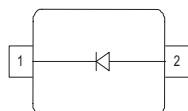
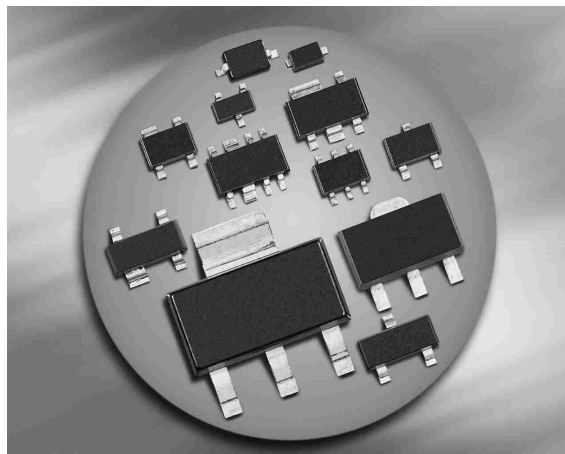


Silicon PIN Diode

- Series diode for mobile communication in low loss transmit-receiver switches
- Band switch for TV-tuners
- Very low forward resistance (typ. 0.65Ω @ 5 mA)
- Low capacitance (typ. 0.5 pF @ 0V)
- Fast switching applications
- Pb-free (RoHS compliant) package



BAR65-02L
BAR65-02V
BAR65-03W



Type	Package	Configuration	$L_S(\text{nH})$	Marking
BAR65-02L*	TSLP-2-1	single, leadless	0.4	NN
BAR65-02V	SC79	single	0.6	N
BAR65-03W	SOD323	single	1.8	blue M

* Preliminary Data

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

Parameter	Symbol	Value	Unit
Diode reverse voltage	V_R	30	V
Forward current	I_F	100	mA
Total power dissipation	P_{tot}		mW
BAR65-02L, $T_S \leq 128^\circ\text{C}$		250	
BAR65-02V, $T_S \leq 118^\circ\text{C}$		250	
BAR65-03W, $T_S \leq 113^\circ\text{C}$		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
BAR65-02L		≤ 90	
BAR65-02V		≤ 130	
BAR65-03W		≤ 145	

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	-	0.93	1	V

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

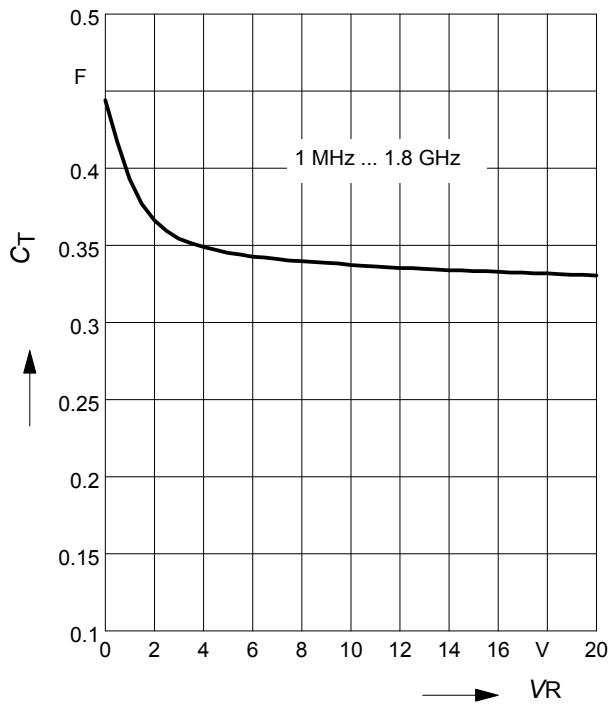
Electrical Characteristics at $T_A = 25^\circ\text{C}$, unless otherwise specified

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
AC Characteristics					
Diode capacitance $V_R = 1\text{ V}$, $f = 1\text{ MHz}$ $V_R = 3\text{ V}$, $f = 1\text{ MHz}$ $V_R = 0\text{ V}$, $f = 100\text{ MHz} \dots 1.8\text{ GHz}$	C_T	- - -	0.45 0.4 0.5	0.9 0.8 -	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	- - -	700 10 5	- - -	kΩ
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 0.65 0.56	- 0.95 0.9	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}	-	80	-	ns
I-region width	W_I	-	3.5	-	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	- - -	0.08 0.06 0.05	- - -	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}	- - -	12 7 5	- - -	

