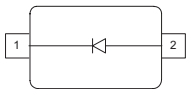


TY Variable Capacitance Diode

- For tuning of extended frequency band in VHF TV / VTR tuners
- High capacitance ratio
- Low series inductance
- Low series resistance
- Excellent uniformity and matching due to "in-line" matching assembly procedure



BB639C
BB659C/-02V



Type	Package	Configuration	L_s (nH)	Marking
BB639C	SOD323	single	1.8	yellow S
BB659C	SCD80	single	0.6	HH
BB659C-02V	SC79	single	0.6	H

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

Parameter	Symbol	Value	Unit
Diode reverse voltage	V_R	30	V
Peak reverse voltage ($R \geq 5\text{k}\Omega$)	V_{RM}	35	
Forward current	I_F	20	mA
Operating temperature range	T_{op}	-55 ... 150	°C
Storage temperature	T_{stg}	-55 ... 150	

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

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC Characteristics					
Reverse current	I_R				nA
$V_R = 30\text{ V}$		-	-	10	
$V_R = 30\text{ V}, T_A = 85^\circ\text{C}$		-	-	200	
AC Characteristics					
Diode capacitance	C_T				pF
$V_R = 1\text{ V}, f = 1\text{ MHz}$		36.5	39	42	
$V_R = 2\text{ V}, f = 1\text{ MHz}$		27	30.2	33.2	
$V_R = 25\text{ V}, f = 1\text{ MHz}$		2.5	2.72	3.05	
$V_R = 28\text{ V}, f = 1\text{ MHz}$		2.4	2.55	2.75	
Capacitance ratio	C_{T1}/C_{T28}	14.2	15.3	-	
$V_R = 1\text{ V}, V_R = 28\text{ V}, f = 1\text{ MHz}$					
Capacitance ratio	C_{T2}/C_{T25}	9.5	11.1	-	
$V_R = 2\text{ V}, V_R = 25\text{ V}, f = 1\text{ MHz}$					
Capacitance matching ¹⁾	$\Delta C_T/C_T$				%
$V_R = 1\text{ V to } 28\text{ V}, f = 1\text{ MHz}, 7\text{ diodes sequence},$ BB639C		-	-	2.5	
$V_R = 1\text{ V to } 28\text{ V}, f = 1\text{ MHz}, 4\text{ diodes sequence},$ BB659C/-02V		-	0.3	1	
$V_R = 1\text{ V to } 28\text{ V}, f = 1\text{ MHz}, 7\text{ diodes sequence},$ BB659C/-02V		-	0.5	2	
Series resistance	r_S	-	0.6	0.7	Ω
$V_R = 5\text{ V}, f = 470\text{ MHz}$					

¹For details please refer to Application Note 047