Thermal Resistance

Parameter	Symbol	Value	Unit
Junction - soldering point[1]	R_{thJS}		K/W
BAR90-02LS		≤ 90	
All others		≤ 65	

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

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC Characteristics					
Breakdown voltage $I_{(BR)}$ = 5 µA	$V_{(BR)}$	80	-	-	V
Reverse current V_R = 60 V	I_R	-	-	50	nA
Forward voltage	V_F				V
I_F = 3 mA		0.75	0.81	0.87	
I_F = 100 mA		-	0.9	1	

[1]For calculation of R_{thJA} please refer to Application Note AN077 (Thermal Resistance Calculation)

2   2012-10-09

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		-	0.25	0.35	
V_R = 0 V, f = 100 MHz		-	0.3	-	
V_R = 0 V, f = 1 GHz		-	0.19	-	
V_R = 0 V, f = 1.8 GHz		-	0.18	-	
Reverse parallel resistance	R_P				kΩ
V_R = 0 V, f = 100 MHz		-	35	-	
V_R = 0 V, f = 1 GHz		-	5	-	
V_R = 0 V, f = 1.8 GHz		-	4	-	
Forward resistance	r_f				Ω
I_F = 1 mA, f = 100 MHz		-	2	-	
I_F = 3 mA, f = 100 MHz		-	1.3	2.3	
I_F = 10 mA, f = 100 MHz		-	0.8	-	
Charge carrier life time	τ_{rr}	-	750	-	ns
I_F = 10 mA, I_R = 6 mA, measured at I_R = 3 mA, R_L = 100 Ω					
I-region width	W_I	-	20	-	µm
Insertion loss[1]	I_L				dB
I_F = 1 mA, f = 1.8 GHz		-	0.16	-	
I_F = 3 mA, f = 1.8 GHz		-	0.11	-	
I_F = 10 mA, f = 1.8 GHz		-	0.08	-	
Isolation[1]	I_{SO}				
V_R = 0 V, f = 0.9 GHz		-	18.5	-	
V_R = 0 V, f = 1.8 GHz		-	13.5	-	
V_R = 0 V, f = 2.45 GHz		-	11.5	-	

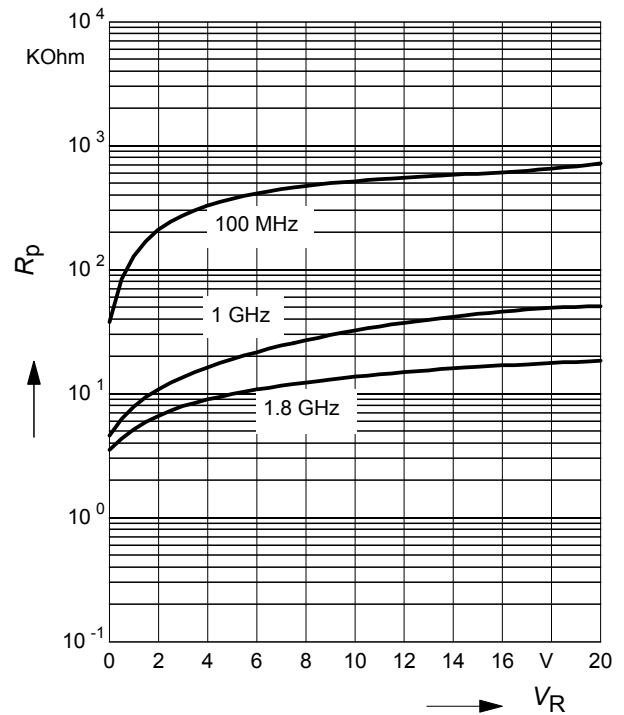[1]BAR90-02LRH in series configuration, Z = 50 Ω

