**BB659E6805**
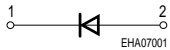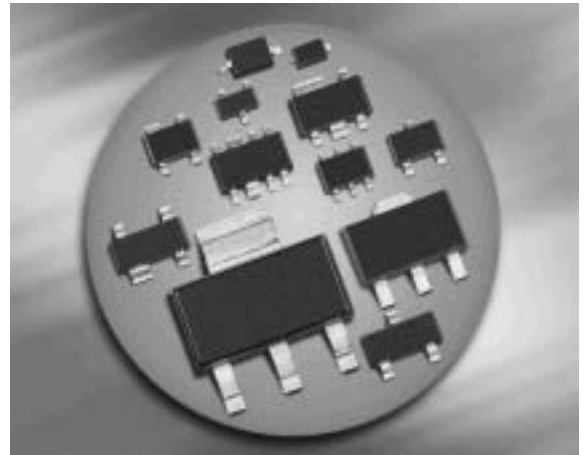
## Silicon Variable Capacitance Diode

- $C_{1V}$-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



EHA07001

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

## Maximum Ratings at $T_A$ = 25°C, unless otherwise specified

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

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**Electrical Characteristics** at $T_A$ = 25°C, unless otherwise specified

| Parameter | Symbol | Values | | | Unit |
|---|---|---|---|---|---|
| | | min. | typ. | max. | |
| **DC Characteristics** | | | | | |
| Reverse current | $I_R$ | | | | nA |
| $V_R$ = 30 V | | - | - | 10 | |
| $V_R$ = 30 V, $T_A$ = 85 °C | | - | - | 200 | |

**Electrical Characteristics** at $T_A$ = 25°C, unless otherwise specified

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

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**Diode capacitance** $C_T = f(V_R)$
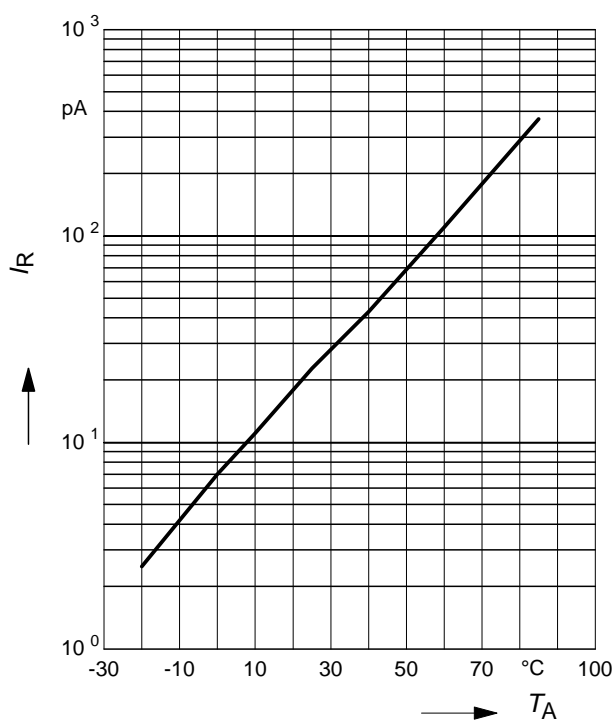
$f = 1\text{MHz}$
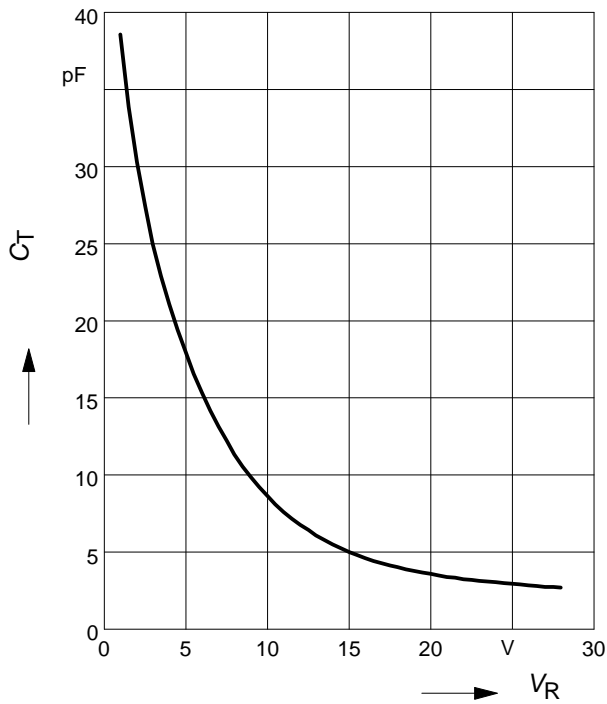


