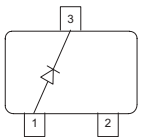
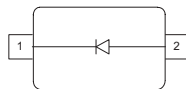
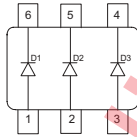


**Silicon Switching Diode**

- For high-speed switching applications
- High breakdown voltage
- Pb-free (RoHS compliant) package <sup>1)</sup>
- Qualified according AEC Q101


**BAS21**

**BAS21-03W**

**BAS21U**


Type	Package	Configuration	Marking
BAS21	SOT23	single	JSs
BAS21-03W	SOD323	single	D
BAS21U	SC74	parallel triple	JSs

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

Parameter	Symbol	Value	Unit
Diode reverse voltage	$V_R$	200	V
Peak reverse voltage	$V_{RM}$	250	
Forward current	$I_F$	250	mA
Peak forward current	$I_{FM}$	625	
Peak forward current	$I_{FM}$	625	mA
Surge forward current, $t = 10 \mu\text{s}$	$I_{FS}$	4	A
Non-repetitive peak surge forward current	$I_{FSM}$	-	
Total power dissipation	$P_{tot}$		mW
BAS21, $T_S \leq 70^\circ\text{C}$		350	
BAS21-03W, $T_S \leq 124^\circ\text{C}$		250	
BAS21U, $T_S \leq 122^\circ\text{C}$		250	
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-65 ... 150	

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

**Thermal Resistance**

Parameter	Symbol	Value	Unit
Junction - soldering point <sup>1)</sup>	$R_{thJS}$		K/W
BAS21		≤ 230	
BAS21-03W		≤ 105	
BAS21U		≤ 110	

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

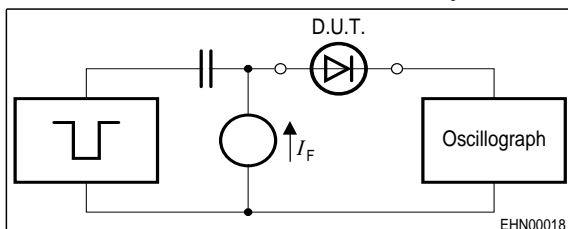
Parameter	Symbol	Values			Unit
		min.	typ.	max.	

**DC Characteristics**

Breakdown voltage $I_{(BR)} = 100 \mu\text{A}$	$V_{(BR)}$	250	-	-	V
Reverse current $V_R = 200 \text{ V}$ $V_R = 200 \text{ V}, T_A = 150^\circ\text{C}$	$I_R$	-	-	0.1 100	$\mu\text{A}$
Forward voltage $I_F = 100 \text{ mA}$ $I_F = 200 \text{ mA}$	$V_F$	-	-	1 1.25	V

**AC Characteristics**

Diode capacitance $V_R = 0 \text{ V}, f = 1 \text{ MHz}$	$C_T$	-	-	5	pF
Reverse recovery time $I_F = 30 \text{ mA}, I_R = 30 \text{ mA}$ , measured at $I_R = 3 \text{ mA}$ , $R_L = 100 \Omega$	$t_{rr}$	-	-	50	ns

**Test circuit for reverse recovery time**


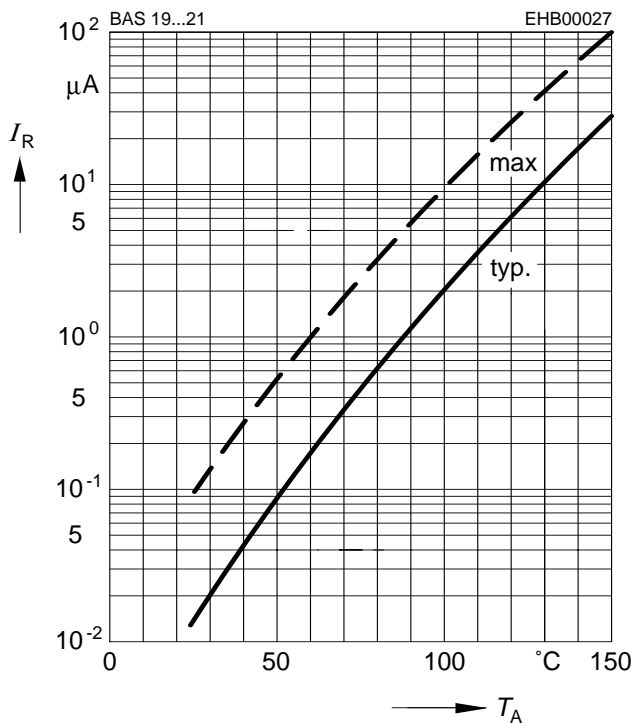
Puls generator:  $t_p = 1 \mu\text{s}$ ,  $D = 0.05$   
 $t_r = 0.6 \text{ ns}$ ,  $R_i = 50 \Omega$

