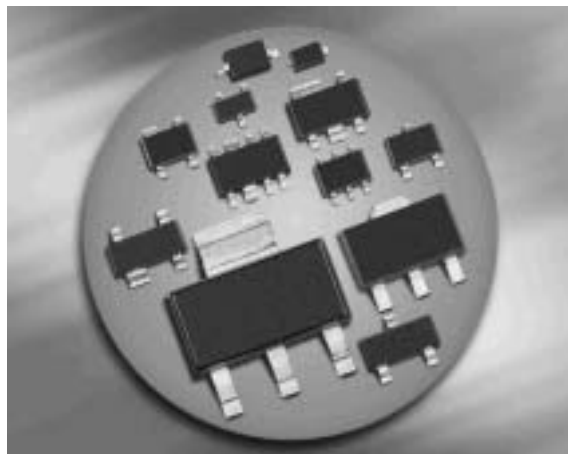
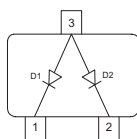
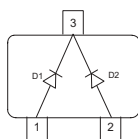
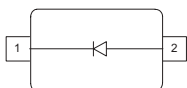


## Silicon Tuning Diodes

- Excellent linearity
- High Q hyperabrupt tuning diode
- Low series resistance
- Designed for low tuning voltage operation for VCO's in mobile communications equipment
- For low frequency control elements such as TCXOs and VCXOs
- Very low capacitance spread
- Pb-free (RoHS compliant) package<sup>1)</sup>
- Qualified according AEC Q101


**BBY58-02L/V**
**BBY58-05W**
**BBY58-06W**
**BBY58-02W**
**BBY58-03W**


| Type      | Package  | Configuration    | $L_S$ (nH) | Marking |
|-----------|----------|------------------|------------|---------|
| BBY58-02L | TSLP-2-1 | single, leadless | 0.4        | 88      |
| BBY58-02V | SC79     | single           | 0.6        | 8       |
| BBY58-02W | SCD80    | single           | 0.6        | 88      |
| BBY58-03W | SOD323   | single           | 0.6        | 8 yel.  |
| BBY58-05W | SOT323   | common cathode   | 1.4        | B5s     |
| BBY58-06W | SOT323   | common anode     | 1.4        | B6s     |

**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 | $^\circ\text{C}$ |
| Storage temperature         | $T_{stg}$ | -55 ... 150 |                  |

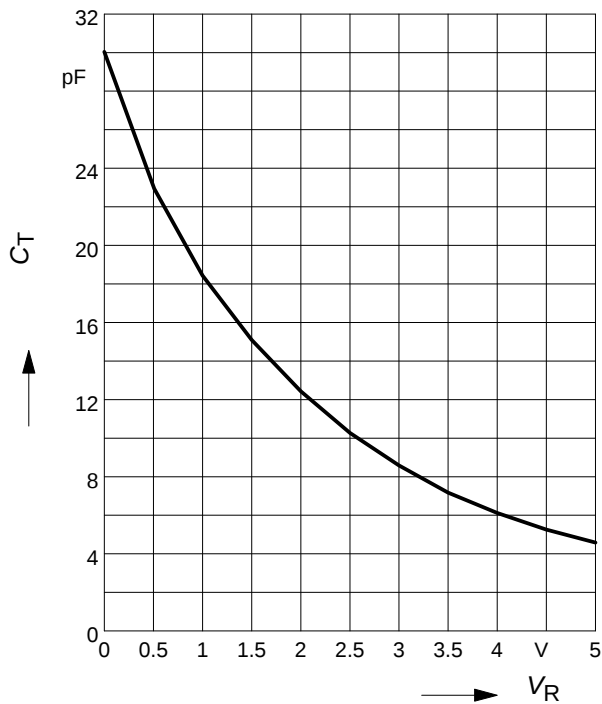
<sup>1)</sup>Pb-containing package may be available upon special request

