

Silicon Switching Diode

- For high-speed switching applications
- High breakdown voltage
- Pb-free (RoHS compliant) package ¹⁾
- 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	

¹Pb-containing package may be available upon special request

Thermal Resistance

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

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

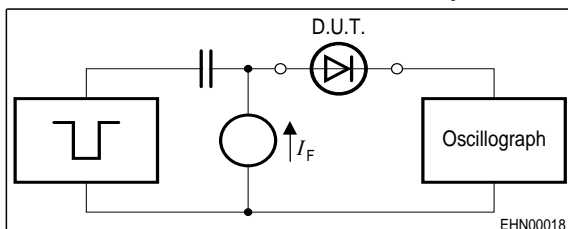
Parameter	Symbol	Values			Unit
		min.	typ.	max.	

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	μA
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


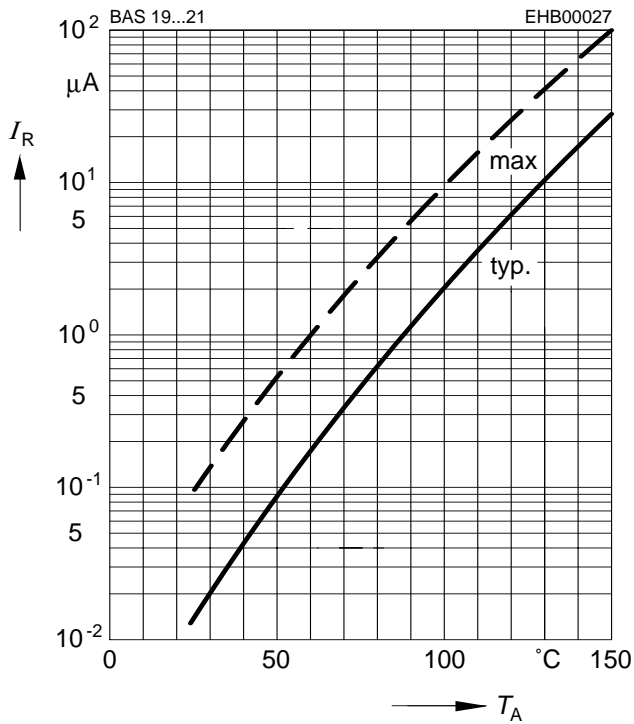
Puls generator: $t_p = 1 \mu\text{s}$, $D = 0.05$
 $t_r = 0.6 \text{ ns}$, $R_i = 50 \Omega$

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

¹⁾For calculation of R_{thJA} please refer to Application Note Thermal Resistance

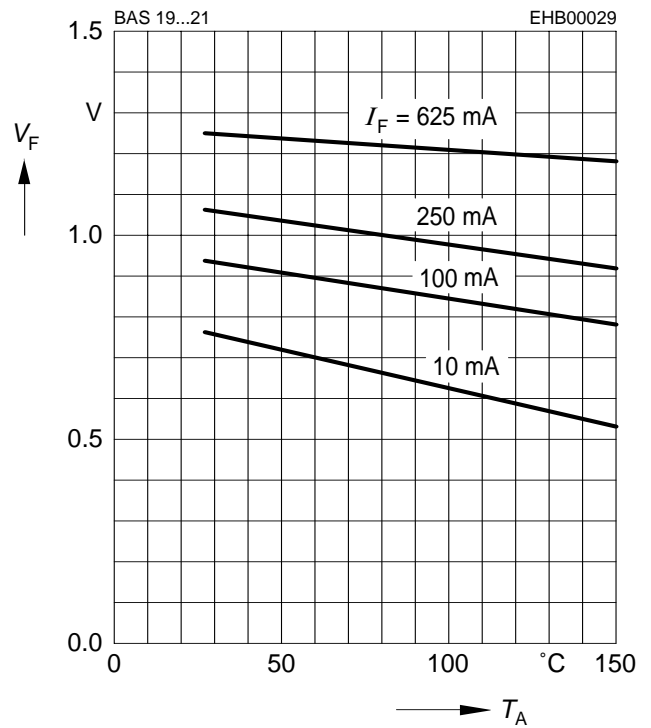
Reverse current $I_R = f(T_A)$

$V_R = 200V$



Forward Voltage $V_F = f(T_A)$

$I_F = \text{Parameter}$

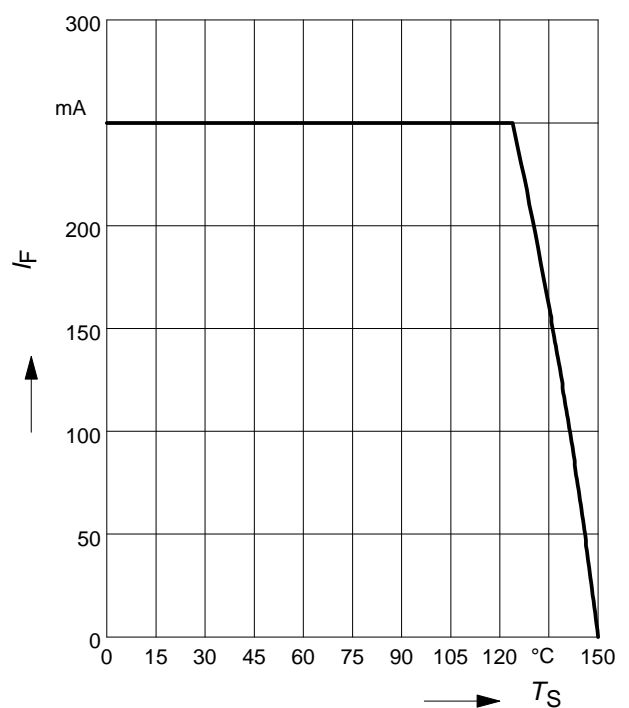


Forward current $I_F = f(V_F)$



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)

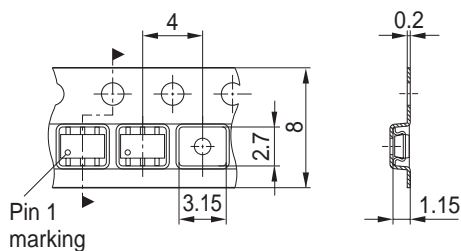
Small variations in positioning of Date code, Type code and Manufacture are possible.



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

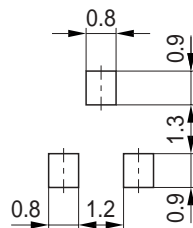


Package Outline



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



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