Oscilloscope:  $R = 50 \Omega$ ,  $t_r = 0.35 \text{ ns}$ ,  $C \leq 1 \text{ pF}$

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

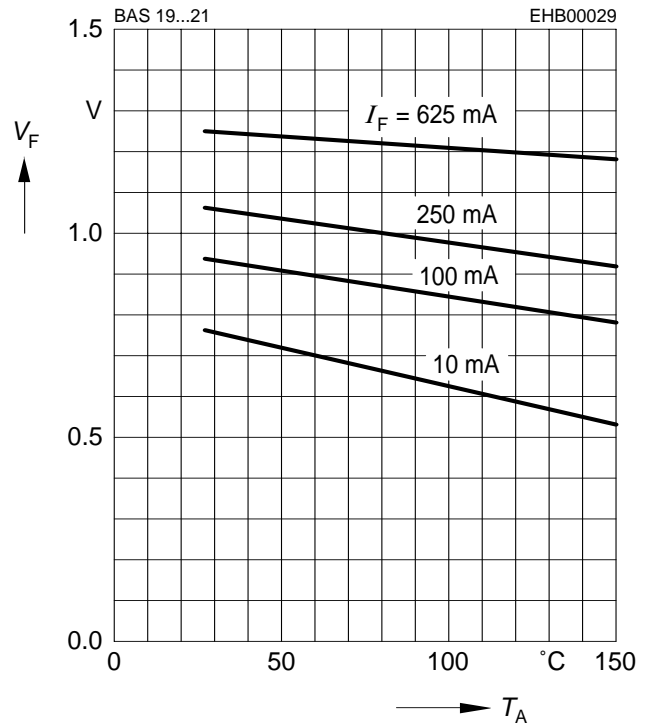
Reverse current  $I_R = f(T_A)$

$V_R = 200V$

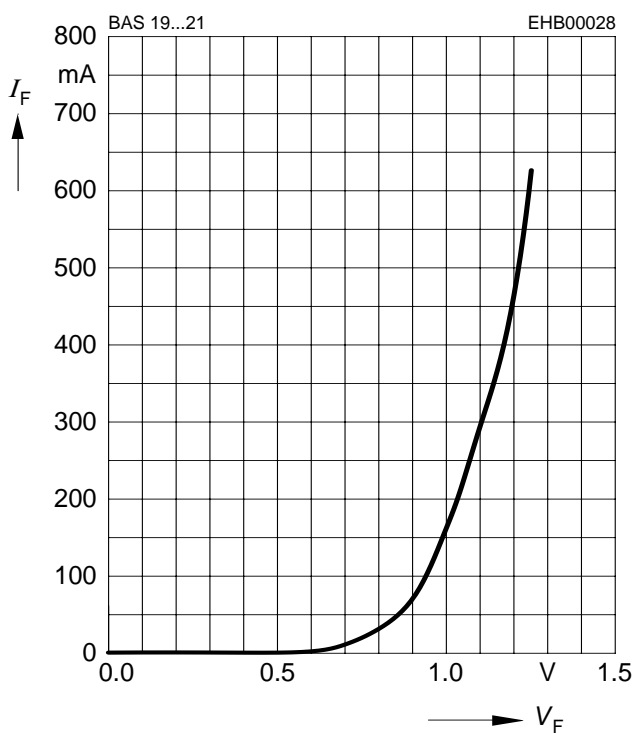


Forward Voltage  $V_F = f(T_A)$

$I_F = \text{Parameter}$

