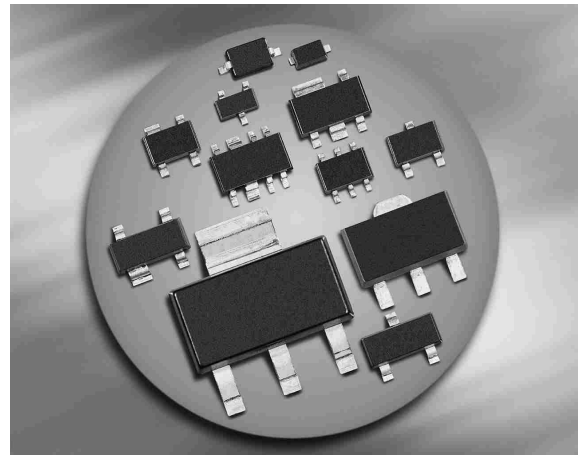
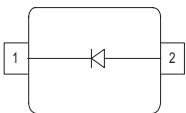


**Silicon Tuning Diode**

- Excellent linearity
- Low series resistance
- Designed for low tuning voltage operation for VCO's in mobile communications equipment
- Very low capacitance spread
- Pb-free (RoHS compliant) package



**BBY56-02W**  
**BBY56-03W**



| Type      | Package | Configuration | $L_S$ (nH) | Marking |
|-----------|---------|---------------|------------|---------|
| BBY56-02W | SCD80   | single        | 0.6        | 66      |
| BBY56-03W | SOD323  | single        | 1.8        | red 6   |

**Maximum Ratings at  $T_A = 25^\circ\text{C}$ , unless otherwise specified**

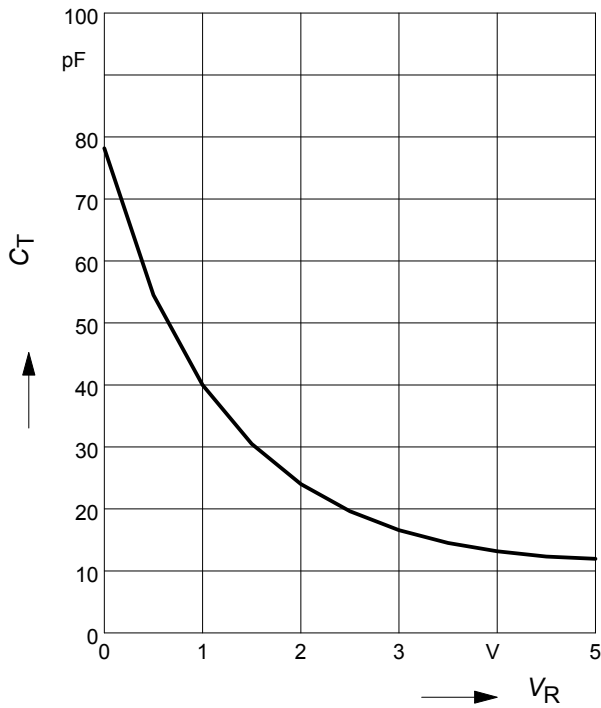
| Parameter                   | Symbol    | Value       | Unit |
|-----------------------------|-----------|-------------|------|
| Diode reverse voltage       | $V_R$     | 10          | V    |
| Forward current             | $I_F$     | 20          | mA   |
| Operating temperature range | $T_{op}$  | -55 ... 150 | °C   |
| Storage temperature         | $T_{stg}$ | -55 ... 150 |      |

