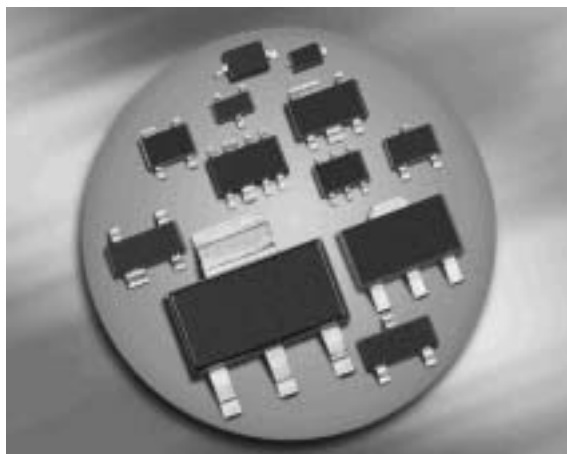


Silicon PIN Diode

- Optimized for low current antenna switches in hand held applications
- Very low forward resistance
(typ. 1.5Ω @ $I_F = 1 \text{ mA}$)
- Low capacitance at zero volt reverse bias at frequencies above 1 GHz (typ. 0.28 pF)
- Very low signal distortion
- Pb-free (RoHS compliant) package¹⁾
- Qualified according AEC Q101

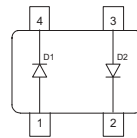
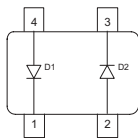
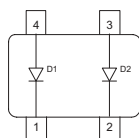
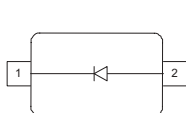


BAR88-02LRH
BAR88-02V

BAR88-07LRH

BAR88-099LRH

BAR88-098LRH



Type	Package	Configuration	$L_S(\text{nH})$	Marking
BAR88-02LRH	TSLP-2-7	single, leadless	0.4	U8
BAR88-02V	SC79	single	0.6	U
BAR88-07LRH	TSLP-4-7	parallel pair, leadless	0.4	T8
BAR88-098LRH	TSLP-4-7	anti-parallel, leadless	0.4	98
BAR88-099LRH	TSLP-4-7	anti parallel, leadless	0.4	S8

¹⁾Pb-containing package may be available upon special request

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

Parameter	Symbol	Value	Unit
Diode reverse voltage	V_R	80	V
Forward current	I_F	100	mA
Total power dissipation BAR88-02LRH, -07LRH $T_S \leq 133^\circ\text{C}$ BAR88-02V, $T_S \leq 123^\circ\text{C}$ BAR88-098LRH, -099LRH $T_S \leq 133^\circ\text{C}$	P_{tot}	250 250 250	mW
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⁾ BAR88-02LRH, -07LRH BAR88-02V BAR88-098LRH, -099LRH	R_{thJS}	≤ 65 ≤ 105 ≤ 65	K/W

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

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC Characteristics					
Breakdown voltage $I_{(\text{BR})} = 5 \mu\text{A}$	$V_{(\text{BR})}$	80	-	-	V
Reverse current $V_{\text{R}} = 60 \text{ V}$	I_{R}	-	-	50	nA
Forward voltage $I_{\text{F}} = 1 \text{ mA}$ $I_{\text{F}} = 100 \text{ mA}$	V_{F}	- -	0.75 0.95	0.9 1.2	V

