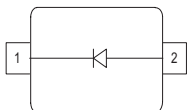
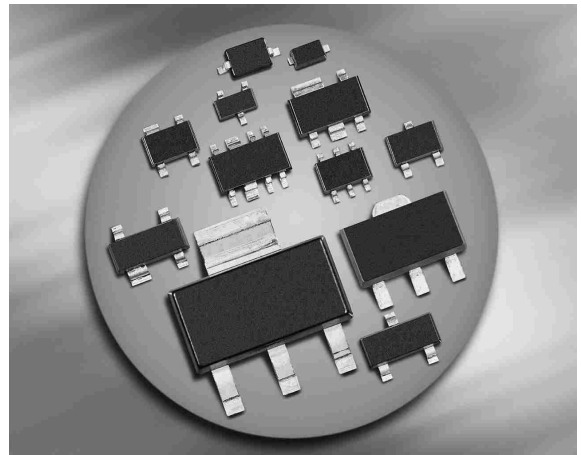


### Silicon Tuning Diode

- For SAT tuners
- High capacitance ratio
- Low series resistance
- Excellent uniformity and matching due to "in-line" matching assembly procedure
- Pb-free (RoHS compliant) package



**BB837**  
**BB857**  
**BB857-02V**



| Type      | Package | Configuration | Marking |
|-----------|---------|---------------|---------|
| BB837     | SOD323  | single        | white M |
| BB857*    | SCD80   | single        | OO      |
| BB857-02V | SC79    | single        | P       |

\* Not for new design

### Maximum Ratings at $T_A = 25\text{ °C}$ , unless otherwise specified

| Parameter                                         | Symbol    | Value       | Unit |
|---------------------------------------------------|-----------|-------------|------|
| Diode reverse voltage                             | $V_R$     | 30          | V    |
| Peak reverse voltage<br>$R \geq 5\text{ k}\Omega$ | $V_{RM}$  | 35          |      |
| Forward current                                   | $I_F$     | 20          | mA   |
| Operating temperature range                       | $T_{op}$  | -55 ... 150 | °C   |
| Storage temperature                               | $T_{Stg}$ | -55 ... 150 |      |

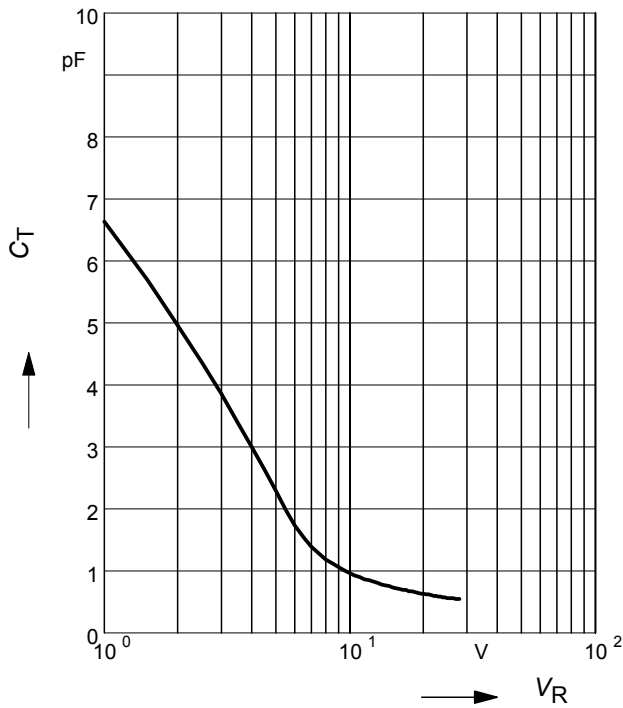
**Electrical Characteristics** at  $T_A = 25\text{ °C}$ , unless otherwise specified

