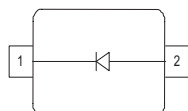
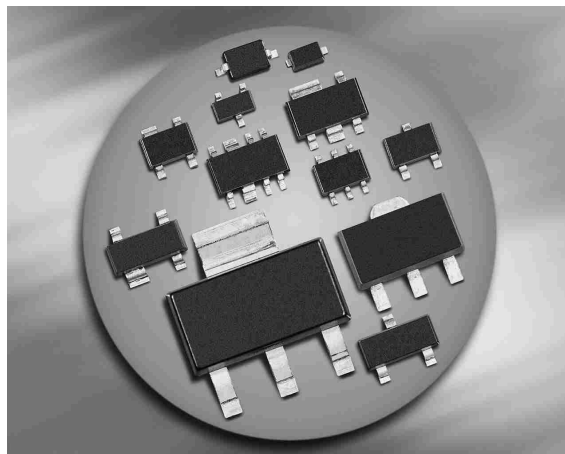


Silicon PIN Diode

- 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

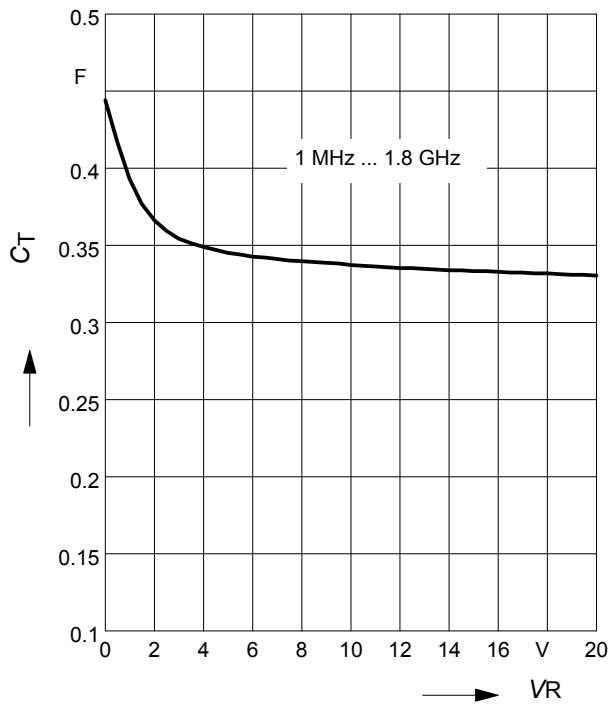
Electrical Characteristics at $T_A = 25^\circ\text{C}$, unless otherwise specified