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

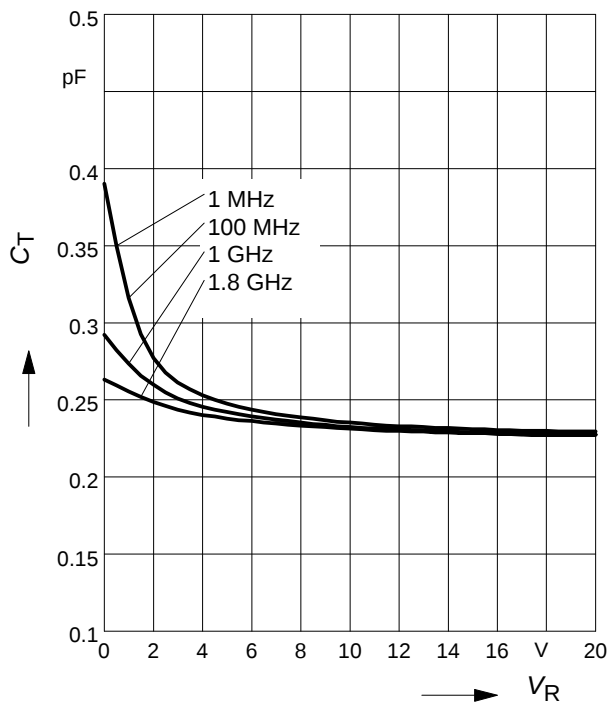
Electrical Characteristics at $T_A = 25^\circ\text{C}$, unless otherwise specified

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
AC Characteristics					
Diode capacitance $V_R = 1\text{ V}$, $f = 1\text{ MHz}$ $V_R = 0\text{ V}$, $f = 100\text{ MHz}$ $V_R = 0\text{ V}$, $f = 1\text{ GHz}$ $V_R = 0\text{ V}$, $f = 1.8\text{ GHz}$	C_T	- - - -	0.3 0.4 0.28 0.25	0.4 - - -	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	- - -	65 2.5 1.5	- - -	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	- - -	1.5 0.8 0.6	2.5 - -	Ω
Charge carrier life time $I_F = 10\text{ mA}$, $I_R = 6\text{ mA}$, measured at $I_R = 3\text{ mA}$, $R_L = 100\text{ Ω}$	τ_{rr}	-	500	-	ns
I-region width	W_I	-	13	-	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	- - -	0.11 0.07 0.06	- - -	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}	- - -	15 11 9	- - -	

