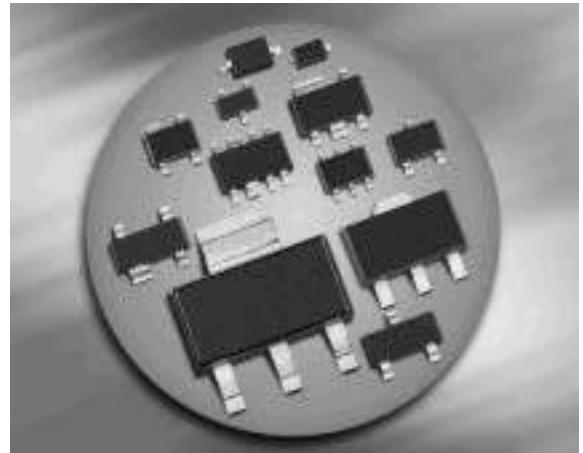
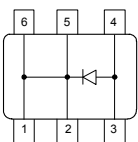


### Schottky Rectifier Diode

- Reverse voltage: 30 V
- Forward current: 2 A
- Low forward voltage: 0.53 V typ. @ 2 A
- Low leakage current 40  $\mu$ A typ. @ 30 V
- Low capacitance: 30 pF typ. @ 5 V
- High ESD / transient robustness according to:
  - ESD (HBM): Class 3 B (> 8000 V)
  - ESD (MM): Class C (> 400 V)
  - ISO7637-2: Pulse 1 (-100 V, 2 ms)
  - Pulse 2 (-300 V, 50  $\mu$ s)
  - Pulse 3 (-400 V, 100 ns)
- For high efficiency DC/DC conversion, fast switching, polarity protection, rectification and clamping applications
- Very small SMD package (2.0 x 1.25 x 0.9 mm<sup>3</sup>) with improved operating temperature range due to extra-low thermal resistance design (see attached Forward current curves)
- Ideal to replace SMA packages with significant size advantage
- Pb-free (RoHS compliant) package
- Qualified according AEC Q101



### BAS3020B



Type	Package	Configuration	Marking
BAS3020B	SOT363	single	E9s

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

Parameter	Symbol	Value	Unit
Diode reverse voltage <sup>1)</sup>	$V_R$	30	V
Peak reverse voltage <sup>1)</sup>	$V_{RM}$	30	
RMS reverse voltage <sup>1)</sup>	$V_{R(RMS)}$	21	
Forward current <sup>1)2)</sup> , $T_S \leq 96\text{ °C}$	$I_F$	2	A
Repetitive peak forward current <sup>2)</sup> ( $t_p \leq 1\text{ ms}$ , $D \leq 0.5$ )	$I_{FRM}$	3.5	
Non-repetitive peak surge forward current <sup>2)</sup> ( $t \leq 10\text{ ms}$ )	$I_{FSM}$	10	
Junction temperature	$T_j$	150	°C
Operating temperature range	$T_{op}$	-55 ... 125	
Storage temperature	$T_{stg}$	-65 ... 150	

**Thermal Resistance**

Parameter	Symbol	Value	Unit
Junction - soldering point <sup>3)</sup>	$R_{thJS}$	$\leq 42$	K/W

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

Parameter	Symbol	Values			Unit
		min.	typ.	max.	

**DC Characteristics**

Reverse current <sup>4)</sup>	$I_R$	-	5	25	$\mu\text{A}$
$V_R = 5\text{ V}$					
$V_R = 10\text{ V}$					
$V_R = 30\text{ V}$					
Forward voltage <sup>4)</sup>	$V_F$	-	350	410	mV
$I_F = 500\text{ mA}$					
$I_F = 1\text{ A}$					
$I_F = 2\text{ A}$					

<sup>1)</sup>For  $T_A > 25\text{ °C}$  the derating of  $V_R$  and  $I_F$  has to be considered. Please refer to the attached curves.

<sup>2)</sup>Only valid if pins 3 and 4 are connected in parallel.

<sup>3)</sup>For calculation of  $R_{thJA}$  please refer to Application Note Thermal Resistance.