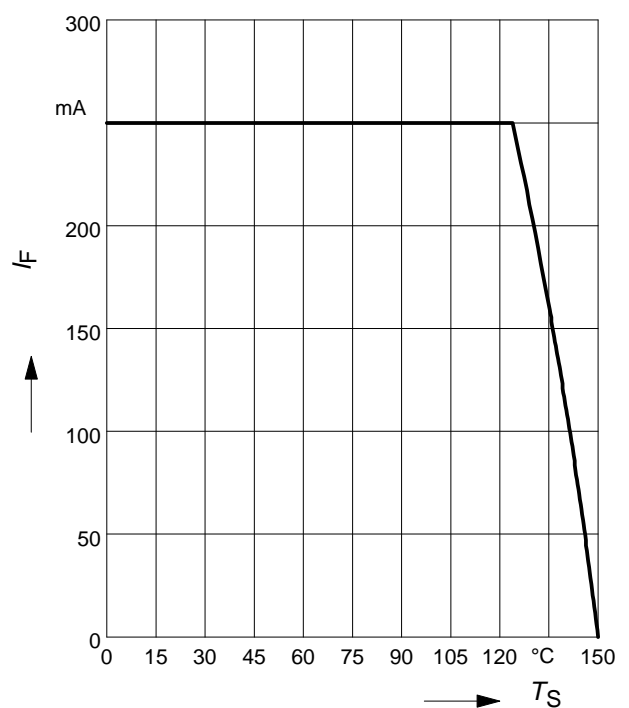


Forward current  $I_F = f(V_F)$



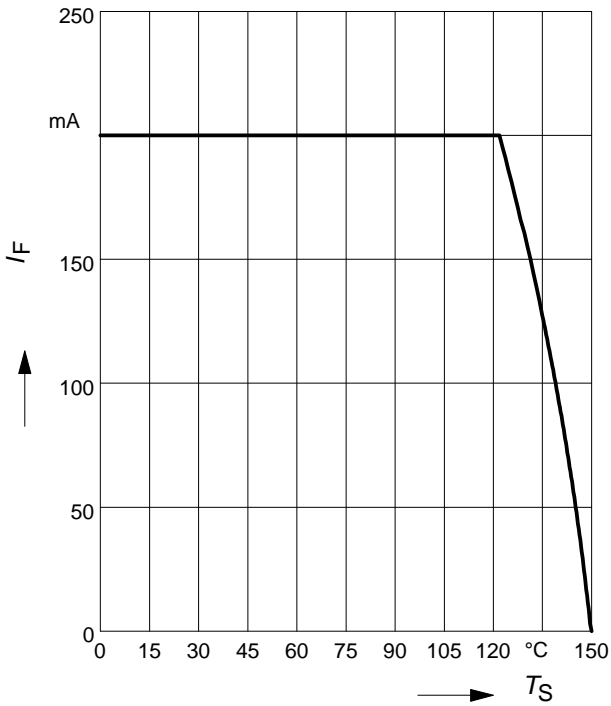
Forward current  $I_F = f(T_S)$

BAS21-03W



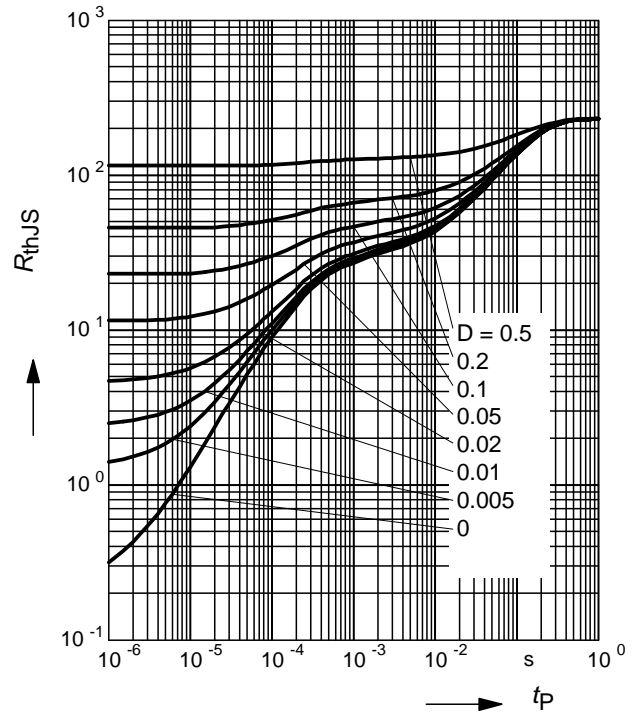
**Forward current  $I_F = f(T_S)$**

BAS21U



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

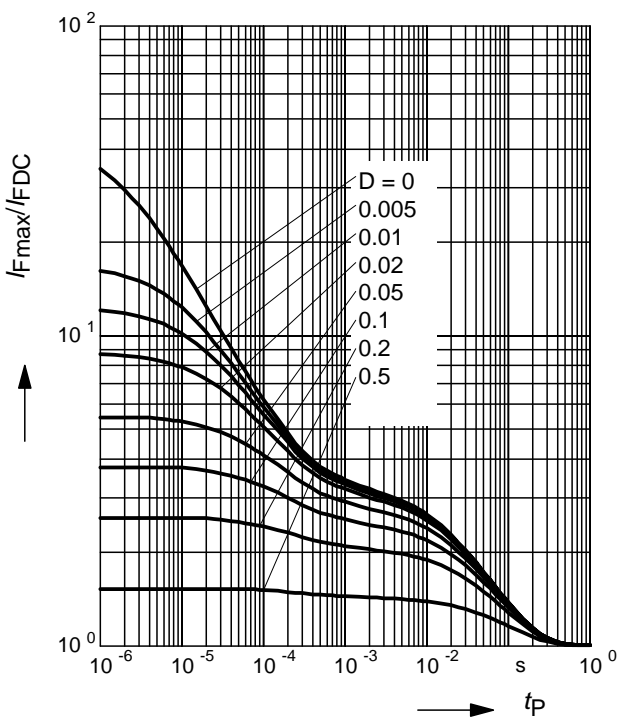
BAS21



