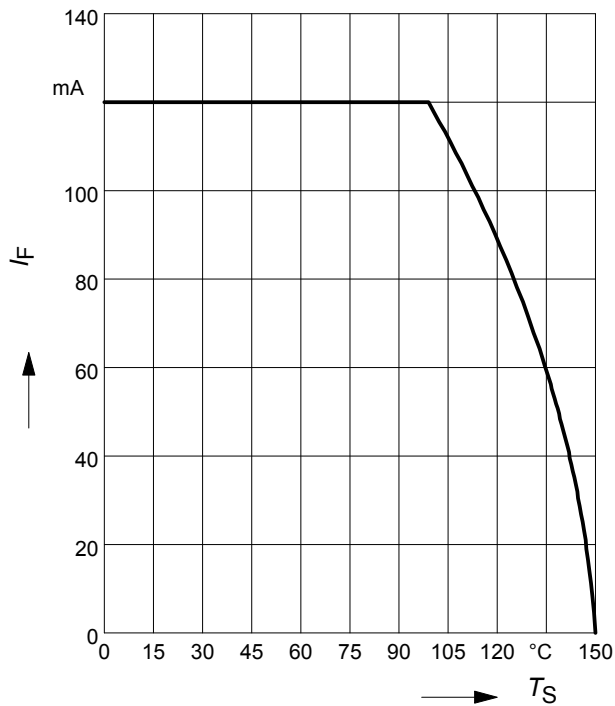
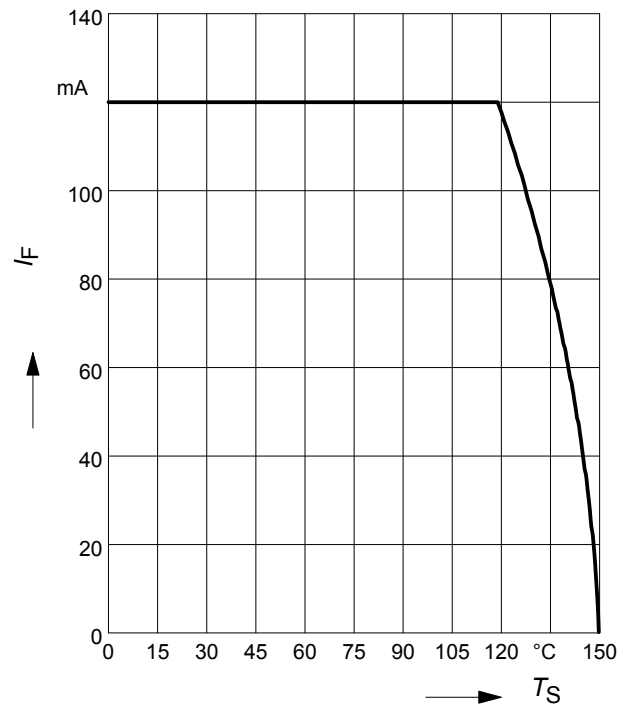
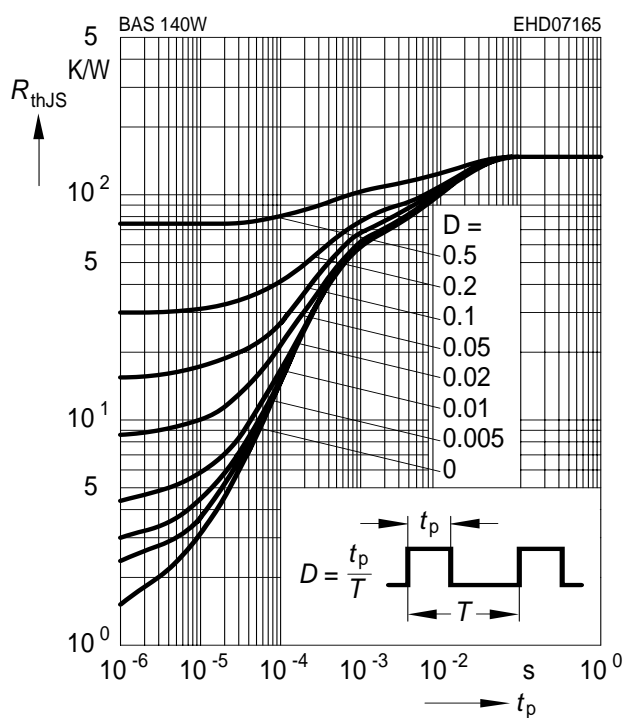
BAS40-06W



