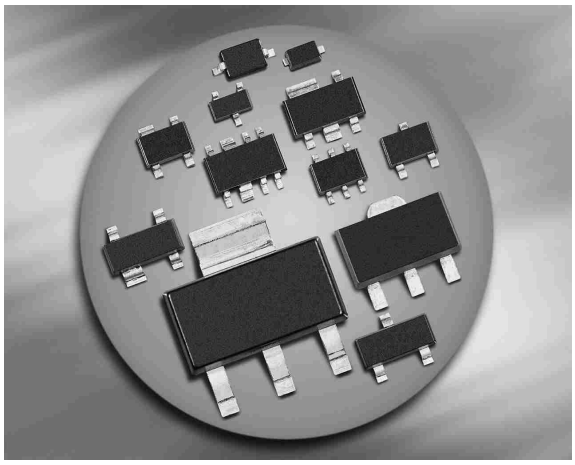
**Silicon PIN Diode**

- High voltage current controlled RF resistor for RF attenuator and switches
- Frequency range above 1 MHz up to 6 GHz
- Very low capacitance at zero volt reverse bias at frequencies above 1 GHz (typ. 0.17 pF)
- Low forward resistance (typ. 2.1 Ω @ 10 mA)
- Very low signal distortion
- Pb-free (RoHS compliant) package
- Qualified according AEC Q101[1)]



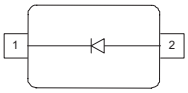
AEC Qualified RoHS

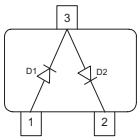
**BAR64-02EL**
**BAR64-02V**
**BAR64-03W**

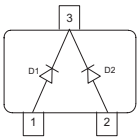
**BAR64-04**
**BAR64-04W**

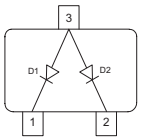
**BAR64-05**
**BAR64-05W**

**BAR64-06**
**BAR64-06W**




| Type | Package | Configuration | $L_S$(nH) | Marking |
|---|---|---|---|---|
| BAR64-02EL* | TSLP-2-19 | single, leadless | 0.4 | OE |
| BAR64-02V | SC79 | single | 0.6 | O |
| BAR64-03W | SOD323 | single | 1.8 | blue 2 |
| BAR64-04 | SOT23 | series | 1.8 | PPs |
| BAR64-04W | SOT323 | series | 1.4 | PPs |
| BAR64-05 | SOT23 | common cathode | 1.8 | PRs |
| BAR64-05W | SOT323 | common cathode | 1.4 | PRs |
| BAR64-06 | SOT23 | common anode | 1.8 | PSs |
| BAR64-06W | SOT323 | common anode | 1.4 | PSs |

[1]*BAR64-02EL is not qualified according AEC Q101

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

| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| Diode reverse voltage | $V_R$ | 150 | V |
| Forward current | $I_F$ | 100 | mA |
| Total power dissipation | $P_{tot}$ | | mW |
| BAR64-02EL, $T_S \leq 135$ °C | | 250 | |
| BAR64-02V, $T_S \leq 125$ °C | | 250 | |
| BAR64-03W, $T_S \leq 25$ °C | | 250 | |
| BAR64-04, -05, -06, $T_S \leq 65$ °C | | 250 | |
| BAR64-04W, -05W, -06W, $T_S \leq 115$ °C | | 250 | |
| 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 |
| BAR64-02EL | | ≤ 60 | |
| BAR64-02V, -04W, -05W, -06W | | ≤ 140 | |
| BAR64-03W | | ≤ 370 | |
| BAR64-04, -05, -06 | | ≤ 340 | |

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

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

| Parameter | Symbol | Values | | | Unit |
|---|---|---|---|---|---|
| | | min. | typ. | max. | |
| **DC Characteristics** | | | | | |
| Breakdown voltage<br>$I_{(BR)}$ = 5 µA | $V_{(BR)}$ | 150 | - | - | V |
| Forward voltage<br>$I_F$ = 50 mA | $V_F$ | - | - | 1.1 | |

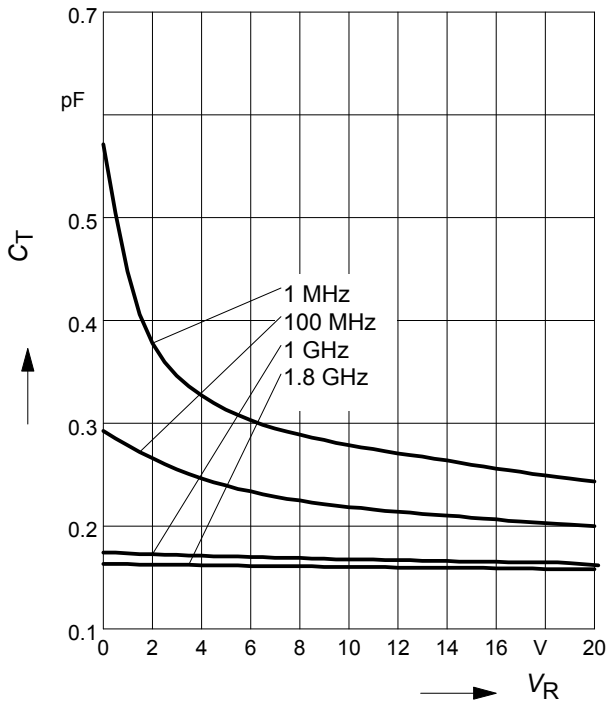
**Electrical Characteristics** at $T_A$ = 25°C, unless otherwise specified