¹⁾BAR65-02L in series configuration, $Z = 50\text{ }\Omega$

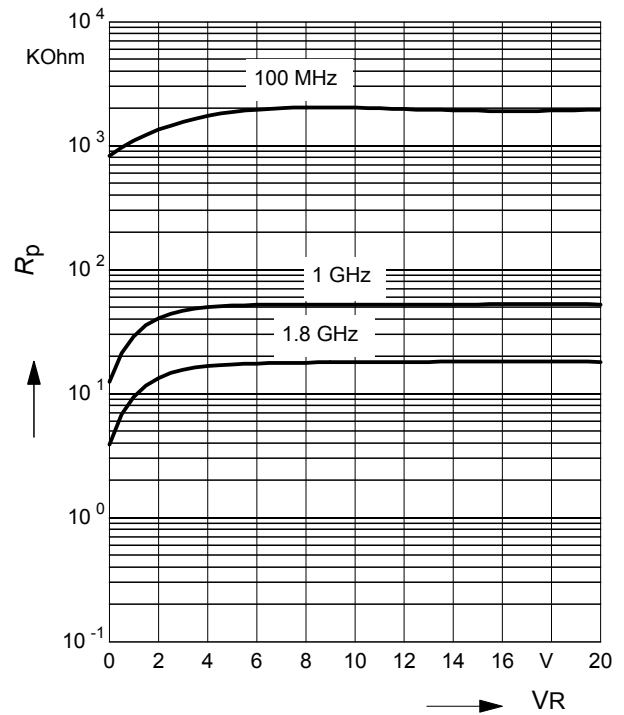
Diode capacitance $C_T = f(V_R)$

f = Parameter



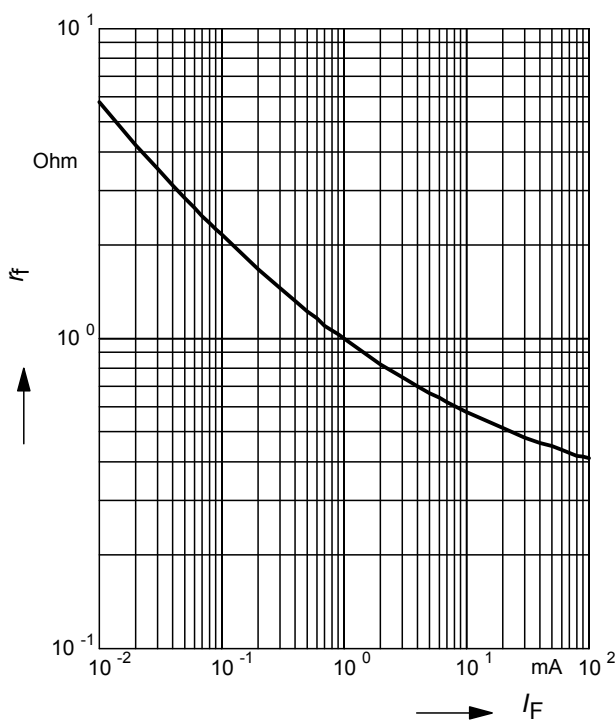
Reverse parallel resistance $R_P = f(V_R)$