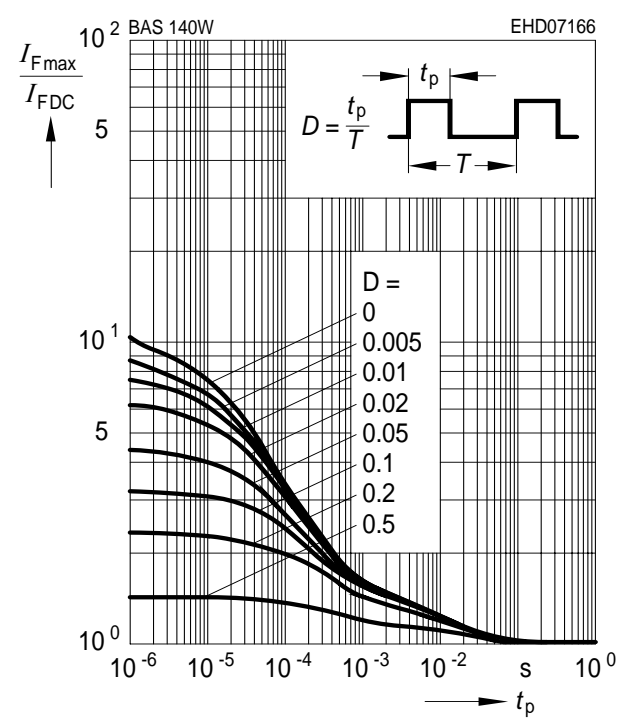
**Forward current  $I_F = f(T_S)$**

BAS40-05



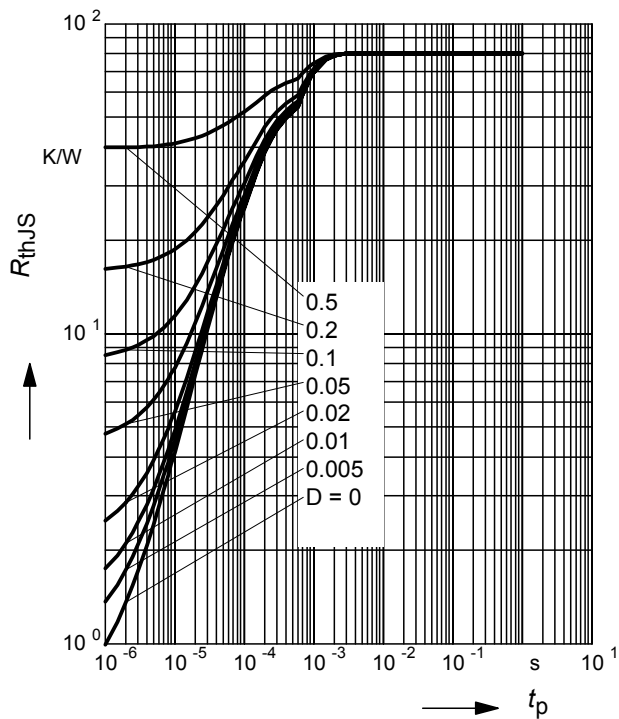
**Forward current  $I_F = f(T_S)$** 
**BAS40-05W**

