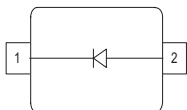
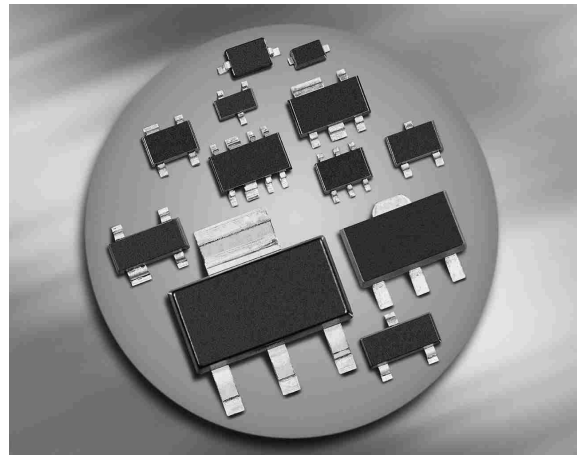


### Silicon Tuning Diode

- 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 |      |

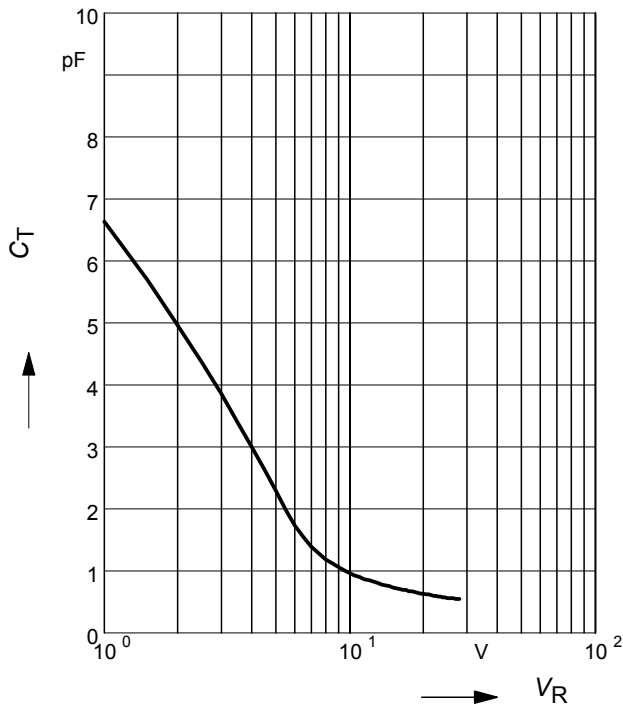
**Electrical Characteristics at  $T_A = 25\text{ °C}$ , unless otherwise specified**

