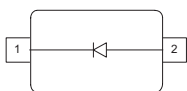


### Silicon RF Switching Diode

- For band switching in TV/VTR tuners and mobile applications
- Very low forward resistance (typ.  $0.45 \Omega$  @ 3 mA)
- Small capacitance
- Pb-free (RoHS compliant) package
- Qualified according AEC Q101



**BA592**  
**BA892/-02L**  
**BA892-02V**



| Type      | Package  | Configuration    | $L_S$ (nH) | Marking |
|-----------|----------|------------------|------------|---------|
| BA592     | SOD323   | single           | 1.8        | blue S  |
| BA892     | SCD80    | single           | 0.6        | AA      |
| BA892-02L | TSLP-2-1 | single, leadless | 0.4        | AA      |
| BA892-02V | SC79     | single           | 0.6        | A       |

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

| Parameter                   | Symbol    | Value       | Unit             |
|-----------------------------|-----------|-------------|------------------|
| Diode reverse voltage       | $V_R$     | 35          | V                |
| Forward current             | $I_F$     | 100         | mA               |
| Junction temperature        | $T_J$     | 150         | $^\circ\text{C}$ |
| Operating temperature range | $T_{op}$  | -55 ... 125 |                  |
| Storage temperature         | $T_{Stg}$ | -55 ... 150 |                  |

**Thermal Resistance**

| Parameter                                | Symbol     | Value      | Unit |
|------------------------------------------|------------|------------|------|
| Junction - soldering point <sup>1)</sup> | $R_{thJS}$ |            | K/W  |
| BA592                                    |            | $\leq 135$ |      |
| BA892, BA892-02V                         |            | $\leq 120$ |      |
| BA892-02L                                |            | $\leq 70$  |      |

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

| Parameter | Symbol | Values |      |      | Unit |
|-----------|--------|--------|------|------|------|
|           |        | min.   | typ. | max. |      |

**DC Characteristics**

|                                          |       |   |   |    |    |
|------------------------------------------|-------|---|---|----|----|
| Reverse current<br>$V_R = 20\text{ V}$   | $I_R$ | - | - | 20 | nA |
| Forward voltage<br>$I_F = 100\text{ mA}$ | $V_F$ | - | - | 1  | V  |

<sup>1)</sup>For calculation of  $R_{thJA}$  please refer to Application Note Thermal Resistance

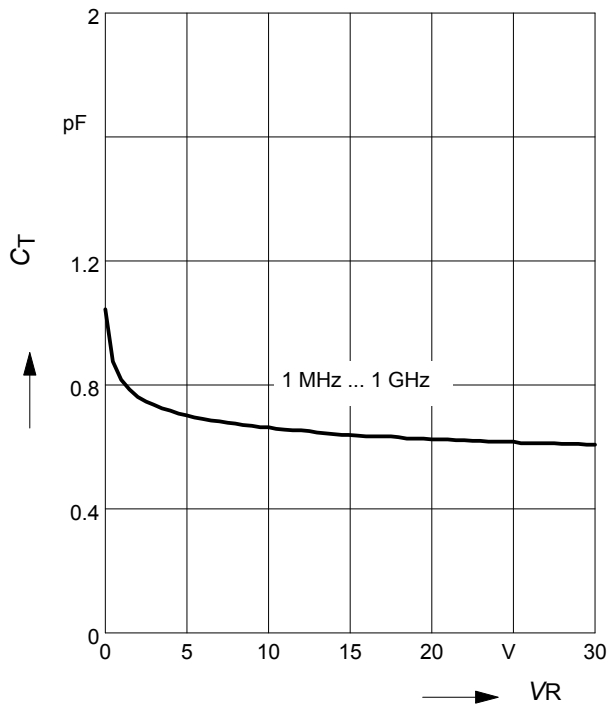
**Electrical Characteristics** at  $T_A = 25^\circ\text{C}$ , unless otherwise specified