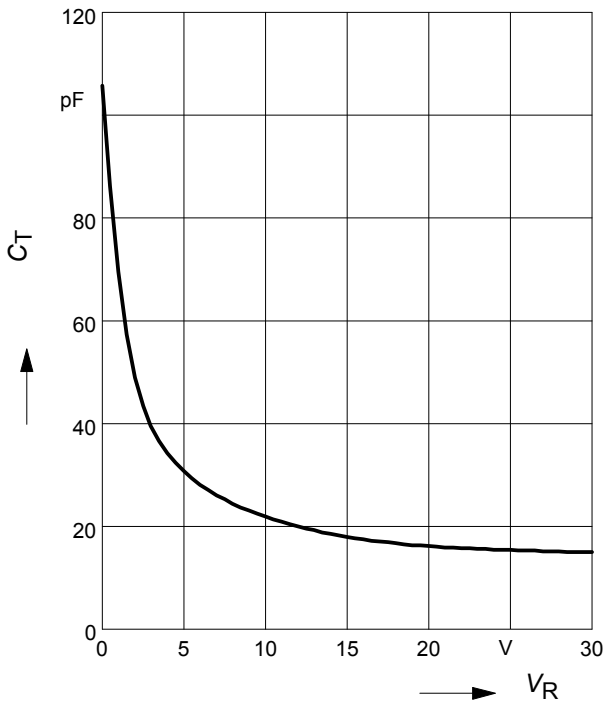
<sup>4)</sup>Pulsed test:  $t_p \leq 300\text{ }\mu\text{s}$ ;  $D = \leq 0.02$

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

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
<b>AC Characteristics</b>					
Diode capacitance	$C_T$				pF
$V_R = 1\text{ V}, f = 1\text{ MHz}$		-	60	70	
$V_R = 5\text{ V}, f = 1\text{ MHz}$		-	30	40	
$V_R = 10\text{ V}, f = 1\text{ MHz}$		-	20	30	