| Parameter | Symbol | Values | | | Unit |
|---|---|---|---|---|---|
| | | min. | typ. | max. | |
| **AC Characteristics** | | | | | |
| Diode capacitance | $C_T$ | | | | pF |
| $V_R$ = 20 V, $f$ = 1 MHz | | - | 0.23 | 0.35 | |
| $V_R$ = 0 V, $f$ = 100 MHz | | - | 0.3 | - | |
| $V_R$ = 0 V, $f$ = 1...1.8 GHz, BAR64-02EL | | - | 0.13 | - | |
| $V_R$ = 0 V, f = 1...1.8 GHz, all other | | - | 0.17 | - | |
| Reverse parallel resistance | $R_P$ | | | | kΩ |
| $V_R$ = 0 V, $f$ = 100 MHz | | - | 10 | - | |
| $V_R$ = 0 V, $f$ = 1 GHz | | - | 4 | - | |
| $V_R$ = 0 V, $f$ = 1.8 GHz | | - | 3 | - | |
| Forward resistance | $r_f$ | | | | Ω |
| $I_F$ = 1 mA, $f$ = 100 MHz | | - | 12.5 | 20 | |
| $I_F$ = 10 mA, $f$ = 100 MHz | | - | 2.1 | 2.8 | |
| $I_F$ = 100 mA, $f$ = 100 MHz | | - | 0.85 | 1.35 | |
| Charge carrier life time | $\tau_{rr}$ | - | 1550 | - | ns |
| $I_F$ = 10 mA, $I_R$ = 6 mA, measured at $I_R$ = 3 mA, $R_L$ = 100 Ω | | | | | |
| I-region width | $W_I$ | - | 50 | - | µm |
| Insertion loss[1)] | $I_L$ | | | | dB |
| $I_F$ = 3 mA, $f$ = 1.8 GHz | | - | 0.32 | - | |
| $I_F$ = 5 mA, $f$ = 1.8 GHz | | - | 0.23 | - | |
| $I_F$ = 10 mA, $f$ = 1.8 GHz | | - | 0.16 | - | |
| Isolation[1)] | $I_{SO}$ | | | | |
| $V_R$ = 0 V, $f$ = 0.9 GHz | | - | 22 | - | |
| $V_R$ = 0 V, $f$ = 1.8 GHz | | - | 17 | - | |
| $V_R$ = 0 V, $f$ = 2.45 GHz | | - | 14.5 | - | |
| $V_R$ = 0 V, $f$ = 5.6 GHz | | - | 8.5 | - | |

