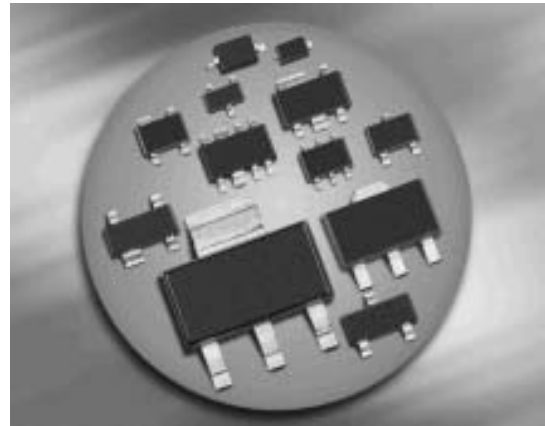
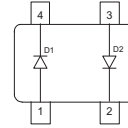
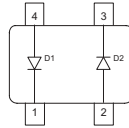
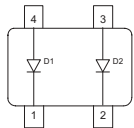
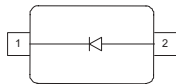


Silicon PIN Diode

- Optimized for low current antenna switches in hand held applications
- Very low forward resistance (typ. 1.5Ω @ $I_F = 1 \text{ mA}$)
- Low capacitance at zero volt reverse bias at frequencies above 1 GHz (typ. 0.28 pF)
- Very low signal distortion
- Pb-free (RoHS compliant) package ¹⁾
- Qualified according AEC Q101


BAR88-02LRH
BAR88-02V
BAR88-07LRH
BAR88-099LRH
BAR88-098LRH


| Type | Package | Configuration | L_S (nH) | Marking |
|--------------|----------|-------------------------|------------|---------|
| BAR88-02LRH | TSLP-2-7 | single, leadless | 0.4 | U8 |
| BAR88-02V | SC79 | single | 0.6 | U |
| BAR88-07LRH | TSLP-4-7 | parallel pair, leadless | 0.4 | T8 |
| BAR88-098LRH | TSLP-4-7 | anti-parallel, leadless | 0.4 | 98 |
| BAR88-099LRH | TSLP-4-7 | anti parallel, leadless | 0.4 | S8 |

¹Pb-containing package may be available upon special request

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

| Parameter | Symbol | Value | Unit |
|--|------------------|-------------------|------|
| Diode reverse voltage | V_R | 80 | V |
| Forward current | I_F | 100 | mA |
| Total power dissipation BAR88-02LRH, -07LRH $T_S \leq 133^\circ\text{C}$ BAR88-02V, $T_S \leq 123^\circ\text{C}$ BAR88-098LRH, -099LRH $T_S \leq 133^\circ\text{C}$ | P_{tot} | 250 250 250 | mW |
| 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⁾ BAR88-02LRH, -07LRH BAR88-02V BAR88-098LRH, -099LRH | R_{thJS} | ≤ 65 ≤ 105 ≤ 65 | K/W |

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

| Parameter | Symbol | Values | | | Unit |
|---|-------------------|--------|--------------|------------|------|
| | | min. | typ. | max. | |
| Breakdown voltage $I_{(\text{BR})} = 5 \mu\text{A}$ | $V_{(\text{BR})}$ | 80 | - | - | V |
| Reverse current $V_R = 60 \text{ V}$ | I_R | - | - | 50 | nA |
| Forward voltage $I_F = 1 \text{ mA}$ $I_F = 100 \text{ mA}$ | V_F | - - | 0.75 0.95 | 0.9 1.2 | V |