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

| Parameter                                                       | Symbol          | Values |       |      | Unit     |
|-----------------------------------------------------------------|-----------------|--------|-------|------|----------|
|                                                                 |                 | min.   | typ.  | max. |          |
| DC Characteristics                                              |                 |        |       |      |          |
| Reverse current                                                 | $I_R$           |        |       |      | nA       |
| $V_R = 8\text{ V}$                                              |                 | -      | -     | 10   |          |
| $V_R = 8\text{ V}, T_A = 85\text{ }^{\circ}\text{C}$            |                 | -      | -     | 100  |          |
| AC Characteristics                                              |                 |        |       |      |          |
| Diode capacitance                                               | $C_T$           |        |       |      | pF       |
| $V_R = 1\text{ V}, f = 1\text{ MHz}$                            |                 | 17.5   | 18.3  | 19.3 |          |
| $V_R = 2\text{ V}, f = 1\text{ MHz}$                            |                 | 11.4   | 12.35 | 13.3 |          |
| $V_R = 3\text{ V}, f = 1\text{ MHz}$                            |                 | 7.8    | 8.6   | 9.3  |          |
| $V_R = 4\text{ V}, f = 1\text{ MHz}$                            |                 | 5.5    | 6     | 6.6  |          |
| $V_R = 6\text{ V}, f = 1\text{ MHz}$                            |                 | 3.8    | 4.7   | 5.5  |          |
| Capacitance ratio                                               | $C_{T1}/C_{T3}$ | 1.9    | 2.15  | 2.4  | -        |
| $V_R = 1\text{ V}, V_R = 3\text{ V}, f = 1\text{ MHz}$          |                 |        |       |      |          |
| Capacitance ratio                                               | $C_{T1}/C_{T4}$ | 2.7    | 3.05  | 3.5  |          |
| $V_R = 1\text{ V}, V_R = 4\text{ V}, f = 1\text{ MHz}$          |                 |        |       |      |          |
| Capacitance ratio                                               | $C_{T4}/C_{T6}$ | 1.15   | 1.3   | 1.45 |          |
| $V_R = 4\text{ V}, V_R = 6\text{ V}, f = 1\text{ MHz}$          |                 |        |       |      |          |
| Series resistance                                               | $r_S$           |        |       |      | $\Omega$ |
| $V_R = 1\text{ V}, f = 470\text{ MHz}, \text{BBY58-02L, -07L4}$ |                 | -      | 0.3   | -    |          |
| $V_R = 1\text{ V}, f = 470\text{ MHz}, \text{all other}$        |                 | -      | 0.25  | -    |          |