[1]BAR64-02EL in series configuration, $Z$ = 50 Ω

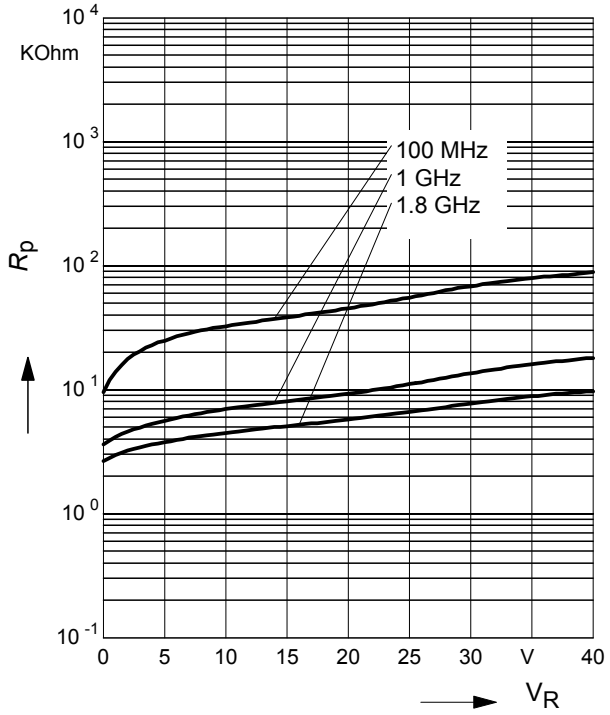
**Diode capacitance $C_T = f(V_R)$**

$f$ = Parameter



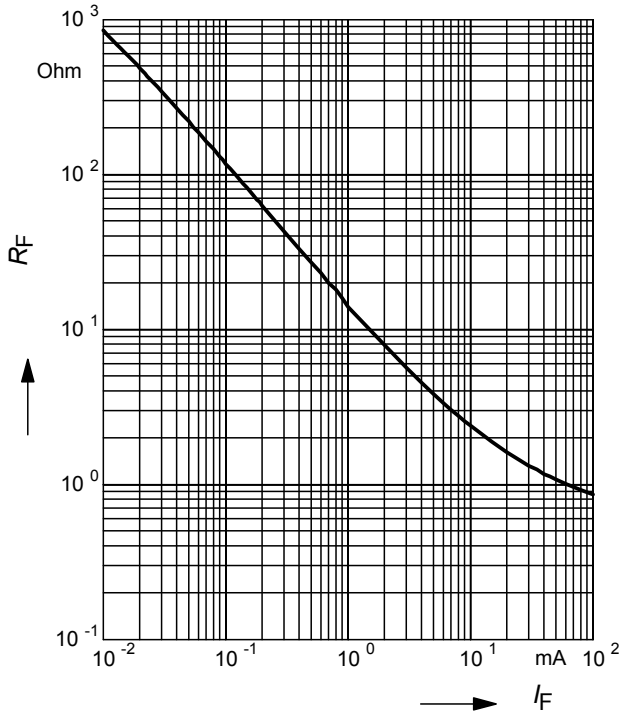

**Reverse parallel resistance $R_P = f(V_R)$**

$f$ = Parameter



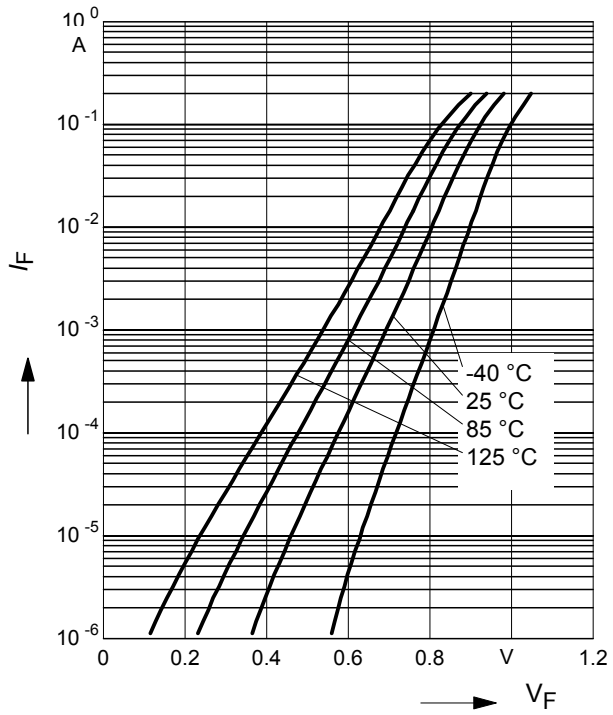

**Forward resistance $r_f = f(I_F)$**

$f$ = 100MHz



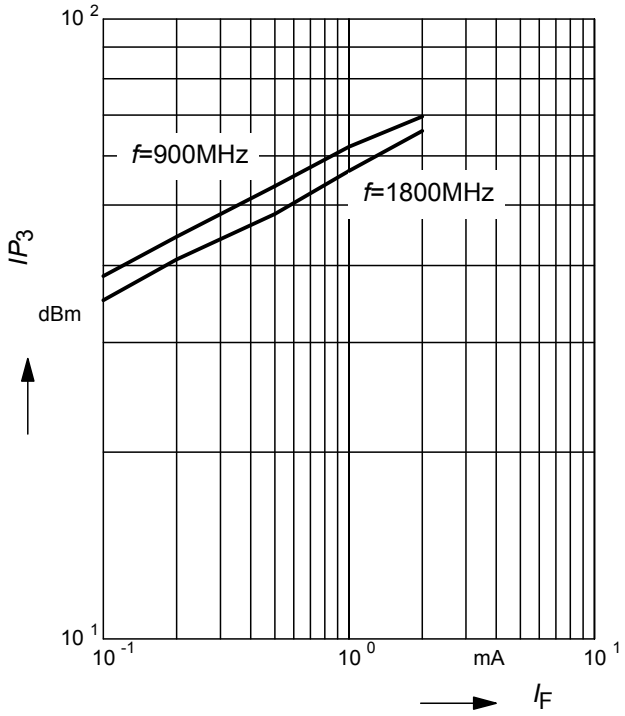

**Forward current $I_F = f(V_F)$**

$T_A$ = Parameter



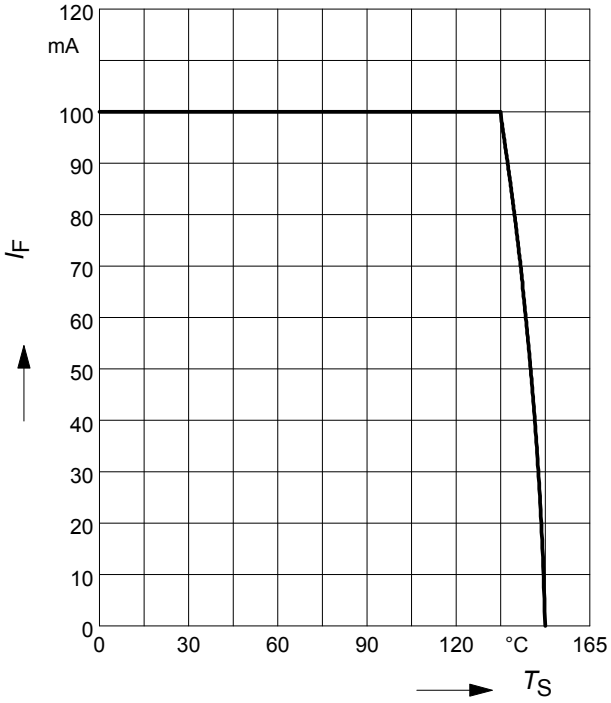
**Intermodulation intercept point**

$IP_3 = f(I_F)$; $f$ = Parameter