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

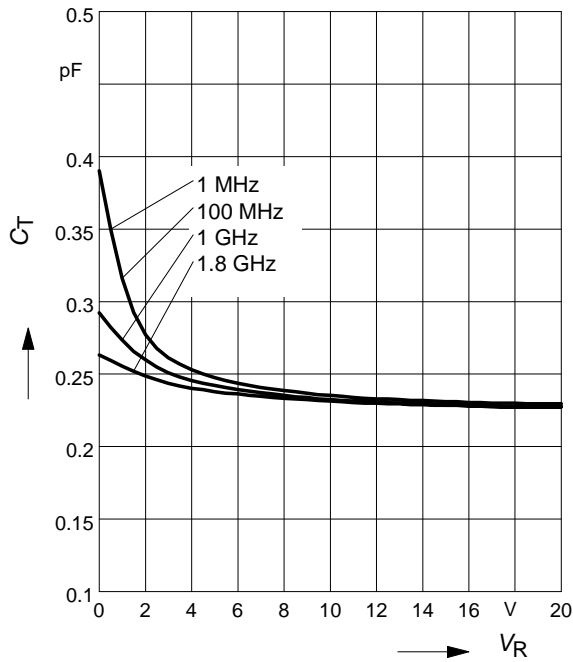
Electrical Characteristics at $T_A = 25^\circ\text{C}$, unless otherwise specified

| Parameter | Symbol | Values | | | Unit |
|---|-------------|--------|------|------|---------------|
| | | min. | typ. | max. | |
| AC Characteristics | | | | | |
| Diode capacitance $V_R = 1\text{ V}, f = 1\text{ MHz}$ $V_R = 0\text{ V}, f = 100\text{ MHz}$ $V_R = 0\text{ V}, f = 1\text{ GHz}$ $V_R = 0\text{ V}, f = 1.8\text{ GHz}$ | C_T | - | 0.3 | 0.4 | pF |
| Reverse parallel resistance $V_R = 0\text{ V}, f = 100\text{ MHz}$ $V_R = 0\text{ V}, f = 1\text{ GHz}$ $V_R = 0\text{ V}, f = 1.8\text{ GHz}$ | R_P | - | 65 | - | k Ω |
| Forward resistance $I_F = 1\text{ mA}, f = 100\text{ MHz}$ $I_F = 5\text{ mA}, f = 100\text{ MHz}$ $I_F = 10\text{ mA}, f = 100\text{ MHz}$ | r_f | - | 1.5 | 2.5 | 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} | - | 500 | - | ns |
| I-region width | W_I | - | 13 | - | μm |
| Insertion loss ¹⁾ $I_F = 1\text{ mA}, f = 1.8\text{ GHz}$ $I_F = 5\text{ mA}, f = 1.8\text{ GHz}$ $I_F = 10\text{ mA}, f = 1.8\text{ GHz}$ | I_L | - | 0.11 | - | dB |
| Isolation ¹⁾ $V_R = 0\text{ V}, f = 0.9\text{ GHz}$ $V_R = 0\text{ V}, f = 1.8\text{ GHz}$ $V_R = 0\text{ V}, f = 2.45\text{ GHz}$ | I_{SO} | - | 15 | - | |
| | | - | 11 | - | |
| | | - | 9 | - | |