| Parameter                                                                                                                                                        | Symbol      | Values           |                     |                 | Unit |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|------------------|---------------------|-----------------|------|
|                                                                                                                                                                  |             | min.             | typ.                | max.            |      |
| AC Characteristics                                                                                                                                               |             |                  |                     |                 |      |
| Diode capacitance<br>$V_R = 1\text{ V}, f = 1\text{ MHz}$<br>$V_R = 3\text{ V}, f = 1\text{ MHz}$<br>$V_R = 0\text{ V}, f = 100\text{ MHz}$                      | $C_T$       | 0.65<br>0.6<br>- | 0.92<br>0.85<br>1   | 1.4<br>1.1<br>- | pF   |
| Reverse parallel resistance<br>$V_R = 0\text{ V}, f = 100\text{ MHz}$                                                                                            | $R_P$       | -                | 100                 | -               | kΩ   |
| Forward resistance<br>$I_F = 3\text{ mA}, f = 100\text{ MHz}$<br>$I_F = 10\text{ mA}, f = 100\text{ MHz}$                                                        | $r_f$       | -<br>-           | 0.45<br>0.36        | 0.7<br>0.5      | Ω    |
| Charge carrier life time<br>$I_F = 10\text{ mA}, I_R = 6\text{ mA}$ , measured at $I_R = 3\text{ mA}$ ,<br>$R_L = 100\text{ Ω}$                                  | $\tau_{rr}$ | -                | 120                 | -               | ns   |
| I-region width                                                                                                                                                   | $W_I$       | -                | 3                   | -               | μm   |
| Insertion loss <sup>1)</sup><br>$I_F = 0.1\text{ mA}, f = 1.8\text{ GHz}$<br>$I_F = 3\text{ mA}, f = 1.8\text{ GHz}$<br>$I_F = 10\text{ mA}, f = 1.8\text{ GHz}$ | $I_L$       | -<br>-<br>-      | 0.1<br>0.5<br>0.4   | -<br>-<br>-     | dB   |
| Isolation <sup>1)</sup><br>$V_R = 0\text{ V}, f = 100\text{ MHz}$<br>$V_R = 0\text{ V}, f = 470\text{ MHz}$<br>$V_R = 0\text{ V}, f = 1\text{ GHz}$              | $I_{SO}$    | -<br>-<br>-      | 23.5<br>10.5<br>5.5 | -<br>-<br>-     |      |

<sup>1</sup>BA892-02L in series configuration,  $Z = 50\text{ }\Omega$

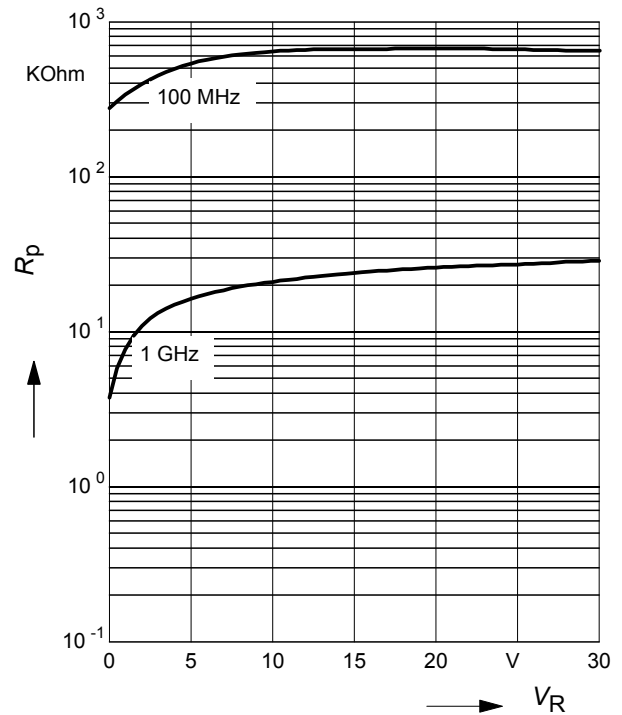
**Diode capacitance  $C_T = f(V_R)$**

$f$  = Parameter



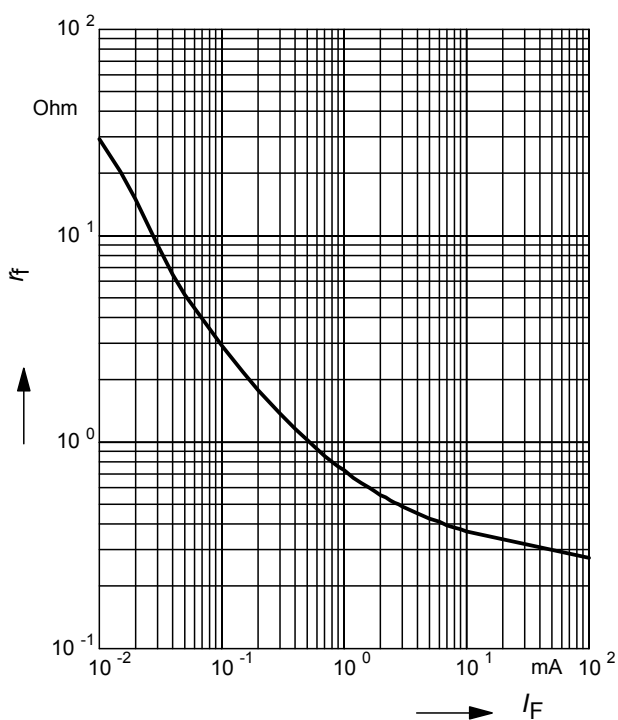
**Reverse parallel resistance  $R_P = f(V_R)$**