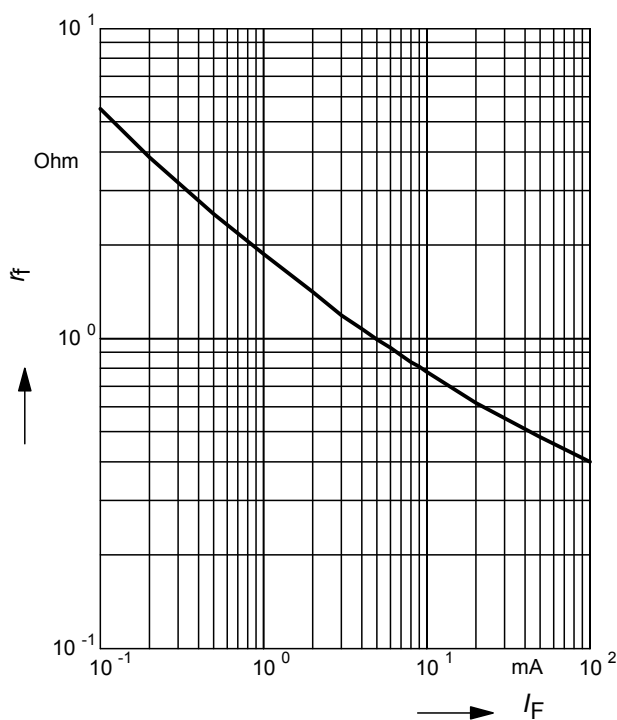**Diode capacitance** $C_T = f(V_R)$

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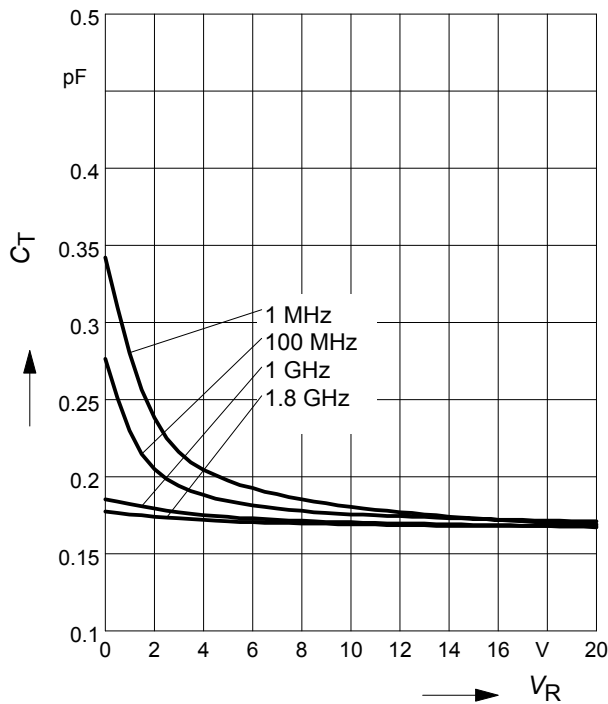
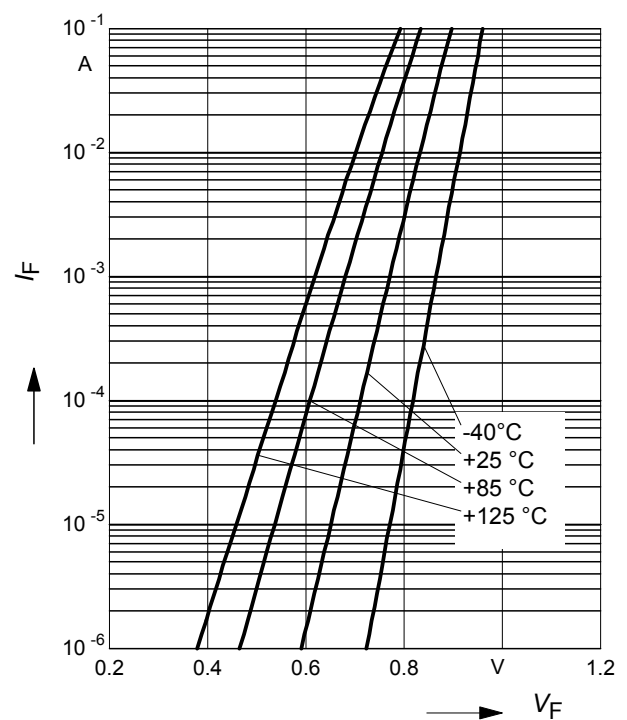**Reverse parallel resistance** $R_P = f(V_R)$