¹BAR88-02LRH in series configuration, $Z = 50\ \Omega$

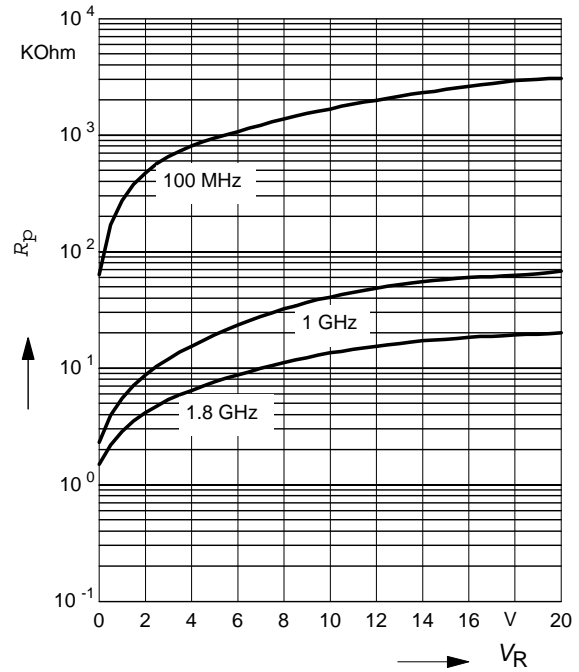
Diode capacitance $C_T = f(V_R)$

$f =$ Parameter



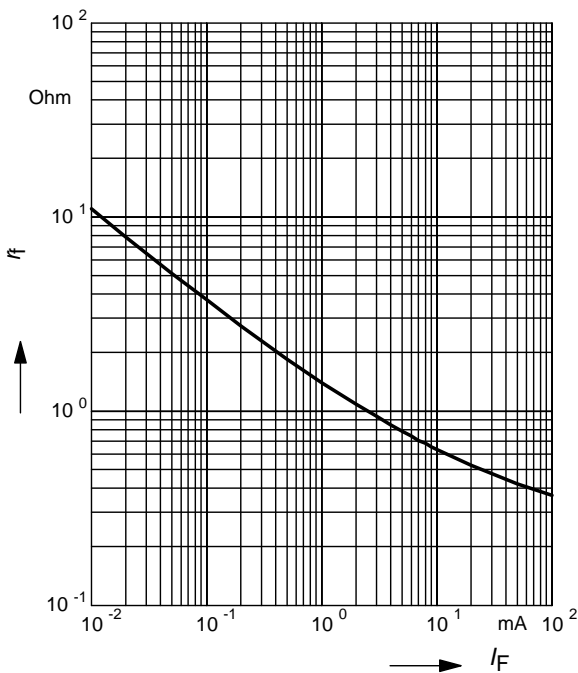
Reverse parallel resistance $R_p = f(V_R)$