$f$  = Parameter



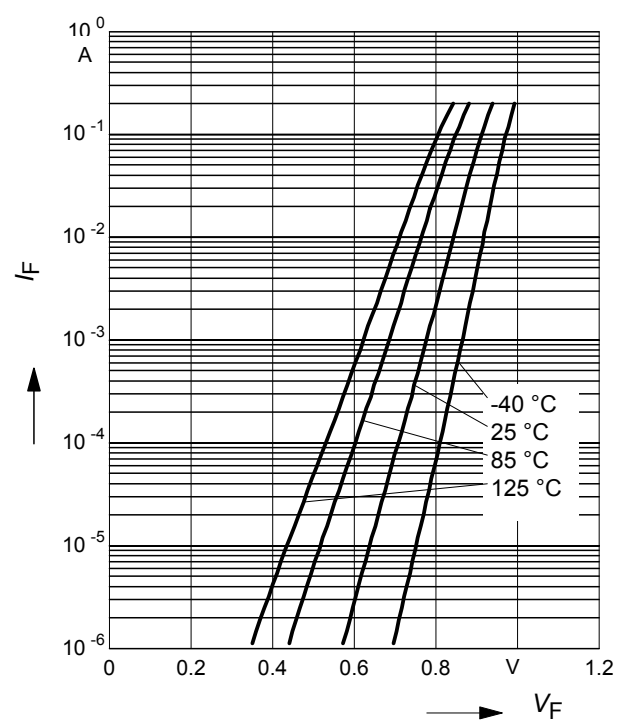
**Forward resistance  $r_f = f(I_F)$**

$f$  = 100MHz



**Forward current  $I_F = f(V_F)$**

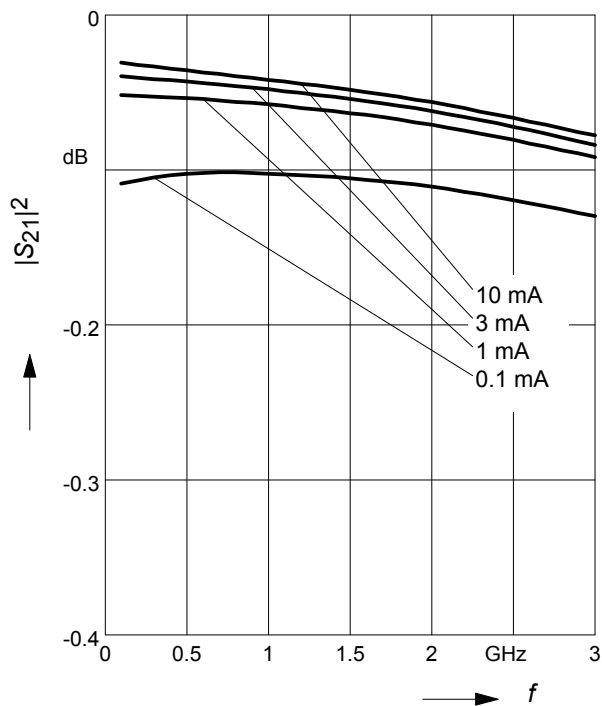
$T_A$  = Parameter



**Insertion loss**  $I_L = -|S_{21}|^2 = f(f)$

$I_F$  = Parameter

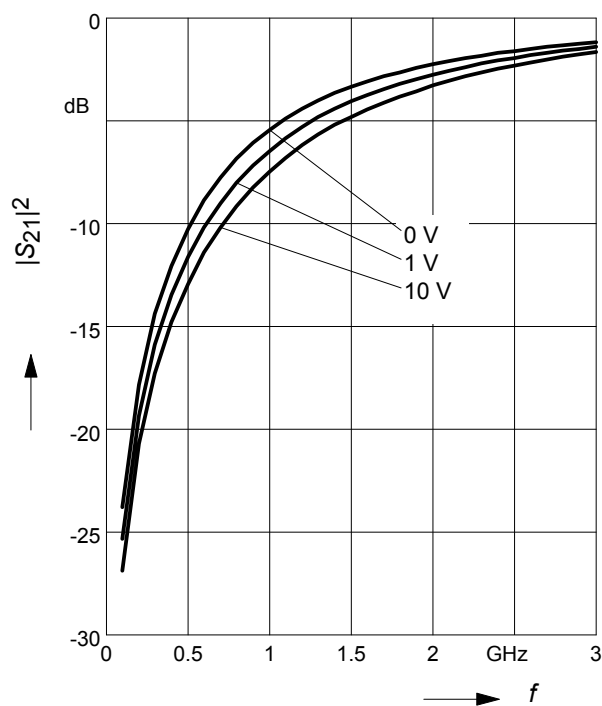
BA892-02L in series configuration,  $Z = 50\Omega$