f = Parameter

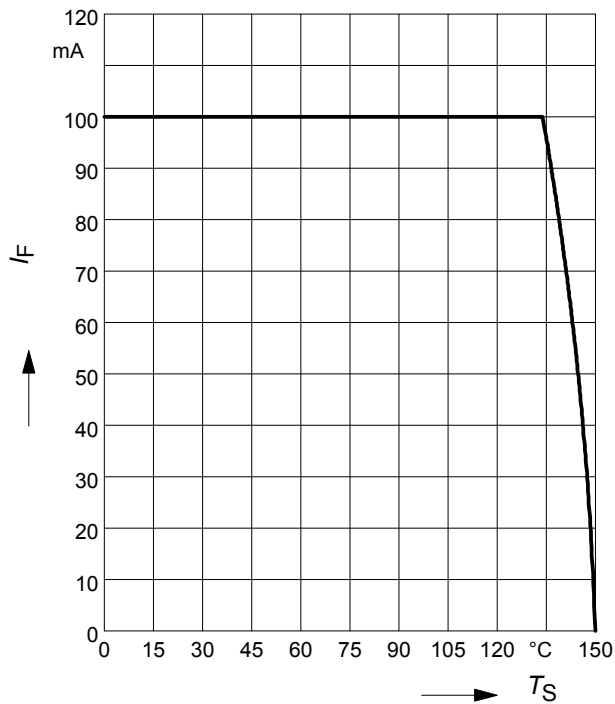**Forward resistance** $r_f = f(I_F)$

f = 100 MHz

Forward current $I_F = f(V_F)$

