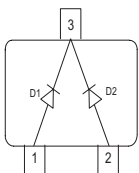


**Silicon Variable Capacitance Diodes**

- For FM radio tuners with extended frequency band
- High tuning ratio at low supply voltage (car radio)
- Monolithic chip (common cathode) for perfect dual diode tracking
- Coded capacitance groups and group matching available
- Pb-free (RoHS compliant) package


**BB814**


Type	Package	Configuration	$L_S$ (nH)	Marking
BB814	SOT23	common cathode	1.8	SH1/2*

\*For differences see next page Capacitance groups

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

Parameter	Symbol	Value	Unit
Diode reverse voltage	$V_R$	18	V
Peak reverse voltage-	$V_{RM}$	20	
Forward current	$I_F$	50	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 $V_R = 16\text{ V}$ $V_R = 16\text{ V}, T_A = 60^\circ\text{C}$	$I_R$	- -	- -	20 200	nA
<b>AC Characteristics</b>					
Diode capacitance <sup>1)</sup> $V_R = 2\text{ V}, f = 1\text{ MHz}$ $V_R = 8\text{ V}, f = 1\text{ MHz}$	$C_T$	43 19.1	44.75 20.8	46.5 22.7	pF
Capacitance ratio $V_R = 2\text{ V}, V_R = 8\text{ V}, f = 1\text{ MHz}$	$C_{T2}/C_{T8}$	2.05	2.15	2.25	
Capacitance matching <sup>2)</sup> $V_R = 2\text{ V}, V_R = 8\text{ V}, f = 1\text{ MHz}$	$\Delta C_T/C_T$	-	-	3	%
Series resistance $V_R = 2\text{ V}, f = 100\text{ MHz}$	$r_S$	-	0.18	-	$\Omega$
Q factor $f = 100\text{ MHz}, V_R = 2\text{ V}$	Q	-	200	-	

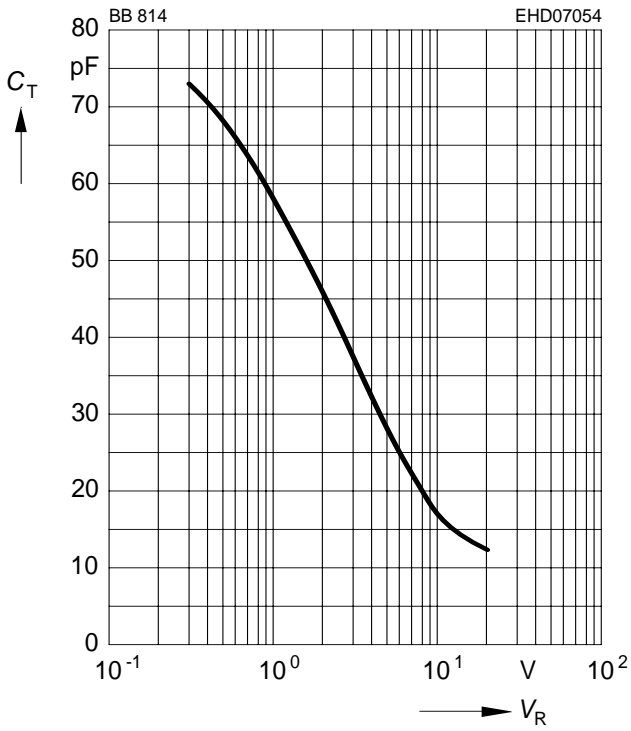
<sup>1</sup>Capacitance groups at 2V and 8V, coded 1; 2

$C_T$ /groups	1	2
$C_{2V}$ min	43pF	44.5pF
$C_{2V}$ max	45pF	46.5pF
$C_{8V}$ min	19.1pF	19.75pF
$C_{8V}$ max	21.95pF	22.7pF

<sup>2</sup>For details please refer to Application Note 047.

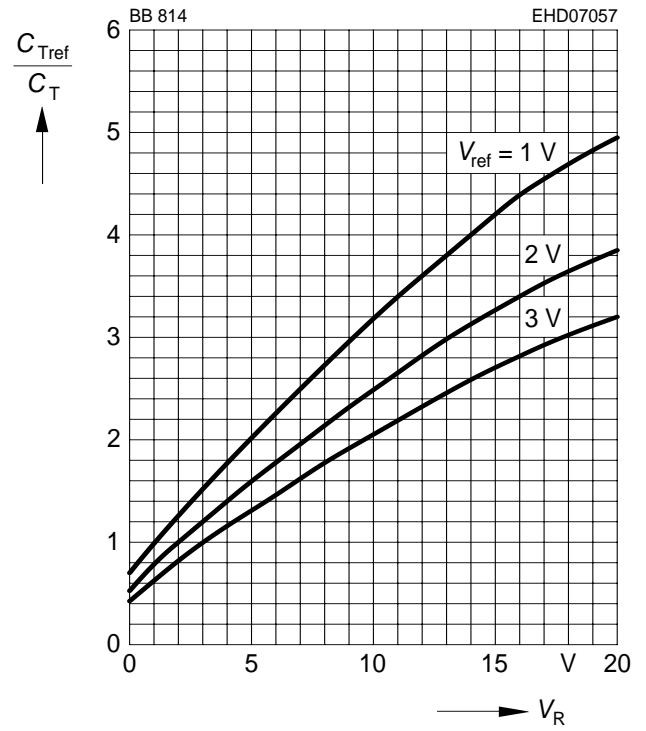
**Diode capacitance  $C_T = f(V_R)$**

$f = 1\text{MHz}$



**Capacitance ratio  $C_{Tref}/C_T = f(V_R)$**

$f = 1\text{MHz}$



Package Outline

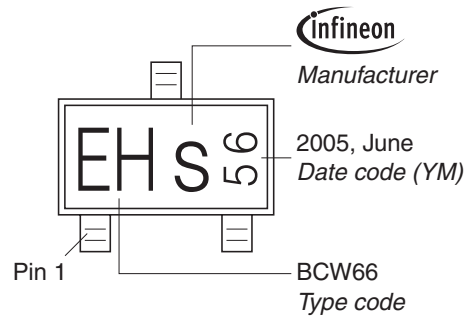


1) Lead width can be 0.6 max. in dambar area

Foot Print

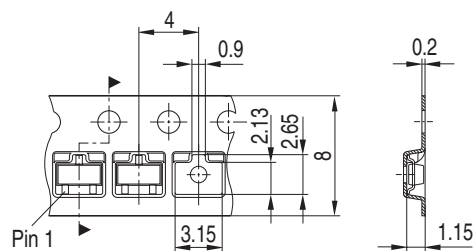


Marking Layout (Example)



Standard Packing

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



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