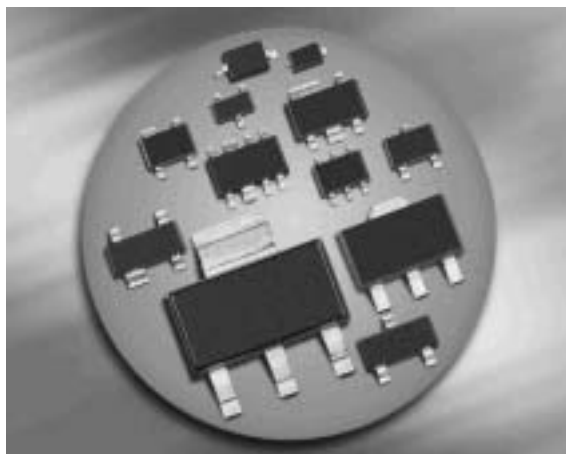
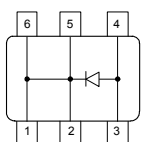


Schottky Rectifier Diode

- Reverse voltage: 30 V
- Forward current: 2 A
- Low forward voltage: 0.53 V typ. @ 2 A
- Low leakage current 40 μ 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 μ 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 mm³) 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 ¹⁾	V_R	30	V
Peak reverse voltage ¹⁾	V_{RM}	30	
RMS reverse voltage ¹⁾	$V_{R(RMS)}$	21	
Forward current ¹⁾²⁾ , $T_S \leq 96\text{ °C}$	I_F	2	A
Repetitive peak forward current ²⁾ ($t_p \leq 1\text{ ms}$, $D \leq 0.5$)	I_{FRM}	3.5	
Non-repetitive peak surge forward current ²⁾ ($t \leq 10\text{ ms}$)	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 ³⁾	R_{thJS}	≤ 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 ⁴⁾	I_R				μA
$V_R = 5\text{ V}$		-	5	25	
$V_R = 10\text{ V}$		-	10	50	
$V_R = 30\text{ V}$		-	40	200	
Forward voltage ⁴⁾	V_F				mV
$I_F = 500\text{ mA}$		-	350	410	
$I_F = 1\text{ A}$		-	410	470	
$I_F = 2\text{ A}$		-	530	600	

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

²⁾Only valid if pins 3 and 4 are connected in parallel.

³⁾For calculation of R_{thJA} please refer to Application Note Thermal Resistance.

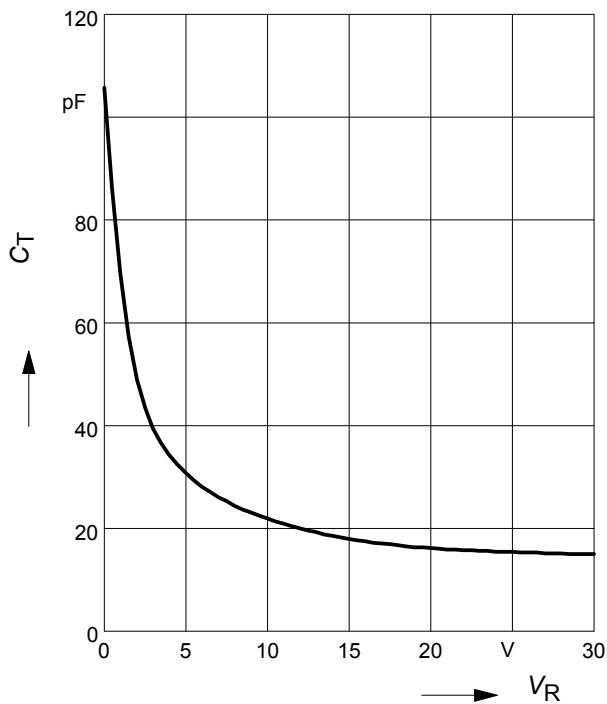
⁴⁾Pulsed test: $t_p \leq 300\text{ }\mu\text{s}$; $D \leq 0.02$

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

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
AC Characteristics					
Diode capacitance	C _T				pF
V _R = 1 V, f = 1 MHz		-	60	70	
V _R = 5 V, f = 1 MHz		-	30	40	
V _R = 10 V, f = 1 MHz		-	20	30	

