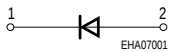
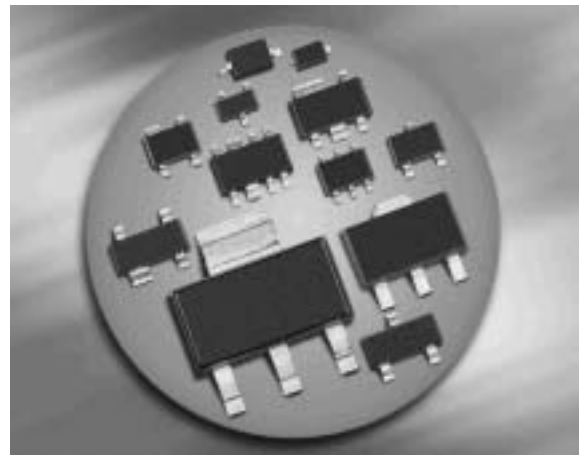


### Silicon Variable Capacitance Diode

- $C_{1V}$ -capacitance selection for Samsung
- For VHF-TV-tuners
- High capacitance ratio
- Low series inductance
- Low series resistance
- Extremely small plastic SMD package
- Excellent uniformity and matching due to "in-line" matching assembly procedure



| Type       | Package | Configuration | $L_S$ (nH) | Marking |
|------------|---------|---------------|------------|---------|
| BB659E6805 | SCD80   | single        | -          | DE      |

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

| Parameter                                         | Symbol    | Value       | Unit             |
|---------------------------------------------------|-----------|-------------|------------------|
| Diode reverse voltage                             | $V_R$     | 30          | V                |
| Peak reverse voltage ( $R \geq 5\text{k}\Omega$ ) | $V_{RM}$  | 35          |                  |
| Forward current                                   | $I_F$     | 20          | mA               |
| Operating temperature range                       | $T_{op}$  | -55 ... 125 | $^\circ\text{C}$ |
| Storage temperature                               | $T_{stg}$ | -55 ... 150 |                  |

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

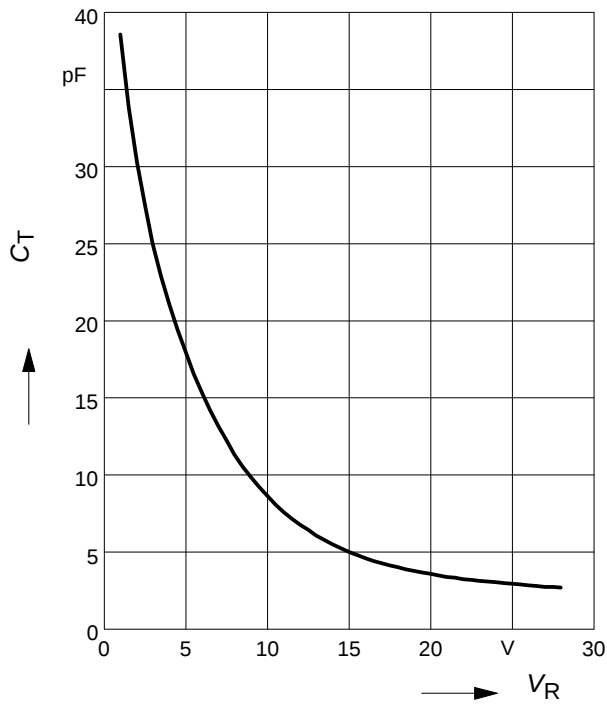
| Parameter                                             | Symbol | Values |      |      | Unit |
|-------------------------------------------------------|--------|--------|------|------|------|
|                                                       |        | min.   | typ. | max. |      |
| DC Characteristics                                    |        |        |      |      |      |
| Reverse current                                       | $I_R$  |        |      |      | nA   |
| $V_R = 30\text{ V}$                                   |        | -      | -    | 10   |      |
| $V_R = 30\text{ V}, T_A = 85\text{ }^{\circ}\text{C}$ |        | -      | -    | 200  |      |