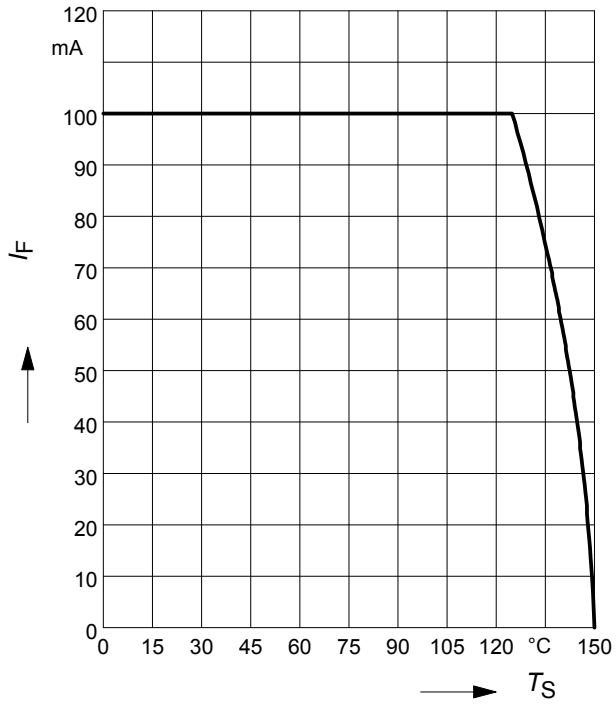

**Forward current $I_F = f(T_S)$**

BAR64-02EL



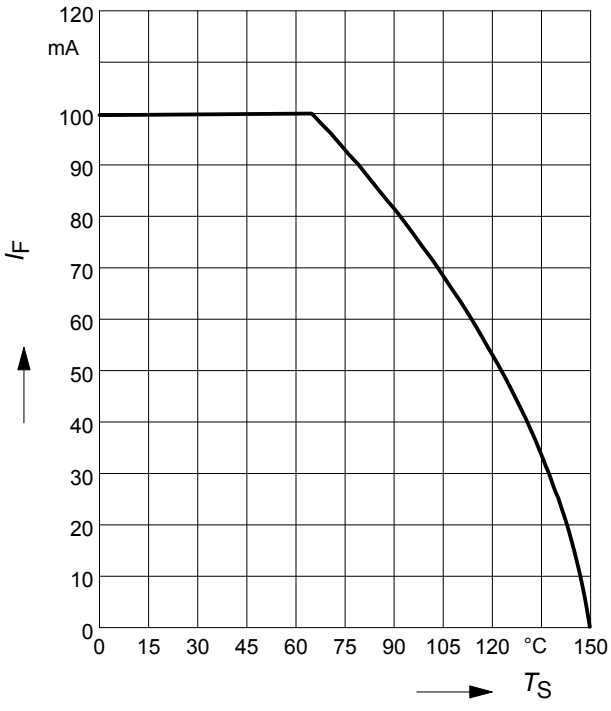

**Forward current $I_F = f(T_S)$**

BAR64-02V



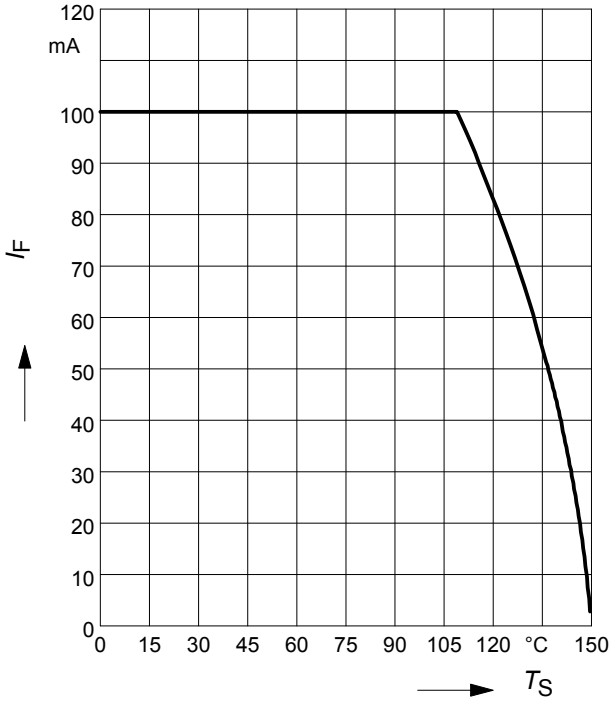

**Forward current $I_F = f(T_S)$**

BAR64-04, BAR64-05, BAR64-06



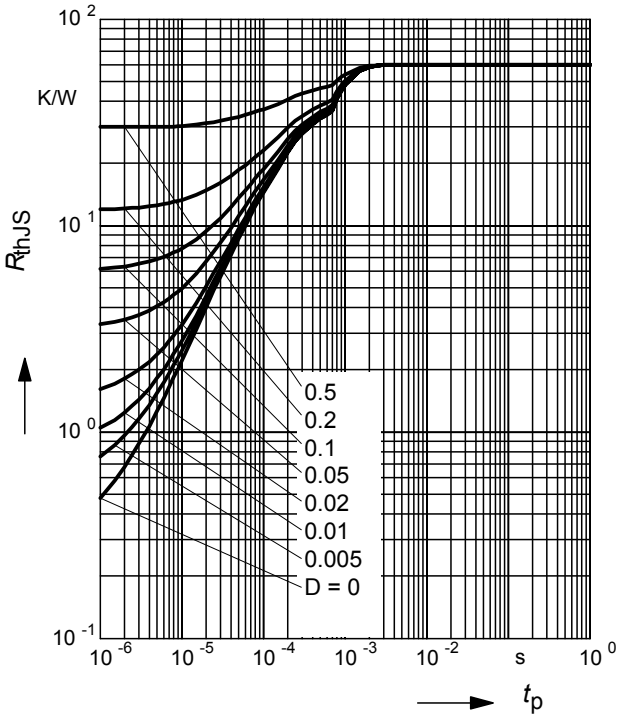
**Forward current $I_F = f(T_S)$**

BAR64-04W, BAR64-05W, BAR64-06W




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

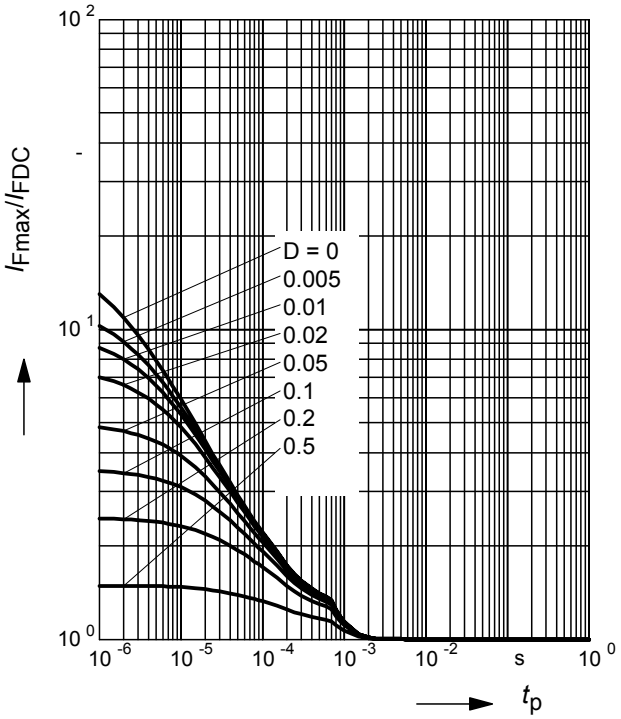
BAR64-02EL




**Permissible Pulse Load**

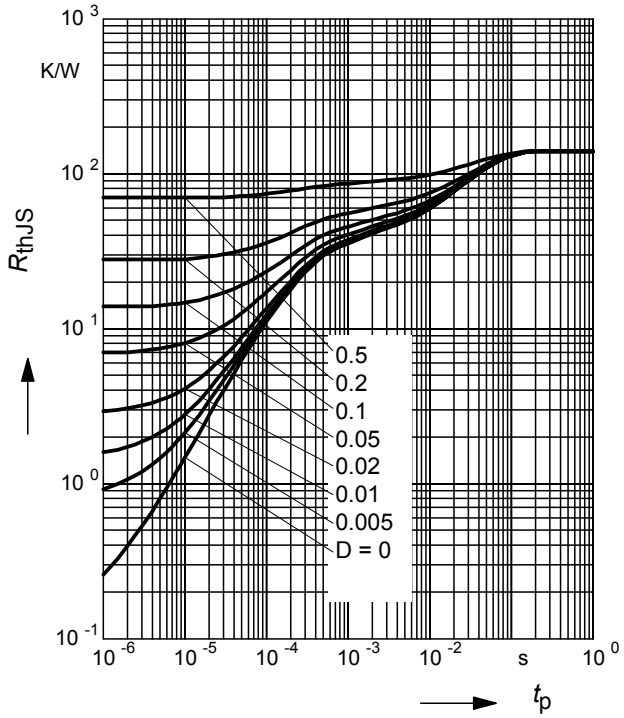
$I_{Fmax}/ I_{FDC} = f(t_p)$