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, $Z = 50\Omega$

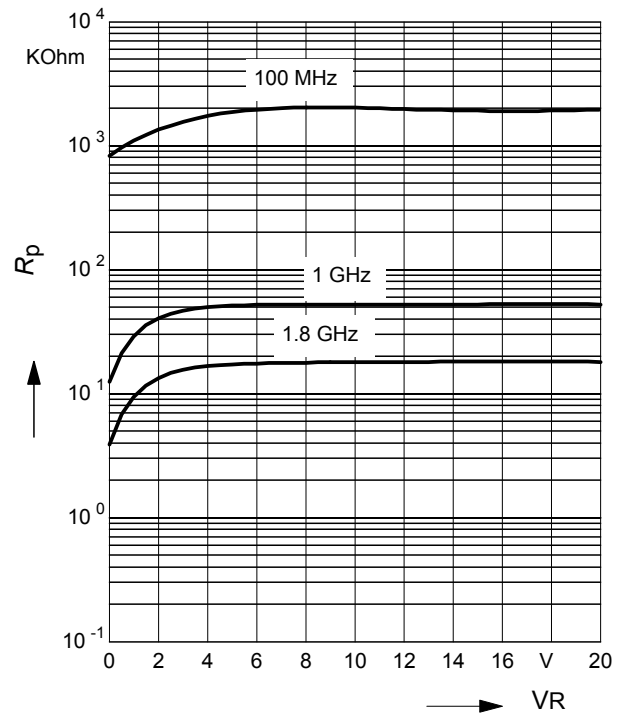
Diode capacitance $C_T = f(V_R)$

$f = \text{Parameter}$



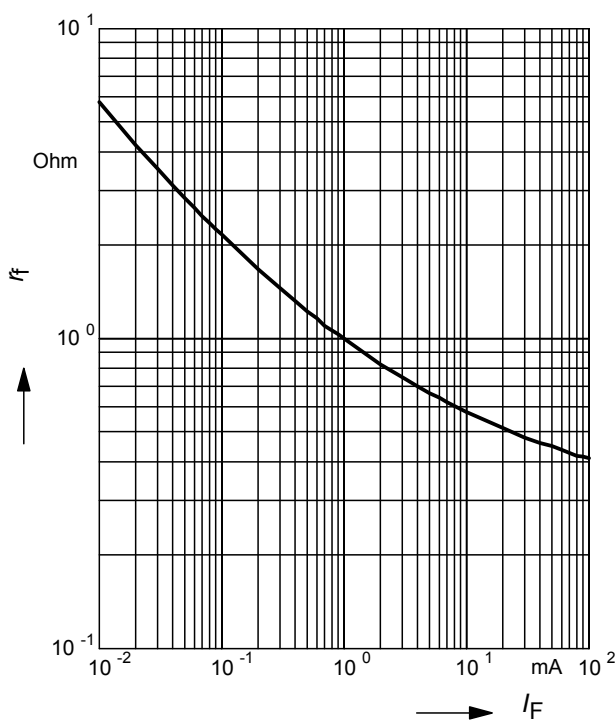
Reverse parallel resistance $R_P = f(V_R)$