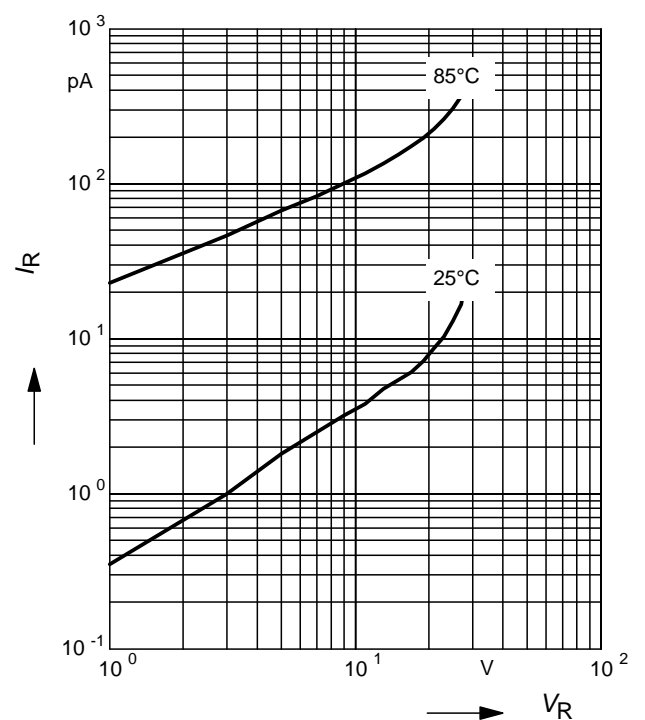**Temperature coefficient of the diode capacitance** $T_{Cc} = f(V_R)$
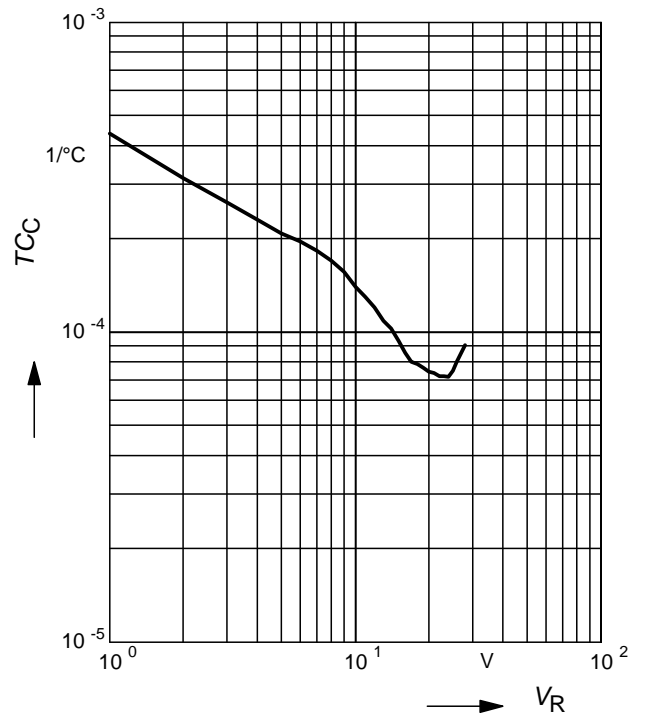


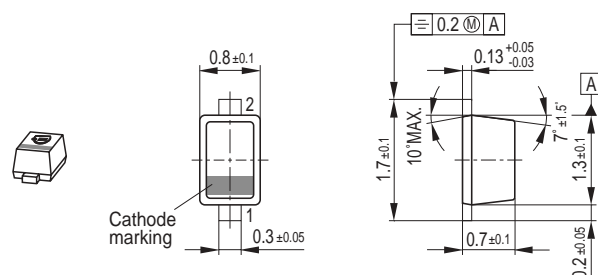**Reverse current** $I_R = f(T_A)$
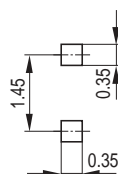
$V_R = 28\text{V}$



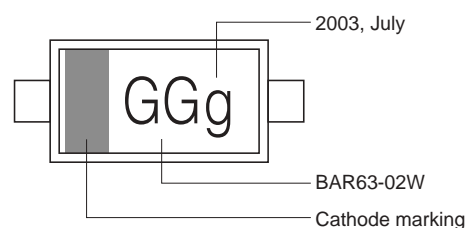**Reverse current** $I_R = f(V_R)$

$T_A = \text{Parameter}$

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## Package Outline

0.8 ±0.1

2

Cathode
marking

0.3 ±0.05

⊥ 0.2 Ⓜ A

0.13 +0.05 −0.03

1.7 ±0.1

10°MAX.

7° ±1.5°

1.3 ±0.1

A

0.7 ±0.1

0.2 ±0.05

## Foot Print

0.35

1.45

0.35

## Marking Layout

Date code

12

Type code

Laser marking

2003, July

GGg

BAR63-02W
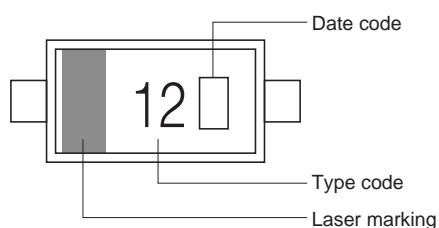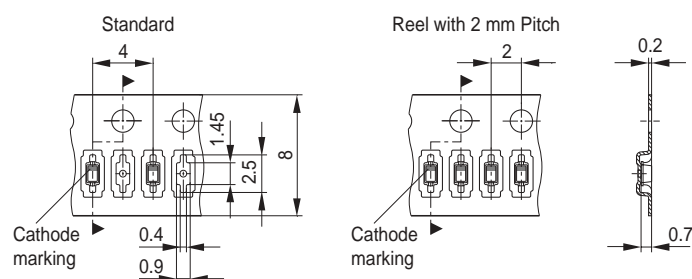
Cathode marking

Example

## Standard Packing

Reel ⌀180 mm = 3.000 Pieces/Reel
Reel ⌀180 mm = 8.000 Pieces/Reel (2 mm Pitch)
Reel ⌀330 mm = 10.000 Pieces/Reel

Standard

4

1.45

8

2.5

Cathode
marking

0.4

0.9

Reel with 2 mm Pitch

2

Cathode
marking

0.2

0.7

## 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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