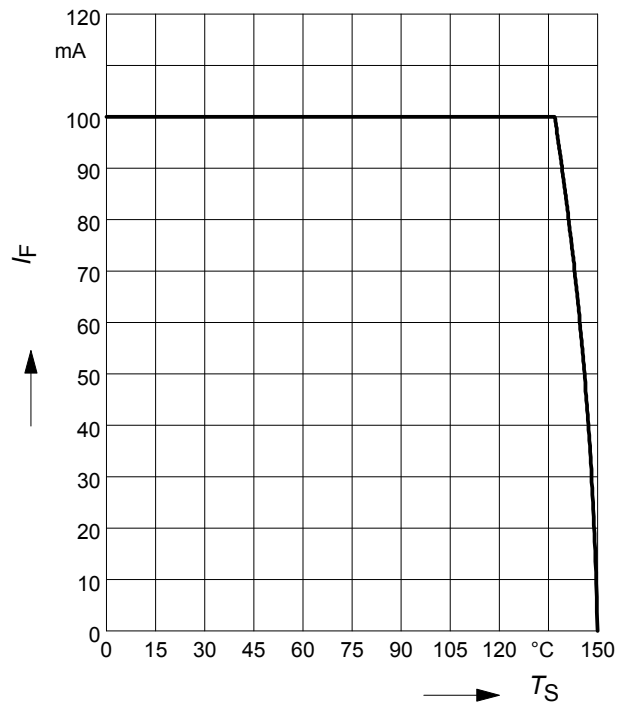T_A = Parameter

4

2012-10-09
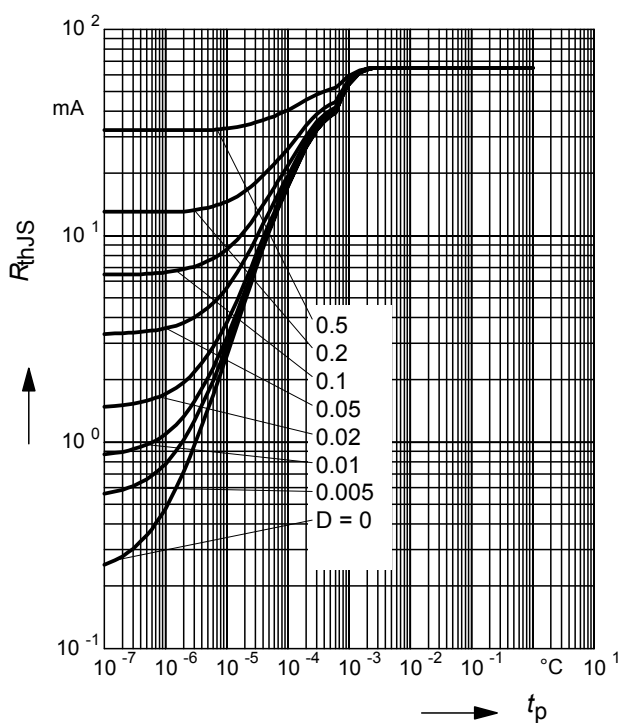
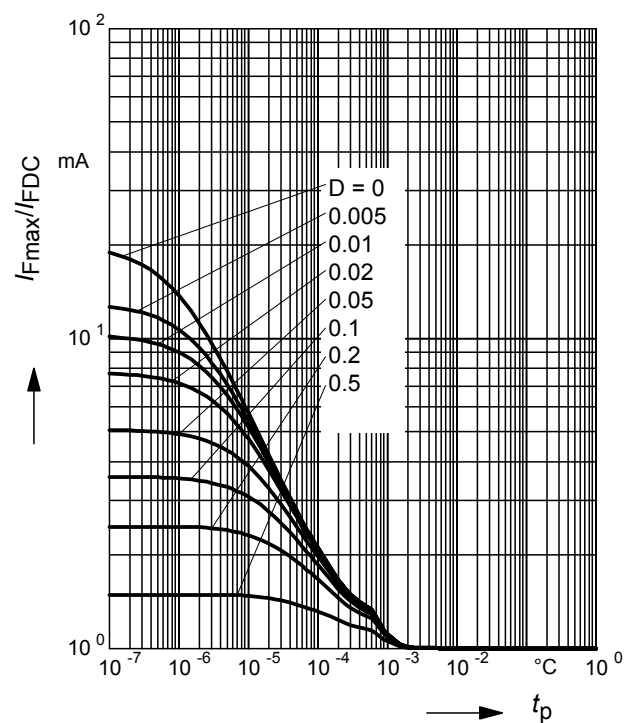**Forward current** $I_F = f(T_S)$