f = Parameter



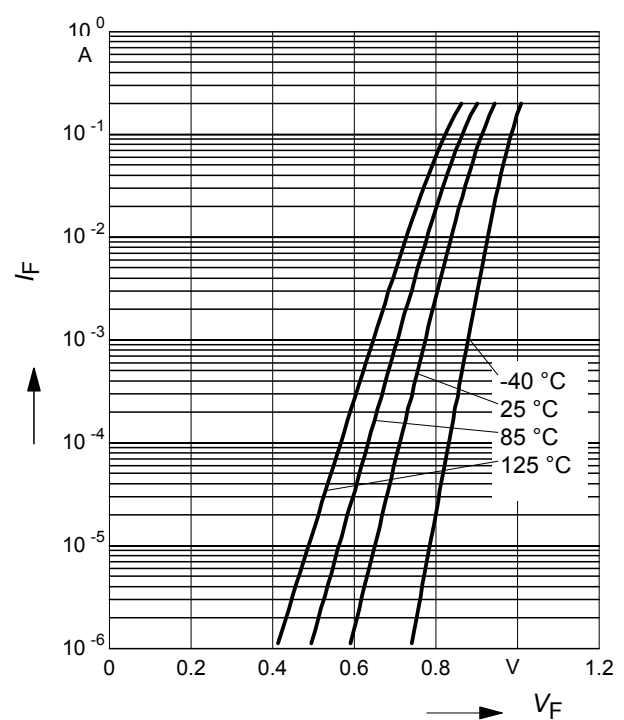
Forward resistance $r_f = f(I_F)$

f = 100MHz



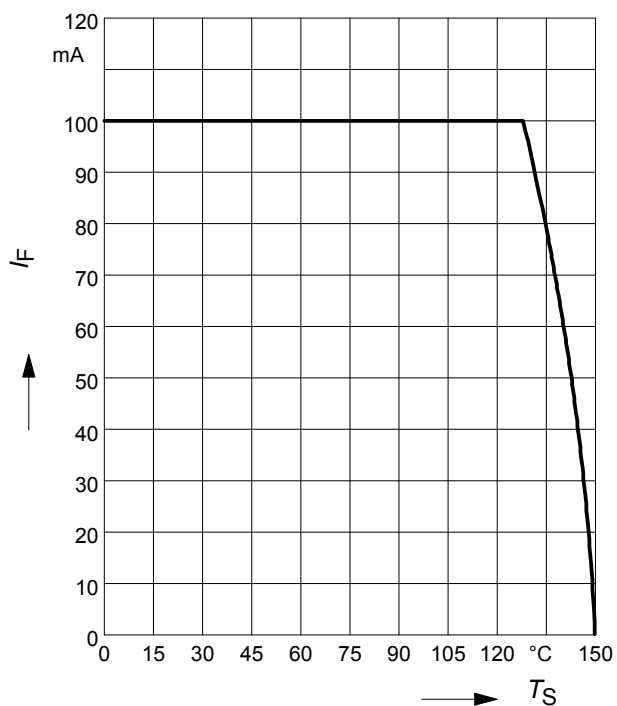
Forward current $I_F = f(V_F)$

T_A = Parameter



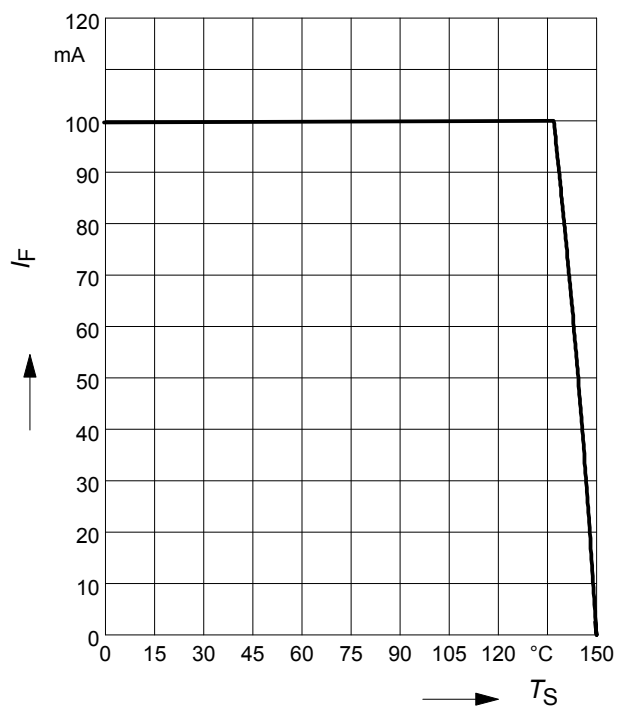
Forward current $I_F = f(T_S)$

BAR65-02L



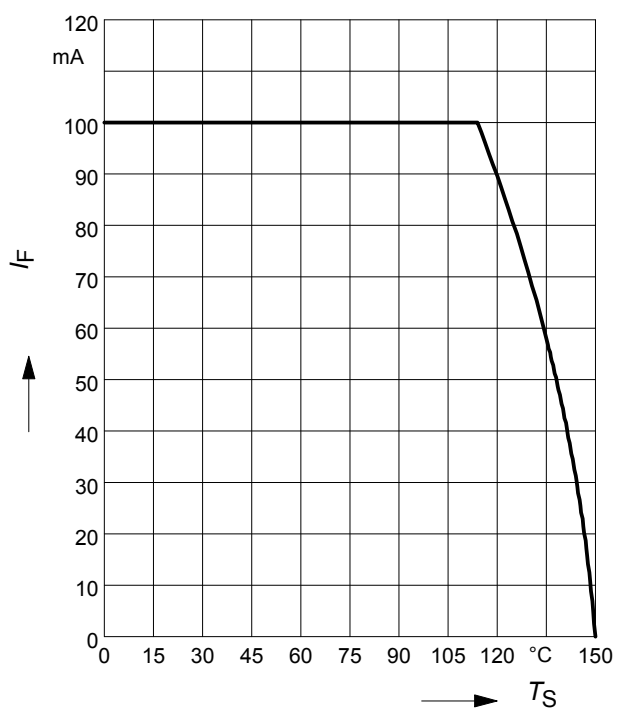
Forward current $I_F = f(T_S)$