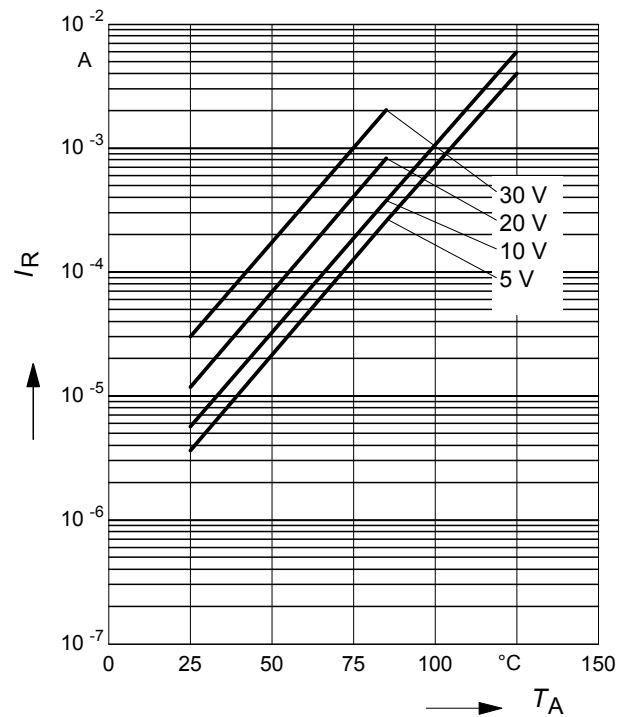
Diode capacitance $C_T = f(V_R)$

$f = 1\text{MHz}$



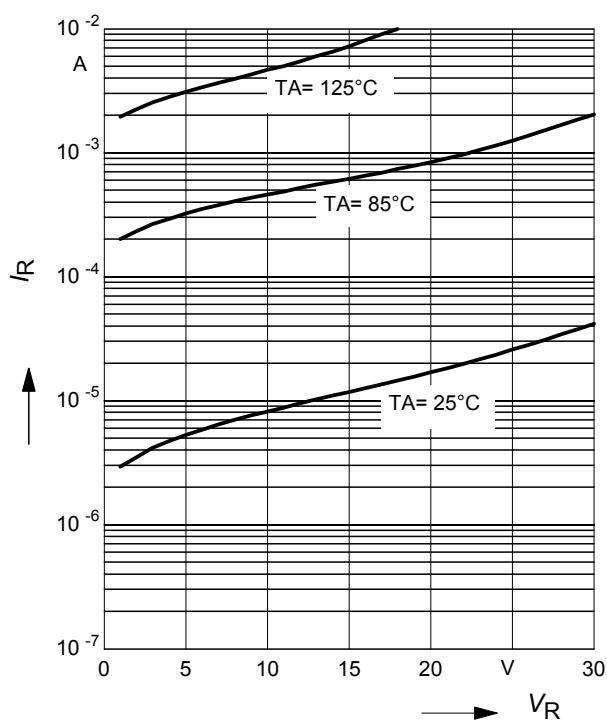
Reverse current $I_R = f(T_A)$

$V_R = \text{Parameter}$



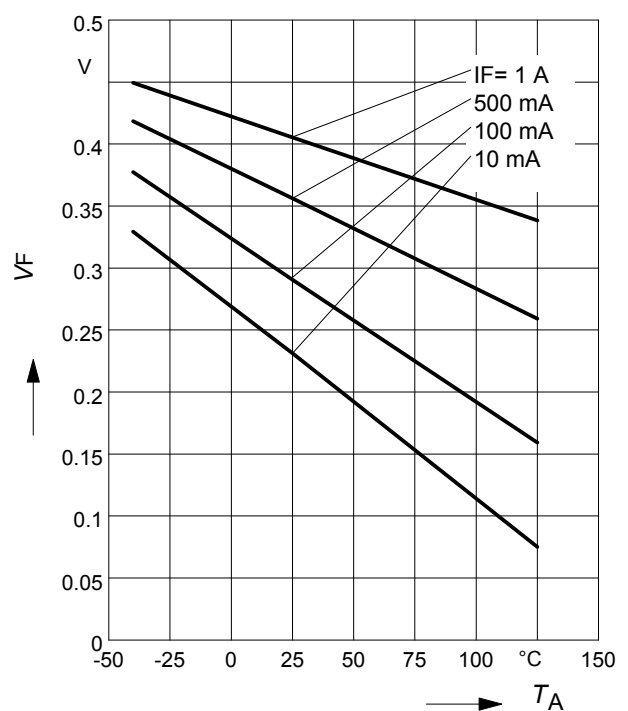
Reverse current $I_R = f(V_R)$

$T_A = \text{Parameter}$



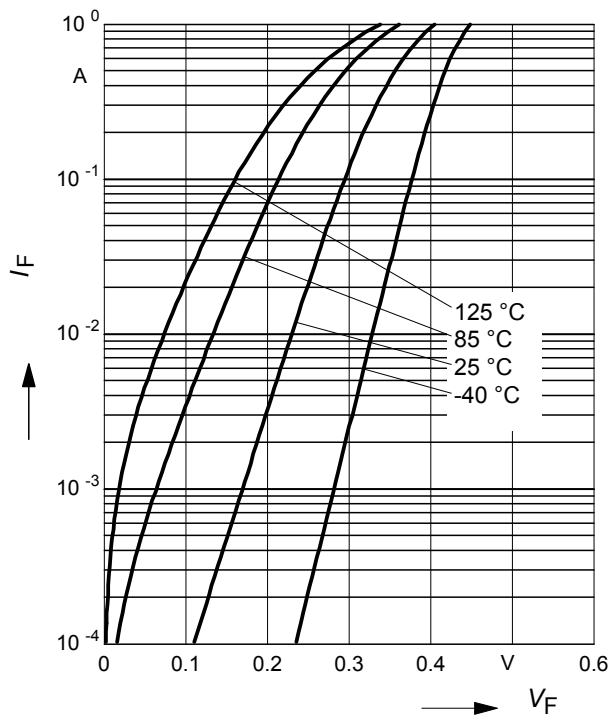
Forward Voltage $V_F = f(T_A)$

$I_F = \text{Parameter}$



Forward current $I_F = f(V_F)$

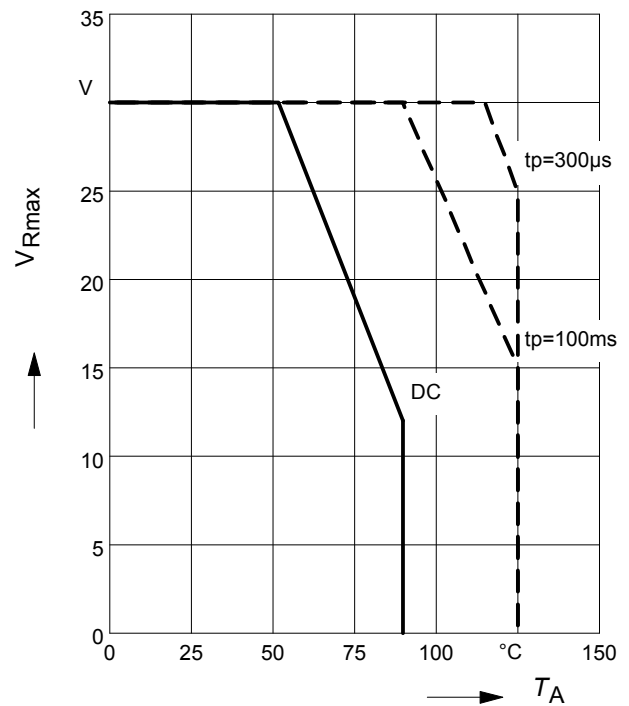
