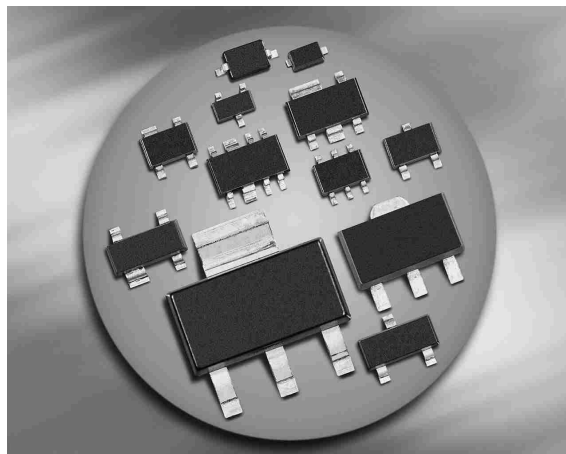
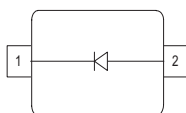


Silicon Variable Capacitance Diode

- For VHF tuned circuit applications
- High figure of merit
- Pb-free (RoHS compliant) package


BB439


Type	Package	Configuration	L_S (nH)	Marking
BB439	SOD323	single	1.8	white 2

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

Parameter	Symbol	Value	Unit
Diode reverse voltage	V_R	28	V
Peak reverse voltage ($R \geq 5\text{k}\Omega$)	V_{RM}	30	
Forward current	I_F	20	mA
Operating temperature range	T_{op}	-55 ... 125	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 ... 150	

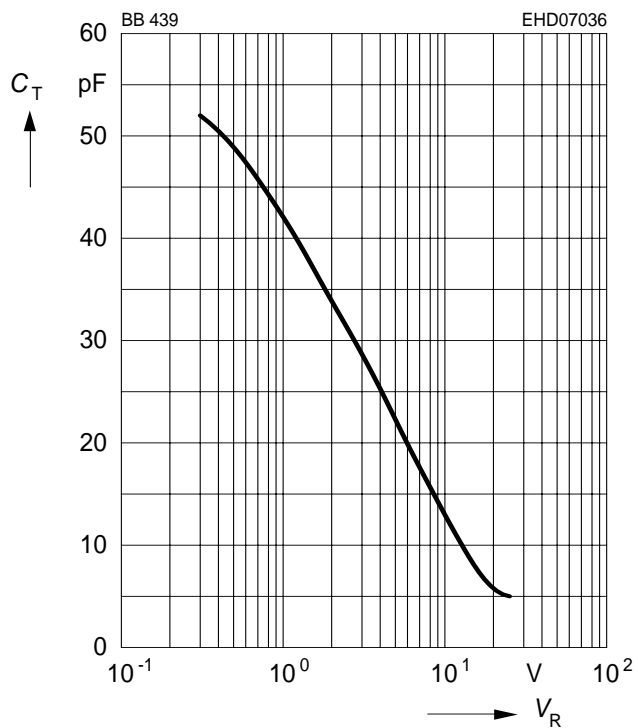
Electrical Characteristics at $T_A = 25^\circ\text{C}$, unless otherwise specified

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC Characteristics					
Reverse current	I_R				nA
$V_R = 28\text{ V}$		-	-	20	
$V_R = 28\text{ V}, T_A = 85\text{ }^{\circ}\text{C}$		-	-	200	
AC Characteristics					
Diode capacitance	C_T				pF
$V_R = 1\text{ V}, f = 1\text{ MHz}$		-	43	-	
$V_R = 2\text{ V}, f = 1\text{ MHz}$		31.5	34.5	37.5	
$V_R = 3\text{ V}, f = 1\text{ MHz}$		26.5	29	31.5	
$V_R = 25\text{ V}, f = 1\text{ MHz}$		4.3	5.1	6	
Capacitance ratio	C_{T2}/C_{T25}	6	6.9	8	
$V_R = 2\text{ V}, V_R = 25\text{ V}, f = 1\text{ MHz}$					
Capacitance ratio	C_{T3}/C_{T25}	5	5.8	6.5	
$V_R = 3\text{ V}, V_R = 25\text{ V}, f = 1\text{ MHz}$					
Capacitance matching ¹⁾	$\Delta C_T/C_T$	-	-	3	%
$V_R = 3\text{ V}, V_R = 25\text{ V}, f = 1\text{ MHz}$					
Series resistance	r_S	-	0.35	0.5	Ω
$V_R = 10\text{ V}, f = 100\text{ MHz}$					
Figure of merit	Q				
$V_R = 3\text{ V}, f = 50\text{ MHz}$		-	280	-	
$V_R = 25\text{ V}, f = 200\text{ MHz}$		-	600	-	