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

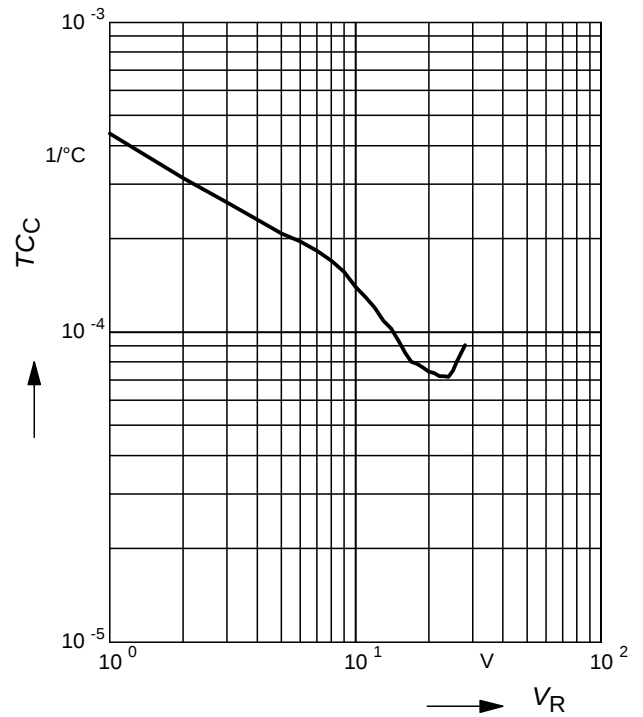
| Parameter                                                                                                                                                                           | Symbol           | Values                     |                             |                          | Unit     |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|----------------------------|-----------------------------|--------------------------|----------|
|                                                                                                                                                                                     |                  | min.                       | typ.                        | max.                     |          |
| AC Characteristics                                                                                                                                                                  |                  |                            |                             |                          |          |
| Diode capacitance<br>$V_R = 1\text{ V}, f = 1\text{ MHz}$<br>$V_R = 2\text{ V}, f = 1\text{ MHz}$<br>$V_R = 25\text{ V}, f = 1\text{ MHz}$<br>$V_R = 28\text{ V}, f = 1\text{ MHz}$ | $C_T$            | 37.2<br>27.5<br>2.5<br>2.4 | 38.3<br>30.1<br>2.89<br>2.6 | 39.4<br>32<br>3.2<br>2.9 | pF       |
| Capacitance ratio<br>$V_R = 1\text{ V}, V_R = 28\text{ V}, f = 1\text{ MHz}$                                                                                                        | $C_{T1}/C_{T28}$ | 13.5                       | 14.7                        | -                        | -        |
| Capacitance ratio<br>$V_R = 2\text{ V}, V_R = 25\text{ V}, f = 1\text{ MHz}$                                                                                                        | $C_{T2}/C_{T25}$ | 9.8                        | 10.4                        | -                        |          |
| Series resistance<br>$V_R = 5\text{ V}, f = 470\text{ MHz}$                                                                                                                         | $r_S$            | -                          | 0.65                        | 0.7                      | $\Omega$ |