BAR90-02LRH / -098LRH
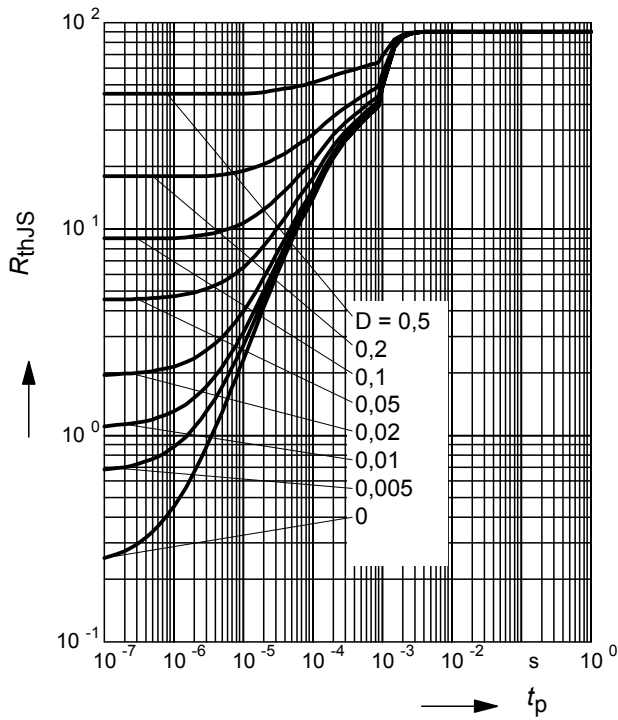

Forward current $I_F = f(T_S)$

BAR90-02LS

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

BAR90-02LRH / -098LRH

Permissible Pulse Load

$I_{Fmax}/I_{FDC} = f(t_p)$ BAR90-02LRH /-098LRH

2012-10-09

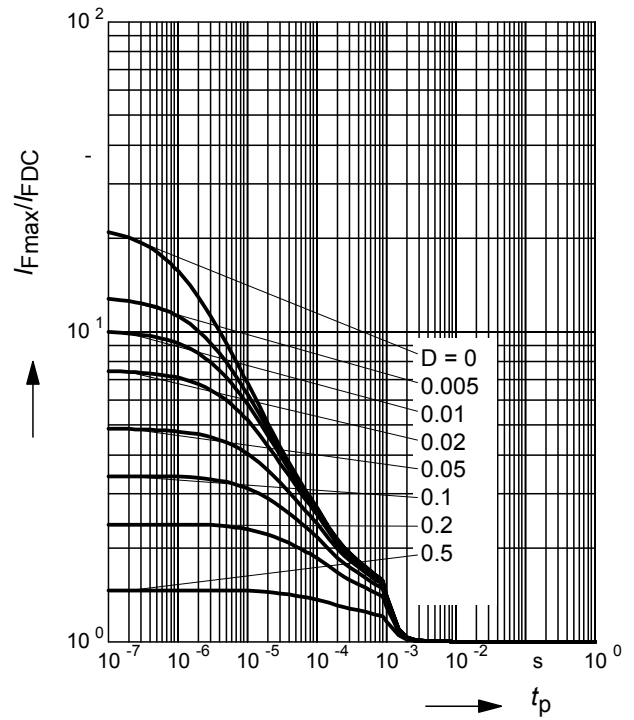**Permissible Puls Load** $R_{thJS} = f(t_p)$

BAR90-02LS

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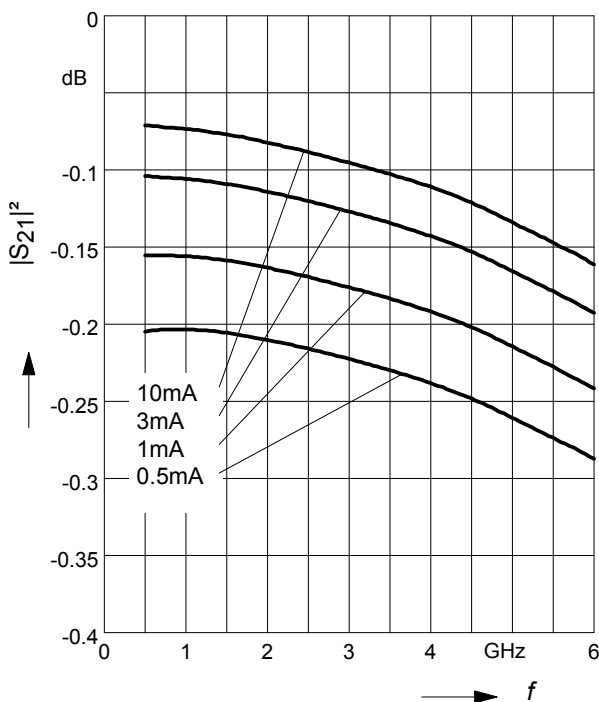
$I_{Fmax}/ I_{FDC} = f(t_p)$