¹⁾BAR88-02LRH in series configuration, $Z = 50\ \Omega$

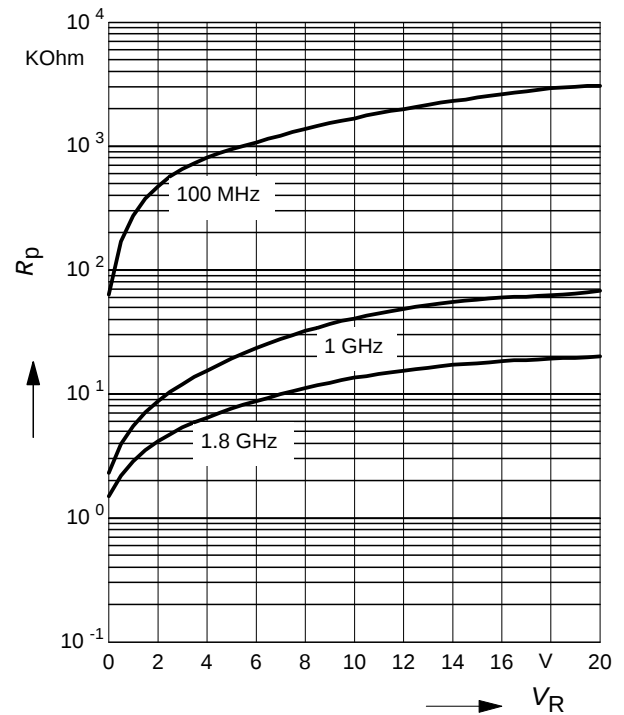
Diode capacitance $C_T = f(V_R)$

f = Parameter



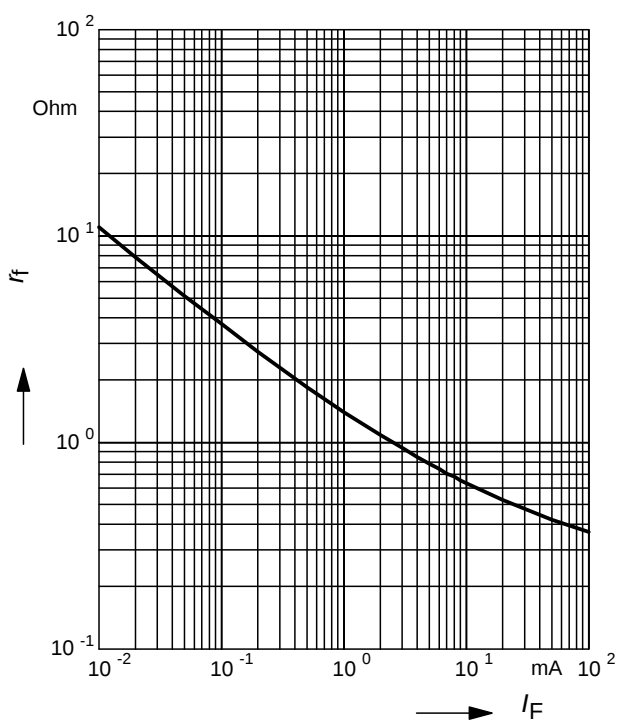
Reverse parallel resistance $R_P = f(V_R)$