$f = \text{Parameter}$



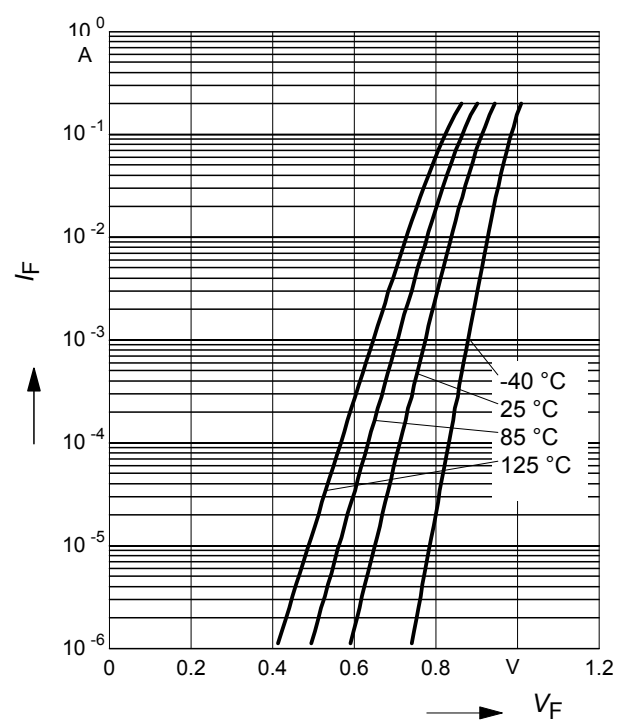
Forward resistance $r_f = f(I_F)$

$f = 100\text{MHz}$



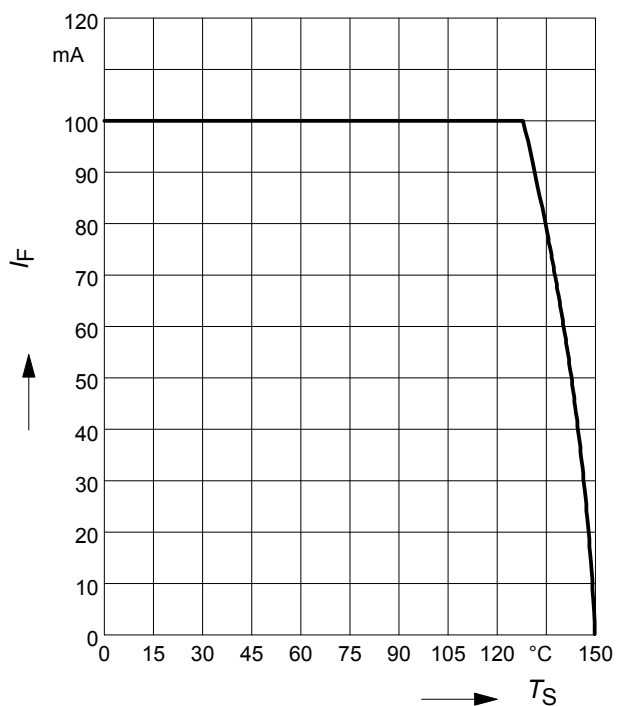
Forward current $I_F = f(V_F)$

$T_A = \text{Parameter}$



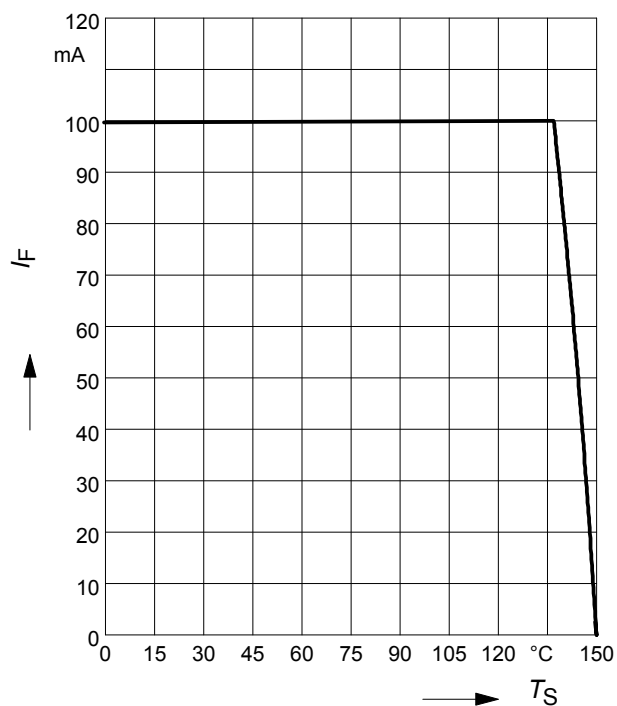
Forward current $I_F = f(T_S)$

BAR65-02L



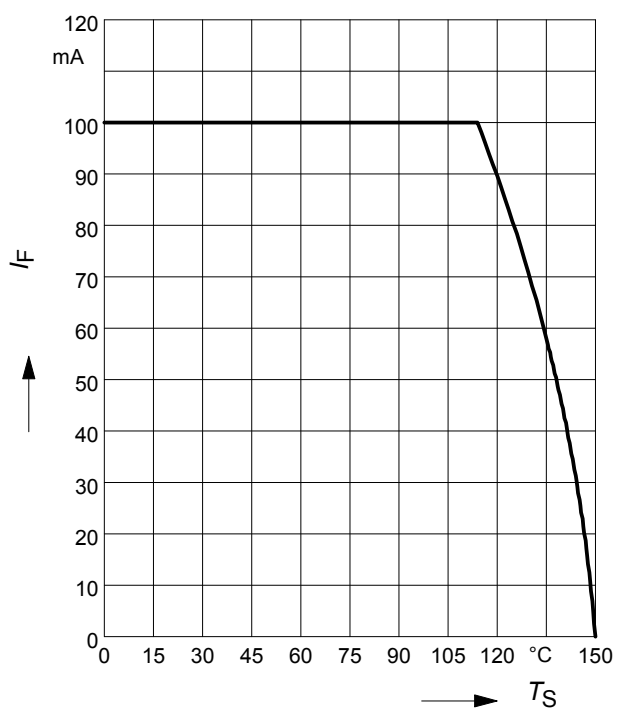
Forward current $I_F = f(T_S)$

BAR65-02V



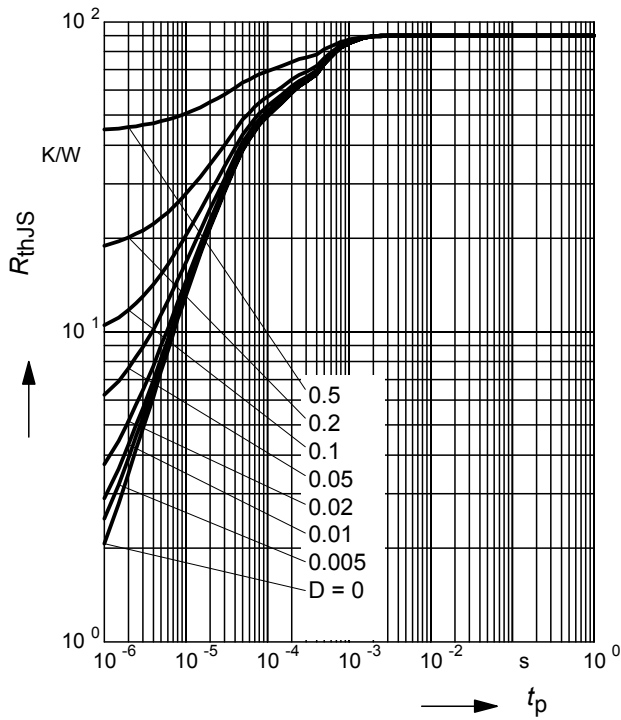
Forward current $I_F = f(T_S)$

BAR65-03W



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

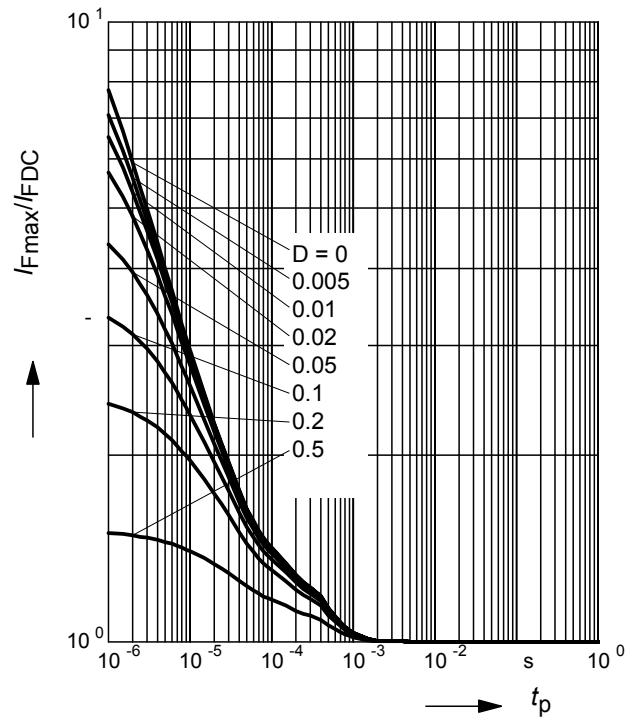
BAR65-02L



Permissible Pulse Load

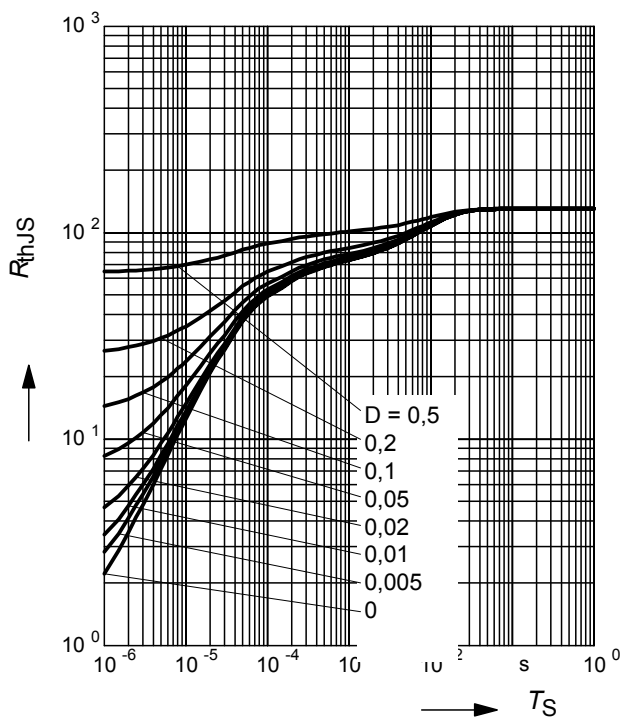