**Permissible Pulse Load**

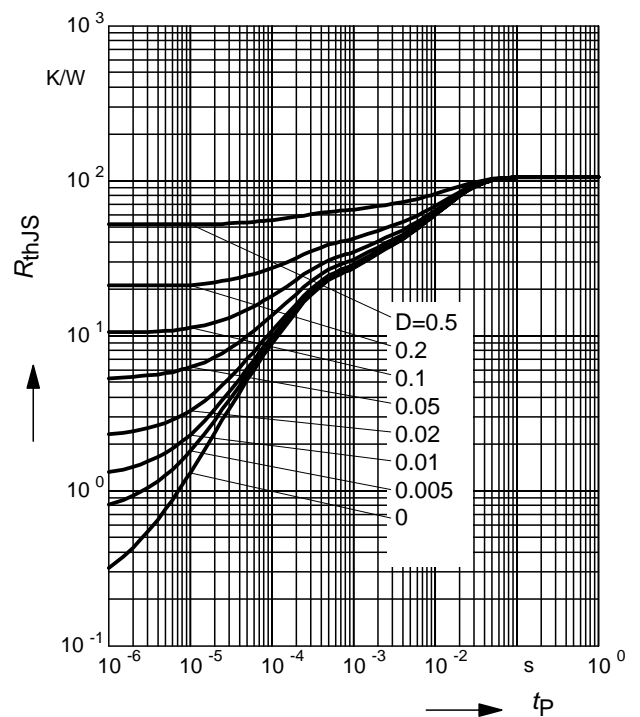
$I_{Fmax} / I_{FDC} = f(t_p)$

BAS21



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

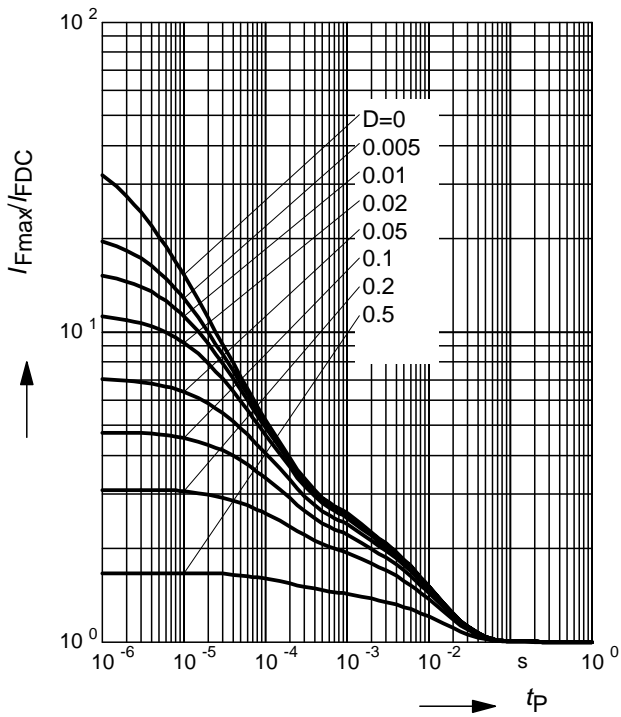
BAS21-03W



**Permissible Pulse Load**

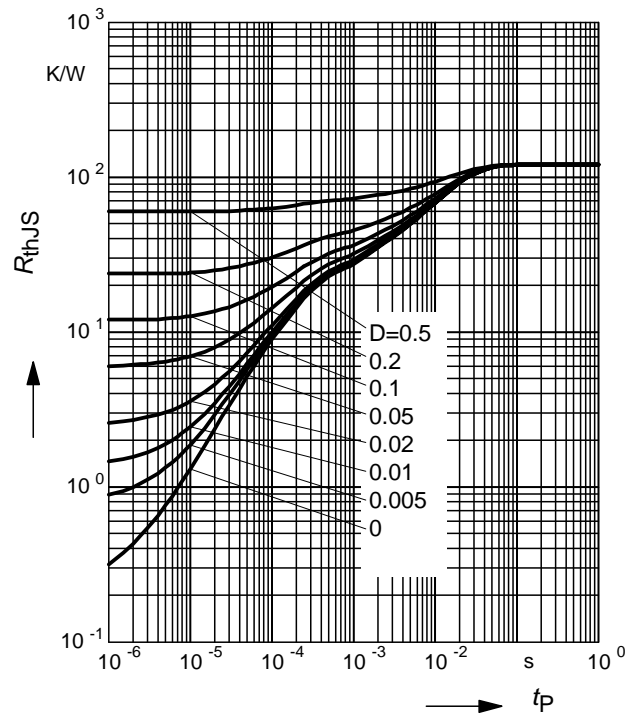
$$I_{Fmax} / I_{FDC} = f(t_p)$$

BAS21-03W



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