f = Parameter



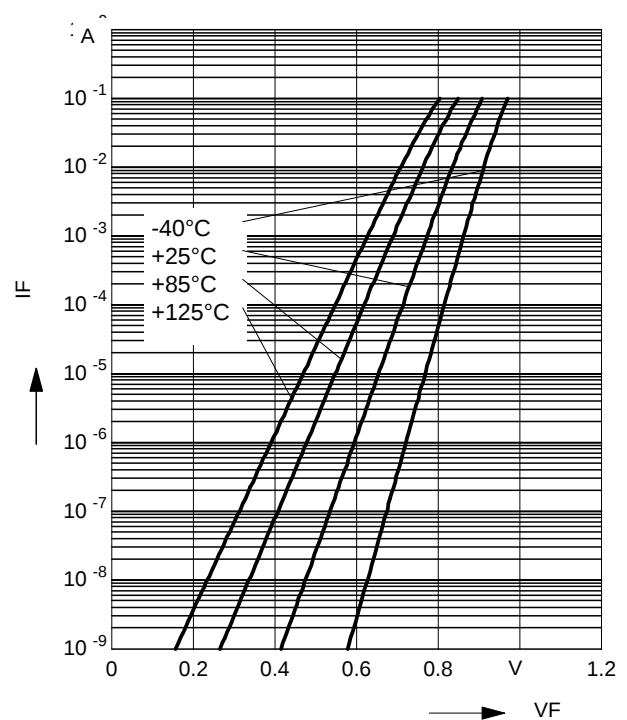
Forward resistance $r_f = f(I_F)$

f = 100MHz



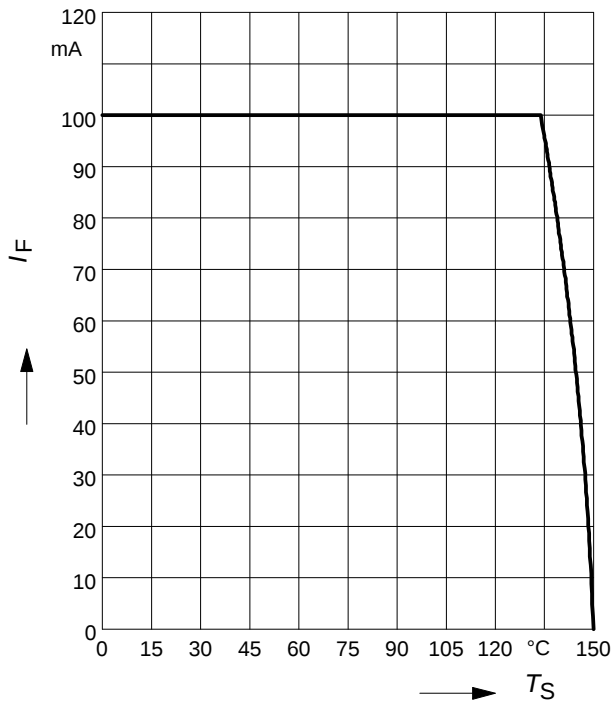
Forward current $I_F = f(V_F)$

T_A = Parameter



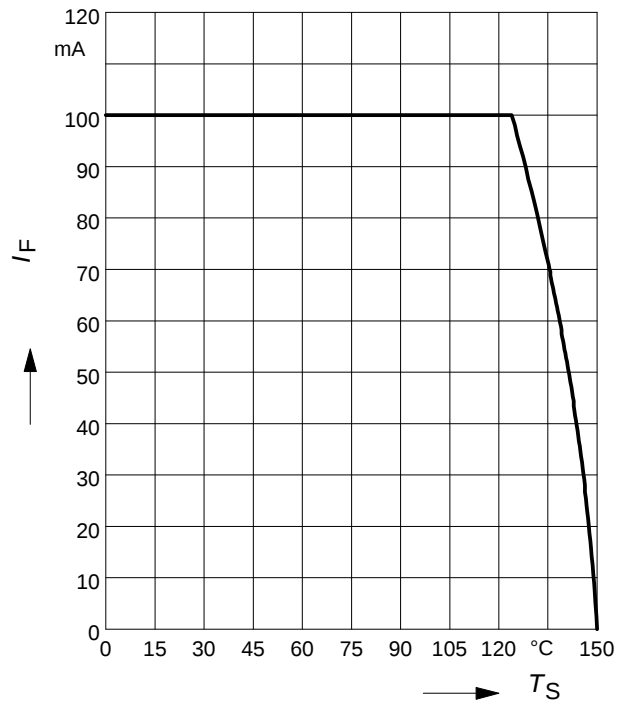
