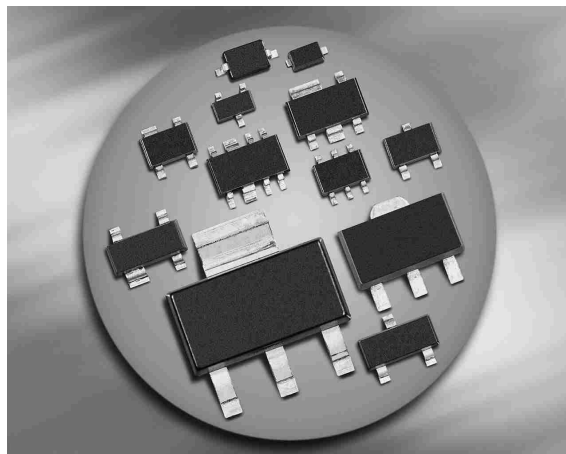
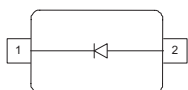


Silicon PIN Diode

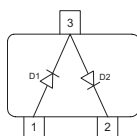
- High voltage current controlled RF resistor for RF attenuator and switches
- Frequency range above 1 MHz up to 6 GHz
- Very low capacitance at zero volt reverse bias at frequencies above 1 GHz (typ. 0.17 pF)
- Low forward resistance (typ. 2.1 Ω @ 10 mA)
- Very low signal distortion
- Pb-free (RoHS compliant) package
- Qualified according AEC Q101¹⁾



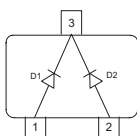
BAR64-02EL
BAR64-02V
BAR64-03W



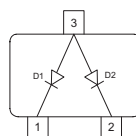
BAR64-04
BAR64-04W



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 $T_A = 25^\circ\text{C}$, 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, $T_S \leq 135^\circ\text{C}$		250	
BAR64-02V, $T_S \leq 125^\circ\text{C}$		250	
BAR64-03W, $T_S \leq 25^\circ\text{C}$		250	
BAR64-04, -05, -06, $T_S \leq 65^\circ\text{C}$		250	
BAR64-04W, -05W, -06W, $T_S \leq 115^\circ\text{C}$		250	
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 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 $T_A = 25^\circ\text{C}$, unless otherwise specified

Parameter	Symbol	Values			Unit
		min.	typ.	max.	

DC Characteristics

Breakdown voltage	$V_{(\text{BR})}$	150	-	-	V
$I_{(\text{BR})} = 5 \mu\text{A}$					
Forward voltage	V_F	-	-	1.1	
$I_F = 50 \text{ mA}$					

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

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

¹⁾BAR64-02EL in series configuration, $Z = 50\ \Omega$

Diode capacitance $C_T = f(V_R)$

f = Parameter



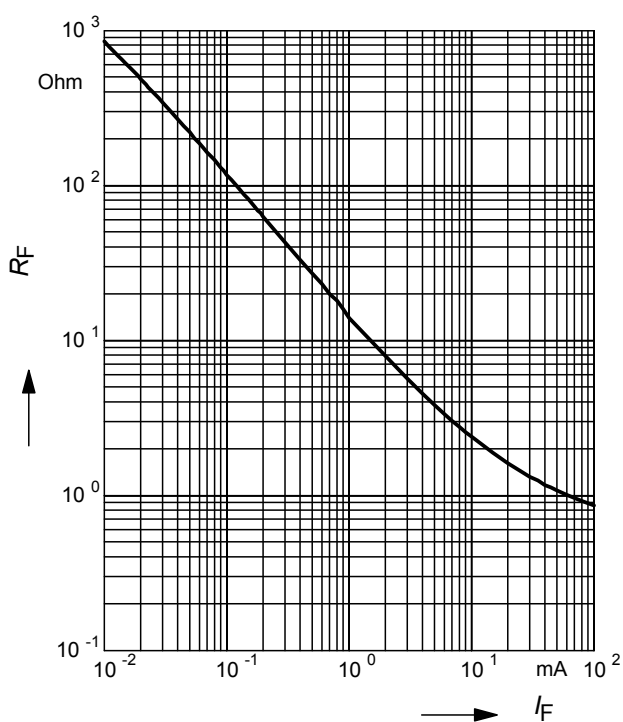
Reverse parallel resistance $R_P = f(V_R)$