| Parameter                                                                      | Symbol           | Values |      |      | Unit     |
|--------------------------------------------------------------------------------|------------------|--------|------|------|----------|
|                                                                                |                  | min.   | typ. | max. |          |
| DC Characteristics                                                             |                  |        |      |      |          |
| Reverse current                                                                | $I_R$            |        |      |      | nA       |
| $V_R = 30\text{ V}$                                                            |                  | -      | -    | 10   |          |
| $V_R = 30\text{ V}, T_A = 85\text{ °C}$                                        |                  | -      | -    | 200  |          |
| AC Characteristics                                                             |                  |        |      |      |          |
| Diode capacitance                                                              | $C_T$            |        |      |      | pF       |
| $V_R = 1\text{ V}, f = 1\text{ MHz}$                                           |                  | 6      | 6.6  | 7.2  |          |
| $V_R = 25\text{ V}, f = 1\text{ MHz}$                                          |                  | 0.5    | 0.55 | 0.65 |          |
| $V_R = 28\text{ V}, f = 1\text{ MHz}$                                          |                  | 0.45   | 0.52 | -    |          |
| Capacitance ratio                                                              | $C_{T1}/C_{T25}$ | 10.2   | 12   | -    | -        |
| $V_R = 1\text{ V}, V_R = 25\text{ V}, f = 1\text{ MHz}$                        |                  |        |      |      |          |
| Capacitance ratio                                                              | $C_{T1}/C_{T28}$ | 9.7    | 12.7 | -    |          |
| $V_R = 1\text{ V}, V_R = 28\text{ V}, f = 1\text{ MHz}$                        |                  |        |      |      |          |
| Capacitance matching <sup>1)</sup>                                             | $\Delta C_T/C_T$ | -      | -    | 5    | %        |
| $V_R = 1\text{V} \dots 28\text{V}, f = 1\text{ MHz}, 7\text{ diodes sequence}$ |                  |        |      |      |          |
| Series resistance                                                              | $r_S$            | -      | 1.5  | -    | $\Omega$ |
| $V_R = 5\text{ V}, f = 470\text{ MHz}$                                         |                  |        |      |      |          |