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

$f = 1\text{MHz}$

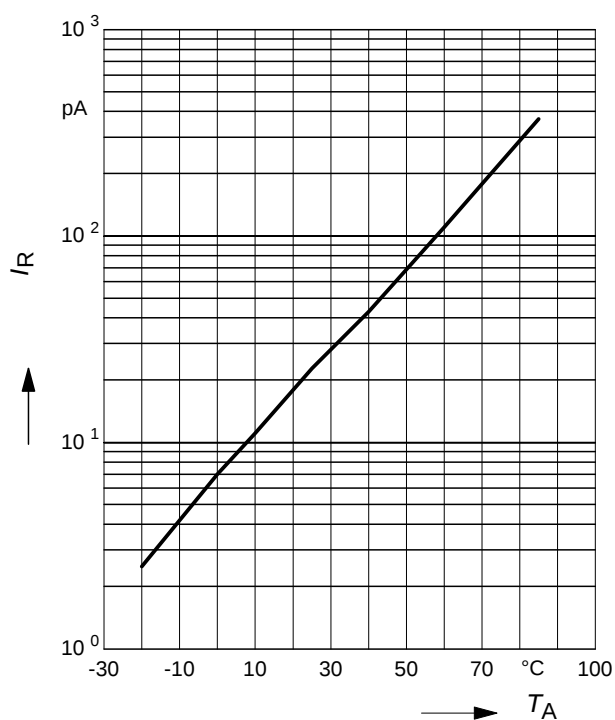


**Temperature coefficient of the diode capacitance  $T_{CC} = f(V_R)$**



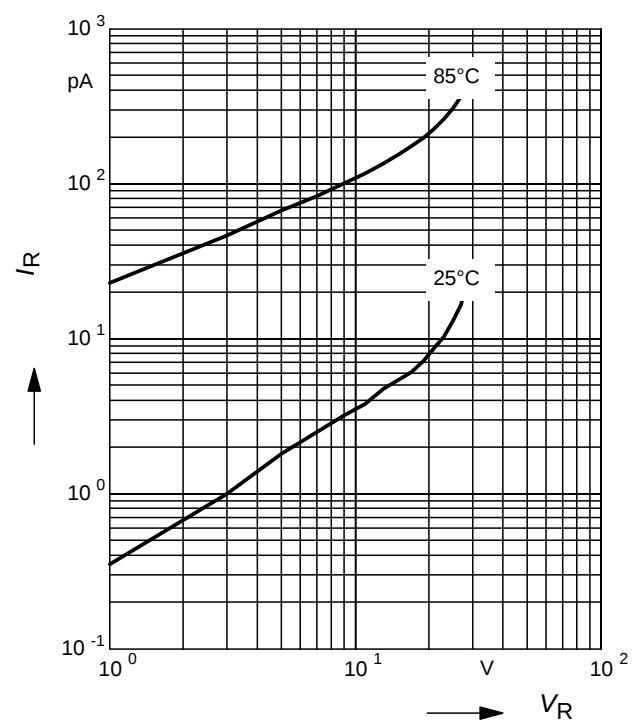
**Reverse current  $I_R = f(T_A)$**

$V_R = 28\text{V}$

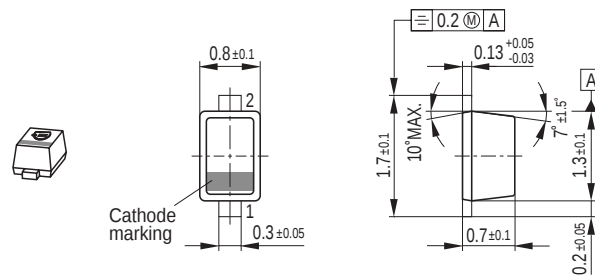


**Reverse current  $I_R = f(V_R)$**

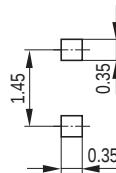
$T_A = \text{Parameter}$



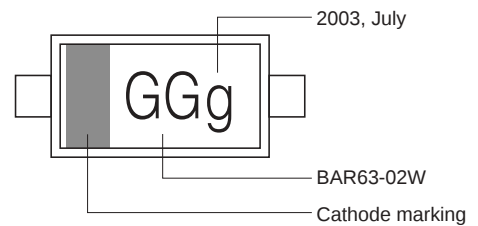
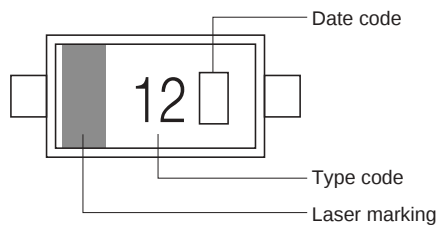
## Package Outline



## Foot Print



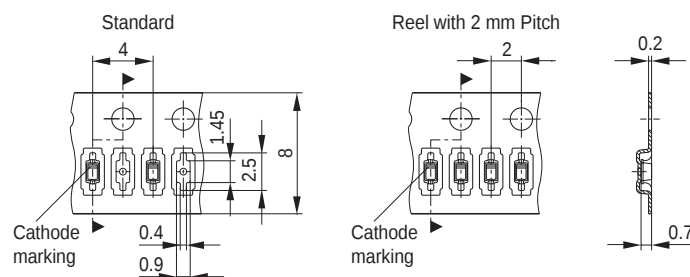
## Marking Layout



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



Data Code marking for discrete packages with  
one digit (SCD80, SC79) 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    |

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