$f =$ Parameter



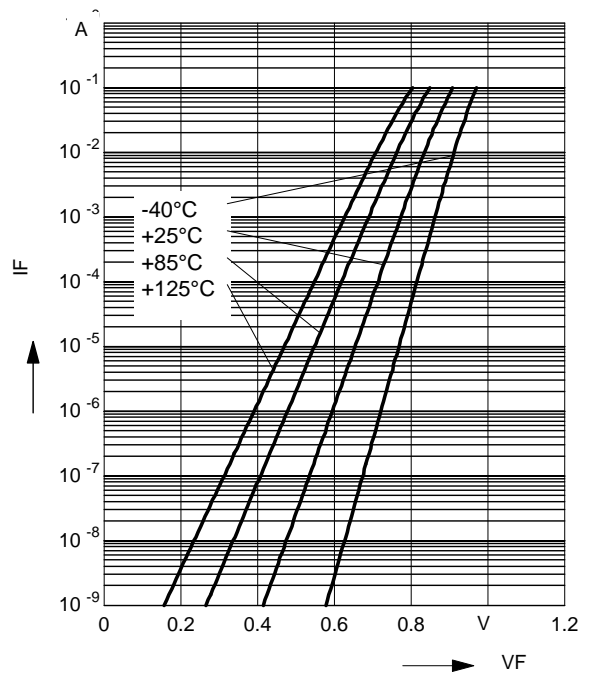
Forward resistance $r_f = f(I_F)$

$f = 100\text{MHz}$



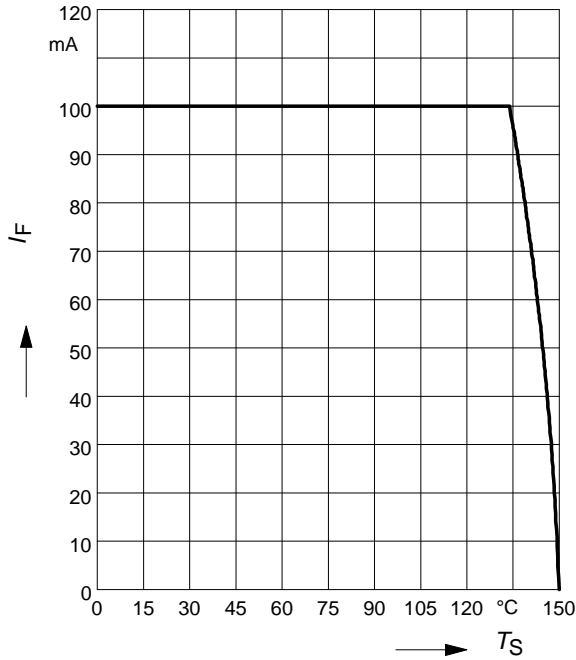
Forward current $I_F = f(V_F)$

$T_A =$ Parameter



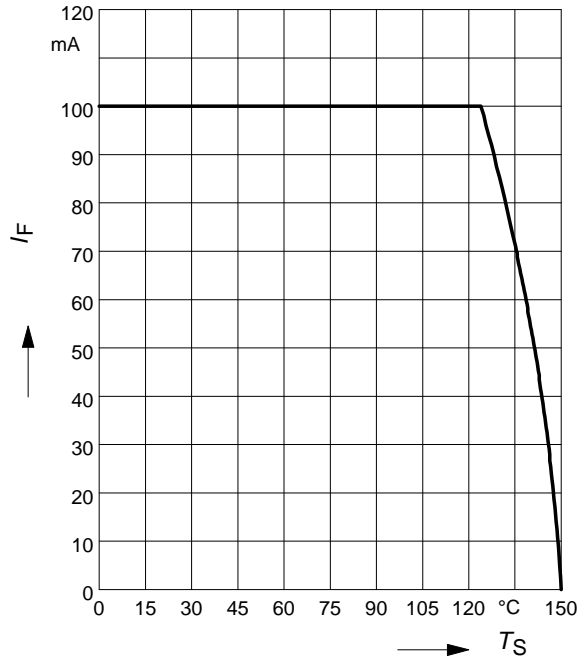
Forward current $I_F = f(T_S)$

BAR88-02LRH, -07LRH,
-098LRH, -099LRH



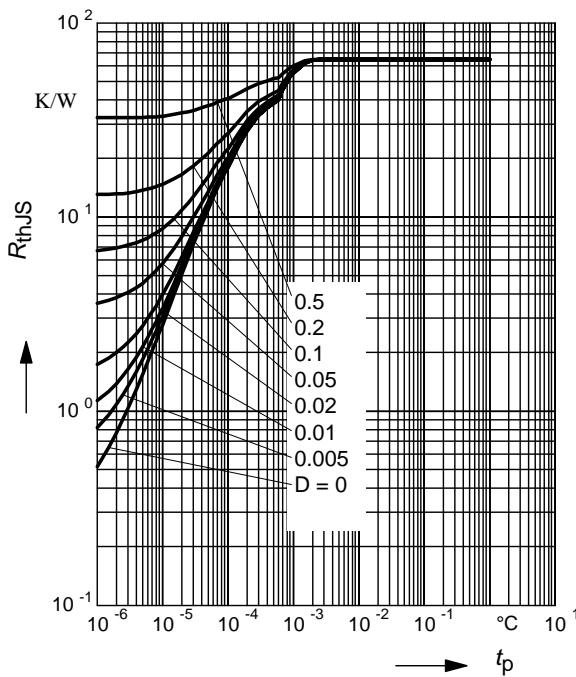
Forward current $I_F = f(T_S)$

BAR88-02V



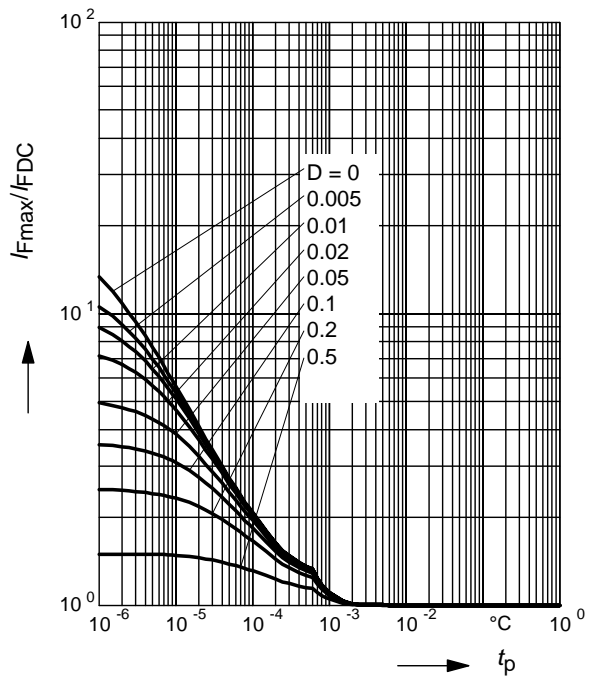
Permissible Puls Load $R_{thJS} = f(t_p)$