Forward current $I_F = f(T_S)$

BAR88-02LRH, -07LRH,
-098LRH, -099LRH



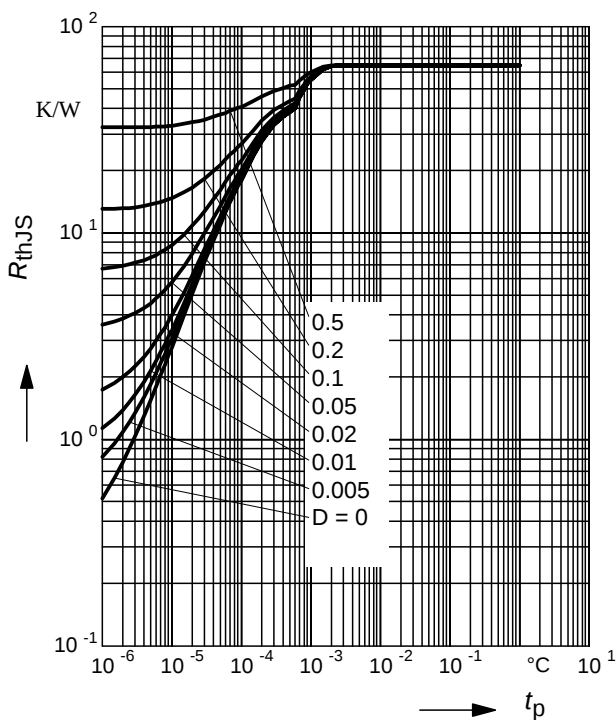
Forward current $I_F = f(T_S)$

BAR88-02V



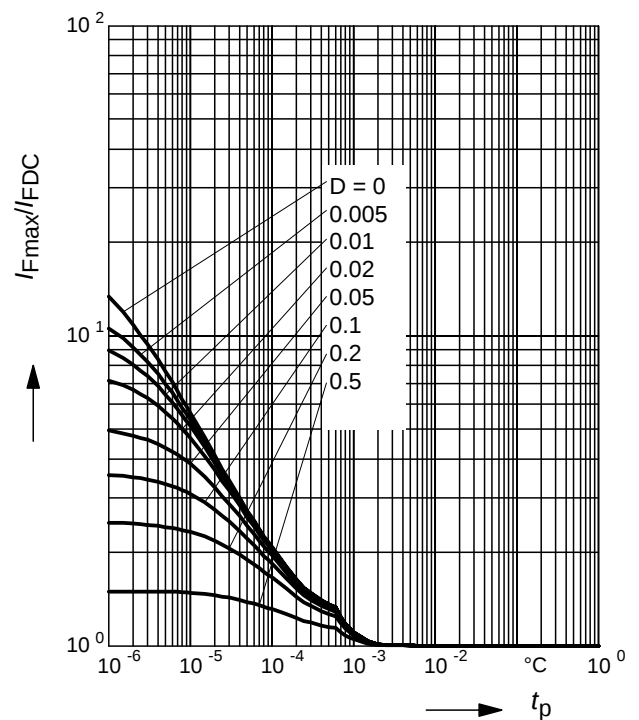
Permissible Puls Load $R_{thJS} = f(t_p)$