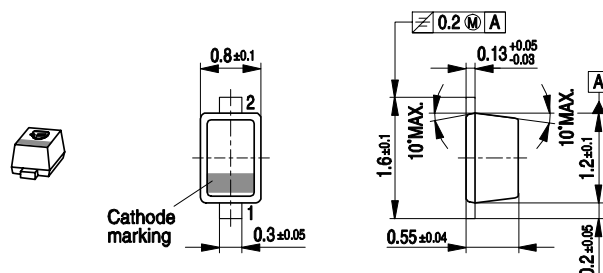
**Isolation**  $I_{SO} = -|S_{21}|^2 = f(f)$

$V_R$  = Parameter

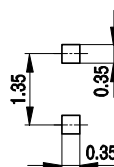
BA892-02L in series configuration,  $Z = 50\Omega$



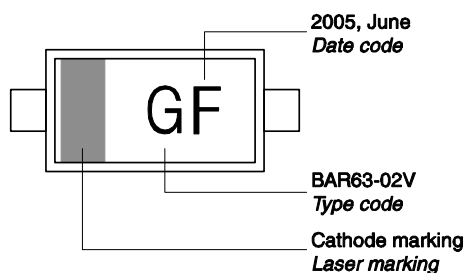
## Package Outline



## Foot Print

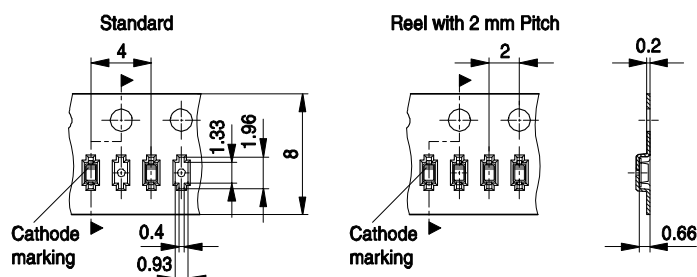


## Marking Layout (Example)

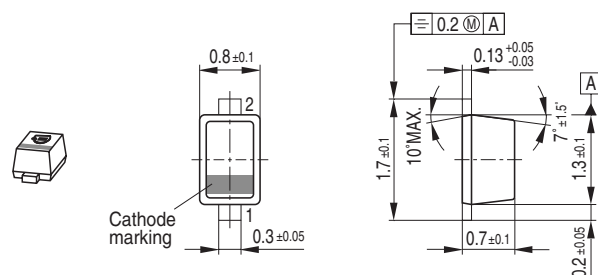


## Standard Packing

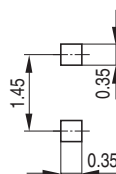
Reel ø180 mm = 3.000 Pieces/Reel  
 Reel ø180 mm = 8.000 Pieces/Reel (2 mm Pitch)  
 Reel ø330 mm = 10.000 Pieces/Reel