T_A = Parameter



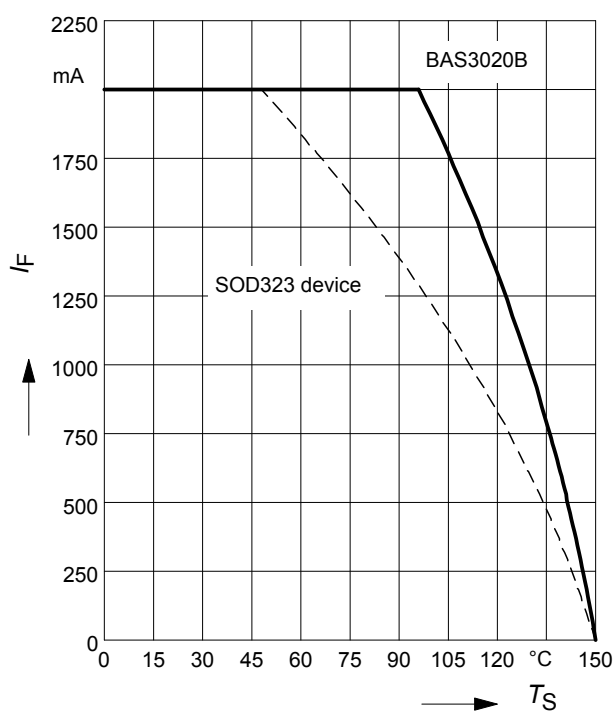
Permissible Reverse voltage $V_R = f(T_A)$

t_p = Parameter, Duty cycle < 0.01

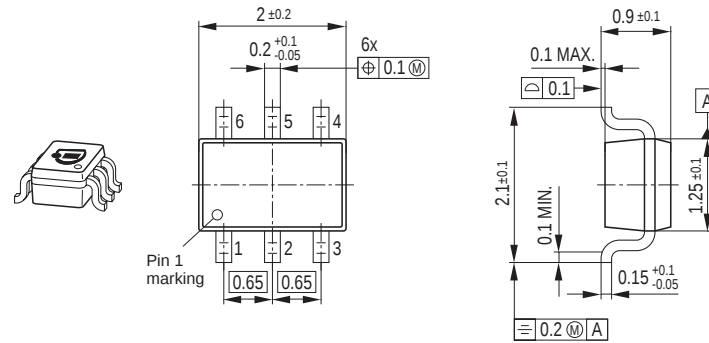
Device mounted on PCB with $R_{th} = 160$ k/W



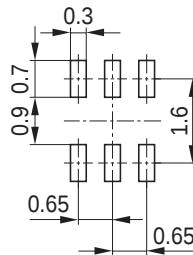
Forward current $I_F = f(T_S)$



Package Outline

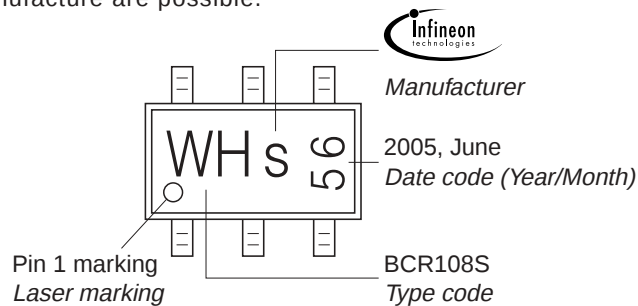


Foot Print



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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