BAR88-02LRH, -07LRH
-098LRH, -099LRH



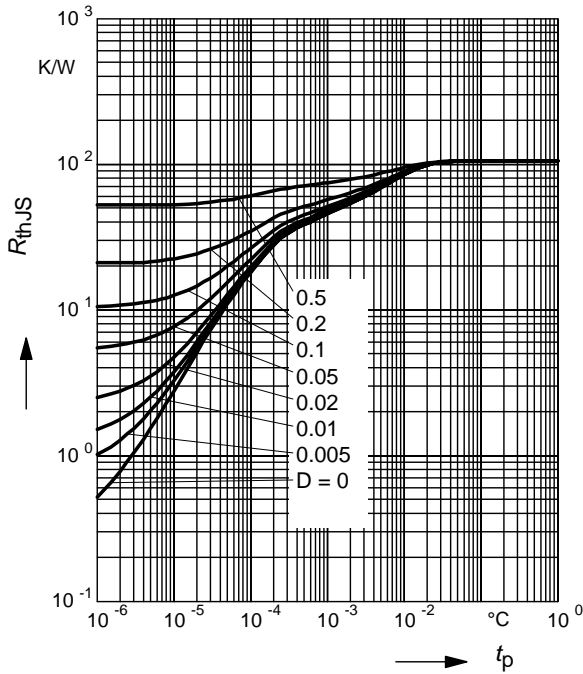
Permissible Pulse Load

$I_{Fmax}/I_{FDC} = f(t_p)$, BAR88-02LRH
-07LRH, -098LRH, -099LRH



Permissible Puls Load $R_{thJS} = f(t_p)$

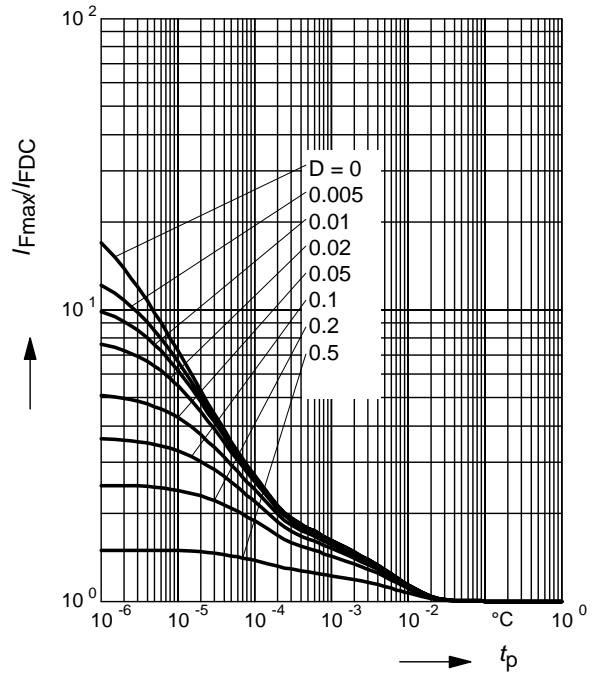
BAR88-02V



Permissible Pulse Load

$I_{Fmax} / I_{FDC} = f(t_p)$

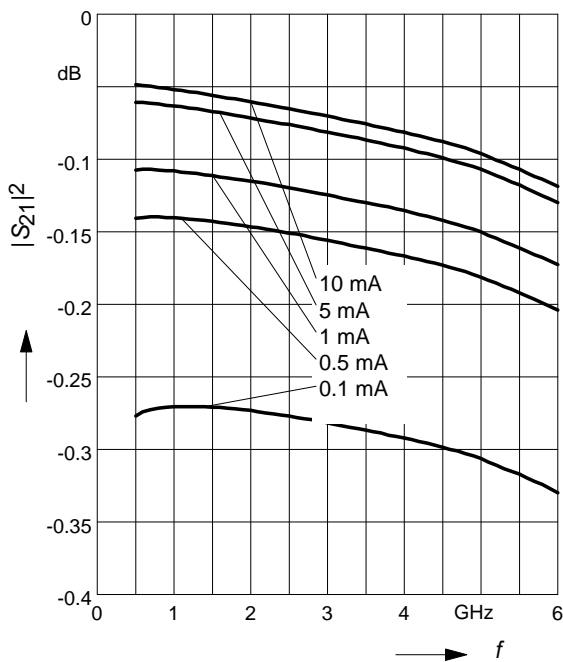
BAR88-02V



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

I_F = Parameter

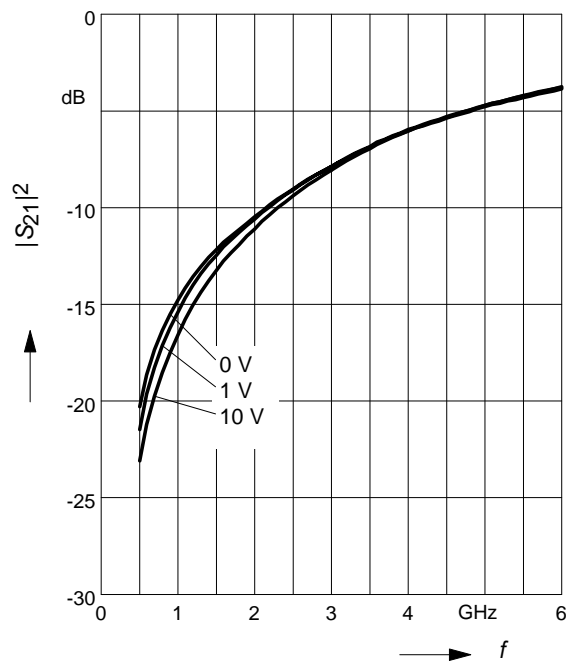
BAR88-02LRH in series configuration, $Z = 50\Omega$