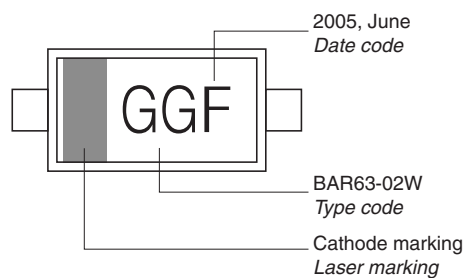
## Package Outline



## Foot Print

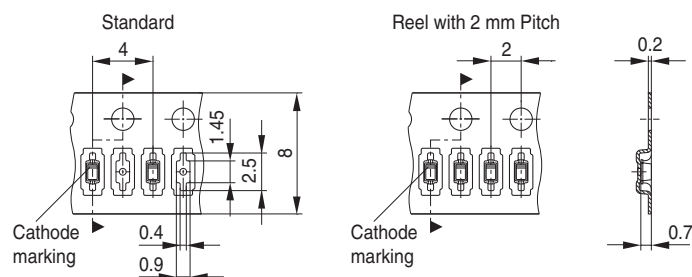


## Marking Layout (Example)



## 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

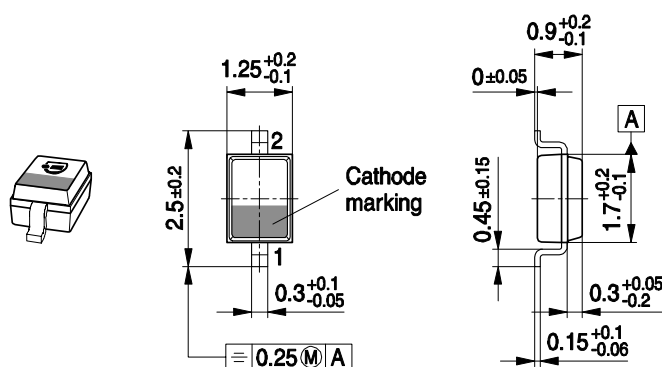


Date Code marking for discrete packages with one digit (SCD80, SC79, SC75<sup>1)</sup>) CES-Code

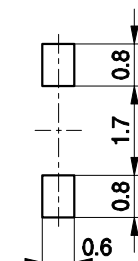
| Month | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|-------|------|------|------|------|------|------|------|------|------|------|------|------|
| 01    | a    | p    | A    | P    | a    | p    | A    | P    | a    | p    | A    | P    |
| 02    | b    | q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

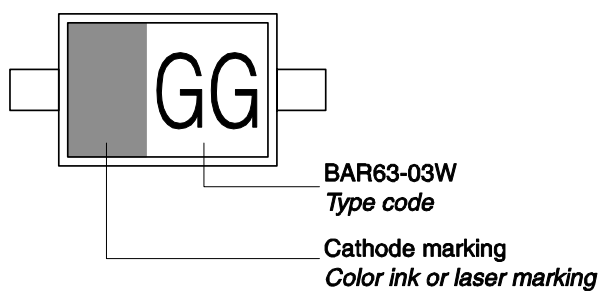
## Package Outline



## Foot Print

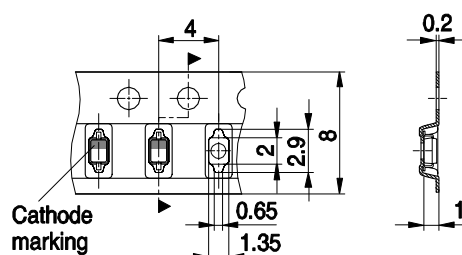


## Marking Layout (Example)

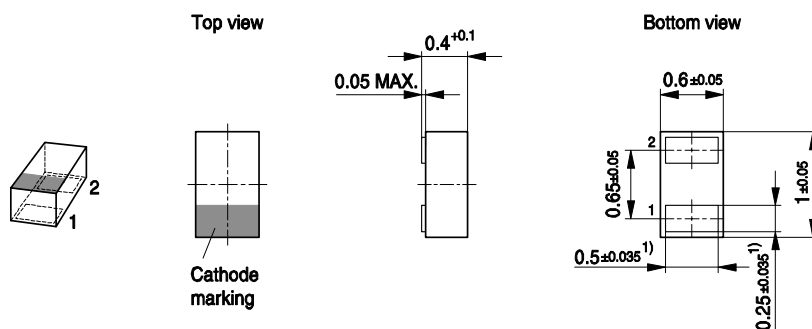


## Standard Packing

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



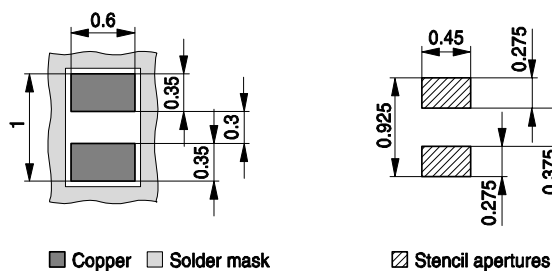
## Package Outline



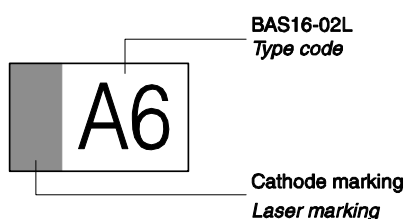
1) Dimension applies to plated terminal

## Foot Print

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



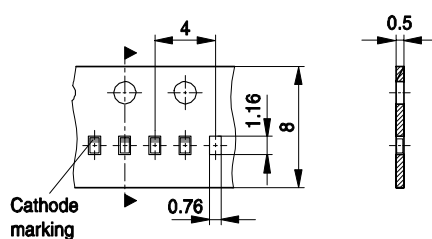
## Marking Layout (Example)



## Standard Packing

Reel ø180 mm = 15.000 Pieces/Reel

Reel ø330 mm = 50.000 Pieces/Reel (optional)



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