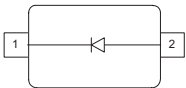## Silicon Variable Capacitance Diode

- For Hyperband TV / VTR tuners, Bd I

- Large capacitance ratio, low series resistance

- Pb-free (RoHS compliant) package[1]

- Qualified according AEC Q101

**AEC** Qualified  **RoHS** ✓



**SD199**



| Type | Package | Configuration | $L_S$(nH) | Marking |
|------|---------|---------------|-----------|---------|
| SD199E6327 | SOD323 | single | 1.8 | red S |

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

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

[1]Pb-containing package may be available upon special request

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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 | | - | - | 200 | |
| **AC Characteristics** | | | | | |
| Diode capacitance | $C_T$ | | | | pF |
| $V_R$ = 1 V, $f$ = 1 MHz | | 62 | 69 | 76 | |
| $V_R$ = 2 V, $f$ = 1 MHz | | 47 | 54 | 62 | |
| $V_R$ = 25 V, $f$ = 1 MHz | | 2.85 | 3.18 | 3.6 | |
| $V_R$ = 28 V, $f$ = 1 MHz | | 2.8 | 3.05 | 3.3 | |
| Capacitance ratio<br>$V_R$ = 1 V, $V_R$ = 28 V, $f$ = 1 MHz | $C_{T1}/C_{T28}$ | 19.5 | 22.6 | 25 | - |
| Capacitance ratio<br>$V_R$ = 2 V, $V_R$ = 25 V, $f$ = 1 MHz | $C_{T2}/C_{T25}$ | 15 | 17 | 19 | |
| Capacitance matching[1]<br>$V_R$ = 1 ... 28 V, $f$ = 1 MHz, 8 diodes sequence | $\Delta C_T/C_T$ | - | - | 2.5 | % |
| Series resistance<br>$V_R$ = 5 V, $f$ = 470 MHz | $r_S$ | - | 1.15 | - | $\Omega$ |

[1]For details please refer to Application Note 047.

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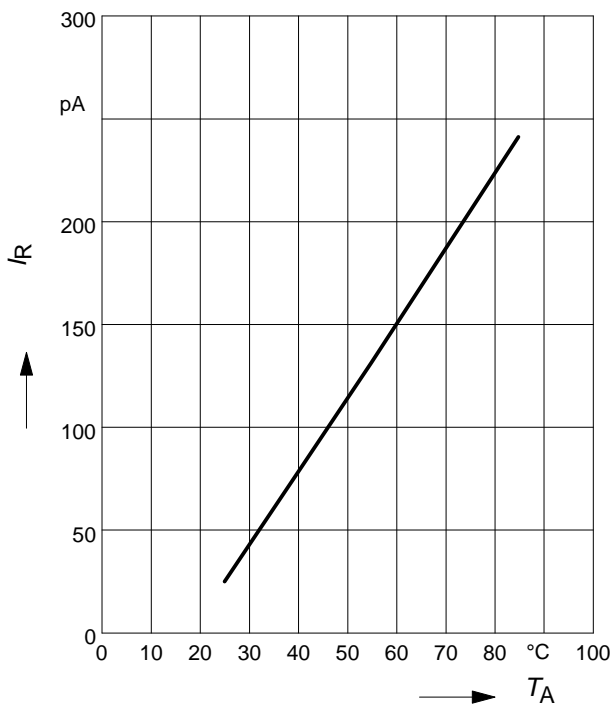
$f = 1\text{MHz}$



