

**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**

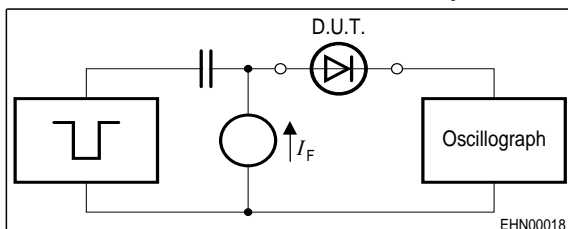
Parameter	Symbol	Values			Unit
		min.	typ.	max.	

**DC Characteristics**

Breakdown voltage $I_{(BR)} = 100 \mu\text{A}$	$V_{(BR)}$	250	-	-	V
Reverse current $V_R = 200 \text{ V}$ $V_R = 200 \text{ V}, T_A = 150 \text{ }^\circ\text{C}$	$I_R$	-	-	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**


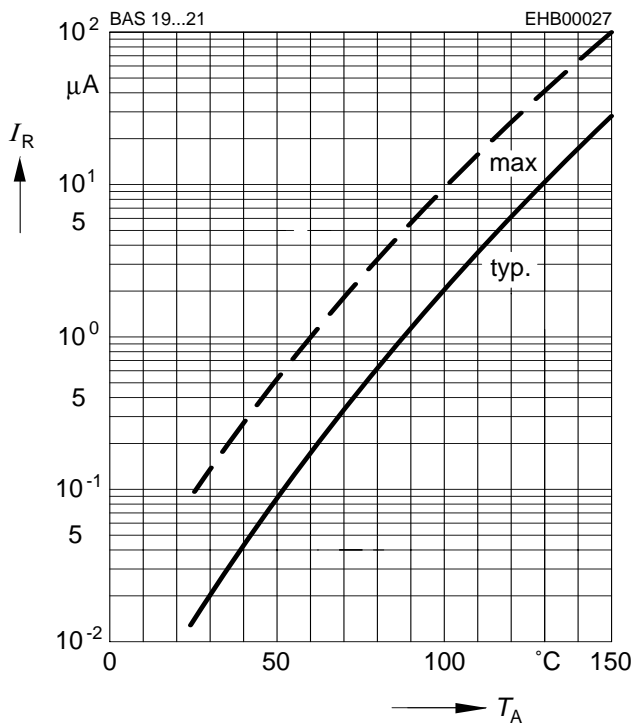
Puls generator:  $t_p = 1 \mu\text{s}$ ,  $D = 0.05$   
 $t_r = 0.6 \text{ ns}$ ,  $R_i = 50 \Omega$