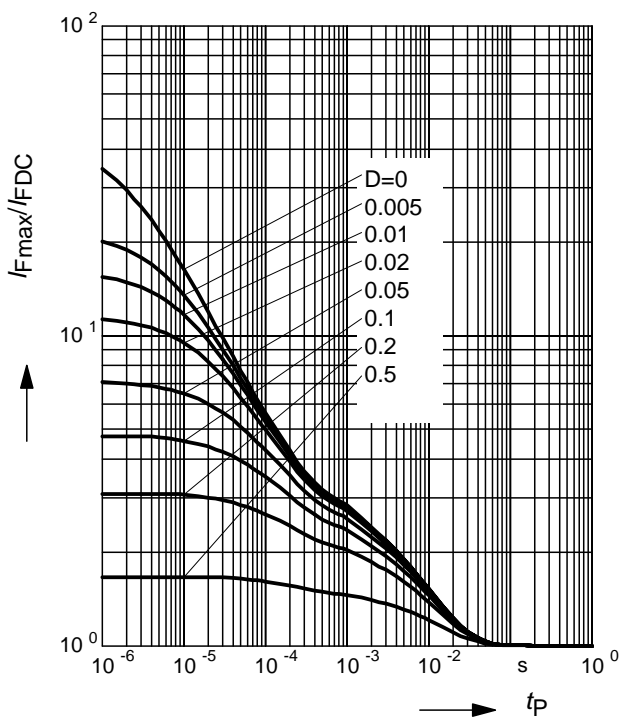
BAS21U



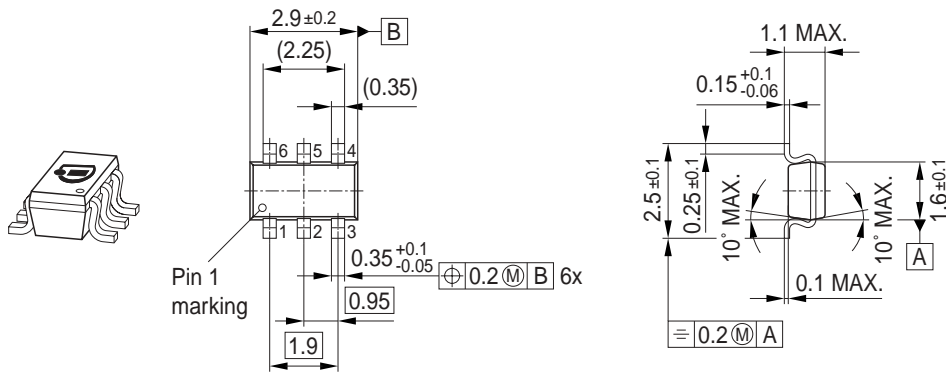
**Permissible Pulse Load**

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

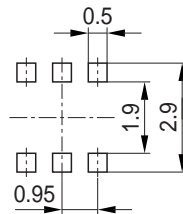
BAS21U



Package Outline

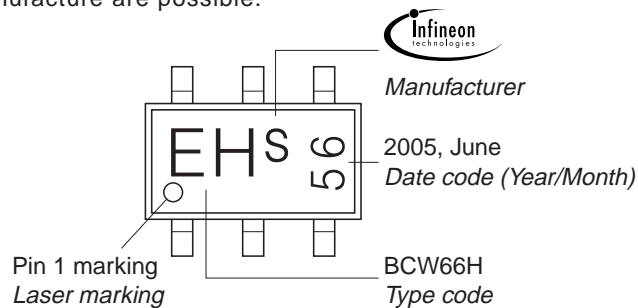


Foot Print



Marking Layout (Example)

