

Silicon RF Switching Diode

- For band switching in TV/VTR tuners and mobile applications
- Very low forward resistance (typ. 0.45 Ω @ 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 | °C |
| Operating temperature range | T_{op} | -55 ... 125 | |
| Storage temperature | T_{Stg} | -55 ... 150 | |

Thermal Resistance

| Parameter | Symbol | Value | Unit |
|------------------------------------------|------------|------------|------|
| Junction - soldering point ¹⁾ | R_{thJS} | | K/W |
| BA592 | | ≤ 135 | |
| BA892, BA892-02V | | ≤ 120 | |
| BA892-02L | | ≤ 70 | |

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

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

DC Characteristics

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

¹⁾For calculation of R_{thJA} please refer to Application Note Thermal Resistance

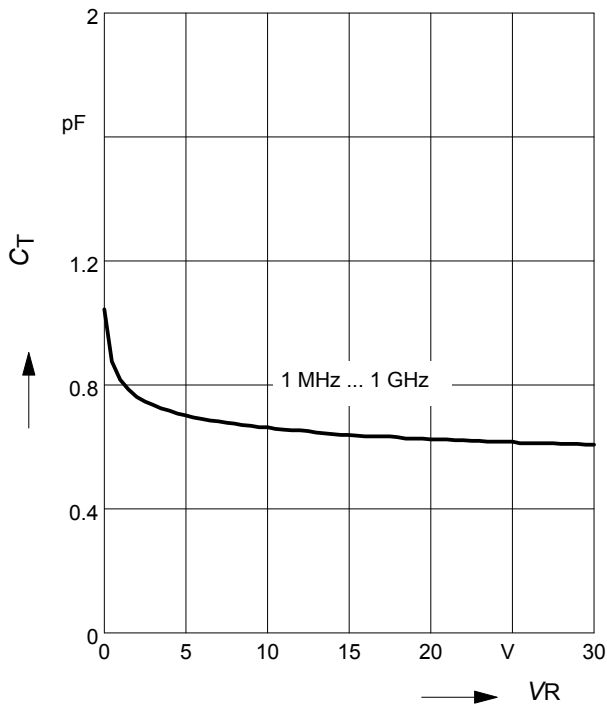
Electrical Characteristics at $T_A = 25^\circ\text{C}$, unless otherwise specified