$$I_{Fmax}/I_{FDC} = f(t_p)$$

BAR65-02L



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

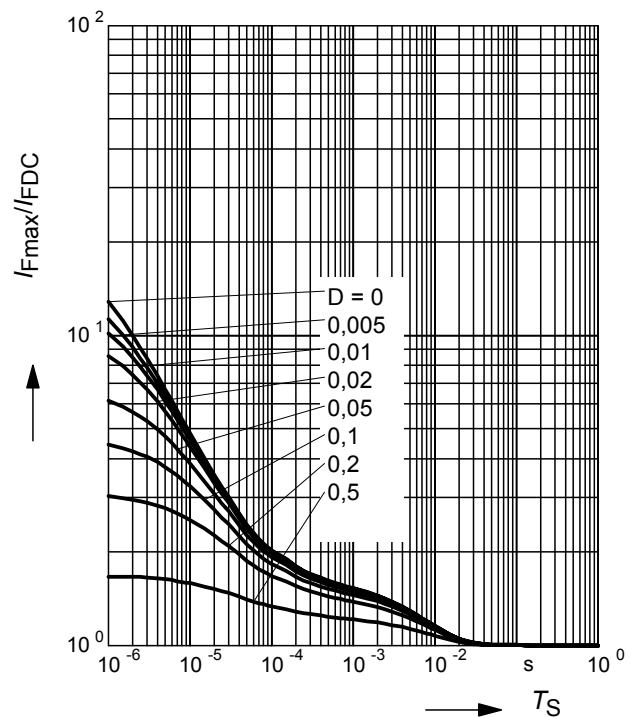
BAR65-02V



Permissible Pulse Load

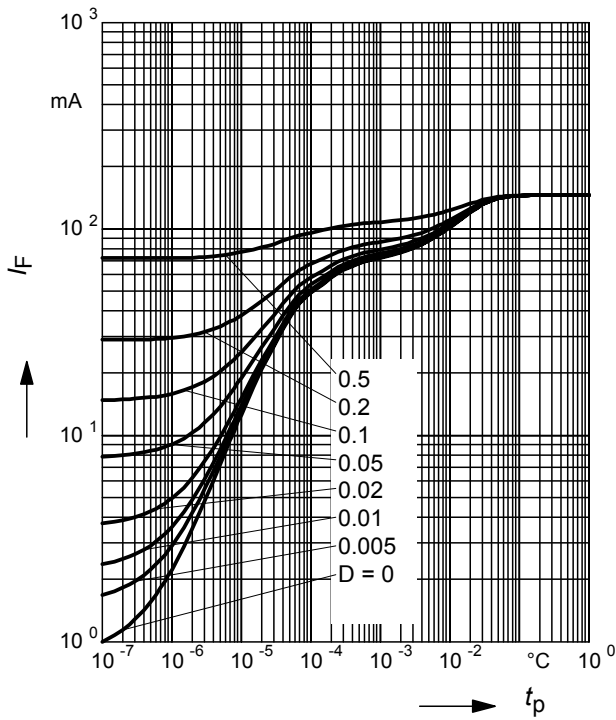
$$I_{Fmax}/I_{FDC} = f(t_p)$$

BAR65-02V



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

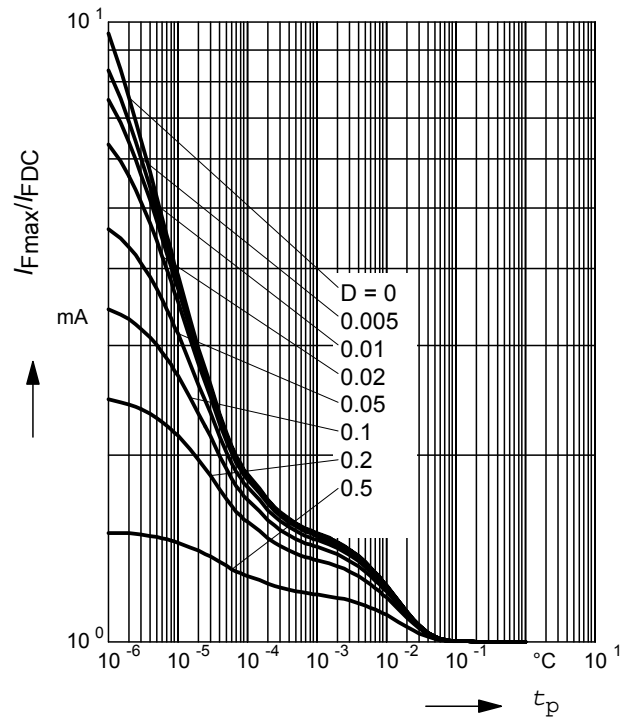
BAR65-03W



Permissible Pulse Load

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

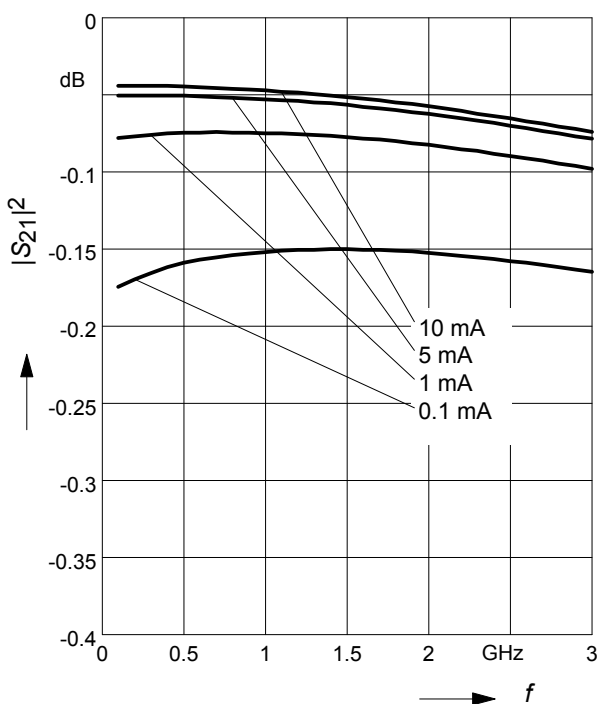
BAR65-03W



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

I_F = Parameter

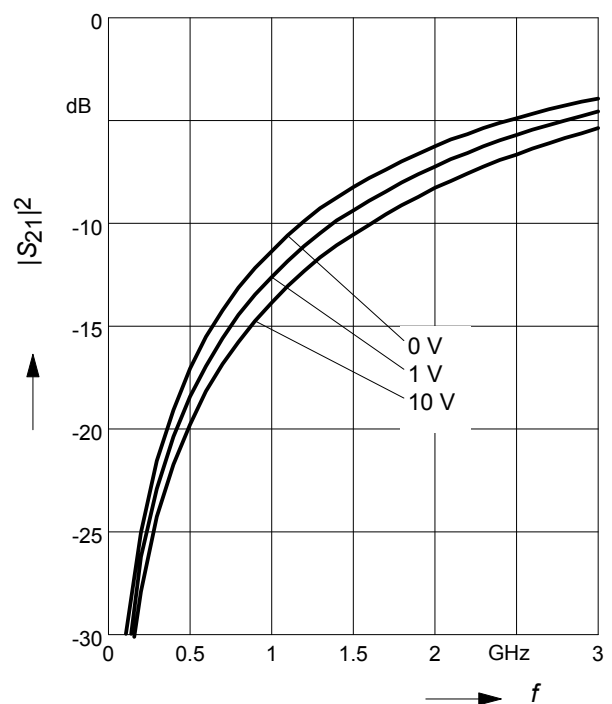
BAR65-02L in series configuration, $Z = 50\Omega$