f = Parameter



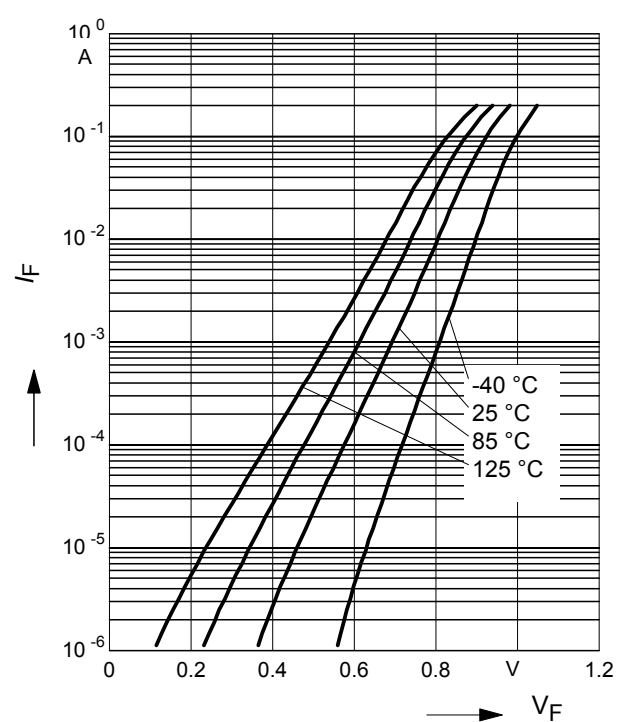
Forward resistance $r_f = f(I_F)$

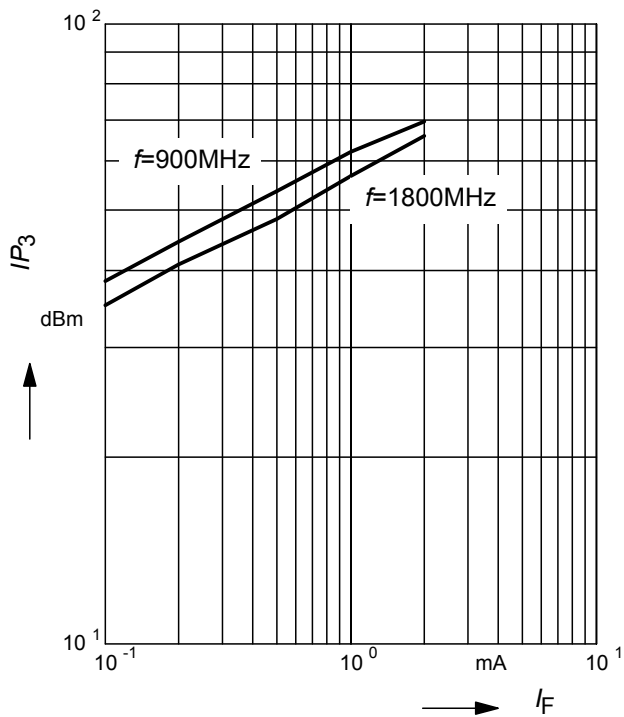