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

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

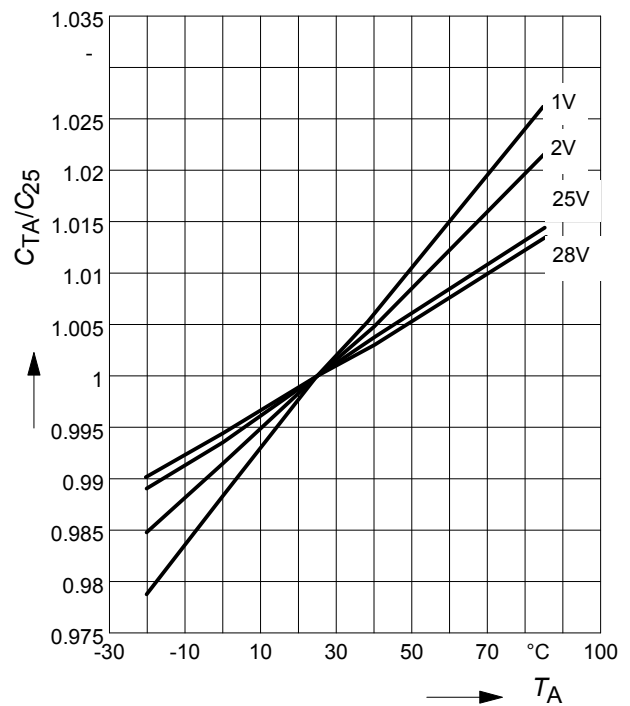
### Diode capacitance $C_T = f(V_R)$

$f = 1\text{MHz}$



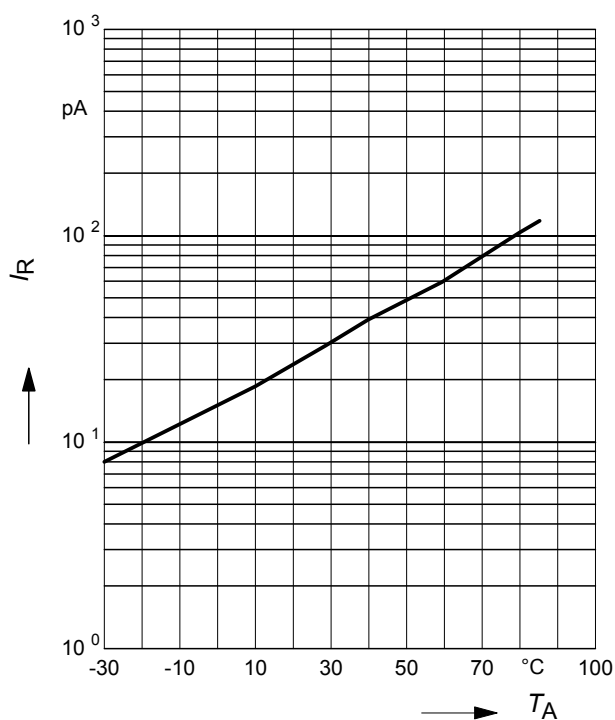
### Normalized diode capacitance

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



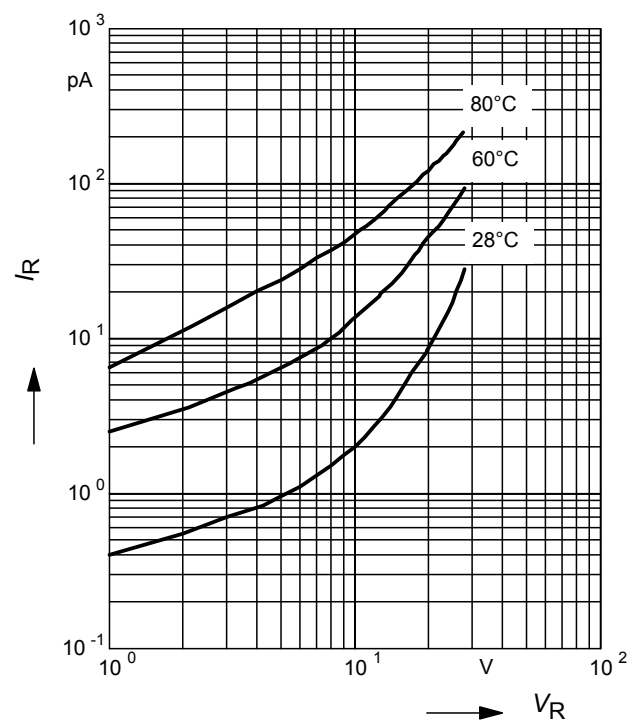
### Reverse current $I_R = f(T_A)$

$V_R = 28\text{V}$

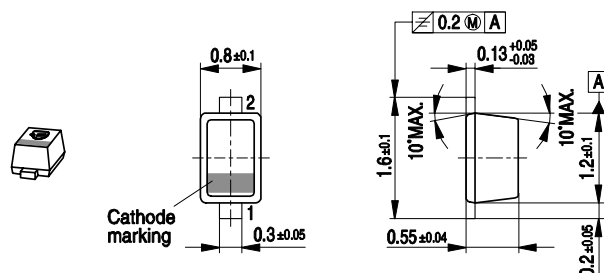


### Reverse current $I_R = f(V_R)$

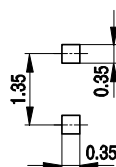
$T_A = \text{Parameter}$



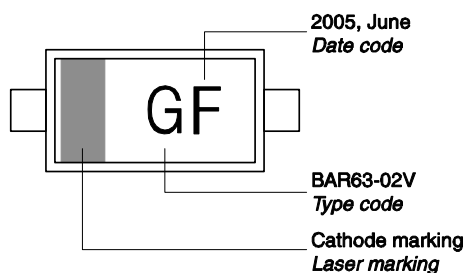
## Package Outline



## Foot Print

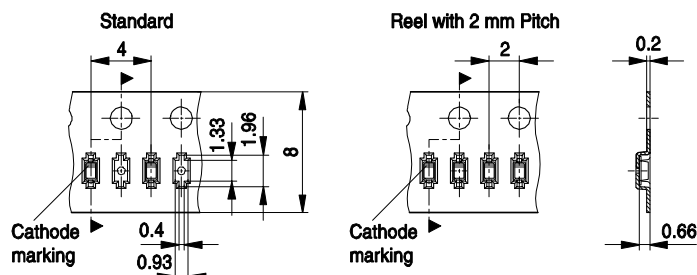


## Marking Layout (Example)

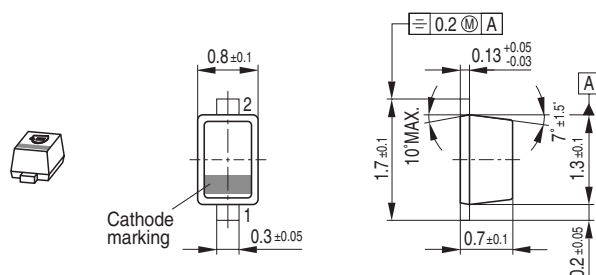


## Standard Packing

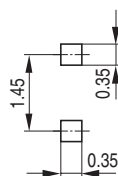
Reel ø180 mm = 3.000 Pieces/Reel  
 Reel ø180 mm = 8.000 Pieces/Reel (2 mm Pitch)  
 Reel ø330 mm = 10.000 Pieces/Reel