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

V_R = Parameter

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



[illegible]

Diagram showing the elevation view of a stepped shaft. The shaft has a total length of 1.35 units. The diameter of the larger section is 0.35 units, and the diameter of the smaller section is 0.35 units.

2005, June
Date code

GF

BAR63-02V
Type code

Cathode marking
Laser marking

The figure contains three technical drawings of cathode marking components:

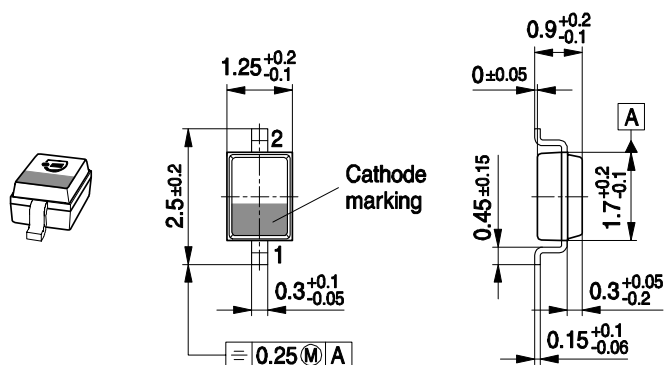
- Standard:** A top-down view of a component with a width of 8. It features two circular holes with a diameter of 4. The distance between the centers of these holes is 1.33. The distance from the center of the left hole to the left edge is 1.96. The distance from the center of the right hole to the right edge is 0.4. The distance from the center of the right hole to the right edge of the component is 0.93. A cathode marking is indicated on the left side.
- Reel with 2 mm Pitch:** A top-down view of a component with a width of 2. It features two circular holes with a diameter of 2. The distance between the centers of these holes is 2. A cathode marking is indicated on the left side.
- Side View:** A side view of the component showing a thickness of 0.66 and a width of 0.2.