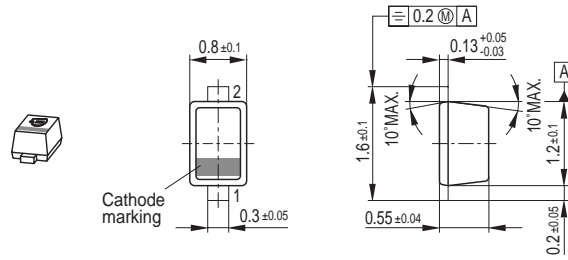
Isolation $I_{SO} = -|S_{21}|^2 = f(f)$

V_R = Parameter

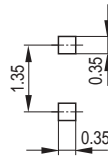
BAR88-02LRH in series configuration, $Z = 50\Omega$



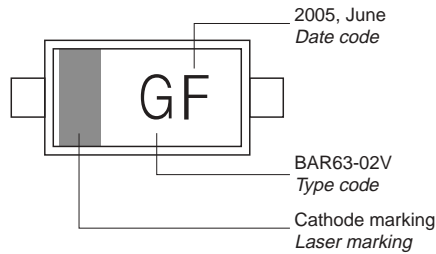
Package Outline



Foot Print

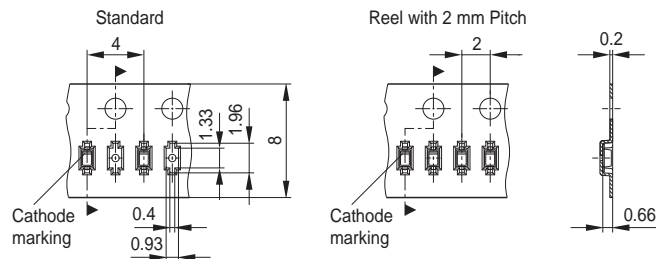


Marking Layout (Example)



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

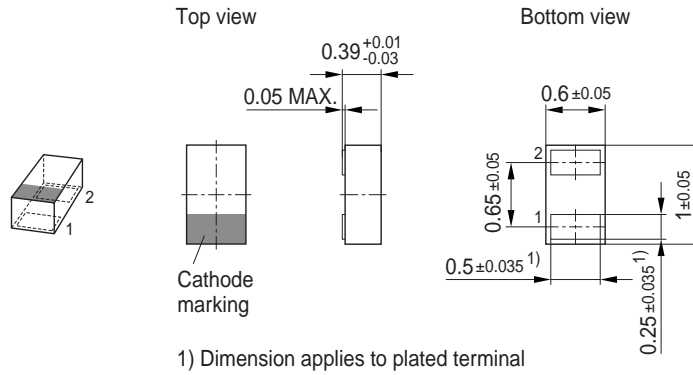


Date Code marking for discrete packages with one digit (SCD80, SC79, SC75¹⁾) CES-Code