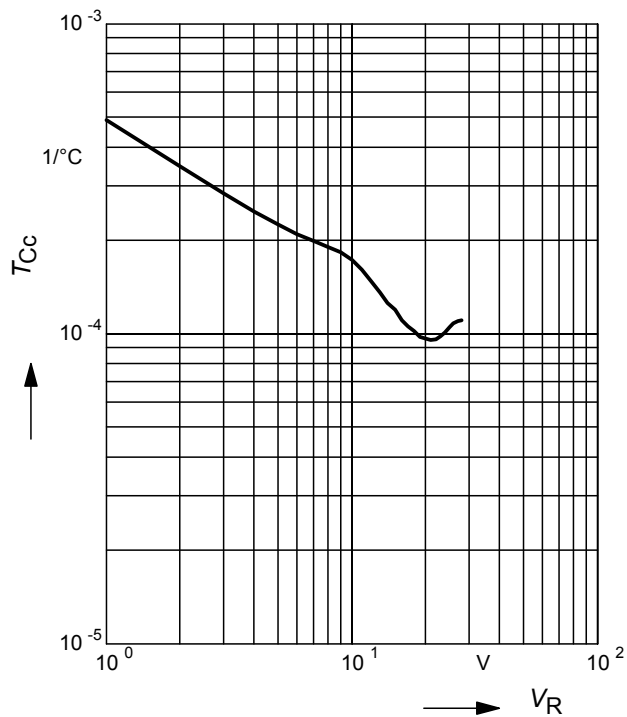
¹For details please refer to Application Note 047.

Diode capacitance $C_T = f(V_R)$

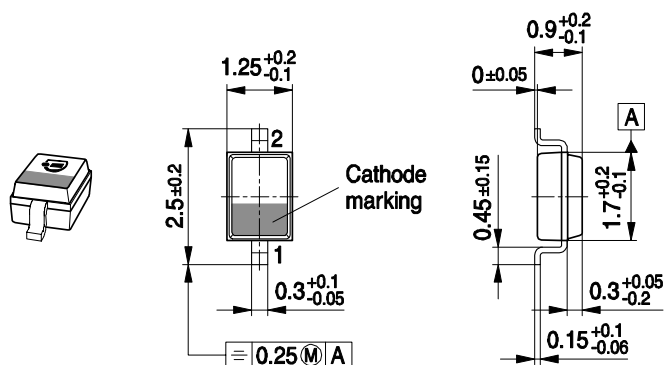
$f = 1\text{MHz}$



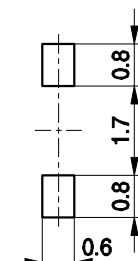
Temperature coefficient of the diode capacitance $T_{Cc} = f(V_R)$



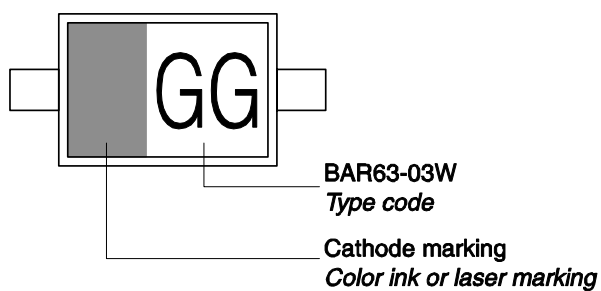
Package Outline



Foot Print

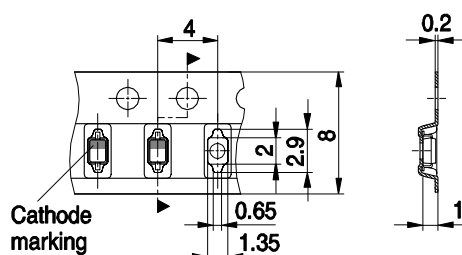


Marking Layout (Example)



Standard Packing

Reel $\varnothing 180 \text{ mm}$ = 3.000 Pieces/Reel
 Reel $\varnothing 330 \text{ mm}$ = 10.000 Pieces/Reel



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