**Forward current  $I_F = f(T_S)$** 
**BAS40-07W**

**Permissible Puls Load  $R_{thJS} = f(t_p)$** 
**BAS140W**

**Permissible Pulse Load**

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

**BAS140W**


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

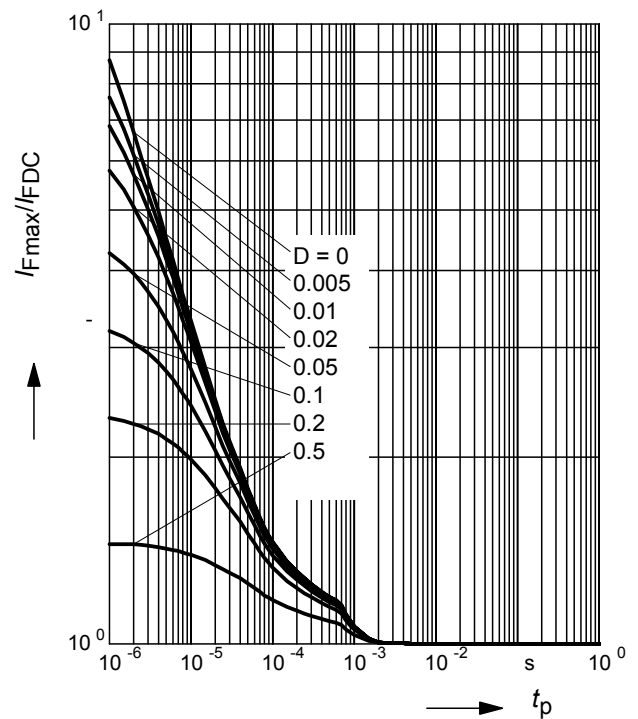
BAS40-02L



**Permissible Pulse Load**

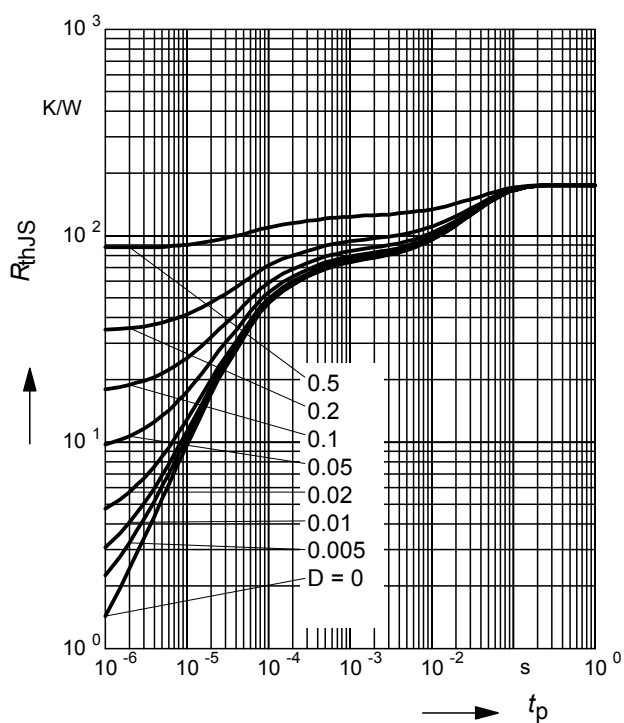
$$I_{Fmax}/I_{FDC} = f(t_p)$$

BAS40-02L



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

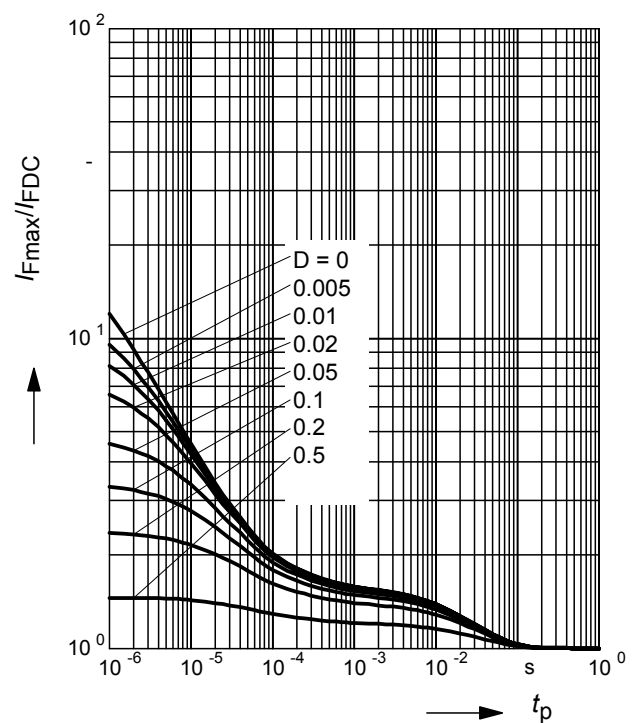
BAS40-06W



**Permissible Pulse Load**

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

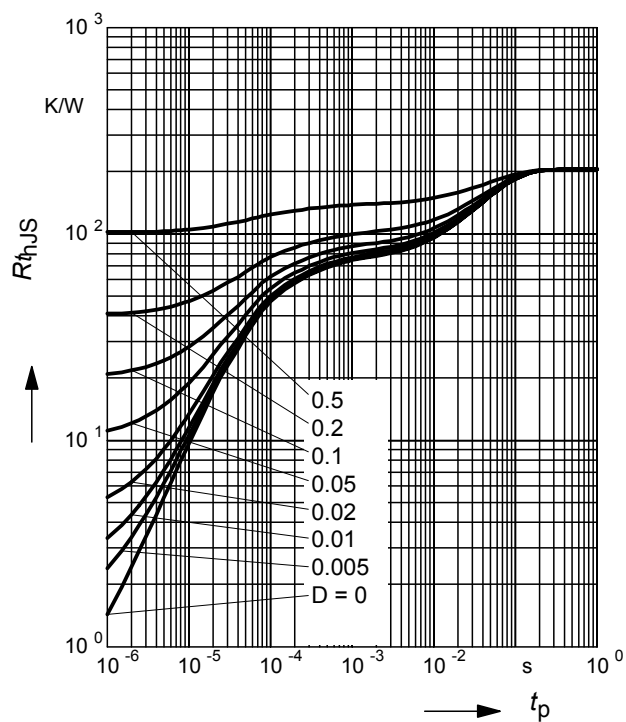