<sup>1)</sup>For details please refer to Application Note 047

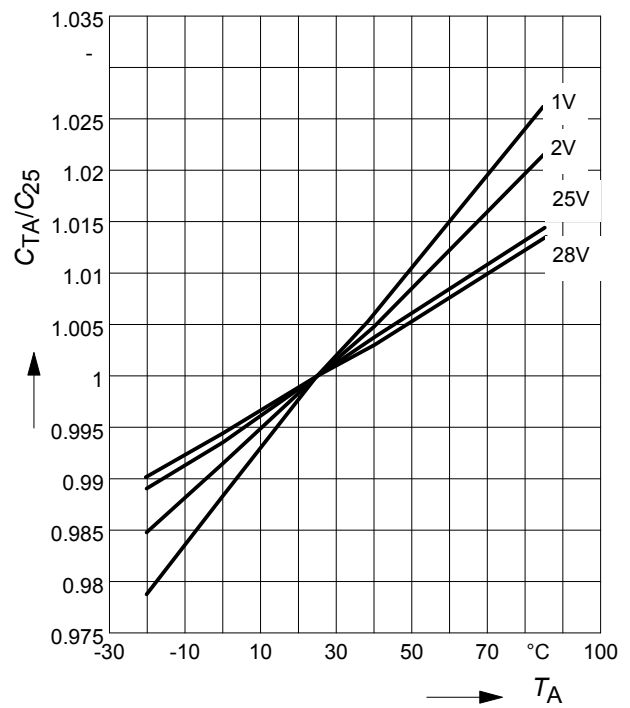
### Diode capacitance $C_T = f(V_R)$

$f = 1\text{MHz}$



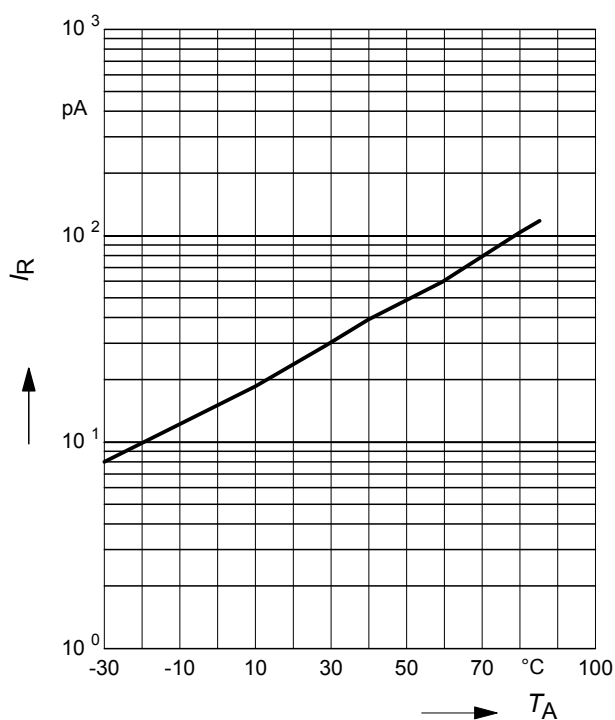
### Normalized diode capacitance

$C_{(T_A)}/C_{(25^\circ\text{C})} = f(T_A); f = 1\text{MHz}$



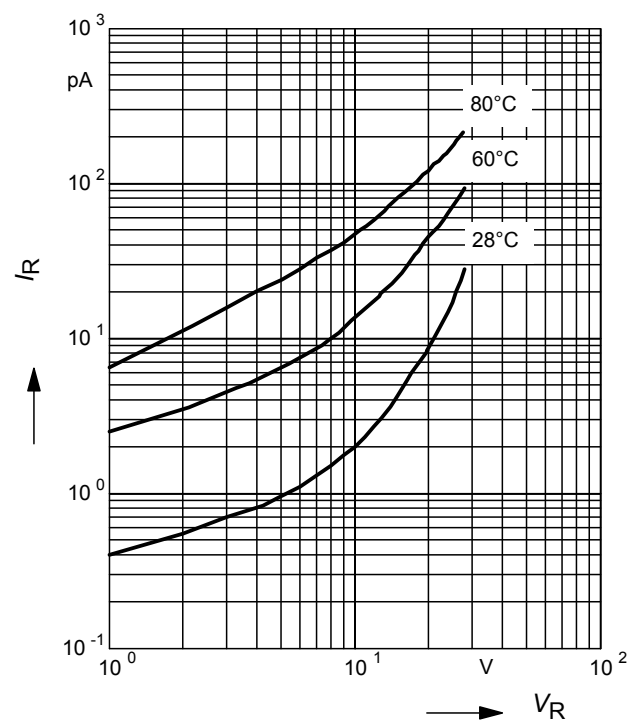
### Reverse current $I_R = f(T_A)$

$V_R = 28\text{V}$

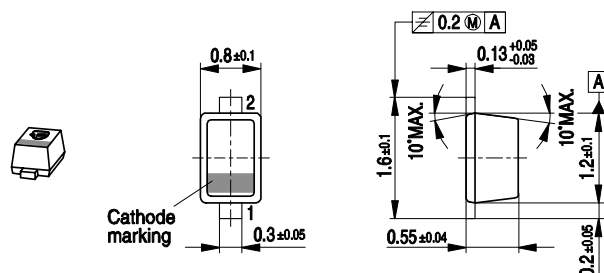


### Reverse current $I_R = f(V_R)$

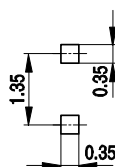
$T_A = \text{Parameter}$



## Package Outline



## Foot Print

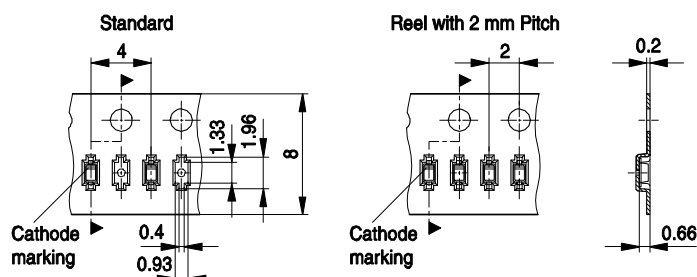


## Marking Layout (Example)

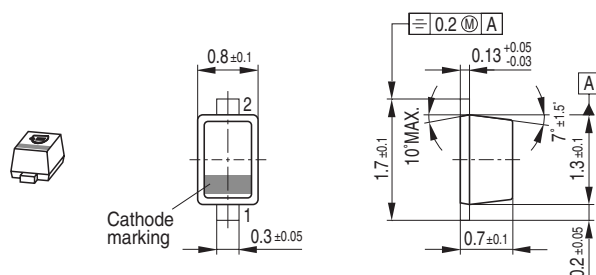


## Standard Packing

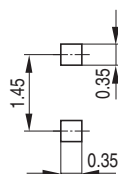
Reel ø180 mm = 3.000 Pieces/Reel  
 Reel ø180 mm = 8.000 Pieces/Reel (2 mm Pitch)  
 Reel ø330 mm = 10.000 Pieces/Reel



