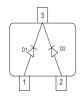


Silicon Variable Capacitance Diodes

- 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







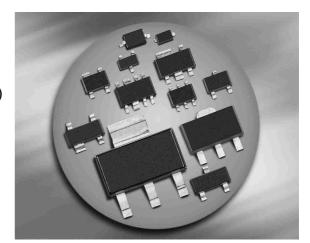
Туре	Package	Configuration	L _S (nH)	Marking
BB814	SOT23	common cathode	1.8	SH1/2*

^{*}For differences see next page Capacitance groups

Maximum Ratings at $T_A = 25$ °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 12 5	°C
Storage temperature	T _{stq}	-55 150	

1





Electrical Characteristics at $T_A = 25$ °C, unless otherwise specified

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC Characteristics	•				
Reverse current	I _R				nA
$V_{R} = 16 \text{ V}$		-	-	20	
V_{R} = 16 V, T_{A} = 60 °C		-	-	200	
AC Characteristics					
Diode capacitance ¹⁾	C _T				pF
$V_{R} = 2 \text{ V}, f = 1 \text{ MHz}$		43	44.75	46.5	
$V_{R} = 8 \text{ V}, f = 1 \text{ MHz}$		19.1	20.8	22.7	
Capacitance ratio	C_{T2}/C_{T8}	2.05	2.15	2.25	
$V_{R} = 2 \text{ V}, V_{R} = 8 \text{ V}, f = 1 \text{ MHz}$					
Capacitance matching ²⁾	$\Delta C_{T}/C_{T}$	-	-	3	%
$V_{R} = 2 \text{ V}, V_{R} = 8 \text{ V}, f = 1 \text{ MHz}$					
Series resistance	$r_{\rm S}$	-	0.18	_	Ω
V_{R} = 2 V, f = 100 MHz					
Q factor	Q	-	200	-	
$f = 100 \text{ MHz}, V_{R} = 2 \text{ V}$					

¹Capacitance groups at 2V and 8V, coded 1; 2

 $C_{\mathsf{T}}/\mathsf{groups}$ 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

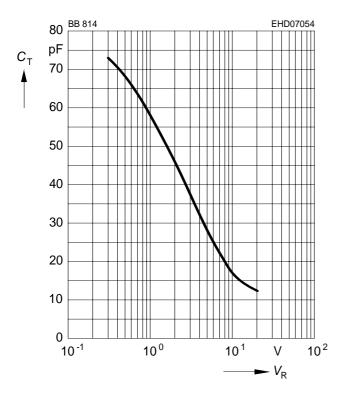
2 2011-06-15

²For details please refer to Application Note 047.

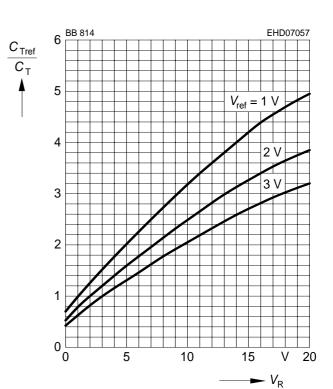


Diode capacitance $C_T = f(V_R)$

f = 1MHz



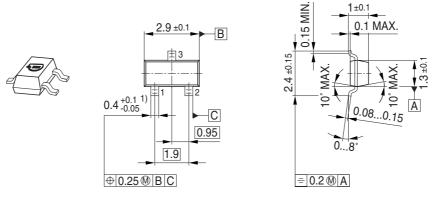
Capacitance ratio $C_{\text{Tref}}/C_{\text{T}} = f(V_{\text{R}})$ f = 1 MHz



3 2011-06-15

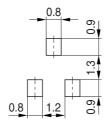


Package Outline

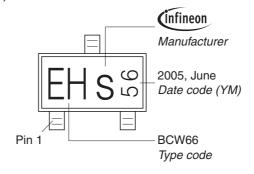


1) Lead width can be 0.6 max. in dambar area

Foot Print

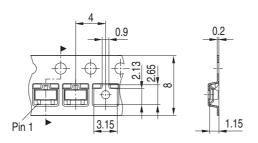


Marking Layout (Example)



Standard Packing

Reel ø180 mm = 3.000 Pieces/Reel Reel ø330 mm = 10.000 Pieces/Reel



4



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