BAR64-02EL



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

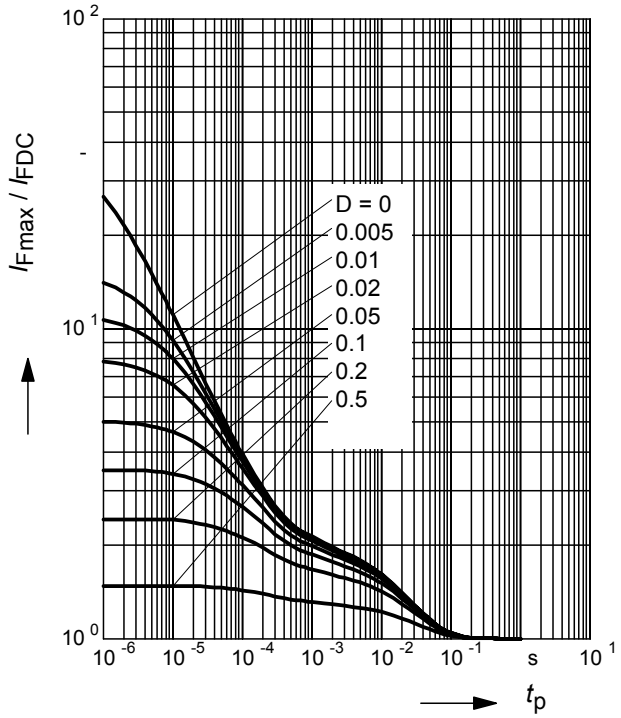
BAR64-02V




**Permissible Pulse Load**

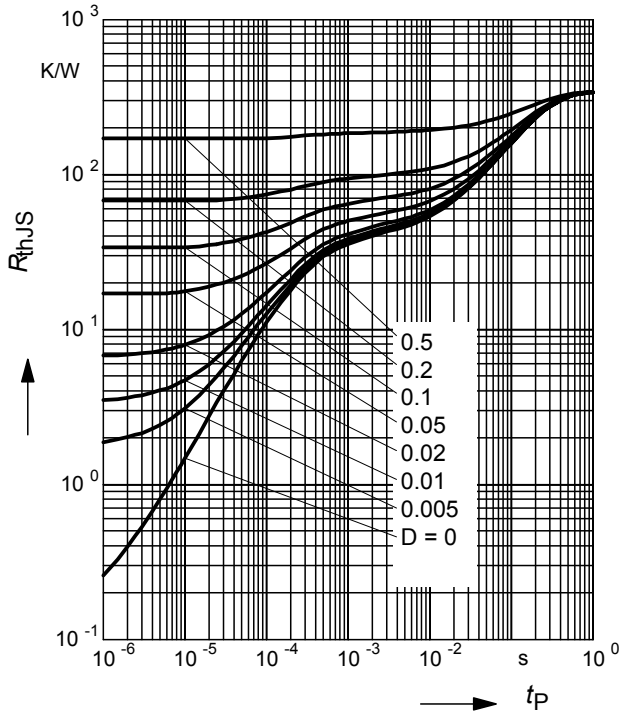
$I_{Fmax}/ I_{FDC} = f(t_p)$

BAR64-02V




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

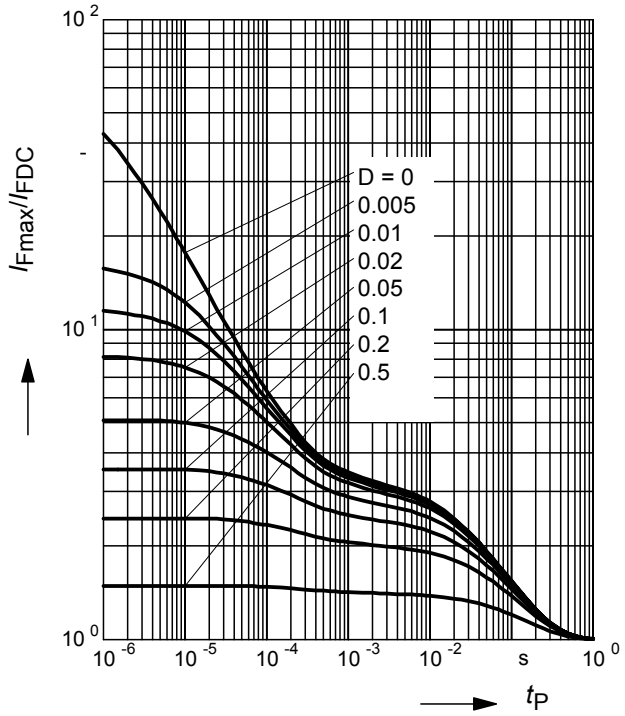
BAR64-04, BAR64-05, BAR64-06




**Permissible Pulse Load**

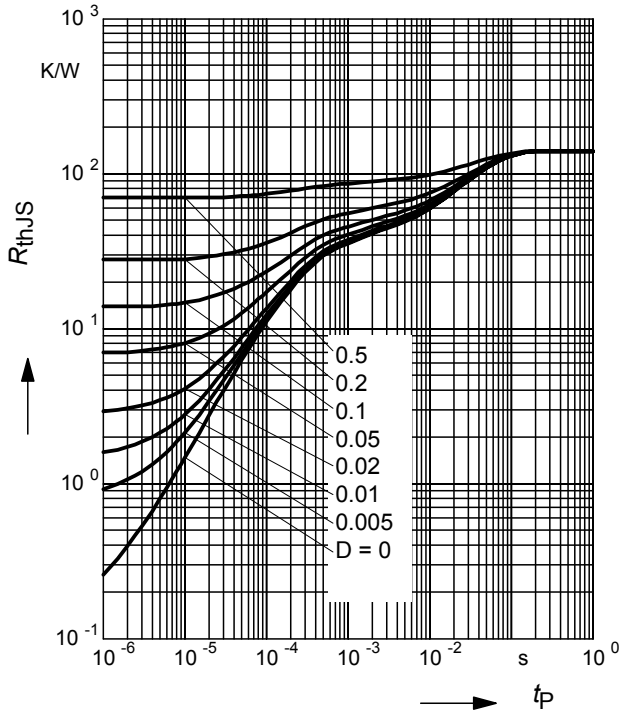
$I_{Fmax}/ I_{FDC} = f(t_p)$

BAR64-04, BAR64-05, BAR64-06



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

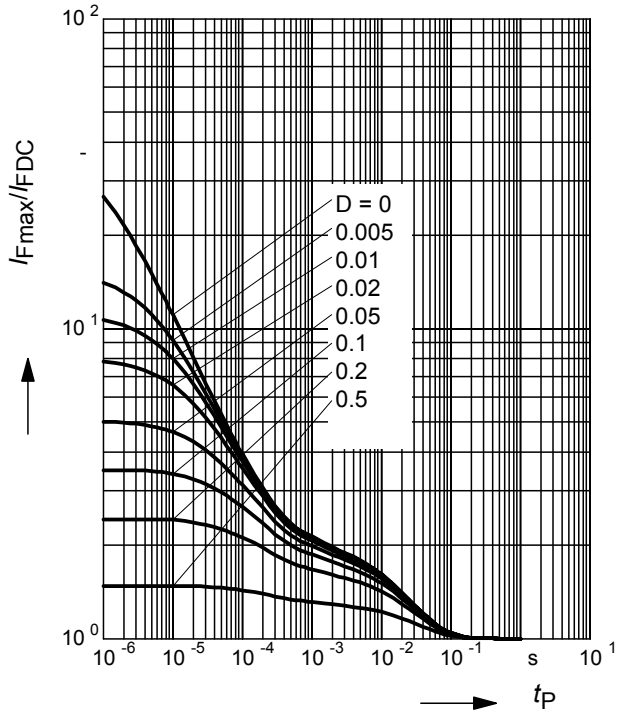
