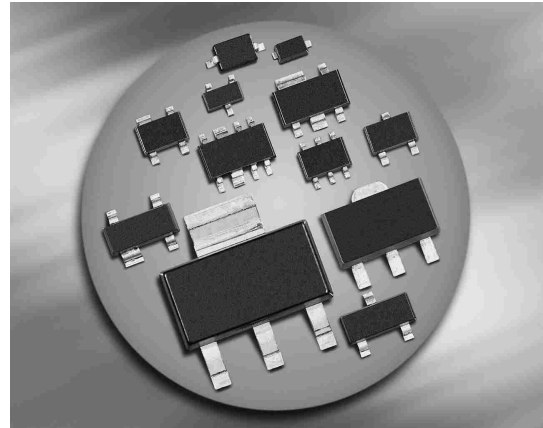
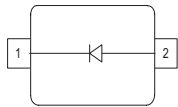


**Silicon Variable Capacitance Diode**

- 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	°C
Storage temperature	$T_{stg}$	-55 ... 150	

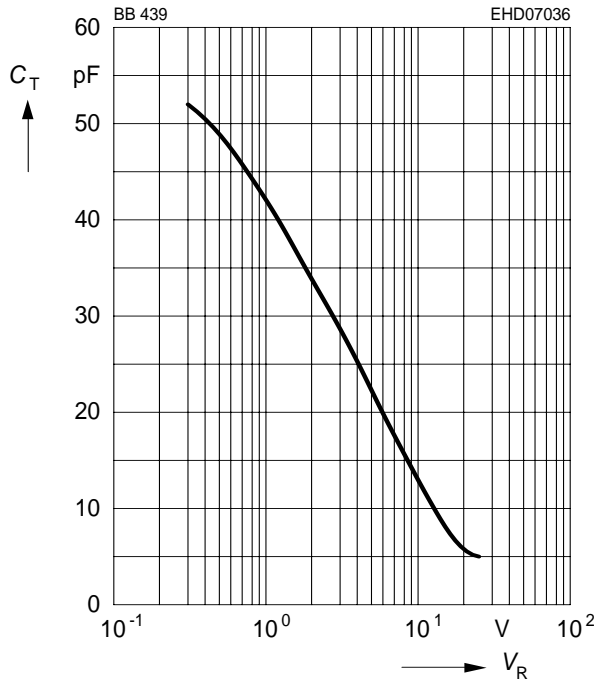
**Electrical Characteristics at  $T_A = 25^\circ\text{C}$ , unless otherwise specified**

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

<sup>1</sup>For details please refer to Application Note 047.

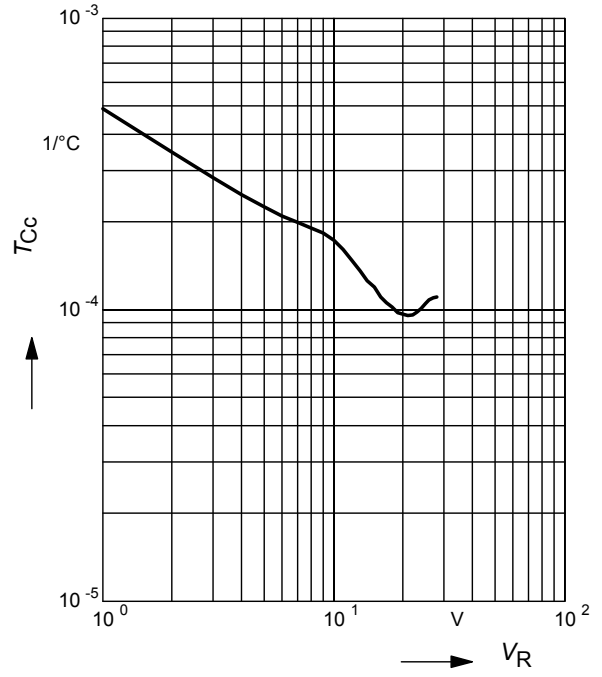
**Diode capacitance  $C_T = f(V_R)$**

$f = 1\text{MHz}$

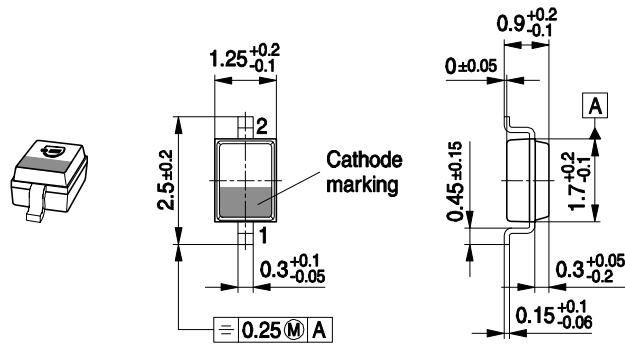


**Temperature coefficient of the diode capacitance  $T_{Cc} = f(V_R)$**

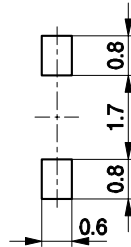
$T_{Cc} = f(V_R)$



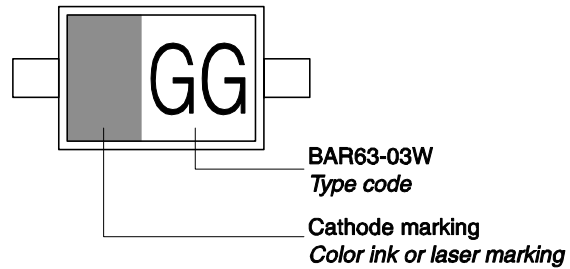
Package Outline



Foot Print

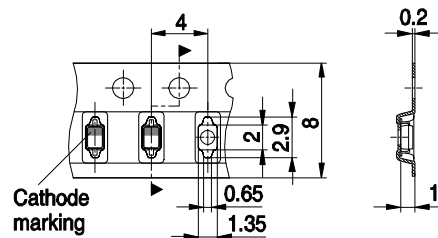


Marking Layout (Example)



Standard Packing

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



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