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

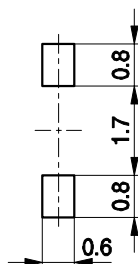
Month	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
01	a	p	A	P	a	p	A	P	a	p	A	P
02	b	q	B	Q	b	q	B	Q	b	q	B	Q
03	c	r	C	R	c	r	C	R	c	r	C	R
04	d	s	D	S	d	s	D	S	d	s	D	S
05	e	t	E	T	e	t	E	T	e	t	E	T
06	f	u	F	U	f	u	F	U	f	u	F	U
07	g	v	G	V	g	v	G	V	g	v	G	V
08	h	x	H	X	h	x	H	X	h	x	H	X
09	j	y	J	Y	j	y	J	Y	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.

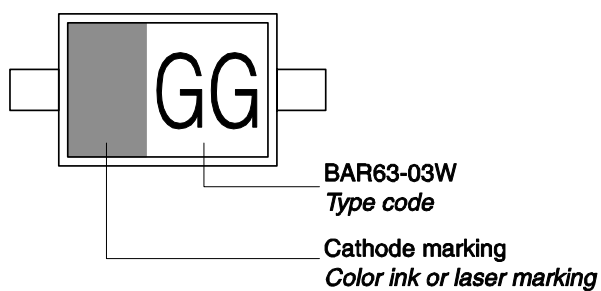
Package Outline



Foot Print

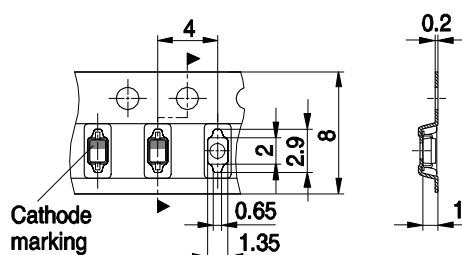


Marking Layout (Example)

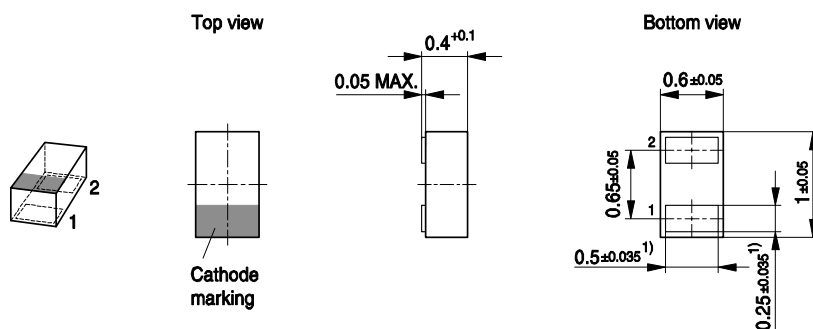


Standard Packing

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



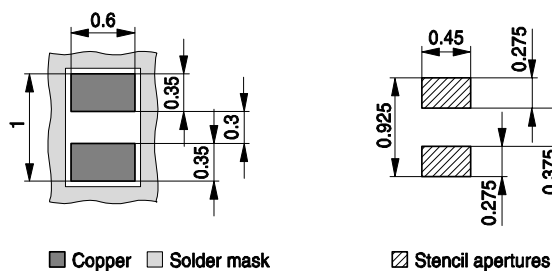
Package Outline



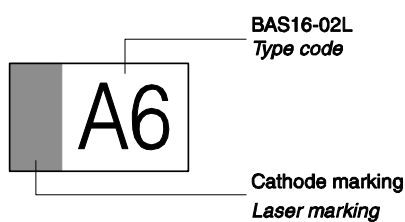
1) Dimension applies to plated terminal

Foot Print

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



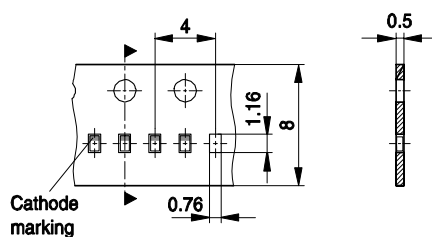
Marking Layout (Example)



Standard Packing

Reel ø180 mm = 15.000 Pieces/Reel

Reel ø330 mm = 50.000 Pieces/Reel (optional)



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