BAR64-04W, BAR64-05W, BAR64-06W




**Permissible Pulse Load**

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

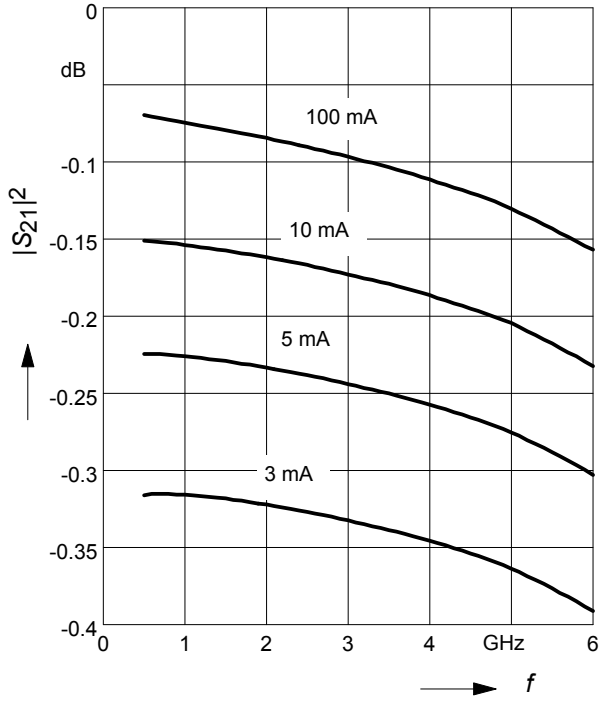
BAR64-04W, BAR64-05W, BAR64-06W




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

$I_F$ = Parameter

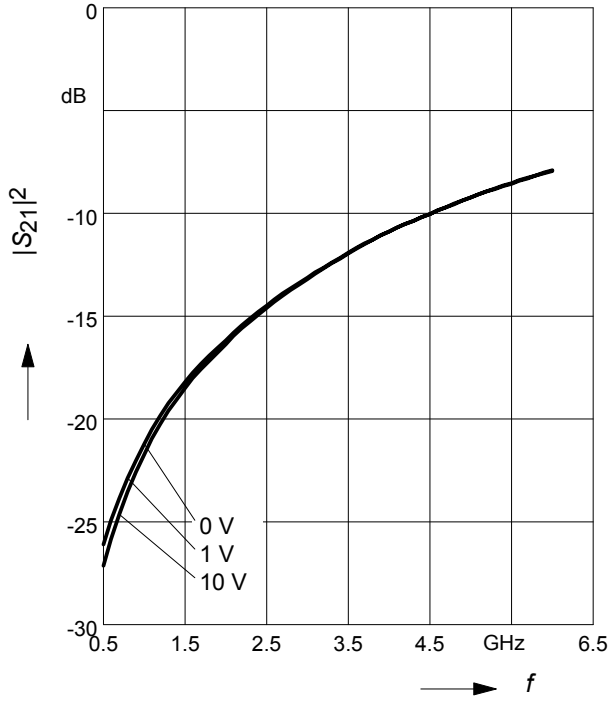
BAR64-02EL in series configuration, $Z = 50\Omega$



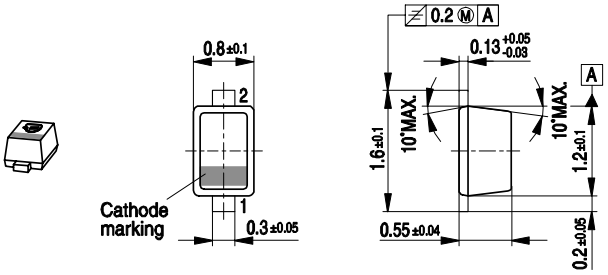

**Isolation** $I_{SO} = -|S_{21}|^2 = f(f)$

$V_R$ = Parameter

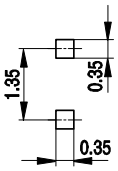
BAR64-02EL in series configuration, $Z = 50\Omega$