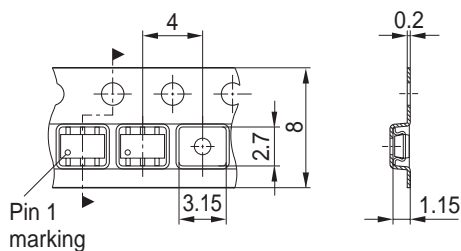
Small variations in positioning of Date code, Type code and Manufacture are possible.



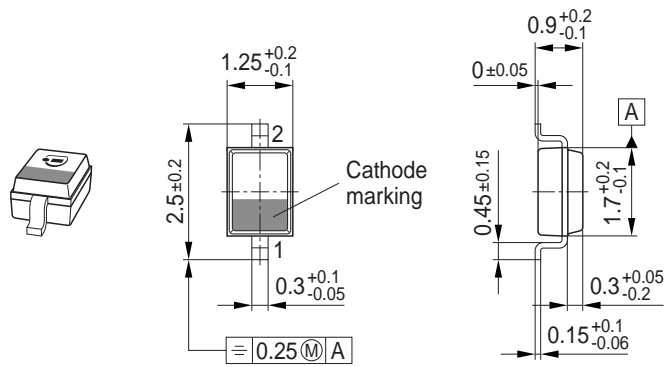
Standard Packing

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

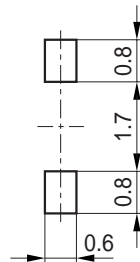
For symmetric types no defined Pin 1 orientation in reel.



