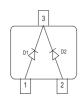


Silicon Variable Capacitance Diodes

- 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



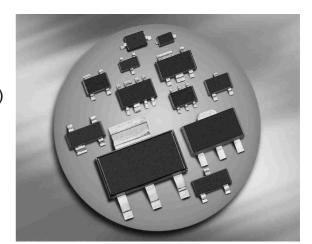
| Туре | Package | Configuration | L _S (nH) | Marking |
|-------|---------|----------------|----------------------------|---------|
| BB814 | SOT23 | common cathode | 1.8 | SH1/2* |

^{*}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 | $T_{ m stg}$ | -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 V, V_{R} = 8 V, f = 1 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

 $C_{2
m V}$ min 43pF 44.5pF $C_{2
m V}$ max 45pF 46.5pF $C_{8
m V}$ min 19.1pF 19.75pF $C_{8
m V}$ max 21.95pF 22.7pF

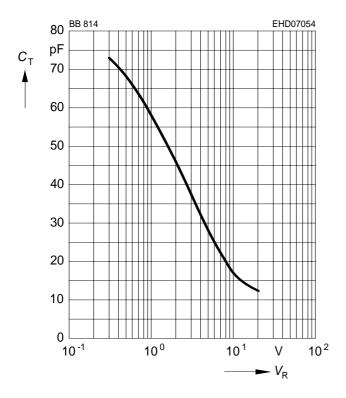
2 2011-06-15

²For details please refer to Application Note 047.

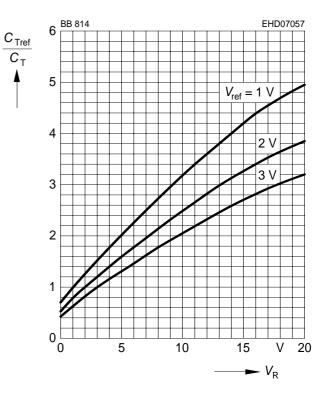


Diode capacitance $C_T = f(V_R)$

f = 1MHz



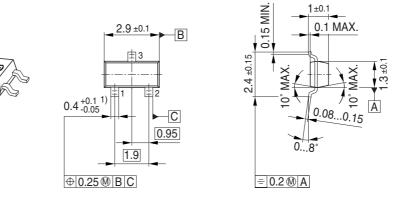
Capacitance ratio $C_{\text{Tref}}/C_{\text{T}} = f(V_{\text{R}})$ f = 1 MHz



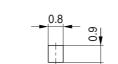
3 2011-06-15



Package Outline



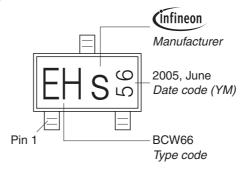
Foot Print



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

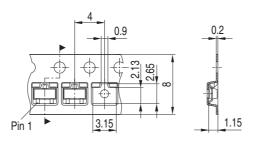
0.8 1.2 6.4

Marking Layout (Example)



Standard Packing

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



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