



## BB178

Preliminary

DIODE

### VHF VARIABLE CAPACITANCE DIODE

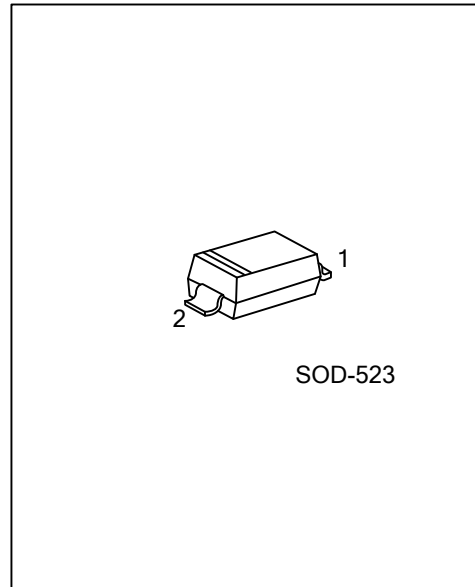
#### DESCRIPTION

The UTC **BB178** is a planar technology variable capacitance diode providing the designers excellent matching performance, ultra-low series resistance and great linearity.

The UTC **BB178** is suitable for VCO (Voltage Controlled Oscillators) and Electronic tuning in VHF (Very High Frequency) tuners.

#### FEATURES

- \* Excellent matching to 2% DMA
- \* Ultra low series resistance.
- \* Great linearity
- \* C28: 2.6 pF; ratio: 15



#### ORDERING INFORMATION

Ordering Number	Package	Pin Assignment		Packing
		1	2	
BB178G-CC2-R	SOD-523	A	K	Tape Reel

Note: Pin Assignment: A: Anode K: Cathode

<p>BB178G-CC2-R</p> <ul style="list-style-type: none"> <li>(1) Packing Type</li> <li>(2) Package Type</li> <li>(3) Green Package</li> </ul>	<ul style="list-style-type: none"> <li>(1) R: Tape Reel</li> <li>(2) CC2 : SOD-523</li> <li>(3) G: Halogen Free and Lead Free</li> </ul>
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#### MARKING



■ ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	RATINGS	UNIT
Continuous Reverse Voltage	$V_R$	32	V
Peak Reverse Voltage	$V_{RM}$	35	V
In series with a 10 k $\Omega$ resistor			
Continuous Forward Current	$I_F$	20	mA
Storage Temperature	$T_{STG}$	-40~+150	$^{\circ}\text{C}$
Operating Junction Temperature	$T_J$	-40~+125	$^{\circ}\text{C}$

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.

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Reverse Current	$I_R$	$V_R = 30\text{ V}$			10	nA
		$V_R = 30\text{ V}, T_J=85^{\circ}\text{C}$			200	nA
Diode Series Resistance	$r_s$	$f = 100\text{ MHz}, V_R$ is the value at which $C_d=30\text{pF}$		0.65	0.8	$\Omega$
Diode Capacitance	$C_d$	$V_R = 1\text{ V}, f = 1\text{ MHz}$	34.65		42.35	pF
		$V_R = 28\text{ V}, f = 1\text{ MHz}$	2.361		2.754	pF
Capacitance Ratio	$\frac{C_{d(1V)}}{C_{d(2V)}}$	$f = 1\text{ MHz}$		1.3		
Capacitance Ratio	$\frac{C_{d(1V)}}{C_{d(28V)}}$	$f = 1\text{ MHz}$	13.5			
Capacitance Ratio	$\frac{C_{d(25V)}}{C_{d(28V)}}$	$f = 1\text{ MHz}$		1.08		
Capacitance Matching	$\frac{\Delta C_d}{C_d}$	$V_R = 1\sim 28\text{ V}$ , in a sequence of 15 diodes (gliding)			2	%

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