BAR65-02V



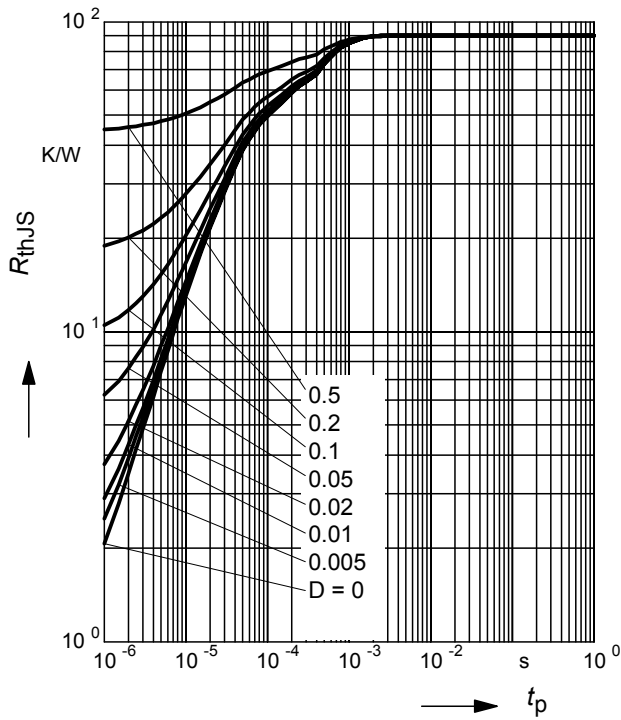
Forward current $I_F = f(T_S)$

BAR65-03W



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

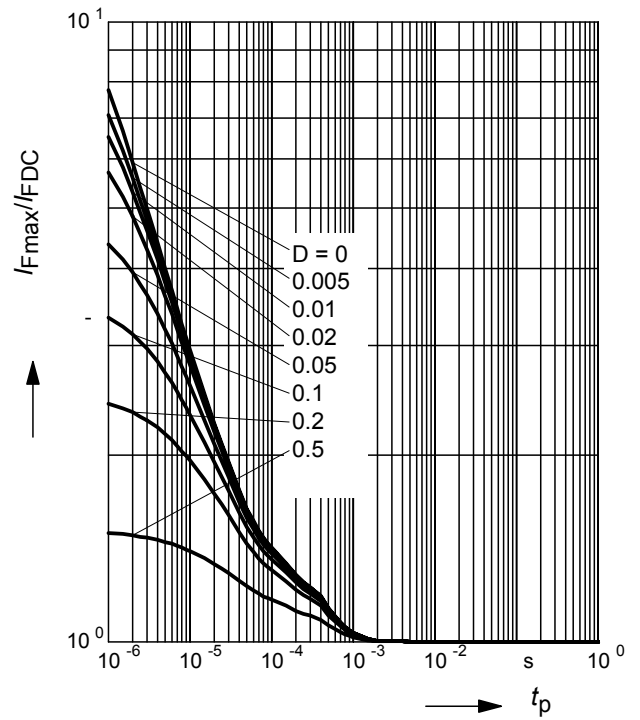
BAR65-02L



Permissible Pulse Load

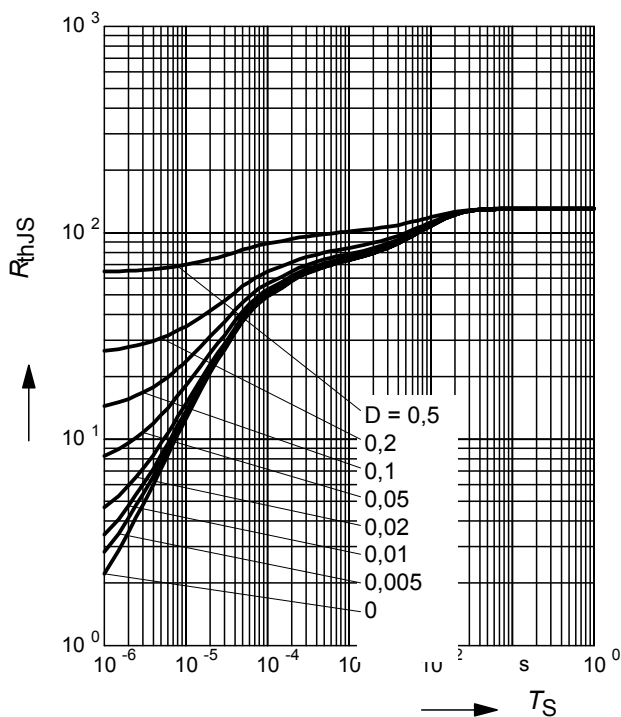
$$I_{Fmax}/I_{FDC} = f(t_p)$$

BAR65-02L



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

