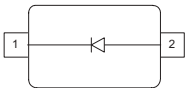


Silicon Variable Capacitance Diode

- For VHF tuned circuit applications
- High figure of merit
- Pb-free (RoHS compliant) package ¹⁾
- Qualified according AEC Q101


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	

¹Pb-containing package may be available upon special request

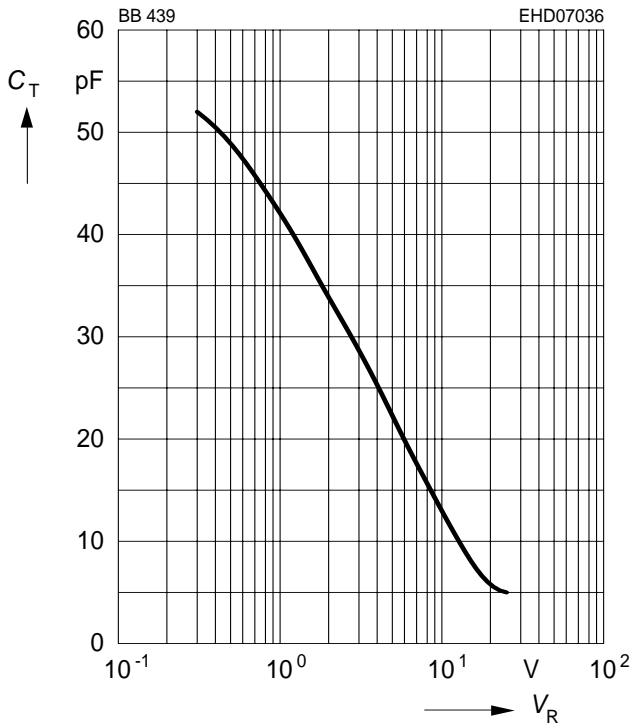
Electrical Characteristics at $T_A = 25^\circ\text{C}$, unless otherwise specified

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

¹For details please refer to Application Note 047.

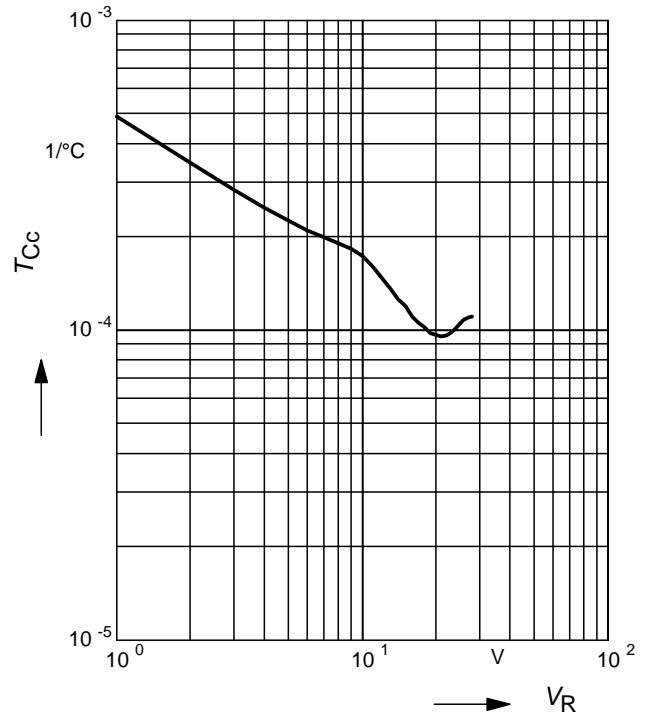
Diode capacitance $C_T = f(V_R)$

$f = 1\text{MHz}$

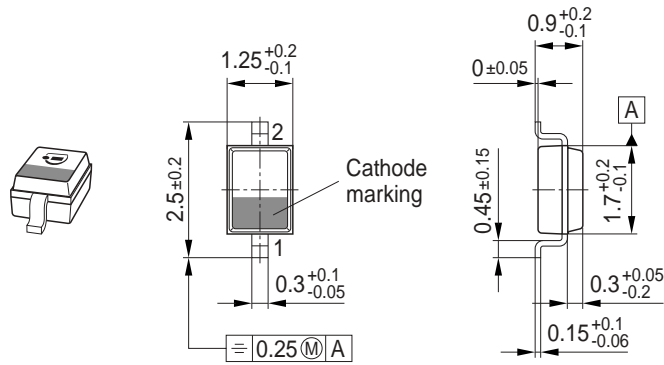


Temperature coefficient of the diode

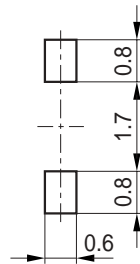
capacitance $T_{Cc} = f(V_R)$



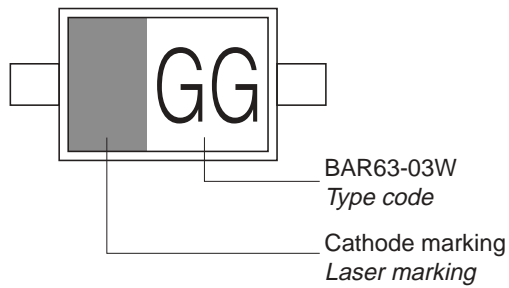
Package Outline



Foot Print

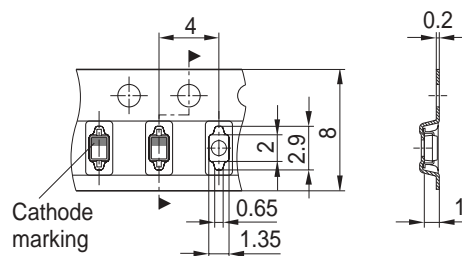


Marking Layout (Example)



Standard Packing

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



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