BAS40-06W





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

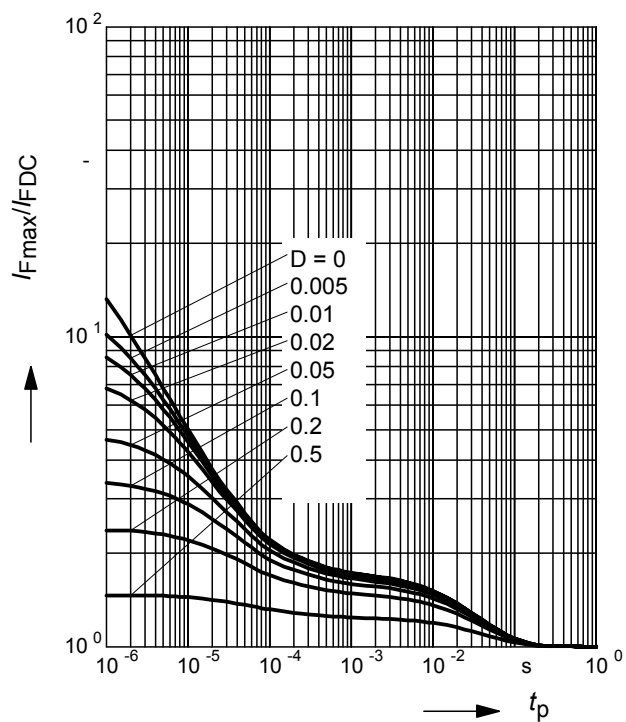
BAS40-05W



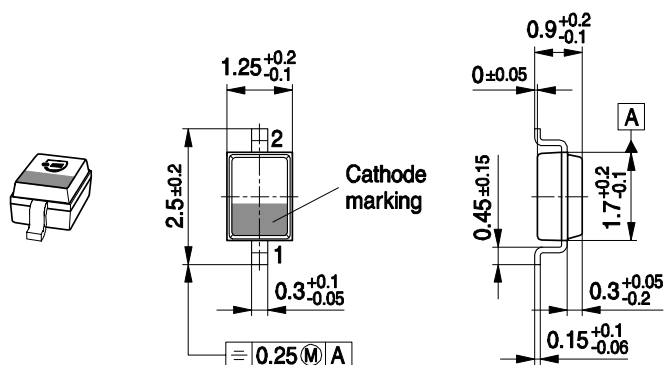
### Permissible Pulse Load

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

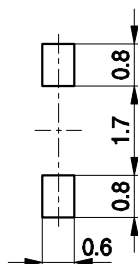
BAS40-05W



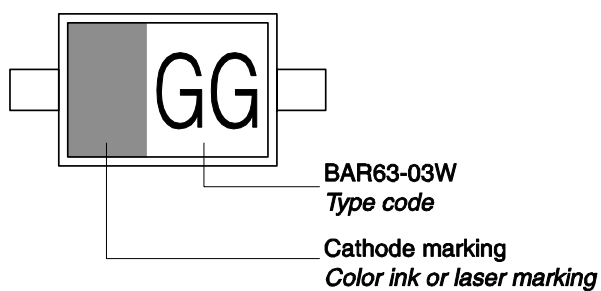
## Package Outline



## Foot Print

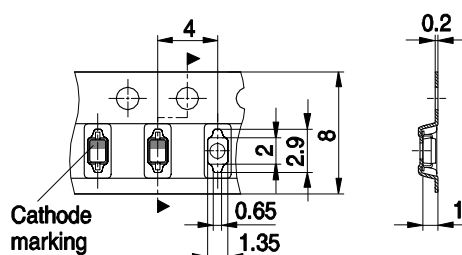


## Marking Layout (Example)

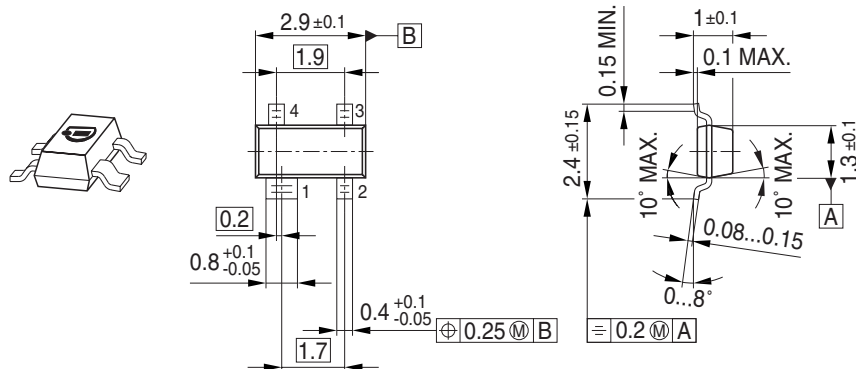


## Standard Packing

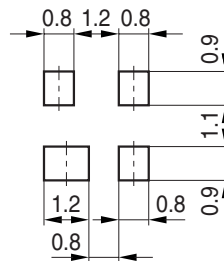
Reel ø180 mm = 3.000 Pieces/Reel  
Reel ø330 mm = 10.000 Pieces/Reel



