



## BAS316

DIODE

### HIGH-SPEED DIODE

#### DESCRIPTION

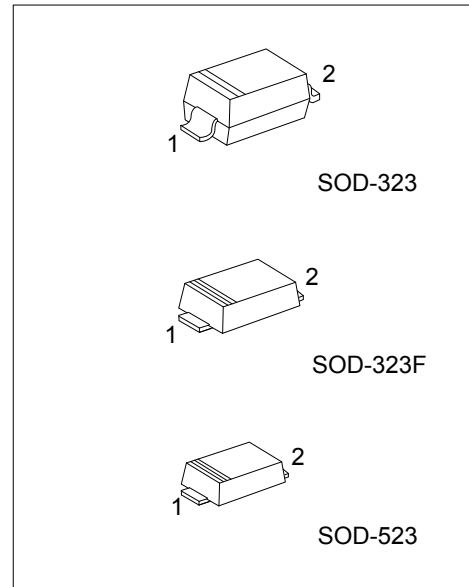
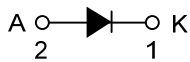
The UTC **BAS316** is high-speed diode, it uses UTC's advanced technology to provide customers with high switching speed, etc.

The UTC **BAS316** is suitable for high-speed switching in e.g. surface mounted circuits.

#### FEATURES

\* High switching speed

#### SYMBOL



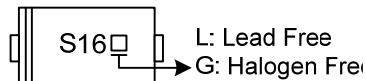
#### ORDERING INFORMATION

Ordering Number		Package	Pin Assignment		Packing
Lead Free	Halogen Free		1	2	
BAS316L-CB2-R	BAS316G-CB2-R	SOD-323	K	A	Tape Reel
BAS316L-CB2F-R	BAS316G-CB2F-R	SOD-323F	K	A	Tape Reel
BAS316L-CC2-R	BAS316G-CC2-R	SOD-523	K	A	Tape Reel

Note: Pin Assignment: A: Anode K: Cathode

<p>BAS316G-CB2-R</p> <p>(1)Packing Type (2)Package Type (3)Green Package</p>	<p>(1) R: Tape Reel (2) CA2F: SOD-123F, CB2F: SOD-323F, CC2: SOD-523 (3) G: Halogen Free and Lead Free, L: Lead Free</p>
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#### MARKING



## ■ ABSOLUTE MAXIMUM RATINGS

PARAMETER		SYMBOL	RATINGS	UNIT
repetitive Peak Reverse Voltage		$V_{RRM}$	85	V
Continuous Reverse Voltage		$V_R$	75	V
Continuous Forward Current	$T_S=90^\circ\text{C}$ (Note 1)	$I_F$	250	mA
Repetitive Peak Forward Current		$I_{FRM}$	500	mA
Non-Repetitive Peak Forward Current	Square Wave, $T_J=25^\circ\text{C}$ Prior to Surge	$t=1\mu\text{s}$	4	A
		$t=1\text{ms}$	1	A
		$t=1\text{s}$	0.5	A
Total Power Dissipation	$T_S=90^\circ\text{C}$ (Note 1)	$P_D$	400	mW
	( $T_A=25^\circ\text{C}$ )		200	mW
Operating Junction Temperature		$T_J$	+150	$^\circ\text{C}$
Storage Temperature		$T_{STG}$	-65 ~ +150	$^\circ\text{C}$

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

## ■ THERMAL DATA

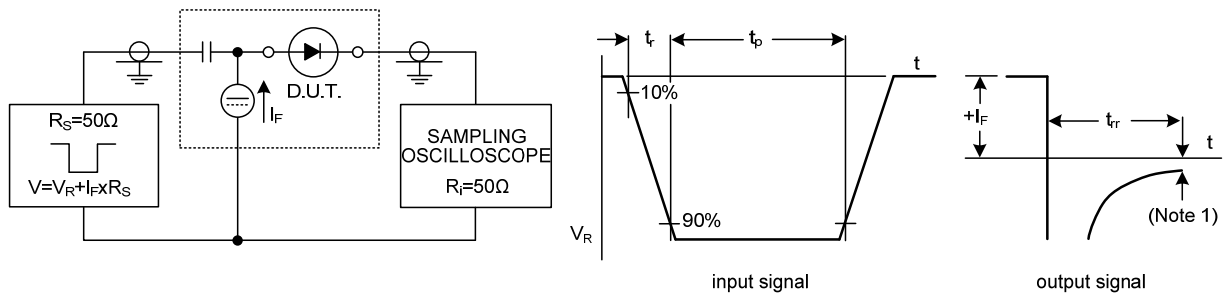
PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	$\theta_{JA}$	500	$^\circ\text{C}/\text{W}$
Junction to Soldering Point (Note 2)	$\theta_{JS}$	150	$^\circ\text{C}/\text{W}$