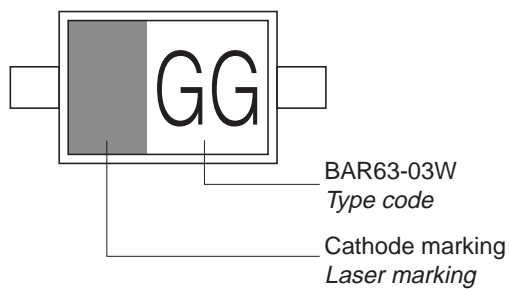
Package Outline



Foot Print

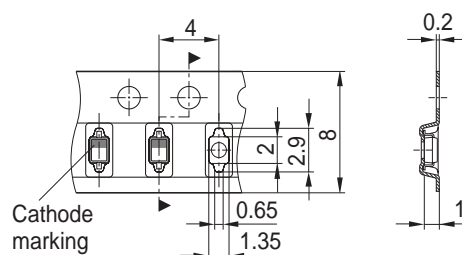


Marking Layout (Example)

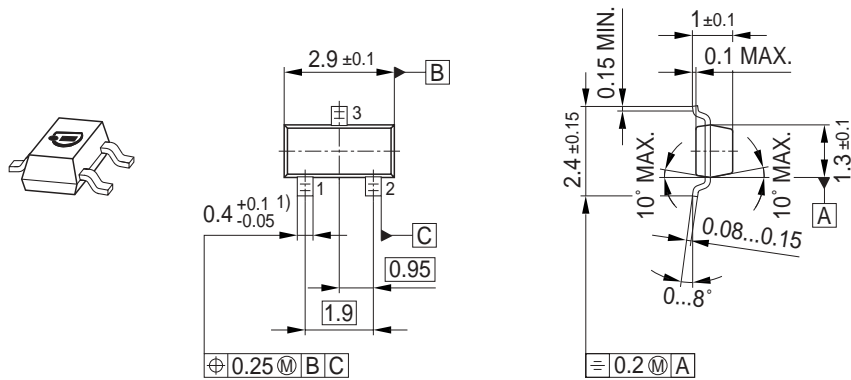


Standard Packing

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

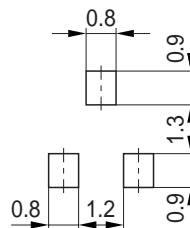


Package Outline

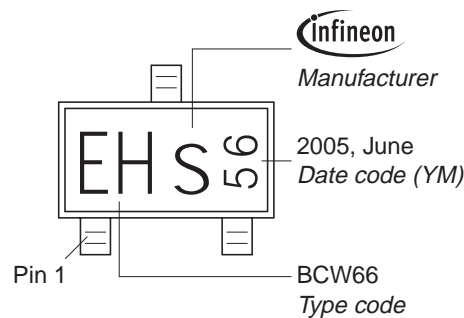


1) Lead width can be 0.6 max. in dambar area

Foot Print

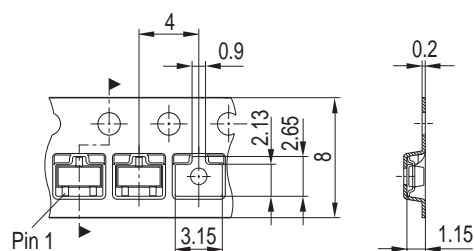


Marking Layout (Example)



Standard Packing

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





Edition 2006-02-01  
Published by  
Infineon Technologies AG  
81726 München, Germany  
© Infineon Technologies AG 2007.  
All Rights Reserved.

### **Attention please!**

The information given in this dokument shall in no event be regarded as a guarantee of conditions or characteristics ("Beschaffenheitsgarantie"). With respect to any examples or hints given herein, any typical values stated herein and/or any information regarding the application of the device, Infineon Technologies hereby disclaims any and all warranties and liabilities of any kind, including without limitation warranties of non-infringement of intellectual property rights of any third party.

### **Information**

For further information on technology, delivery terms and conditions and prices please contact your nearest Infineon Technologies Office ([www.infineon.com](http://www.infineon.com)).

### **Warnings**

Due to technical requirements components may contain dangerous substances. For information on the types in question please contact your nearest Infineon Technologies Office.

Infineon Technologies Components may only be used in life-support devices or systems with the express written approval of Infineon Technologies, if a failure of such components can reasonably be expected to cause the failure of that life-support device or system, or to affect the safety or effectiveness of that device or system.

Life support devices or systems are intended to be implanted in the human body, or to support and/or maintain and sustain and/or protect human life. If they fail, it is reasonable to assume that the health of the user or other persons may be endangered.