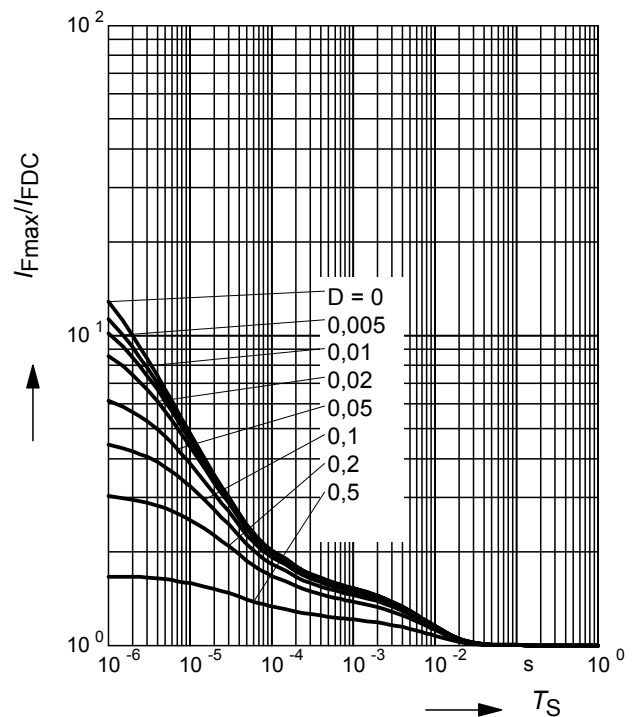
BAR65-02V



Permissible Pulse Load

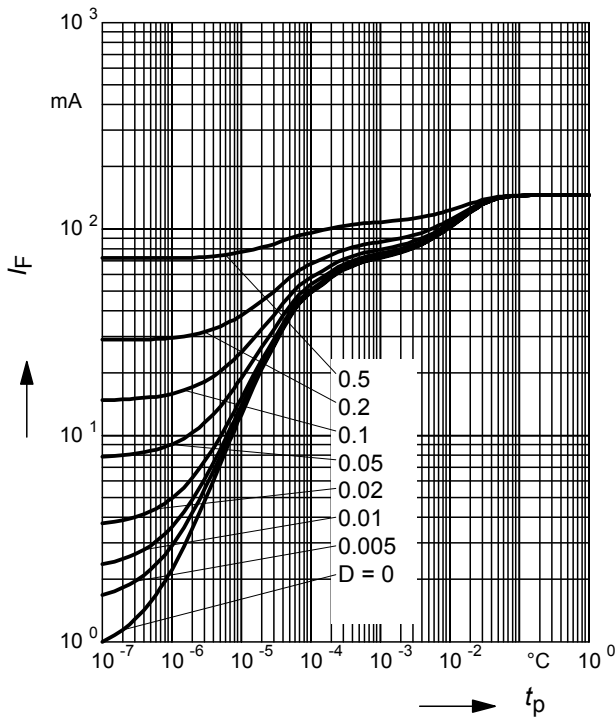
$$I_{Fmax}/I_{FDC} = f(t_p)$$

BAR65-02V



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

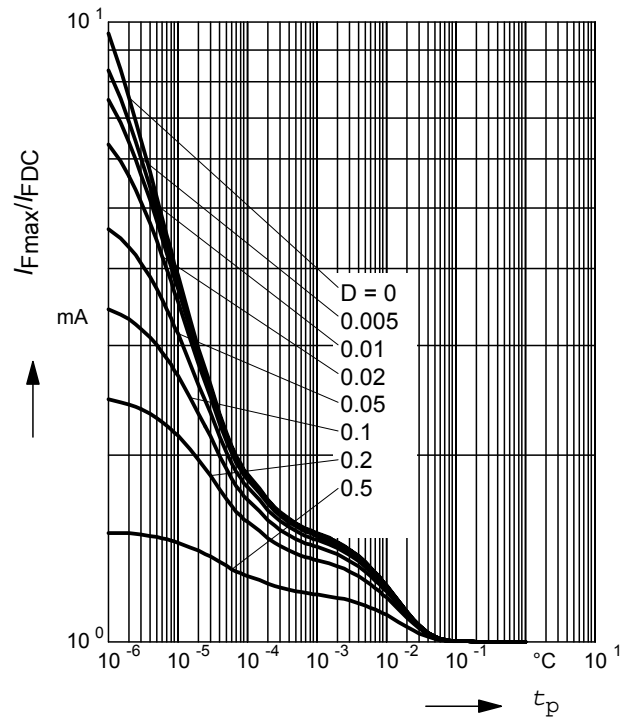
BAR65-03W



Permissible Pulse Load

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