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

| Parameter  | Symbol          | Values |      |      | Unit     |
|--|-----------------|--------|------|------|----------|
|  |                 | min.   | typ. | max. |          |
| <b>DC Characteristics</b>                              |                 |        |      |      |          |
| Reverse current  | $I_R$           |        |      |      | nA       |
| $V_R = 6\text{ V}$                                     |                 | -      | -    | 5    |          |
| $V_R = 6\text{ V}, T_A = 85^\circ\text{C}$             |                 | -      | -    | 100  |          |
| <b>AC Characteristics</b>                              |                 |        |      |      |          |
| Diode capacitance                                      | $C_T$           |        |      |      | pF       |
| $V_R = 1\text{ V}, f = 1\text{ MHz}$                   |                 | 37     | 40   | 43   |          |
| $V_R = 2\text{ V}, f = 1\text{ MHz}$                   |                 | 22     | -    | 25   |          |
| $V_R = 3\text{ V}, f = 1\text{ MHz}$                   |                 | 14.8   | 15.8 | 16.8 |          |
| $V_R = 4\text{ V}, f = 1\text{ MHz}$                   |                 | -      | 12.1 | -    |          |
| Capacitance ratio                                      | $C_{T1}/C_{T3}$ |        |      |      |          |
| $V_R = 1\text{ V}, V_R = 3\text{ V}, f = 1\text{ MHz}$ |                 | 2.15   | 2.53 | -    |          |
| $V_R = 1\text{ V}, V_R = 4\text{ V}, f = 1\text{ MHz}$ |                 | -      | 3.3  | -    |          |
| Series resistance                                      | $r_S$           |        |      |      | $\Omega$ |
| $V_R = 1\text{ V}, f = 470\text{ MHz}$                 |                 | -      | 0.25 | -    |          |

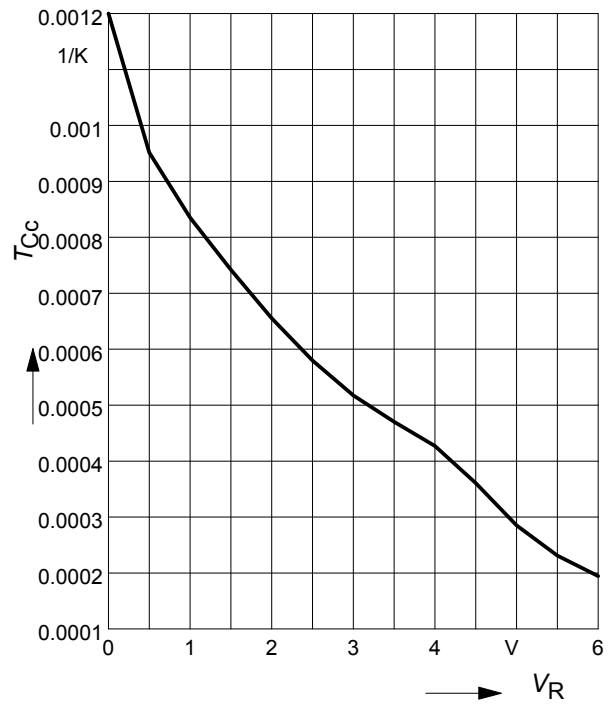
**Diode capacitance  $C_T = f(V_R)$**

$f = 1\text{MHz}$



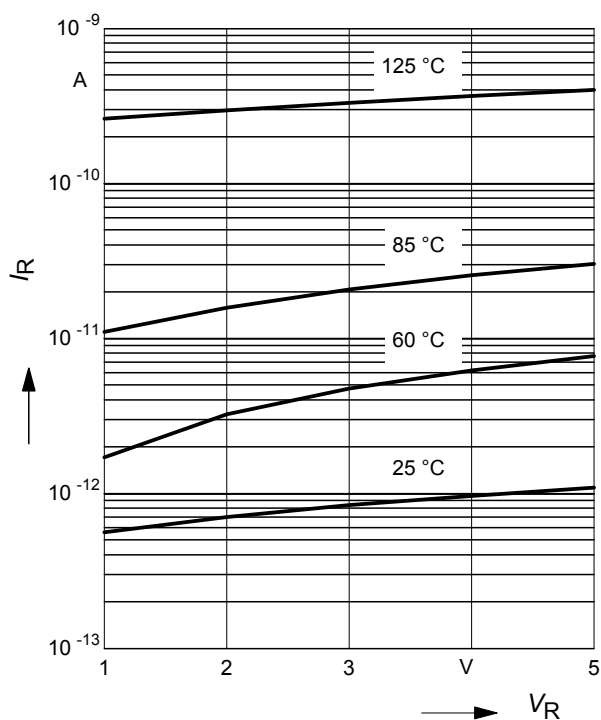
**Temperature coefficient of the diode capacitance  $T_{Cc} = f(V_R)$**