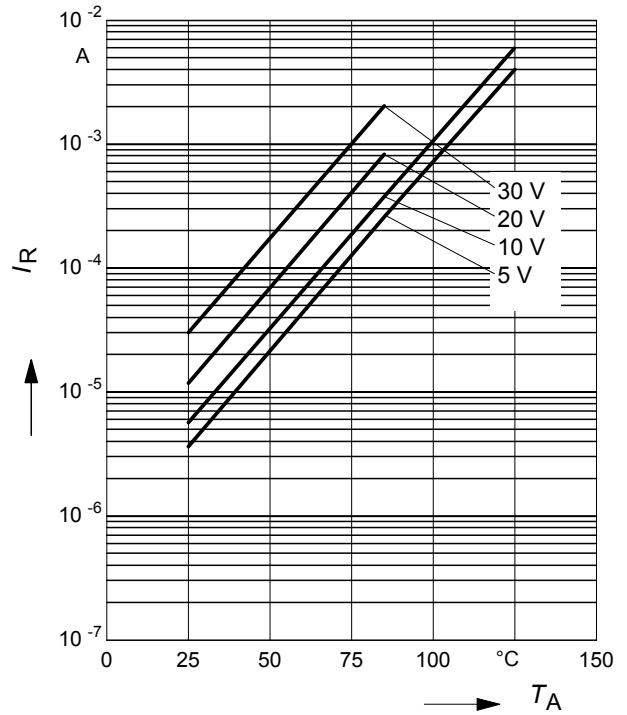
**Diode capacitance  $C_T = f(V_R)$**

$f = 1\text{MHz}$



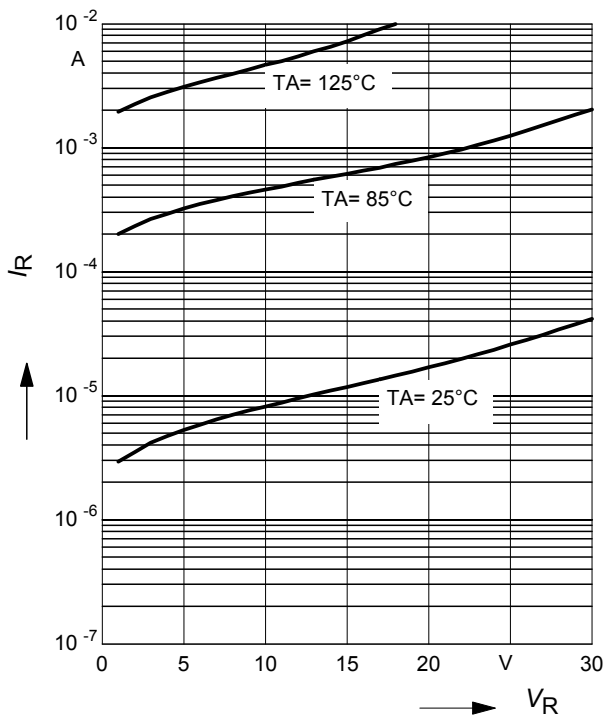
**Reverse current  $I_R = f(T_A)$**

$V_R = \text{Parameter}$



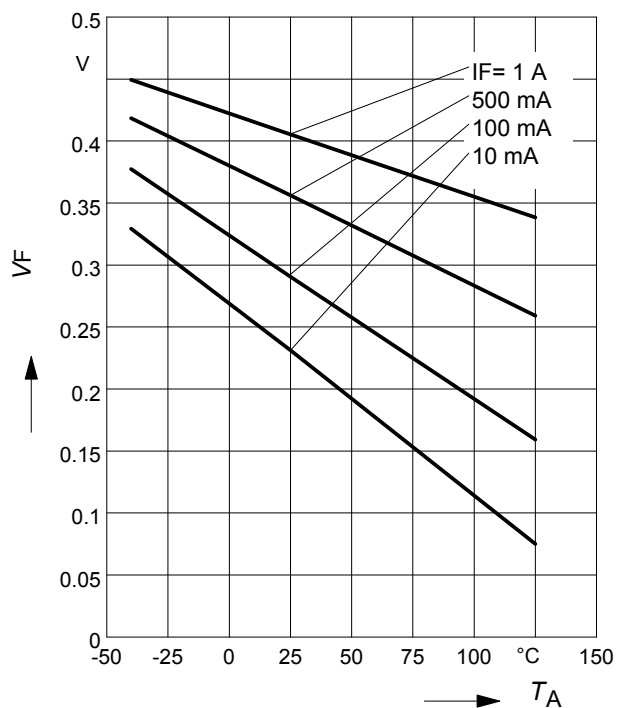
**Reverse current  $I_R = f(V_R)$**

$T_A = \text{Parameter}$



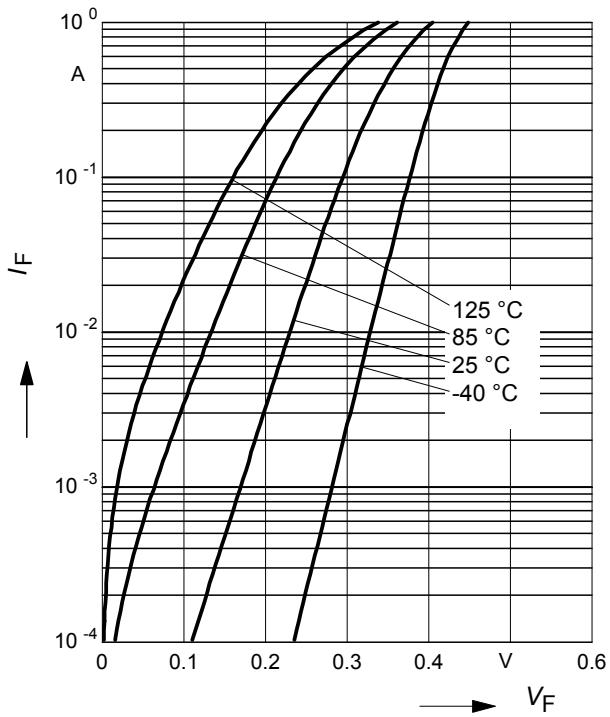
**Forward Voltage  $V_F = f(T_A)$**

$I_F = \text{Parameter}$



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

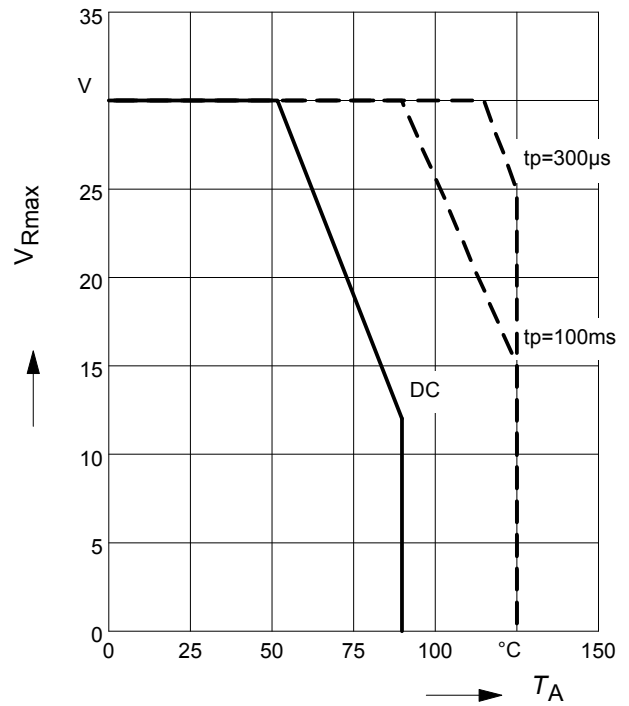
$T_A =$  Parameter



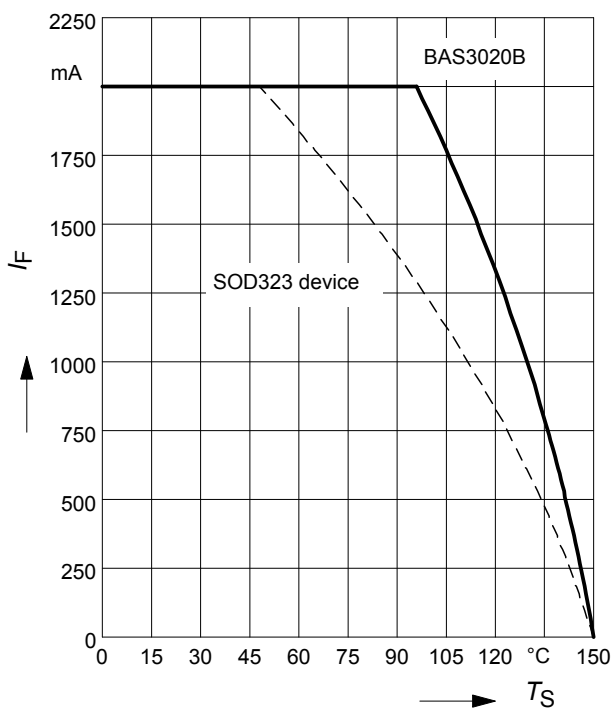