BAR90-02LS

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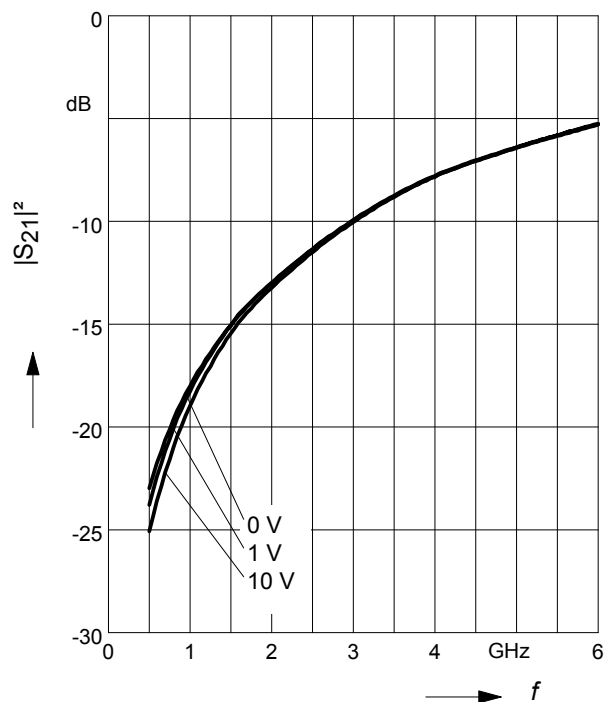
I_F = Parameter

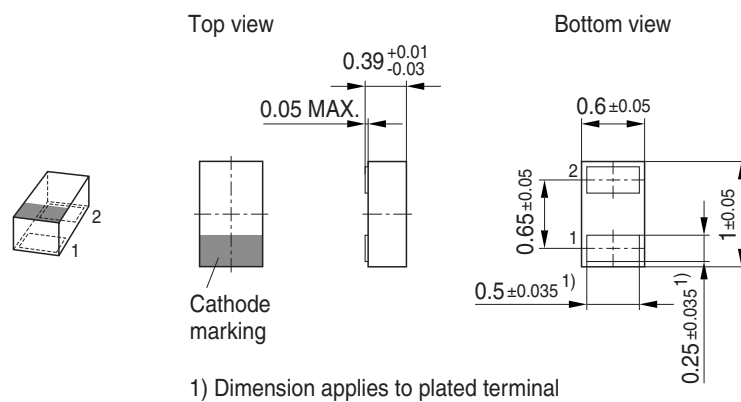BAR90-02LRH in series configuration, $Z = 50\Omega$

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

V_R = Parameter

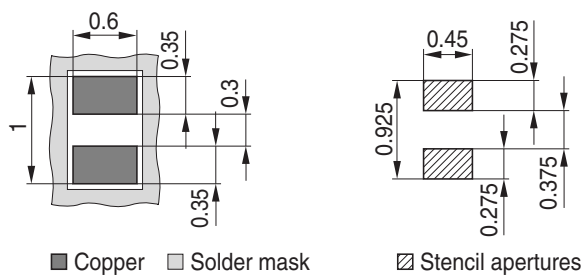BAR90-02LRH in series configuration, $Z = 50\Omega$
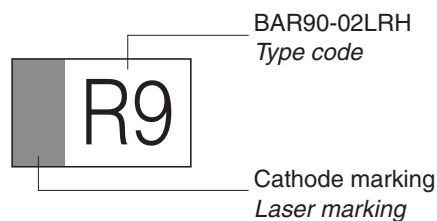

6   2012-10-09

Package Outline

Top view

Bottom view

$0.39^{+0.01}_{-0.03}$

0.05 MAX.

0.6 ± 0.05

0.65 ± 0.05

1 ± 0.05

0.5 ± 0.035 1)

0.25 ± 0.035 1)

2

1

Cathode
marking

1) Dimension applies to plated terminal

Foot Print

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

0.6

0.35

0.3

1

0.35

0.45

0.275

0.925

0.275

0.375

■ Copper   ☐ Solder mask   ▨ Stencil apertures

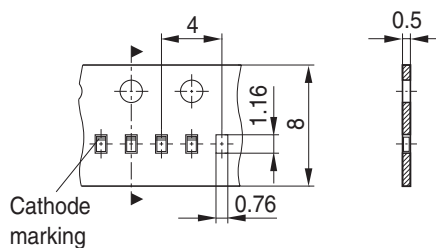## Marking Layout (Example)