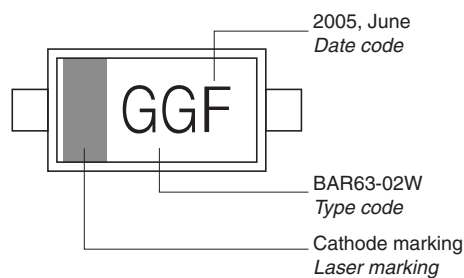
## Package Outline



## Foot Print

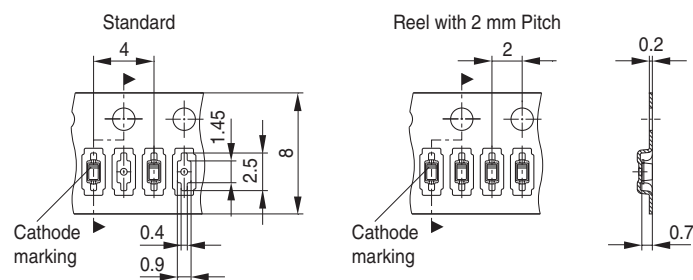


## Marking Layout (Example)



## 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

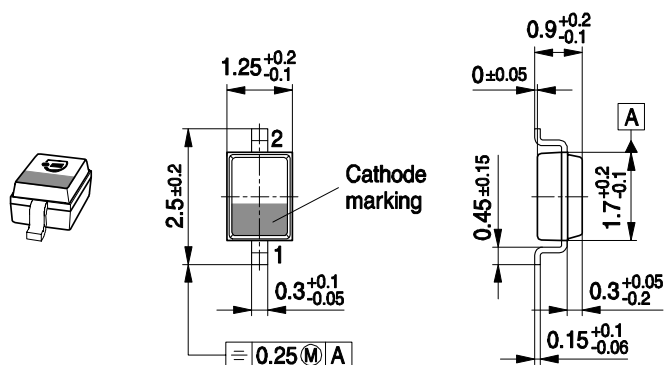


Date Code marking for discrete packages with one digit (SCD80, SC79, SC75<sup>1)</sup>) CES-Code

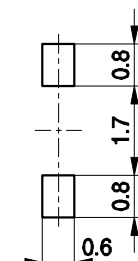
| Month | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|-------|------|------|------|------|------|------|------|------|------|------|------|------|
| 01    | a    | p    | A    | P    | a    | p    | A    | P    | a    | p    | A    | P    |
| 02    | b    | q    | 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.

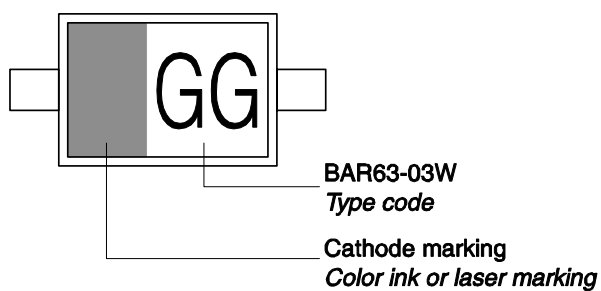
## Package Outline



## Foot Print

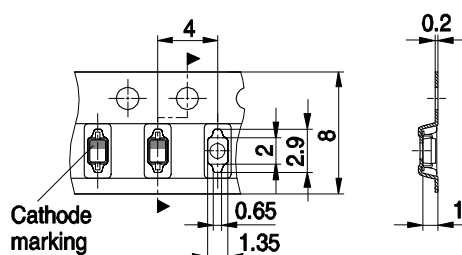


## Marking Layout (Example)



## Standard Packing

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



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