$f = 1\text{ MHz}$

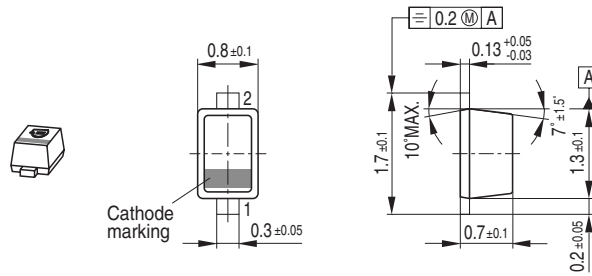


**Reverse current  $I_R = f(V_R)$**

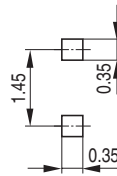
$T_A = \text{Parameter}$



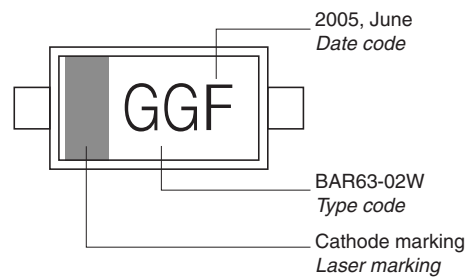
Package Outline



Foot Print

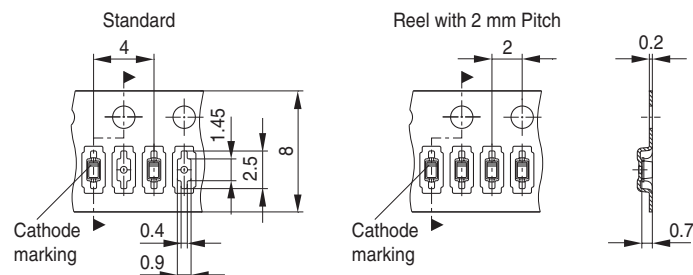


Marking Layout (Example)



Standard Packing

Reel  $\varnothing$ 180 mm = 3.000 Pieces/Reel  
 Reel  $\varnothing$ 180 mm = 8.000 Pieces/Reel (2 mm Pitch)  
 Reel  $\varnothing$ 330 mm = 10.000 Pieces/Reel

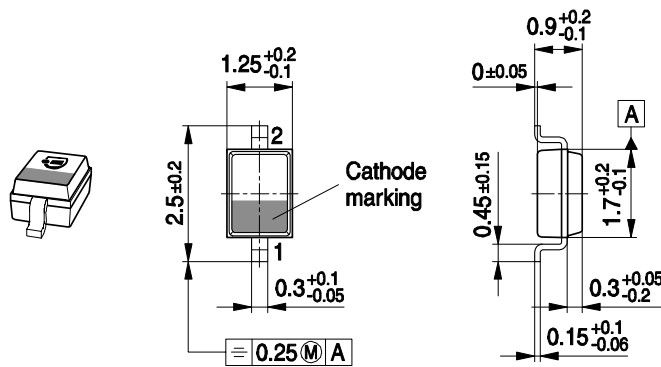


Date Code marking for discrete packages with one digit (SCD80, SC79, SC75<sup>1)</sup>) CES-Code

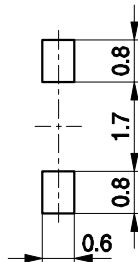
| Month | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|-------|------|------|------|------|------|------|------|------|------|------|------|------|
| 01    | a    | p    | A    | P    | a    | p    | A    | P    | a    | p    | A    | P    |
| 02    | b    | q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

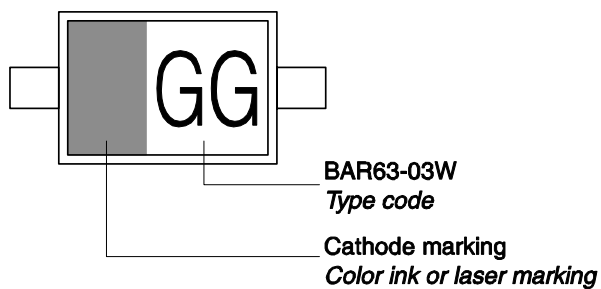
### Package Outline



### Foot Print

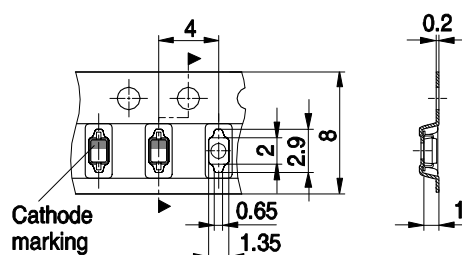


### Marking Layout (Example)



### Standard Packing

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



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