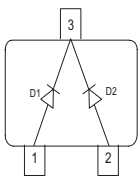


Silicon Variable Capacitance Diodes

- 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.	
DC Characteristics					
Reverse current $V_R = 16\text{ V}$ $V_R = 16\text{ V}, T_A = 60^\circ\text{C}$	I_R	- -	- -	20 200	nA
AC Characteristics					
Diode capacitance ¹⁾ $V_R = 2\text{ V}, f = 1\text{ MHz}$ $V_R = 8\text{ V}, f = 1\text{ MHz}$	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 ²⁾ $V_R = 2\text{ V}, V_R = 8\text{ V}, f = 1\text{ MHz}$	$\Delta C_T/C_T$	-	-	3	%
Series resistance $V_R = 2\text{ V}, f = 100\text{ MHz}$	r_S	-	0.18	-	Ω
Q factor $f = 100\text{ MHz}, V_R = 2\text{ V}$	Q	-	200	-	

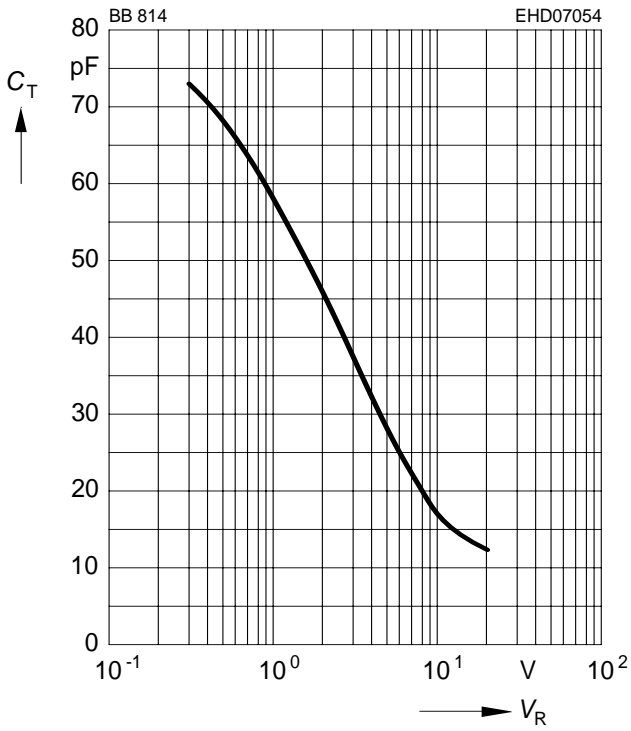
¹Capacitance groups at 2V and 8V, coded 1; 2

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

²For details please refer to Application Note 047.

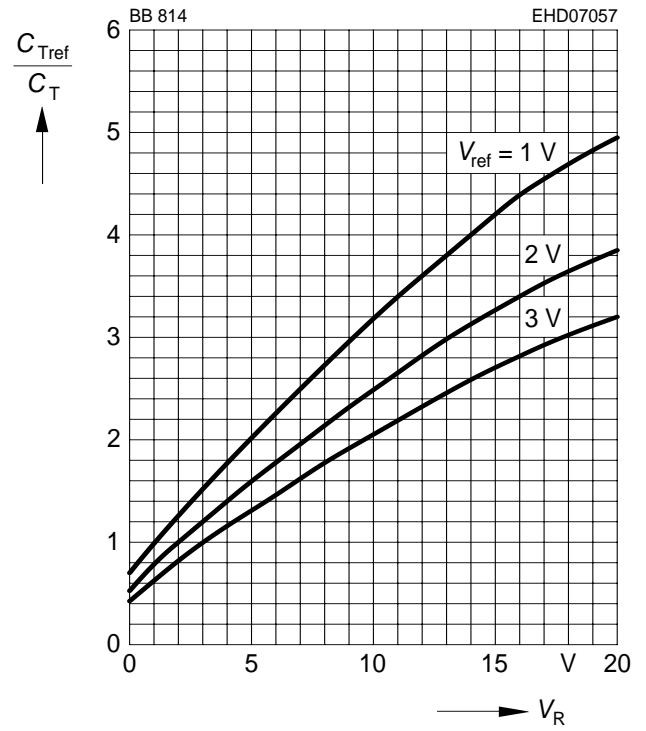
Diode capacitance $C_T = f(V_R)$

$f = 1\text{MHz}$

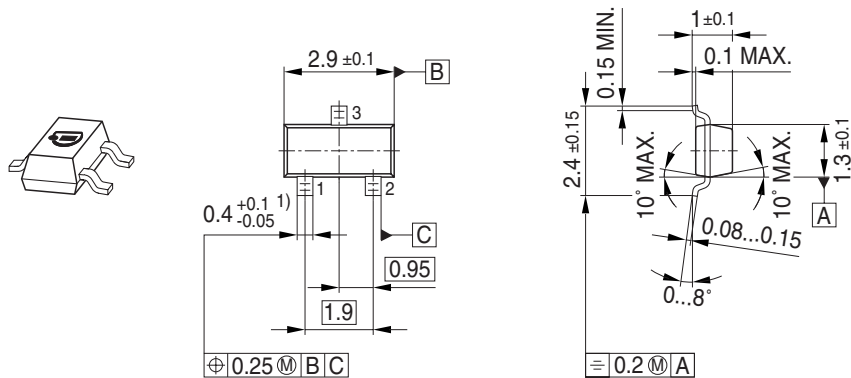


Capacitance ratio $C_{Tref}/C_T = f(V_R)$

$f = 1\text{MHz}$



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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