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

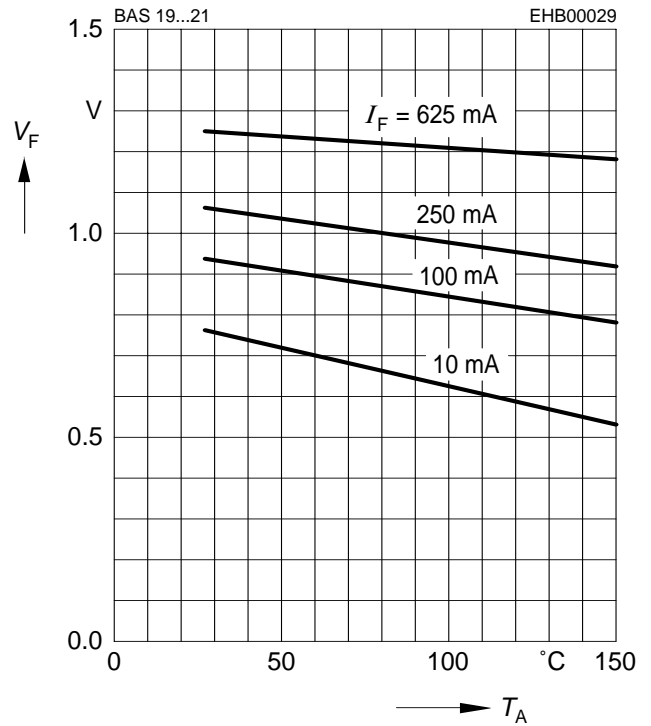
Reverse current  $I_R = f(T_A)$

$V_R = 200V$



Forward Voltage  $V_F = f(T_A)$

$I_F = \text{Parameter}$



Forward current  $I_F = f(V_F)$



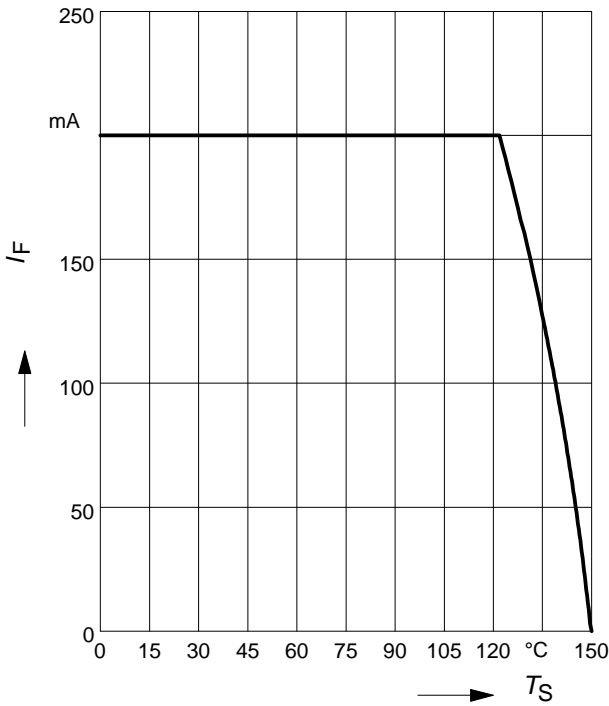
Forward current  $I_F = f(T_S)$

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.



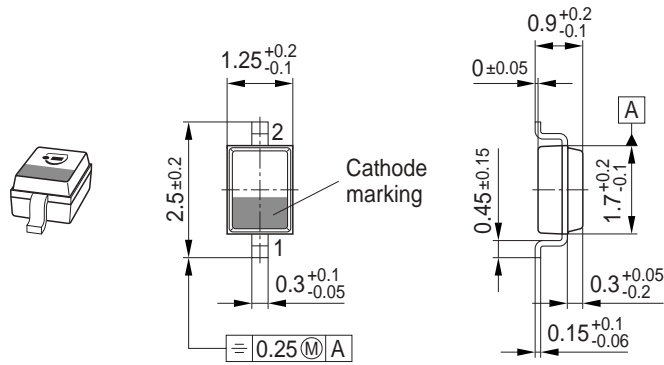
Standard Packing

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

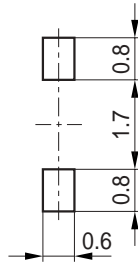
For symmetric types no defined Pin 1 orientation in reel.



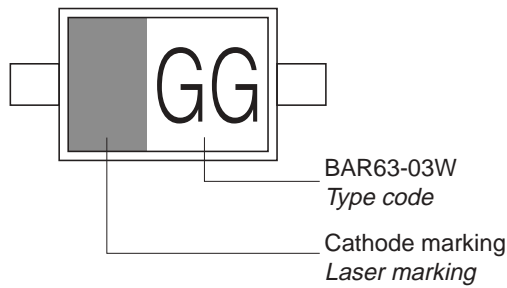
Package Outline



Foot Print

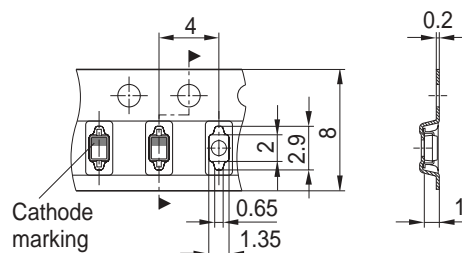


Marking Layout (Example)



Standard Packing

Reel  $\varnothing$ 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





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