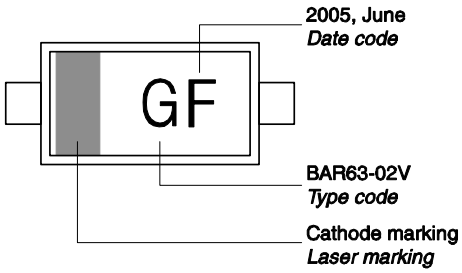
## Package Outline




## Foot Print

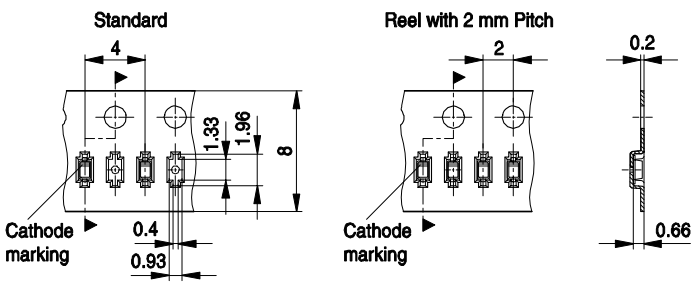



## Marking Layout (Example)




## 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

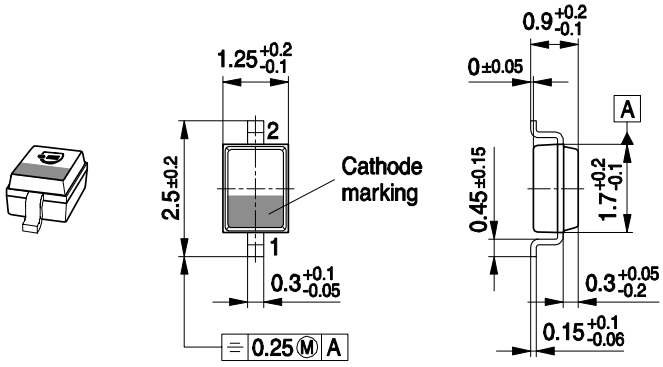


## Date Code marking for discrete packages with one digit (SCD80, SC79, SC75[1)]) CES-Code

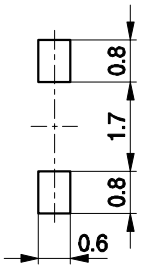
| Month | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 01 | a | p | A | P | a | p | A | P | a | p | A | P |
| 02 | b | q | B | Q | b | q | B | Q | b | q | B | Q |
| 03 | c | r | C | R | c | r | C | R | c |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

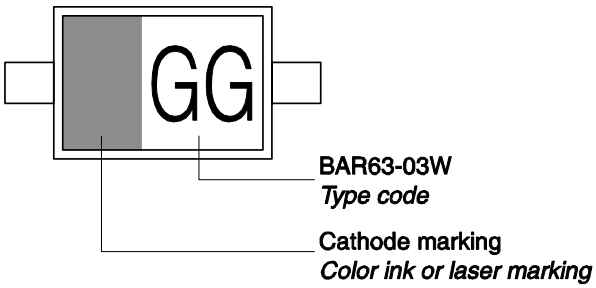
## Package Outline




## Foot Print

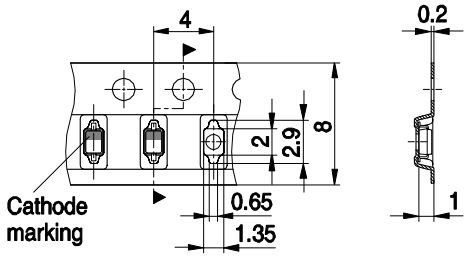



## Marking Layout (Example)

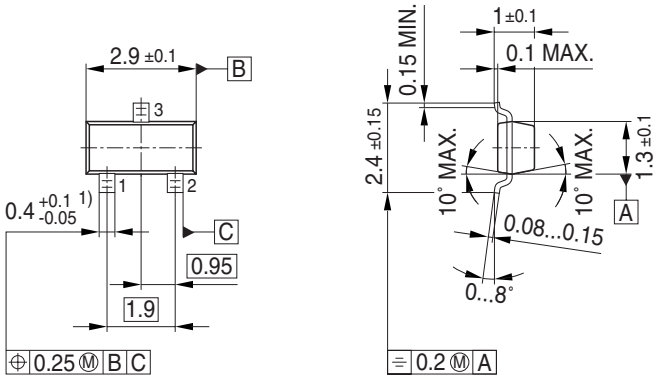



## Standard Packing

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

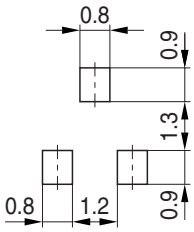


## Package Outline

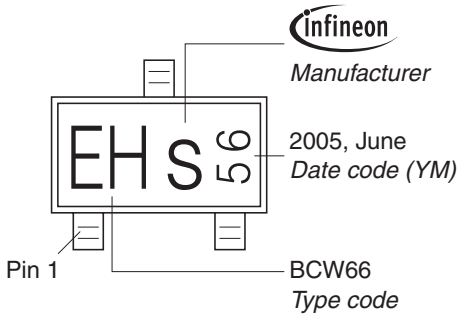



1) Lead width can be 0.6 max. in dambar area

## Foot Print

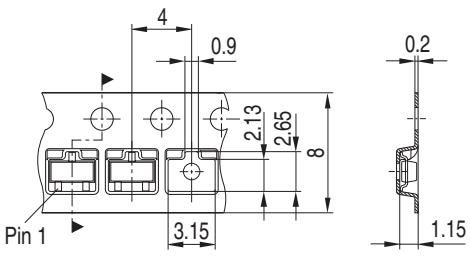



## Marking Layout (Example)

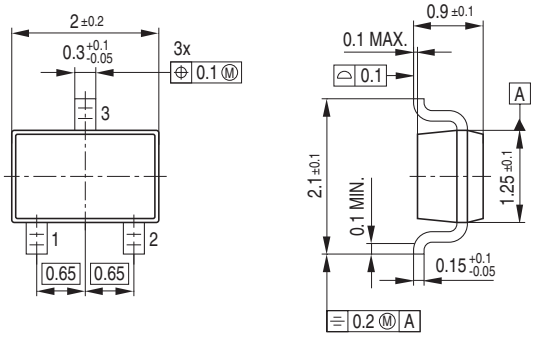



## Standard Packing

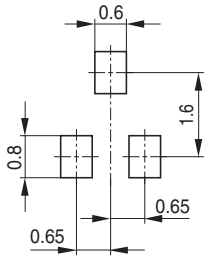
Reel ø180 mm = 3.000 Pieces/Reel
Reel ø330 mm = 10.000 Pieces/Reel