Notes: 1.  $T_S$  is the temperature at the soldering point of the cathode tab.  
2. Soldering point of the cathode tab.

## ■ ELECTRICAL CHARACTERISTICS ( $T_J=25^\circ\text{C}$ , unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Forward Voltage	$V_F$	$I_F=1\text{mA}$			715	mV
		$I_F=10\text{mA}$			855	mV
		$I_F=50\text{mA}$			1	V
		$I_F=150\text{mA}$			1.25	V
Reverse Current	$I_R$	$V_R=25\text{V}$			30	nA
		$V_R=75\text{V}$			1	$\mu\text{A}$
		$V_R=25\text{V}, T_J=150^\circ\text{C}$			30	$\mu\text{A}$
		$V_R=75\text{V}, T_J=150^\circ\text{C}$			50	$\mu\text{A}$
Diode Capacitance	$C_D$	$f=1\text{MHz}, V_R=0$			1.5	pF
Reverse Recovery Time	$t_{rr}$	When Switched from $I_F=10\text{mA}$ to $I_R=10\text{mA}$ , $R_L=100\Omega$ , Measured at $I_R=1\text{mA}$ , See Fig.1			4	ns
Forward Recovery Voltage	$V_{fr}$	When Switched from $I_F=10\text{mA}$ , $t_r=20\text{ns}$ , See Fig.2			1.75	V

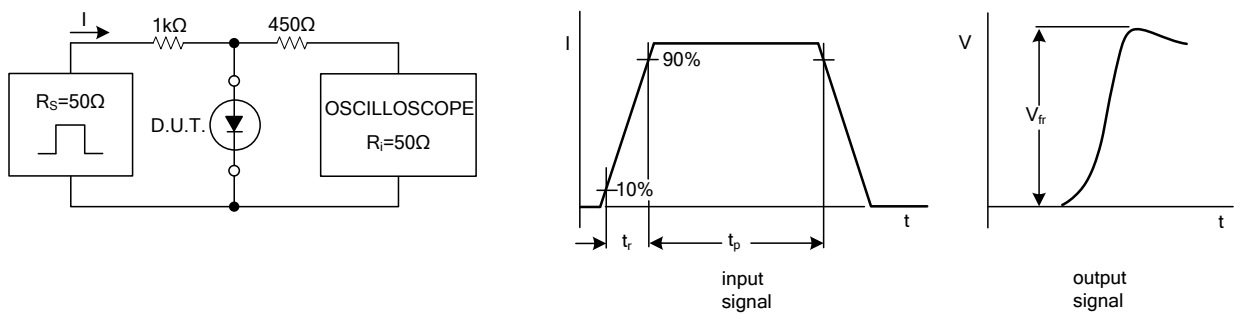
## TEST CIRCUITS AND WAVEFORMS



Note 1.  $I_R=1\text{mA}$ .

Input signal: reverse pulse rise time  $t_r=0.6\text{ns}$ ; reverse voltage pulse duration  $t_p=100\text{ns}$ ; duty factor  $\delta=0.05$ ;  
Oscilloscope: rise time  $t_r=0.35\text{ns}$ .

Fig.1 Reverse Recovery Voltage Test Circuit and Waveforms.



Input signal: forward pulse rise time  $t_r=20\text{ns}$ ; forward current pulse duration  $t_p \geq 100\text{ns}$ ; duty factor  $\delta \leq 0.005$ .

Fig.2 Forward Recovery Voltage Test Circuit and Waveforms.

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