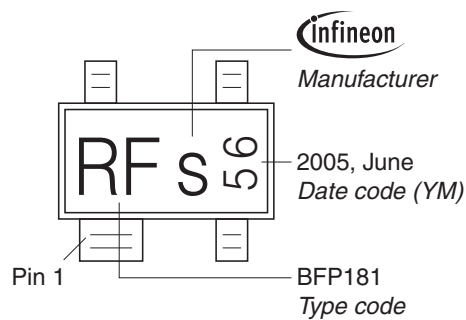
## Package Outline



## Foot Print

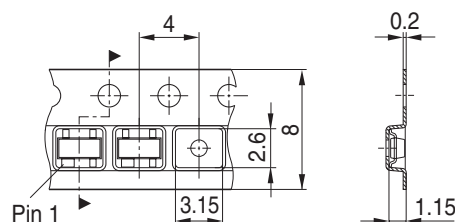


## Marking Layout (Example)

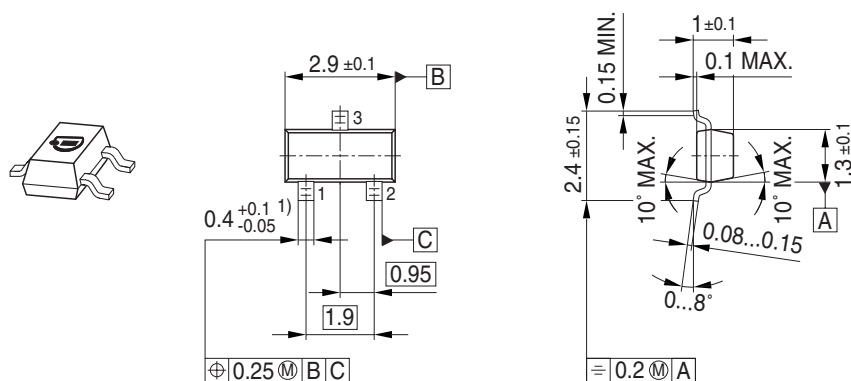


## Standard Packing

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

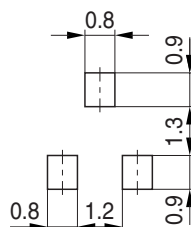


## Package Outline

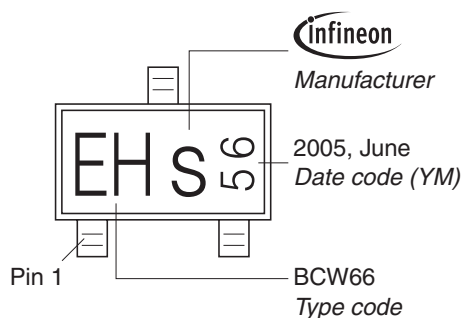


1) Lead width can be 0.6 max. in dambar area

## Foot Print

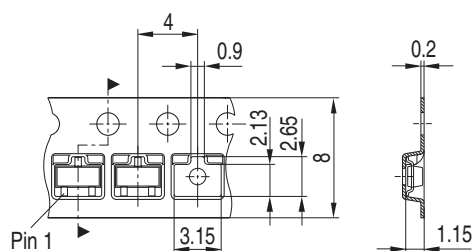


## Marking Layout (Example)

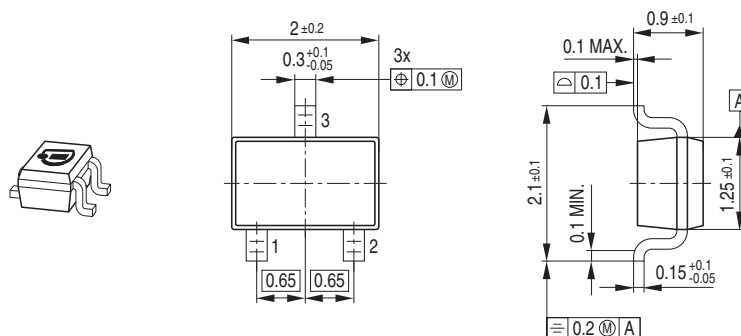


## Standard Packing

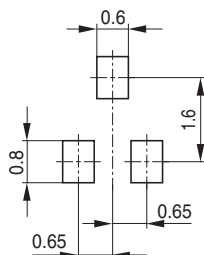
Reel ø180 mm = 3.000 Pieces/Reel  
Reel ø330 mm = 10.000 Pieces/Reel