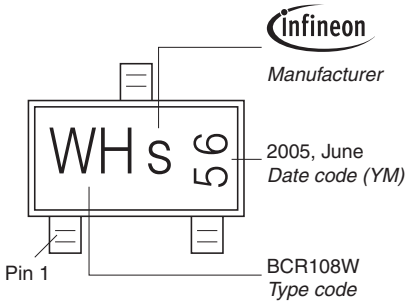
## Package Outline




## Foot Print

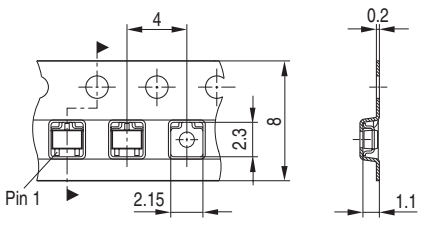



## Marking Layout (Example)

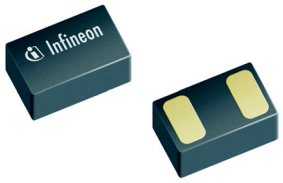


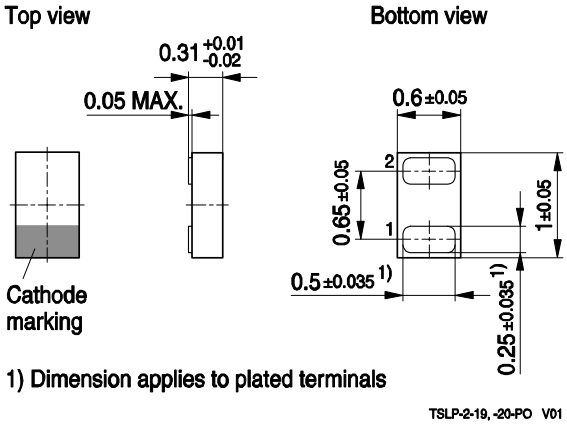

## Standard Packing

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



## Package Outline



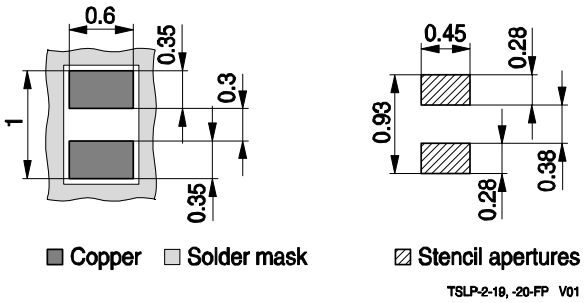



1) Dimension applies to plated terminals

TSLP-2-19, -20-PO V01

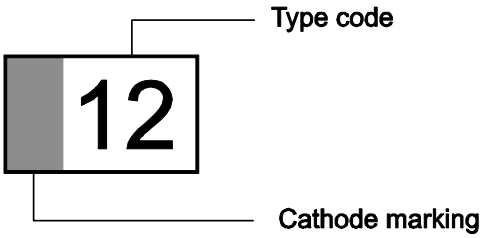
## Foot Print

For board assembly information please refer to Infineon website „Packages“



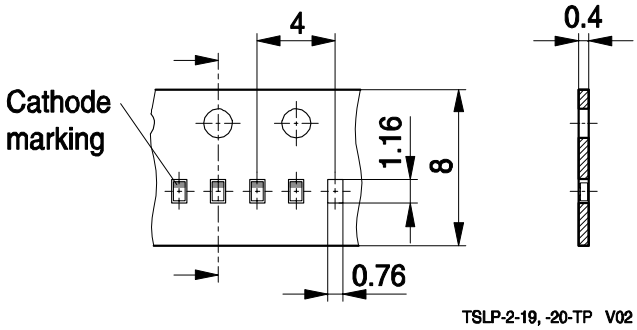

TSLP-2-19, -20-FP V01

## Marking layout (Example)




## Standard Packing

Reel Ø 180 mm: 15.000 Pieces / Reel
Reel Ø 330 mm: 6.000 Pieces / Reel
Reel Ø 330 mm: 50.000 Pieces / Reel




TSLP-2-19, -20-TP V02

**Edition 2009-11-16**

**Published by**
**Infineon Technologies AG**
**81726 Munich, Germany**



## Legal Disclaimer

The information given in this document shall in no event be regarded as a guarantee of conditions or characteristics. With respect to any examples or hints given herein, any typical values stated herein and/or any information regarding the application of the device, Infineon Technologies hereby disclaims any and all warranties and liabilities of any kind, including without limitation, warranties of non-infringement of intellectual property rights of any third party.

## 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.

# OCEAN CHIPS
## Океан Электроники
## Поставка электронных компонентов

Компания «Океан Электроники» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Поставка оригинальных импортных электронных компонентов напрямую с производств Америки, Европы и Азии, а так же с крупнейших складов мира;
- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Компания «Океан Электроники» является официальным дистрибьютором и эксклюзивным представителем в России одного из крупнейших производителей разъемов военного и аэрокосмического назначения «**JONHON**», а так же официальным дистрибьютором и эксклюзивным представителем в России производителя высокотехнологичных и надежных решений для передачи СВЧ сигналов «**FORSTAR**».

AVIC JONHON

**«JONHON»** (основан в 1970 г.)

Разъемы специального, военного и аэрокосмического назначения:

(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

**«FORSTAR»** (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели, кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).

FORSTAR®

Телефон: 8 (812) 309-75-97 (многоканальный)
Факс: 8 (812) 320-03-32
Электронная почта: ocean@oceanchips.ru
Web: http://oceanchips.ru/
Адрес: 198099, г. Санкт-Петербург, ул. Калинина, д. 2, корп. 4, лит. А