

**BB178**

Preliminary

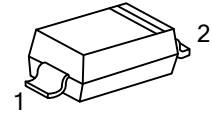
DIODE**VHF VARIABLE CAPACITANCE
DIODE****DESCRIPTION**

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



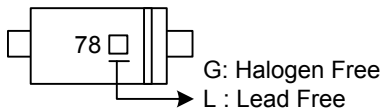
SOD-523

ORDERING INFORMATION

Ordering Number		Package	Pin Assignment		Packing
Lead Free	Halogen Free		1	2	
BB178L-CC2-R	BB178G-CC2-R	SOD-523	A	K	Tape Reel

Note: Pin Assignment: A: Anode, K: Cathode

BB178L-CC2-R (1) Packing Type (2) Package Type (3) Halogen Free	(1) R: Tape Reel (2) CC2 : SOD-523 (3) Halogen Free, L: Lead Free
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MARKING

■ ABSOLUTE MAXIMUM RATINGS

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