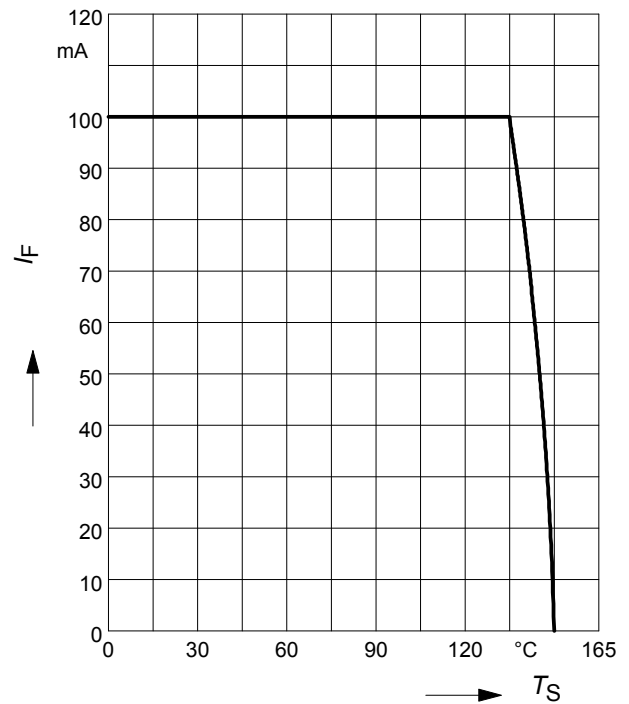
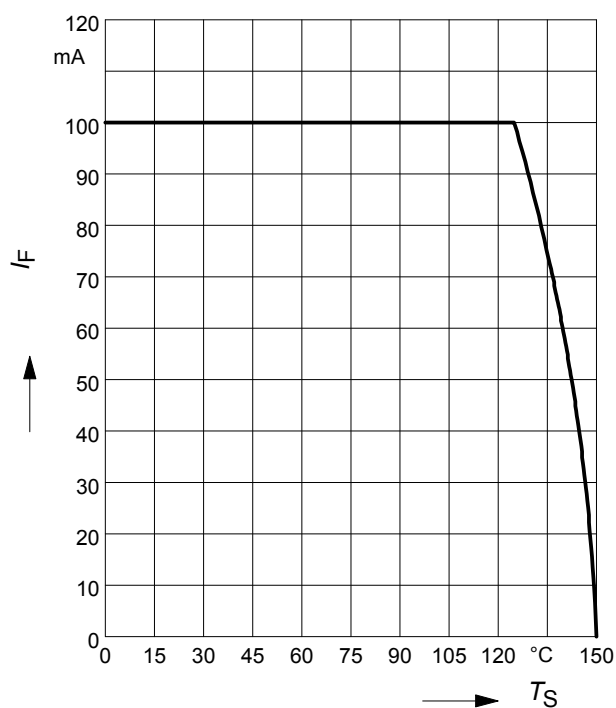
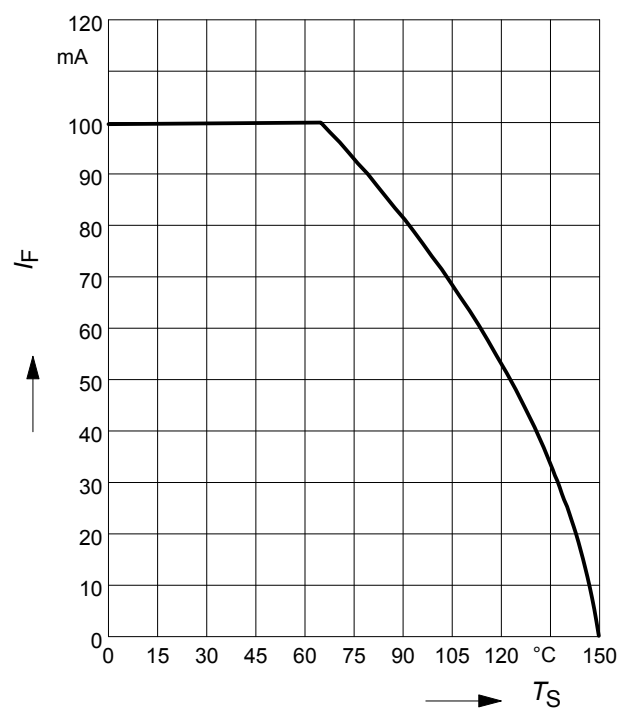
f = 100MHz