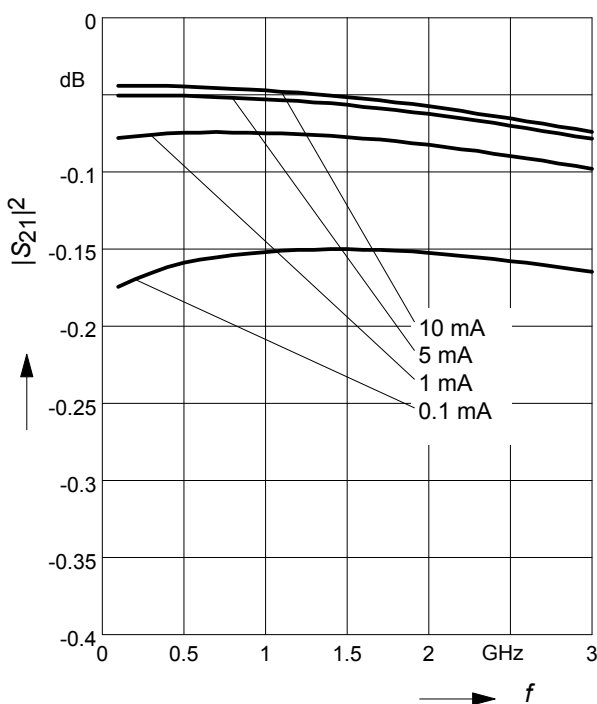
BAR65-03W



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

I_F = Parameter

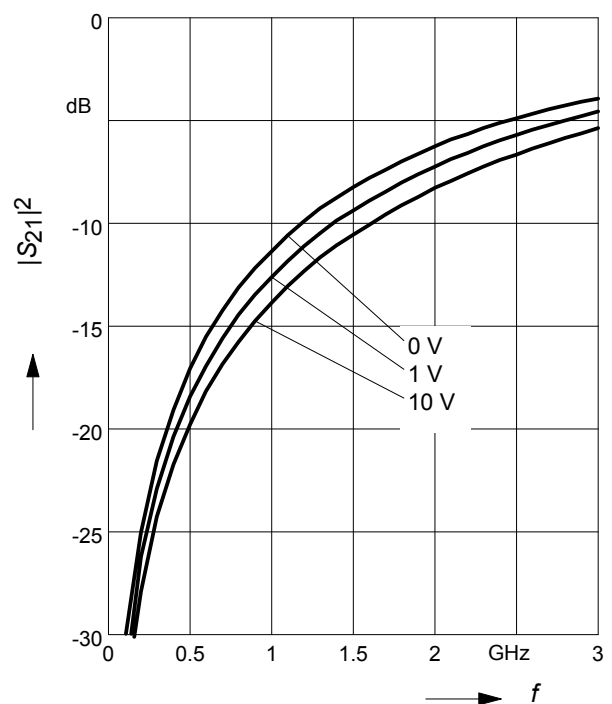
BAR65-02L in series configuration, $Z = 50\Omega$



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

V_R = Parameter

BAR65-02L 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.