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

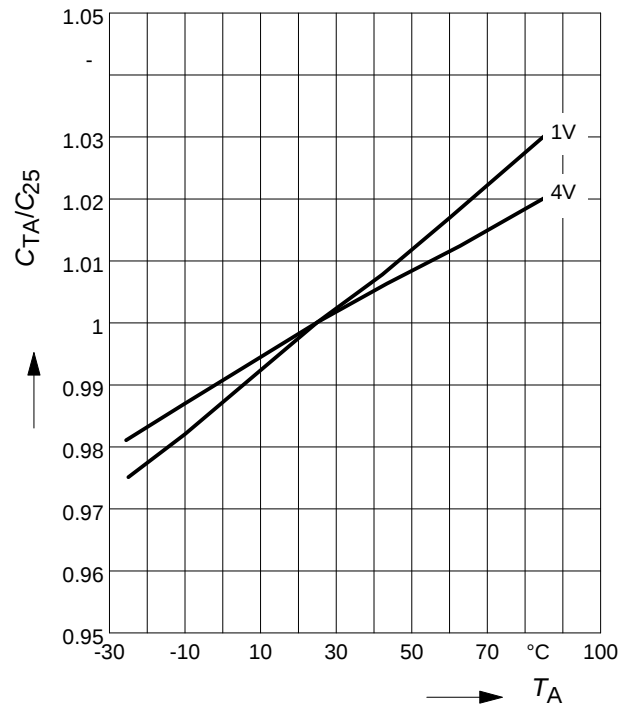
$f = 1\text{MHz}$



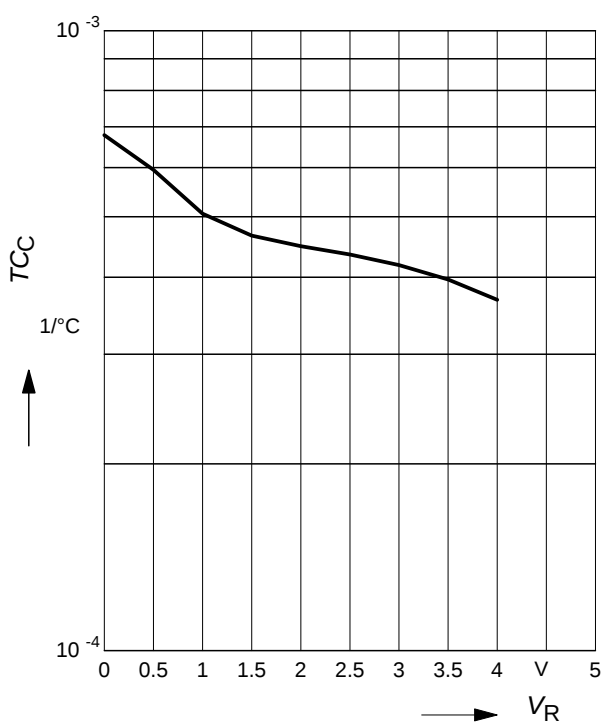
### Normalized diode capacitance

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

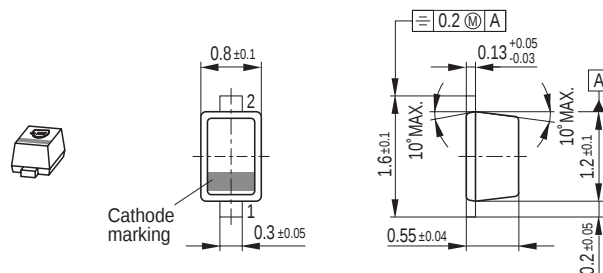
$f = 1\text{MHz}$ ,  $V_R = \text{Parameter}$



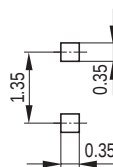
### Temperature coefficient of the diode capacitance $T_{CC} = f(V_R)$



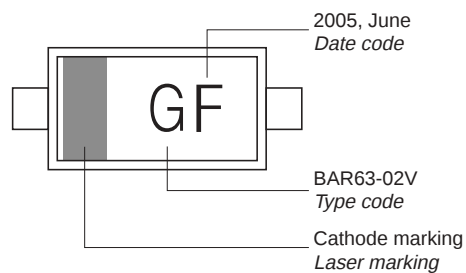
## Package Outline



## Foot Print

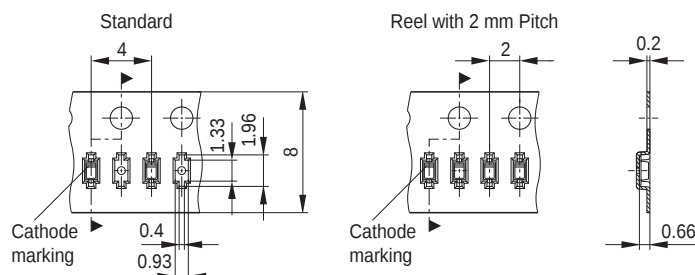


## Marking Layout (Example)

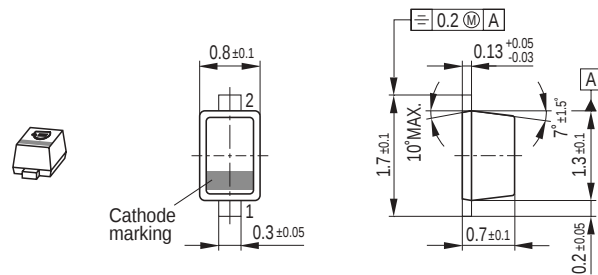


## Standard Packing

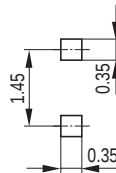
Reel  $\varnothing 180$  mm = 3.000 Pieces/Reel  
 Reel  $\varnothing 180$  mm = 8.000 Pieces/Reel (2 mm Pitch)  
 Reel  $\varnothing 330$  mm = 10.000 Pieces/Reel