Forward current $I_F = f(V_F)$

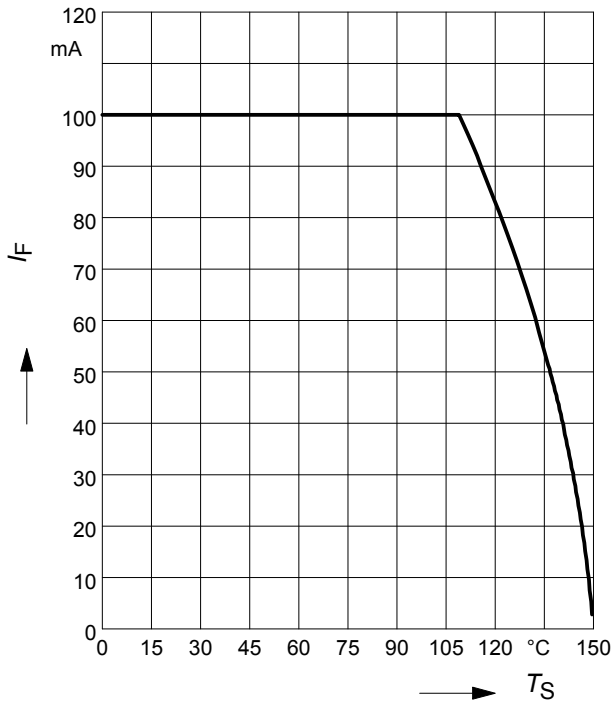
T_A = Parameter



Intermodulation intercept point
 $IP_3 = f(I_F); f = \text{Parameter}$

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


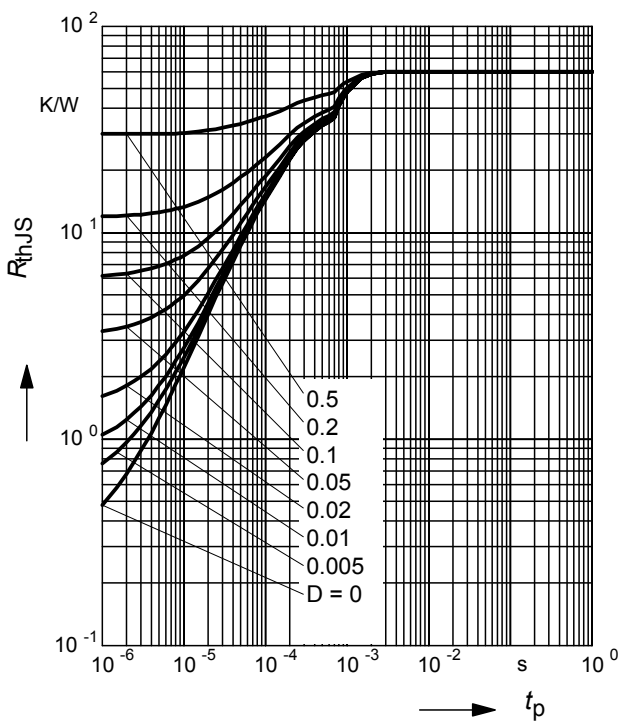
Forward current $I_F = f(T_S)$

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



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

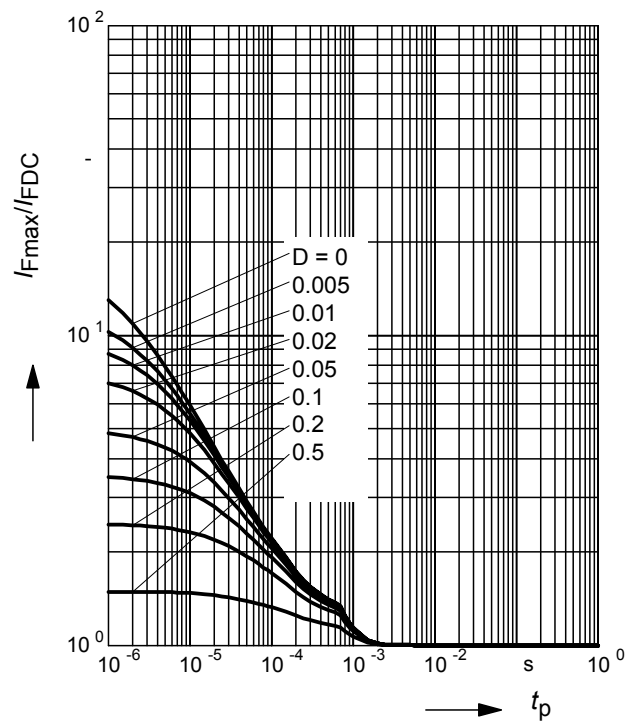
BAR64-02EL

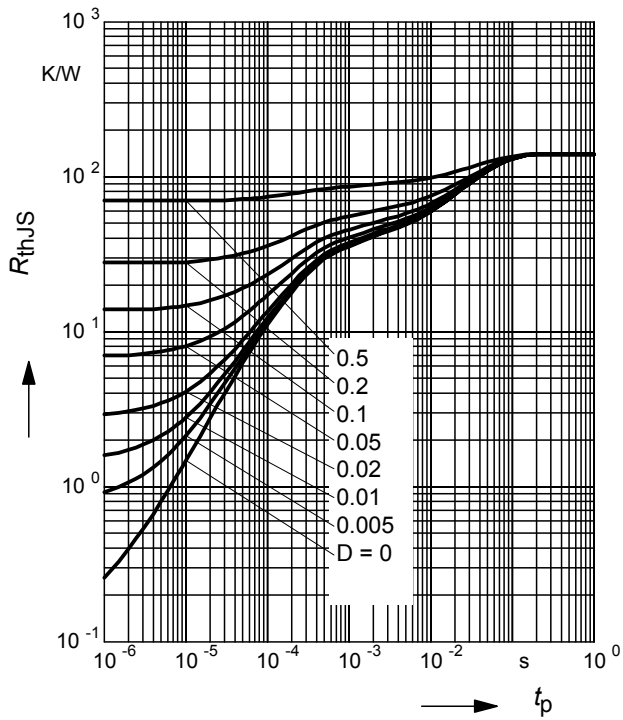


Permissible Pulse Load

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

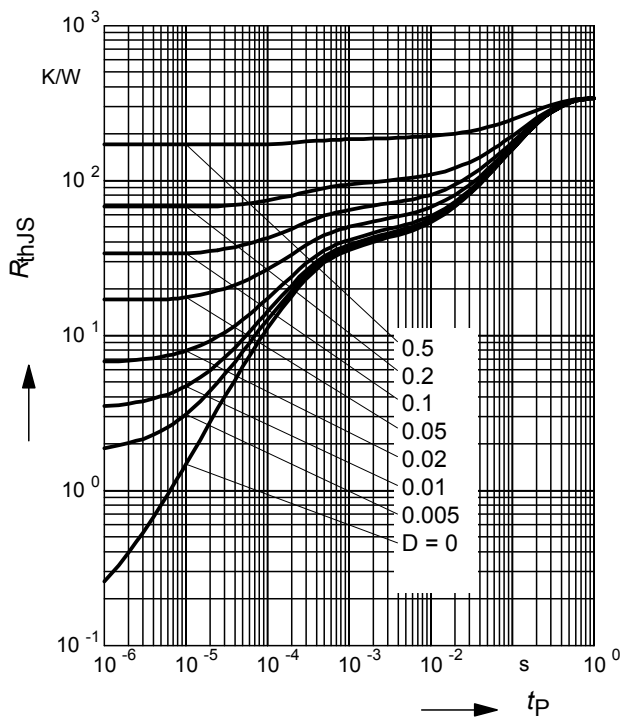