Technical drawing of the 025A tube pin, showing dimensions in millimeters (mm) and tolerances.

Top View Dimensions:

- Overall width: 2.5 ± 0.2
- Central pin diameter: 0.3 ± 0.05
- Cathode marking area width: $1.25^{+0.2}_{-0.1}$
- Pin diameter: $0.9^{+0.2}_{-0.1}$

Side View Dimensions:

- Base height: 0.45 ± 0.15
- Pin height: $1.7^{+0.2}_{-0.1}$
- Total height: 2.5 ± 0.2
- Base width (bottom): 0.3 ± 0.05
- Base width (top): 0.3 ± 0.05
- Pin diameter (bottom): $0.15^{+0.1}_{-0.06}$

Markings:

- Cathode marking (indicated by a shaded area in the top view)
- Pin marking: 0.25 A

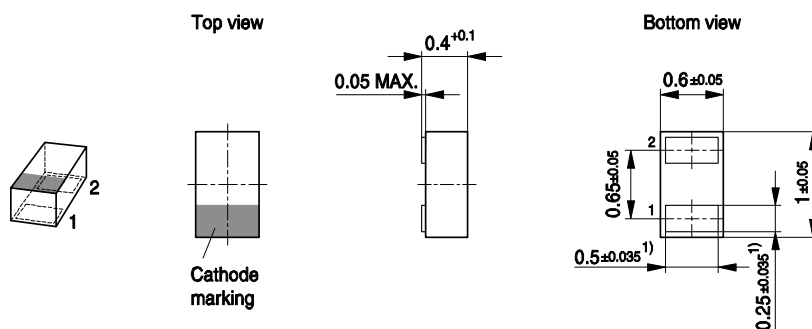
Technical drawing of a stepped shaft. The shaft has a total length of 1.7. It consists of a left section with a diameter of 0.6 and a length of 0.8, and a right section with a diameter of 0.8 and a length of 0.8. A centerline is shown through the middle of the shaft.

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 dimensions: 4 (width of the marking area), 8 (total height), 2.9 (height of the marking area), 2 (height of the base), 0.65 (width of the marking area), and 1.35 (width of the base). The cross-section shows a height of 0.2 and a width of 1. A label "Cathode marking" points to the marking area.

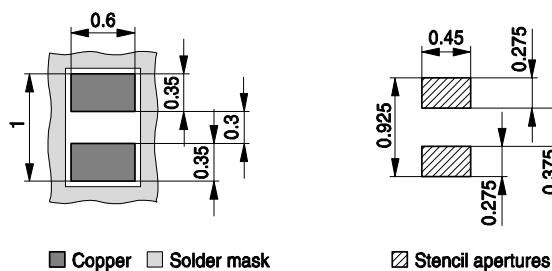
Package Outline



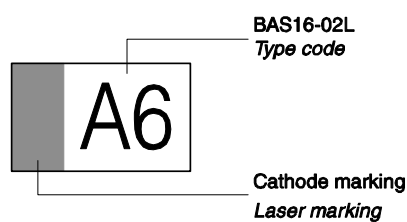
1) Dimension applies to plated terminal

Foot Print

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



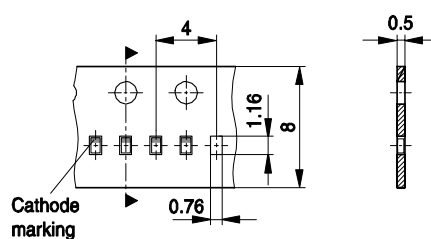
Marking Layout (Example)



Standard Packing

Reel ø180 mm = 15.000 Pieces/Reel

Reel ø330 mm = 50.000 Pieces/Reel (optional)



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