| 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 |

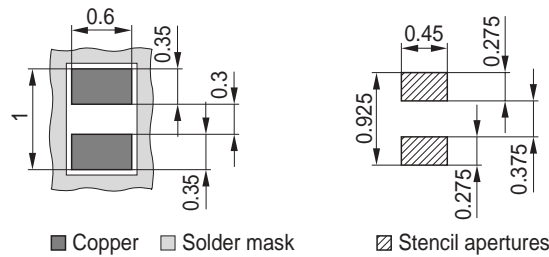
1) New Marking Layout for SC75, implemented at October 2005.

Package Outline

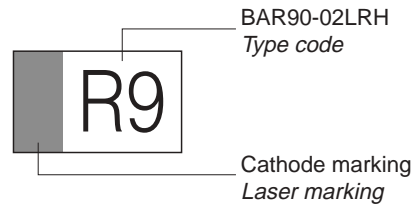


Foot Print

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

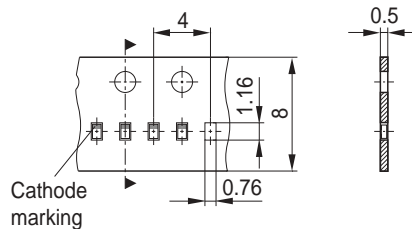


Marking Layout (Example)

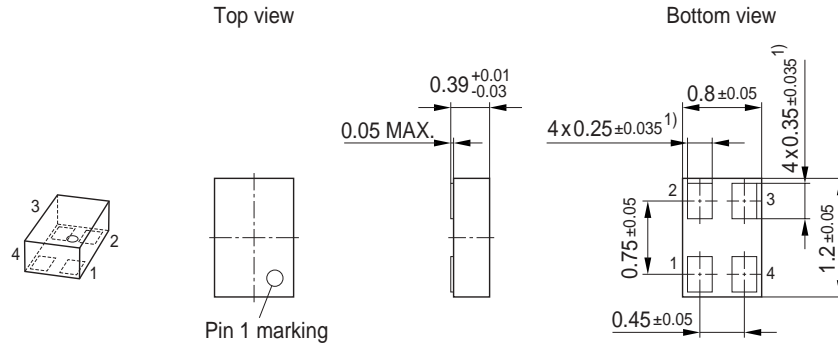


Standard Packing

Reel ø180 mm = 15.000 Pieces/Reel
Reel ø330 mm = 50.000 Pieces/Reel (optional)



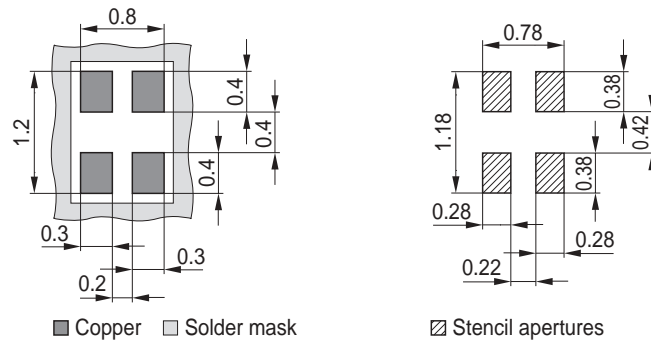
Package Outline



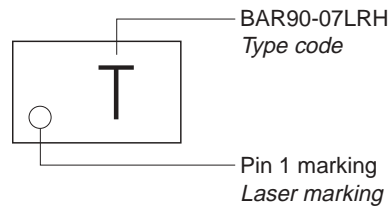
1) Dimension applies to plated terminal

Foot Print

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

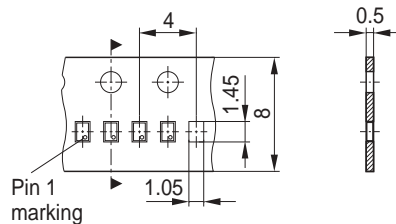


Marking Layout (Example)



Standard Packing

Reel ø180 mm = 15.000 Pieces/Reel



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