EHD07045
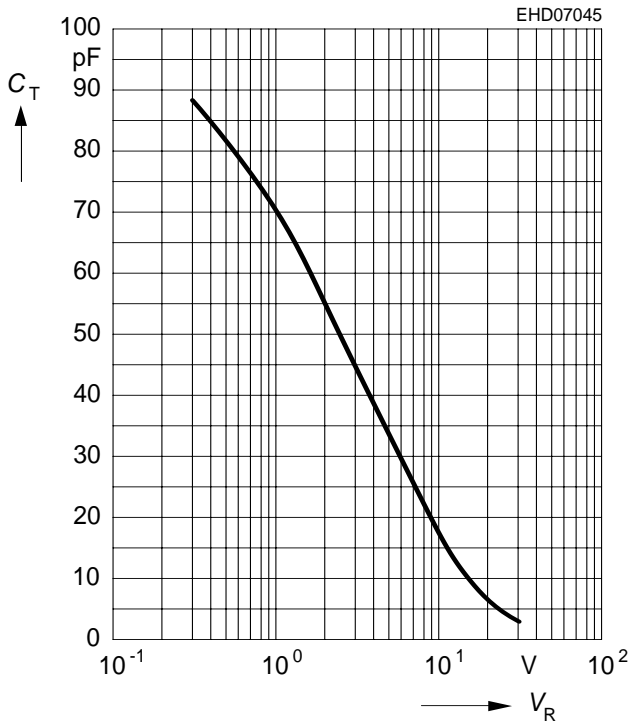
**Temperature coefficient of the diode capacitance** $T_{Cc} = f(V_R)$
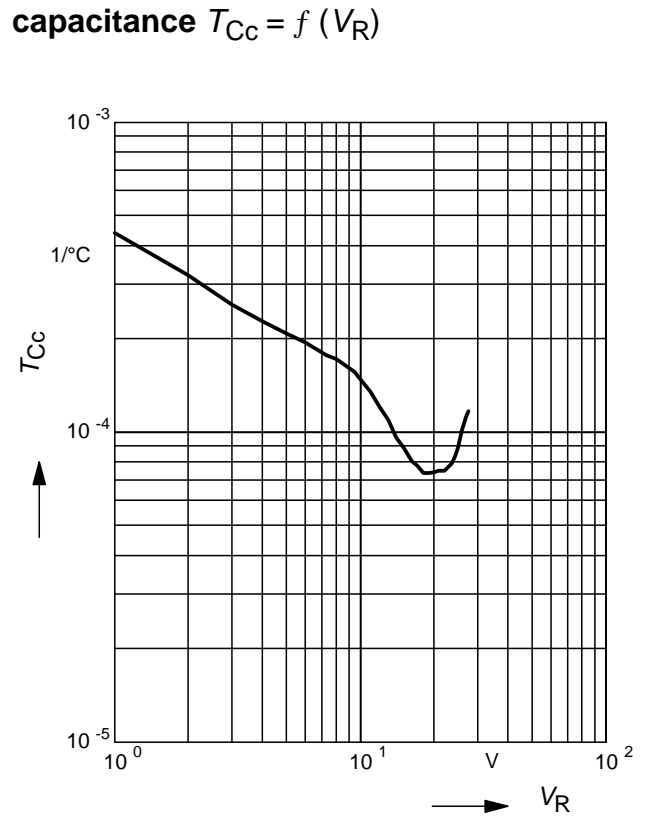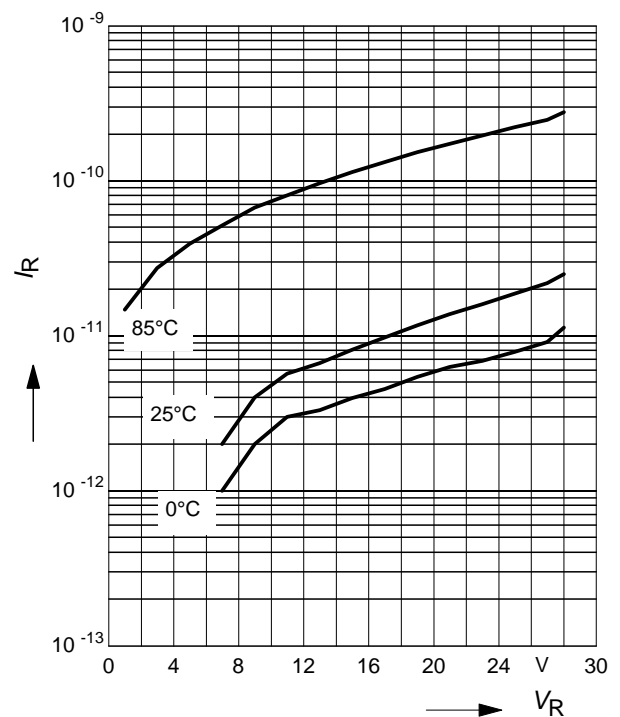
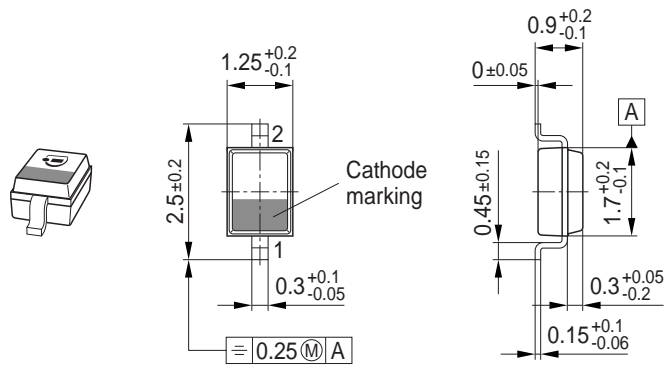

**Reverse current** $I_R = f(T_A)$
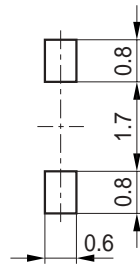
$V_R = 28\text{ V}$



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

$T_A = \text{Parameter}$

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## Package Outline

$1.25^{+0.2}_{-0.1}$

$2.5\pm0.2$

2

1

Cathode marking

$0.3^{+0.1}_{-0.05}$

$= \boxed{0.25\,Ⓜ\,A}$

$0.9^{+0.2}_{-0.1}$

$0\pm0.05$

$0.45\pm0.15$

A

$1.7^{+0.2}_{-0.1}$

$0.3^{+0.05}_{-0.2}$

$0.15^{+0.1}_{-0.06}$

## Foot Print

0.8

1.7

0.8

0.6

## Marking Layout (Example)

GG

BAR63-03W
*Type code*

Cathode marking
*Laser marking*
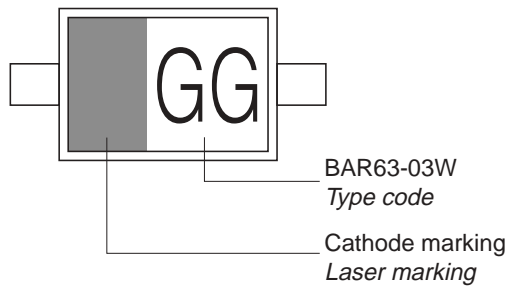
## Standard Packing

Reel ø180 mm = 3.000 Pieces/Reel
Reel ø330 mm = 10.000 Pieces/Reel
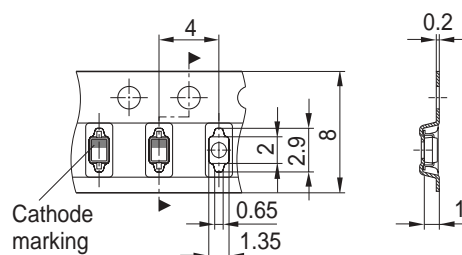
4

2

2.9

8

0.65

1.35

Cathode marking

0.2

1

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