BAR64-02EL



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

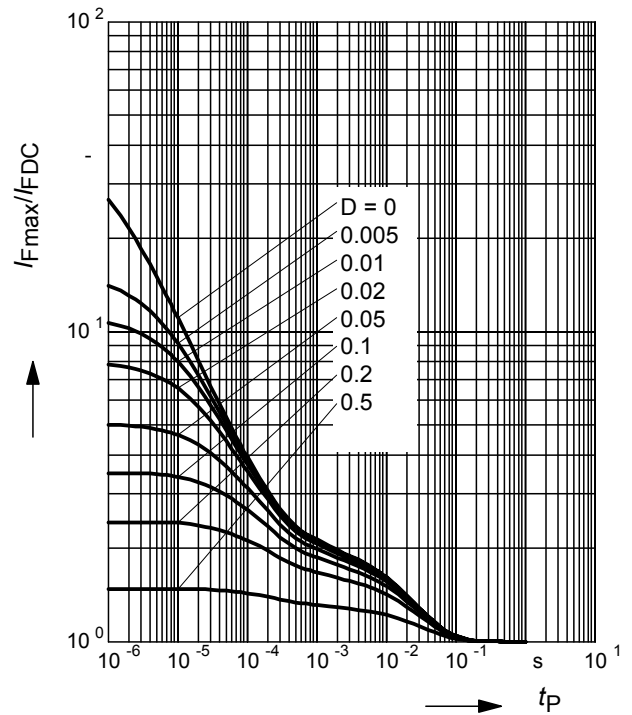

Permissible Puls Load $R_{thJS} = f(t_p)$

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


Permissible Pulse Load

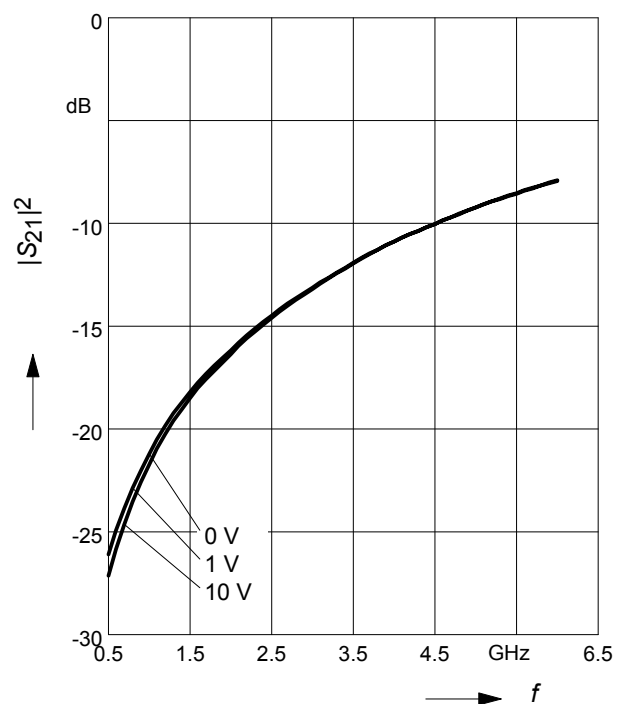
$$I_{Fmax}/I_{FDC} = f(t_p)$$

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, $Z = 50\Omega$


[illegible]

2005, June
Date code

GF

BAR63-02V
Type code

Cathode marking
Laser marking

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.

Technical drawing of the 025M-A photoresistor, showing isometric, top, and side views with dimensions.

Isometric View: Shows the physical component with a 'G' marking on the top surface.

Top View: Dimensions include a width of $1.25^{+0.2}_{-0.1}$, a height of 2.5 ± 0.2 , a central square area of 2 on one side and 1 on the other, a cathode marking, and a bottom width of $0.3^{+0.1}_{-0.05}$. A label 0.25 (M) A is shown at the bottom.

Side View: Dimensions include a top width of $0.9^{+0.2}_{-0.1}$, a top thickness of 0 ± 0.05 , a side thickness of 0.45 ± 0.15 , a central height of $1.7^{+0.2}_{-0.1}$ (labeled 'A'), a bottom width of $0.3^{+0.05}_{-0.2}$, and a bottom thickness of $0.15^{+0.1}_{-0.06}$.