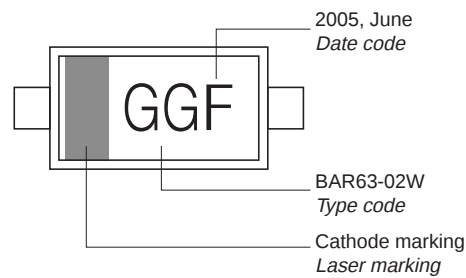
## Package Outline



## Foot Print

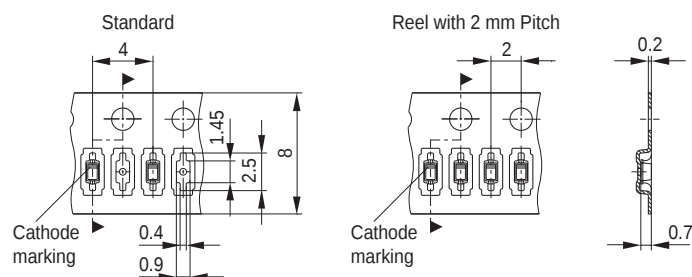


## Marking Layout (Example)



## 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

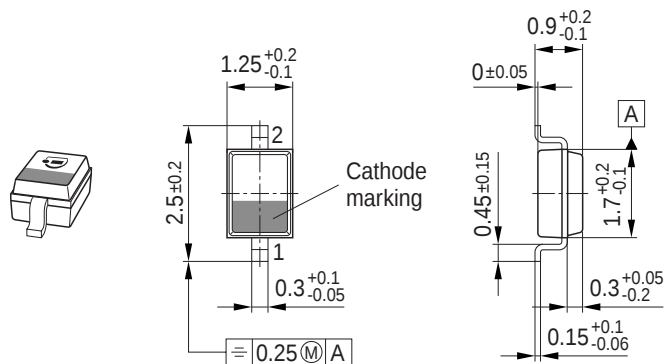


# Date Code marking for discrete packages with one digit (SCD80, SC79, SC75<sup>1)</sup>) CES-Code

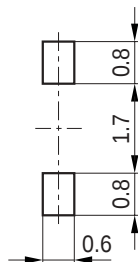
| Month | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|-------|------|------|------|------|------|------|------|------|------|------|------|------|
| 01    | a    | p    | A    | P    | a    | p    | A    | P    | a    | p    | A    | P    |
| 02    | b    | q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