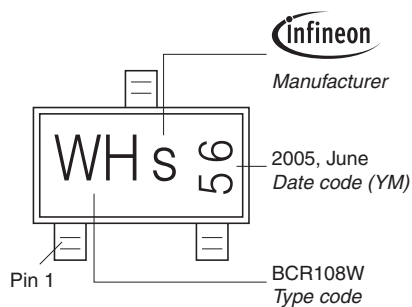
## Package Outline



## Foot Print

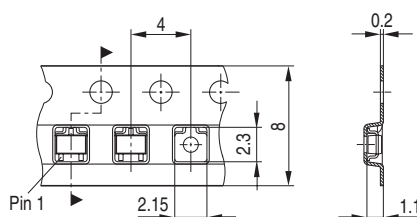


## Marking Layout (Example)

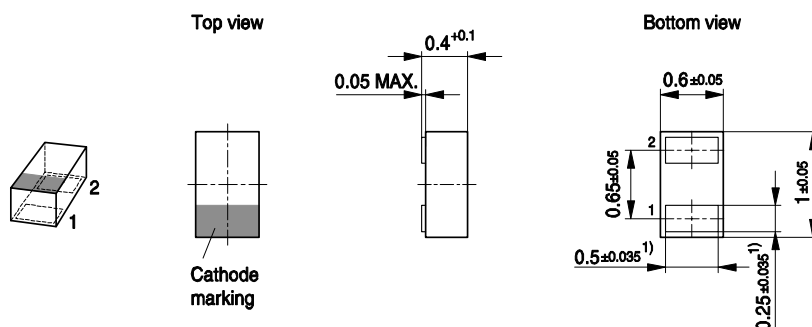


## Standard Packing

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



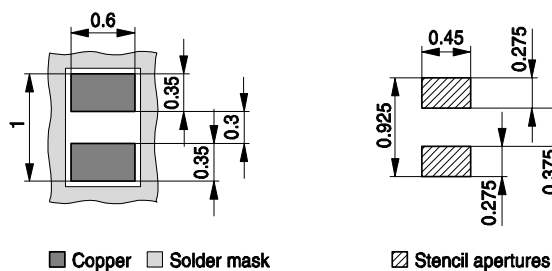
## Package Outline



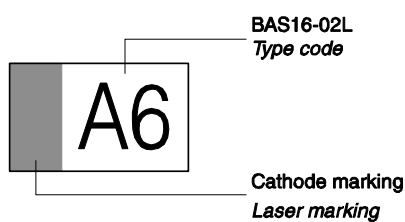
1) Dimension applies to plated terminal

## Foot Print

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



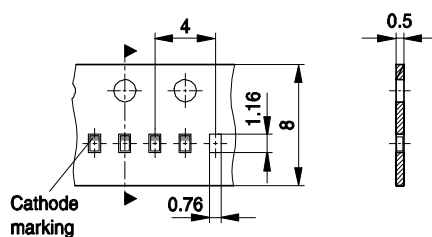
## Marking Layout (Example)



## Standard Packing

Reel ø180 mm = 15.000 Pieces/Reel

Reel ø330 mm = 50.000 Pieces/Reel (optional)



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