BAR63-03W
Type code

Cathode marking
Color ink or laser marking

Technical drawing of a cathode marking. The drawing shows a side view and a cross-section. The side view has a total width of 4, a total height of 8, and a central hole with a diameter of 2.9. The cross-section shows a total width of 0.2 and a central hole with a diameter of 1.35. The text "Cathode marking" is written below the side view.

Package Outline

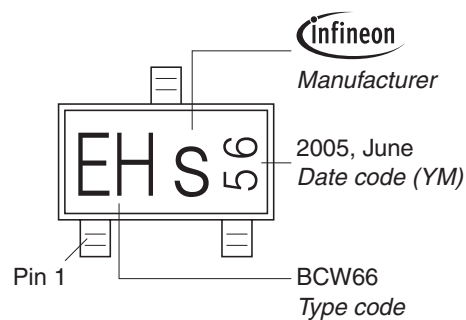


1) Lead width can be 0.6 max. in dambar area

Foot Print



Marking Layout (Example)

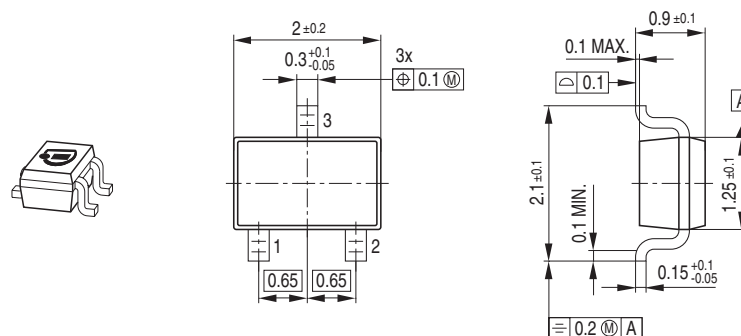


Standard Packing

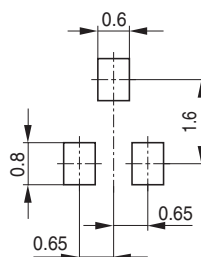
Reel ø180 mm = 3.000 Pieces/Reel
Reel ø330 mm = 10.000 Pieces/Reel



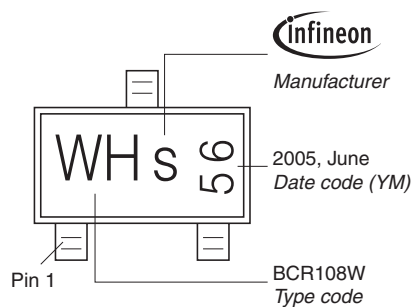
Package Outline



Foot Print



Marking Layout (Example)



Standard Packing

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



Package Outline



TSLP-2-19, -20-PO V01

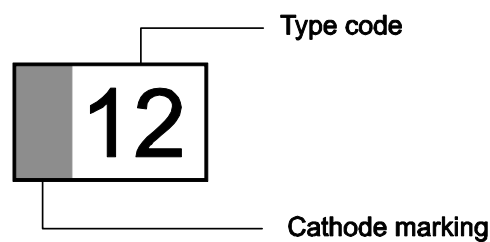
Foot Print

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



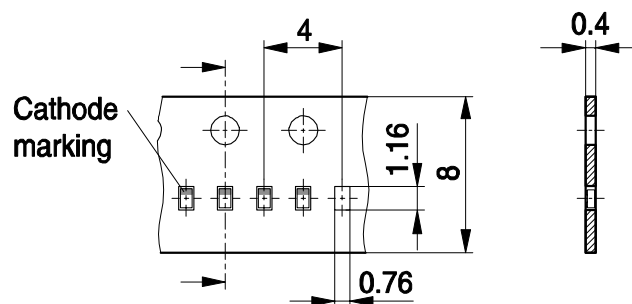
TSLP-2-19, -20-FP V01

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

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