R9

BAR90-02LRH
Type code

Cathode marking
Laser marking

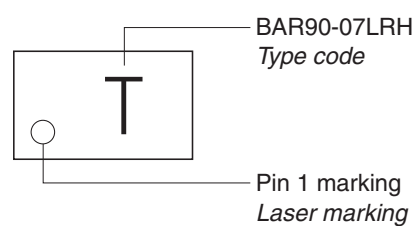## Standard Packing

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

4

0.5

1.16

8

0.76

Cathode
marking
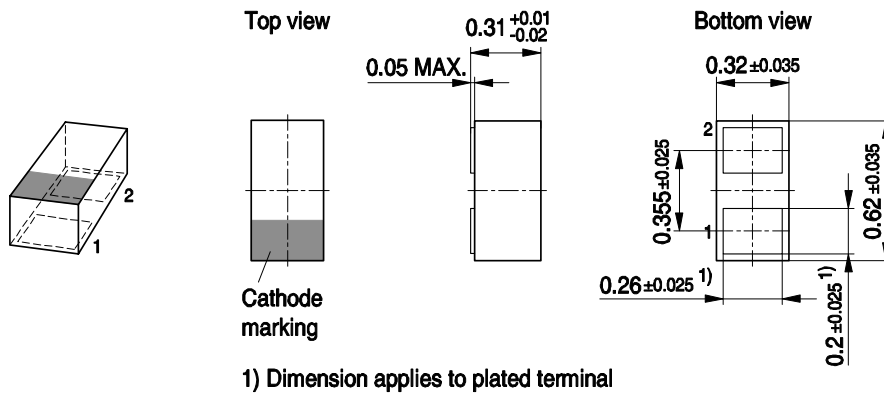
7   2012-10-09

Package Outline

Top view

Bottom view

$0.39^{+0.01}_{-0.03}$

0.05 MAX.

$4 \times 0.25 \pm 0.035$ 1)

0.8 ± 0.05

$4 \times 0.35 \pm 0.035$ 1)

0.75 ± 0.05

1.2 ± 0.05

0.45 ± 0.05

Pin 1 marking

1) Dimension applies to plated terminal

Foot Print

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

0.8

1.2

0.4

0.4

0.4

0.3

0.3

0.2

0.78

1.18

0.38

0.42

0.38

0.28

0.28

0.22

■ Copper   □ Solder mask

▨ Stencil apertures

Marking Layout (Example)

BAR90-07LRH
Type code

T

Pin 1 marking
Laser marking

Standard Packing

Reel ø180 mm = 15.000 Pieces/Reel

4

0.5

1.45

8

Pin 1 marking

1.05

Package Outline

Top view
Bottom view

0.31 +0.01 / -0.02

0.05 MAX.

0.32 ±0.035

0.355 ±0.025

0.62 ±0.035

Cathode marking

0.26 ±0.025 1)

0.2 ±0.025 1)

1) Dimension applies to plated terminal

Foot Print

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

0.32

0.24

0.14

0.62

0.24

0.27

0.19

0.57

0.19

0.19

0.19

■ Copper □ Solder mask ▨ Stencil apertures

Marking Layout (Example)

BAR95-02LS
Type code

C

Pin 1 marking
Laser marking

Standard Packing

Reel ø180 mm = 15.000 Pieces/Reel

4

0.35

0.73

8

Cathode marking

0.43

9

2012-10-09

Edition 2009-11-16

Published by
Infineon Technologies AG
81726 Munich, Germany

Legal Disclaimer

Information

For further information on technology, delivery terms and conditions and prices, please contact the nearest Infineon Technologies Office (<www.infineon.com>).

Warnings

Due to technical requirements, components may contain dangerous substances. For information on the types in question, please contact the nearest Infineon Technologies Office.
Infineon Technologies components may be used in life-support devices or systems only with the express written approval of Infineon Technologies, if a failure of such components can reasonably be expected to cause the failure of that life-support device or system or to affect the safety or effectiveness of that device or system. Life support devices or systems are intended to be implanted in the human body or to support and/or maintain and sustain and/or protect human life. If they fail, it is reasonable to assume that the health of the user or other persons may be endangered.

2012-10-09