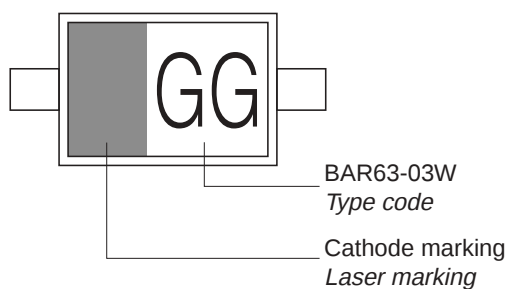
## Package Outline



## Foot Print

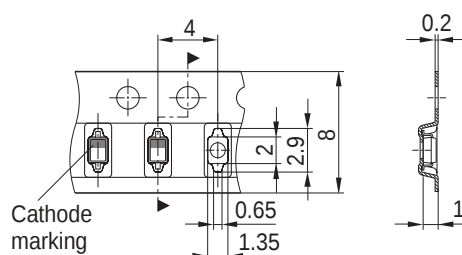


## Marking Layout (Example)

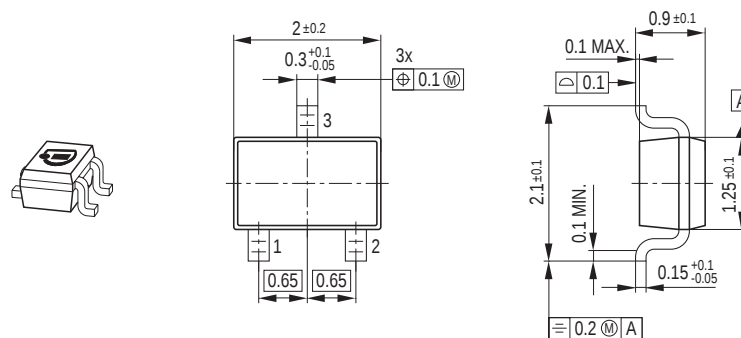


## Standard Packing

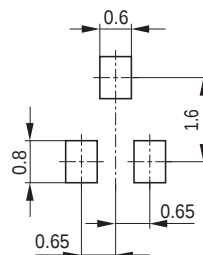
Reel ø180 mm = 3.000 Pieces/Reel  
Reel ø330 mm = 10.000 Pieces/Reel



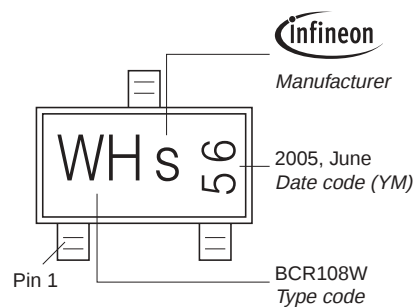
## Package Outline



## Foot Print

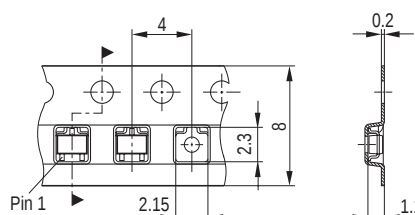


## Marking Layout (Example)

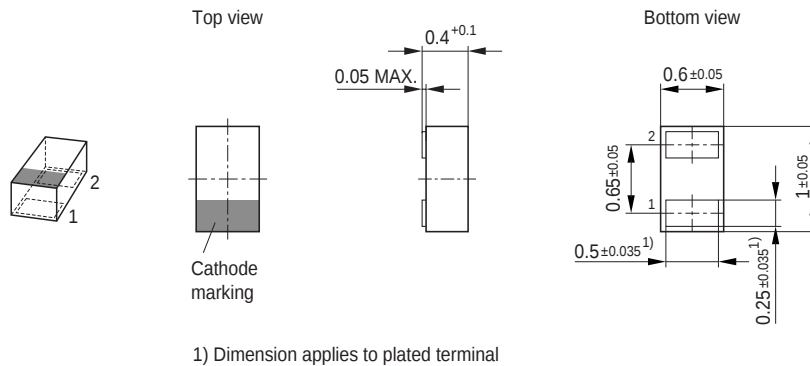


## Standard Packing

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

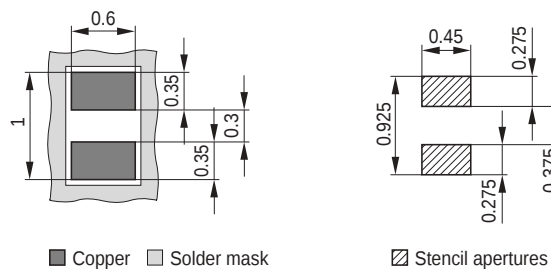


## Package Outline

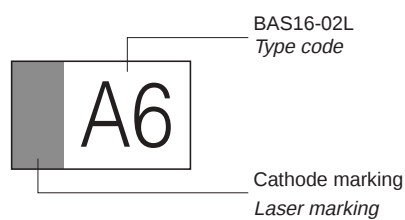


## Foot Print

For board assembly information please refer to Infineon website "Packages"



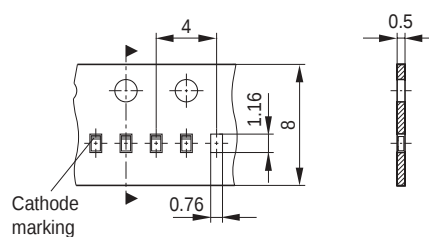
## Marking Layout (Example)



## Standard Packing

Reel ø180 mm = 15.000 Pieces/Reel

Reel ø330 mm = 50.000 Pieces/Reel (optional)



Edition 2006-02-01

Published by

Infineon Technologies AG

81726 München, Germany

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