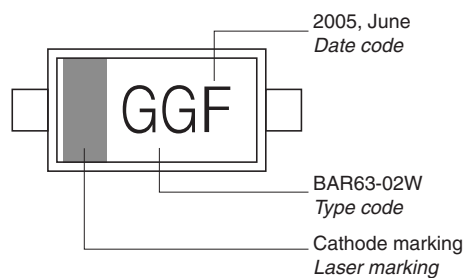
## Package Outline



## Foot Print

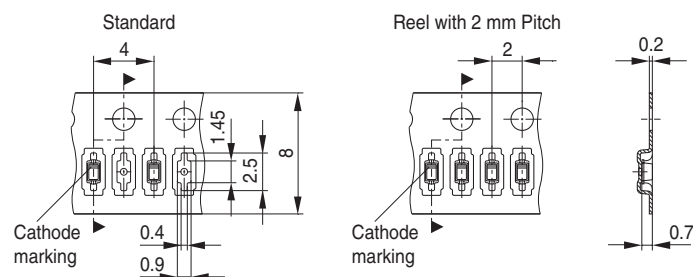


## Marking Layout (Example)



## Standard Packing

Reel ø180 mm = 3.000 Pieces/Reel  
 Reel ø180 mm = 8.000 Pieces/Reel (2 mm Pitch)  
 Reel ø330 mm = 10.000 Pieces/Reel



Date Code marking for discrete packages with one digit (SCD80, SC79, SC75<sup>1)</sup>) CES-Code

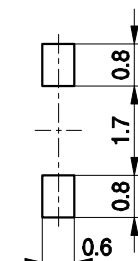
| Month | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|-------|------|------|------|------|------|------|------|------|------|------|------|------|
| 01    | a    | p    | A    | P    | a    | p    | A    | P    | a    | p    | A    | P    |
| 02    | b    | q    | B    | Q    | b    | q    | B    | Q    | b    | q    | B    | Q    |
| 03    | c    | r    | C    | R    | c    | r    | C    | R    | c    | r    | C    | R    |
| 04    | d    | s    | D    | S    | d    | s    | D    | S    | d    | s    | D    | S    |
| 05    | e    | t    | E    | T    | e    | t    | E    | T    | e    | t    | E    | T    |
| 06    | f    | u    | F    | U    | f    | u    | F    | U    | f    | u    | F    | U    |
| 07    | g    | v    | G    | V    | g    | v    | G    | V    | g    | v    | G    | V    |
| 08    | h    | x    | H    | X    | h    | x    | H    | X    | h    | x    | H    | X    |
| 09    | j    | y    | J    | Y    | j    | y    | J    | Y    | j    | y    | J    | Y    |
| 10    | k    | z    | K    | Z    | k    | z    | K    | Z    | k    | z    | K    | Z    |
| 11    | l    | 2    | L    | 4    | l    | 2    | L    | 4    | l    | 2    | L    | 4    |
| 12    | n    | 3    | N    | 5    | n    | 3    | N    | 5    | n    | 3    | N    | 5    |

1) New Marking Layout for SC75, implemented at October 2005.

## Package Outline



## Foot Print

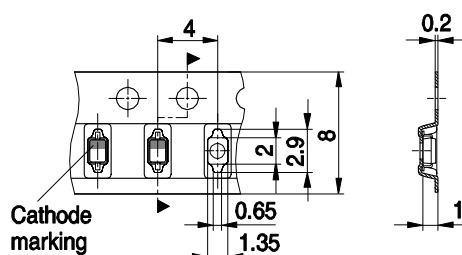


## Marking Layout (Example)



## Standard Packing

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



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