**Permissible Reverse voltage  $V_R = f(T_A)$**

$t_p =$  Parameter, Duty cycle < 0.01

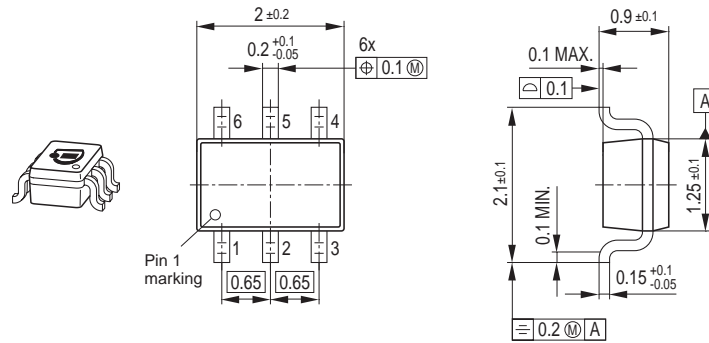
Device mounted on PCB with  $R_{th} = 160$  k/W



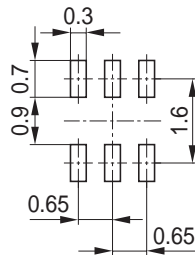
**Forward current  $I_F = f(T_S)$**



### Package Outline

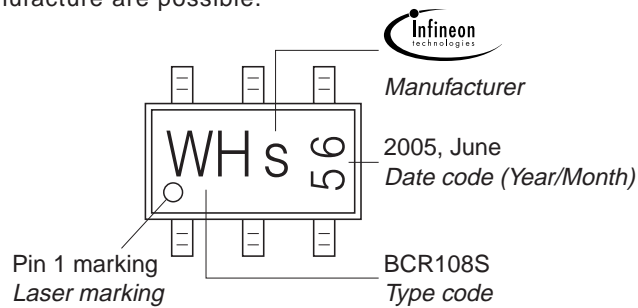


### Foot Print



### Marking Layout (Example)

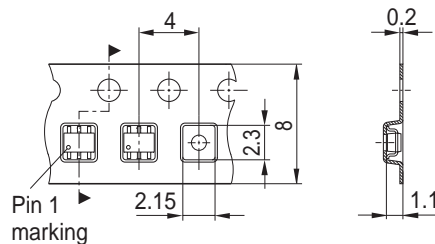
Small variations in positioning of Date code, Type code and Manufacture are possible.



### 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.



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