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

¹BA892-02L in series configuration, $Z = 50\ \Omega$

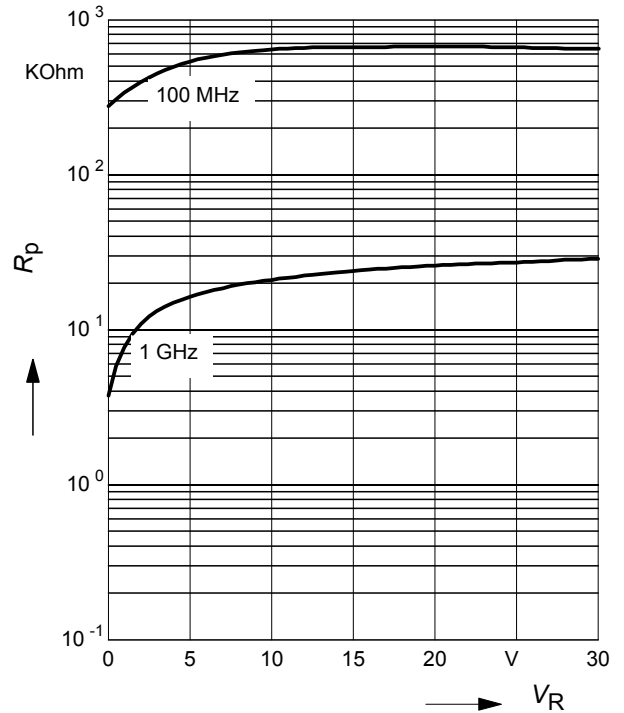
Diode capacitance $C_T = f(V_R)$

$f = \text{Parameter}$



Reverse parallel resistance $R_P = f(V_R)$

$f = \text{Parameter}$



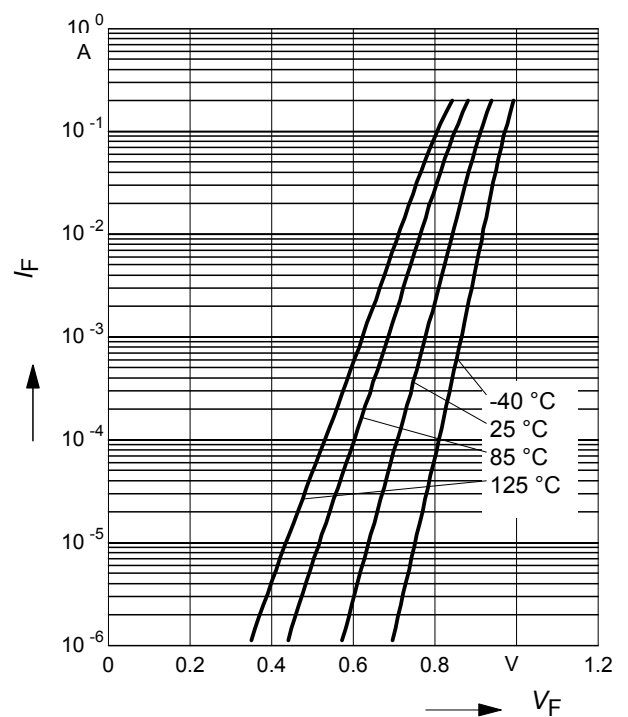
Forward resistance $r_f = f(I_F)$

$f = 100\text{MHz}$



Forward current $I_F = f(V_F)$

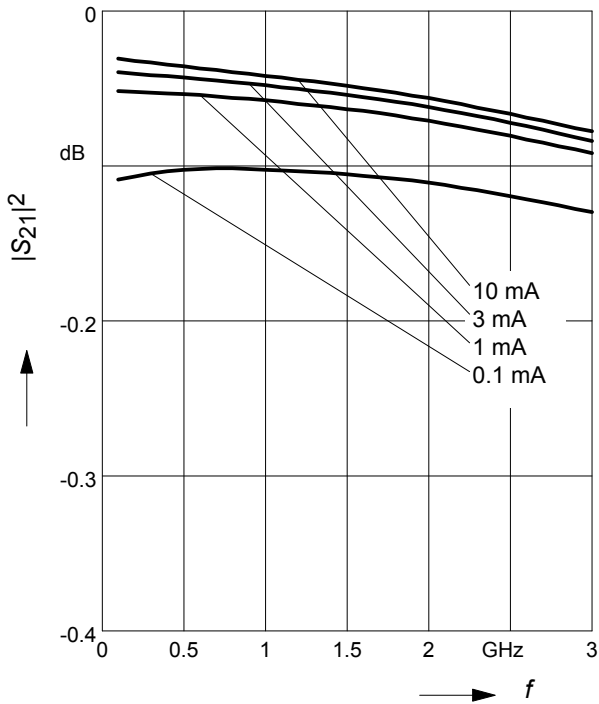
$T_A = \text{Parameter}$



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

I_F = Parameter

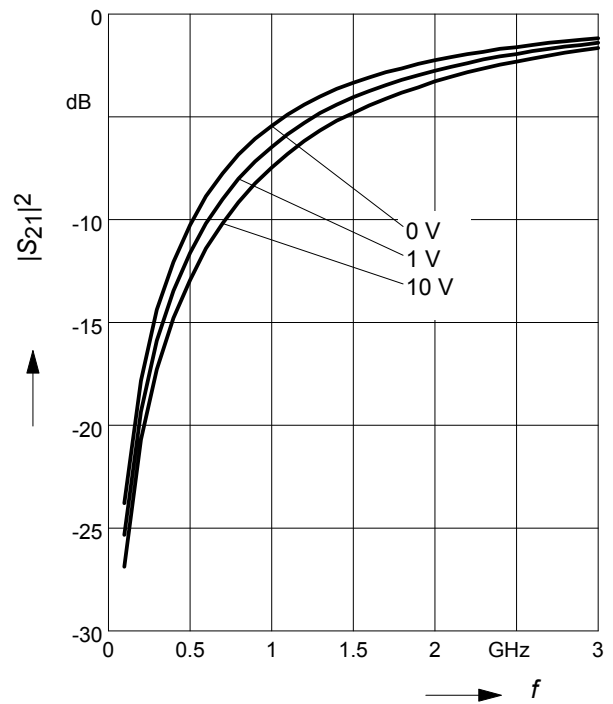
BA892-02L in series configuration, $Z = 50\Omega$



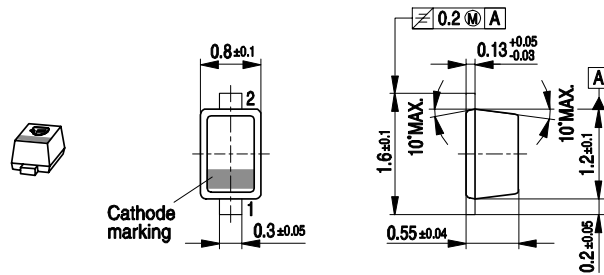
Isolation $I_{SO} = -|S_{21}|^2 = f(f)$

V_R = Parameter

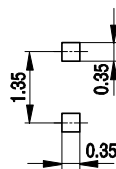
BA892-02L in series configuration, $Z = 50\Omega$



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

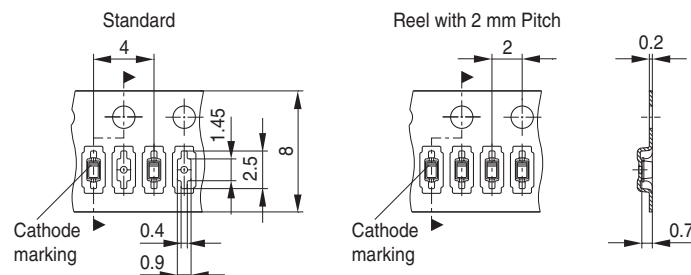


Marking Layout (Example)



Standard Packing

Reel \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



Date Code marking for discrete packages with one digit (SCD80, SC79, SC75¹⁾) CES-Code

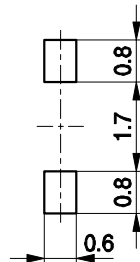
| Month | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|-------|------|------|------|------|------|------|------|------|------|------|------|------|
| 01 | a | p | A | P | a | p | A | P | a | p | A | P |
| 02 | b | q | B | Q | b | q | B | Q | b | q | B | Q |
| 03 | 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.

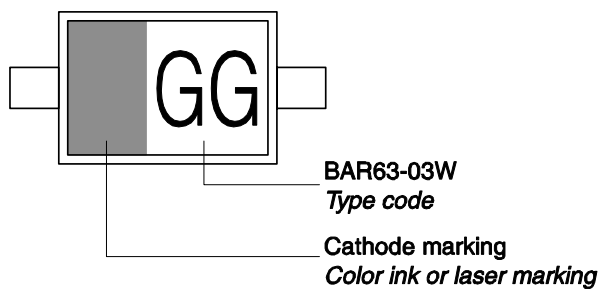
Package Outline



Foot Print

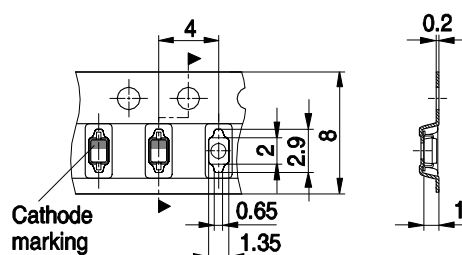


Marking Layout (Example)



Standard Packing

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



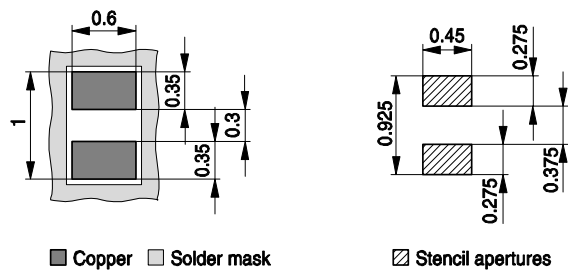
Package Outline



1) Dimension applies to plated terminal

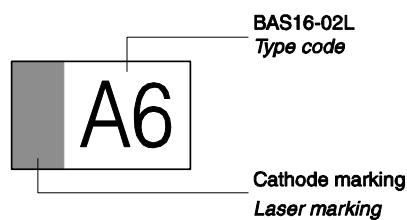
Foot Print

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



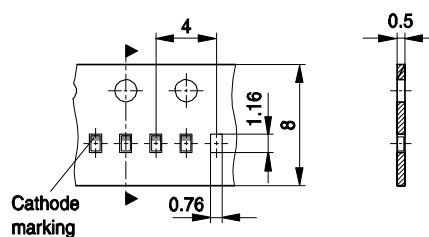
■ Copper □ Solder mask ▨ Stencil apertures

Marking Layout (Example)



Standard Packing

Reel \varnothing 180 mm = 15.000 Pieces/Reel
 Reel \varnothing 330 mm = 50.000 Pieces/Reel (optional)



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