BAR88-02LRH, -07LRH
-098LRH, -099LRH



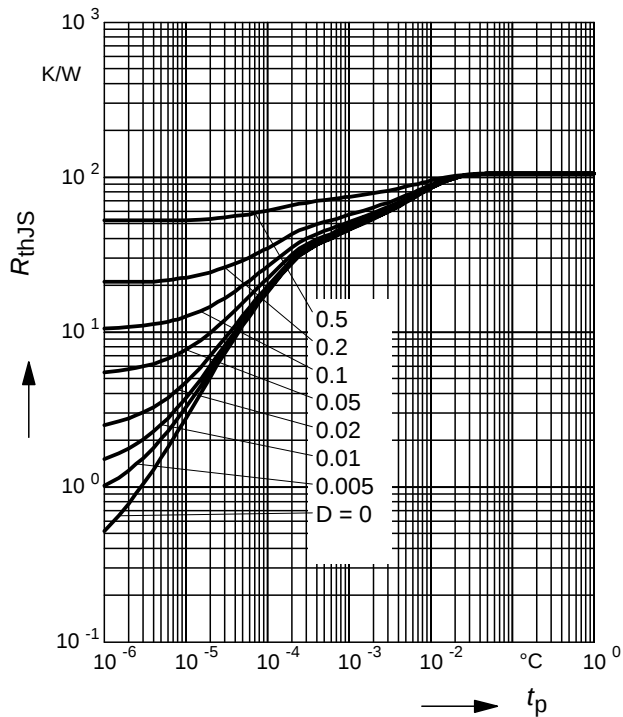
Permissible Pulse Load

$I_{Fmax}/I_{FDC} = f(t_p)$, BAR88-02LRH
-07LRH, -098LRH, -099LRH



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

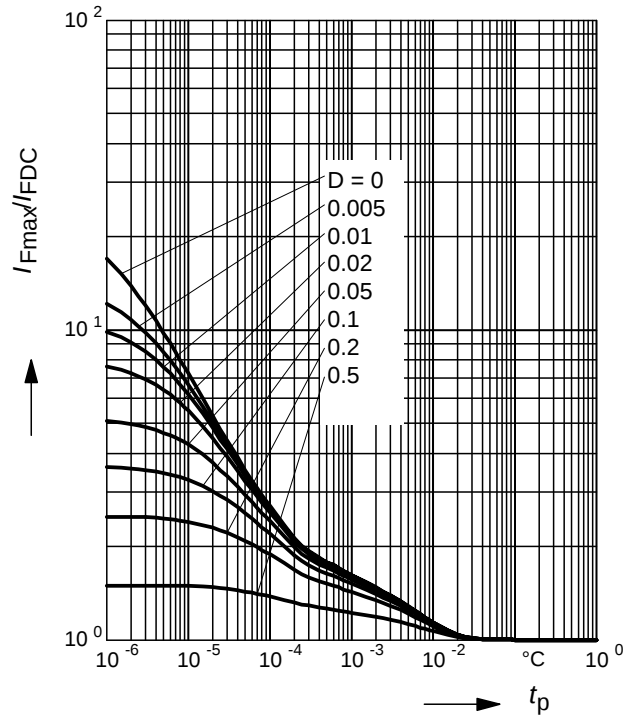
BAR88-02V



Permissible Pulse Load

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

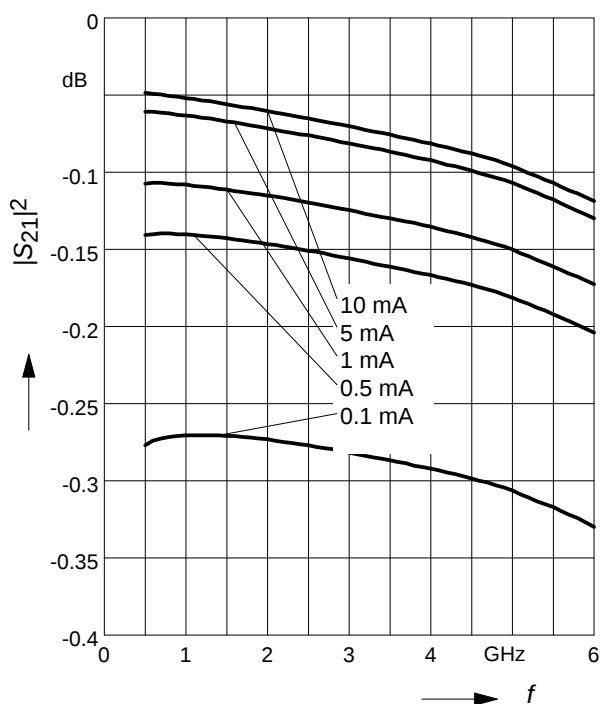
BAR88-02V



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

I_F = Parameter

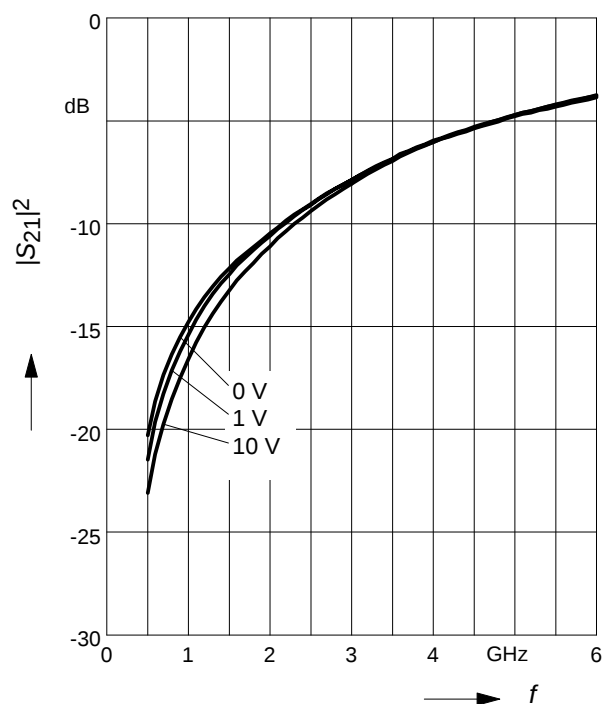
BAR88-02LRH in series configuration, $Z = 50\Omega$



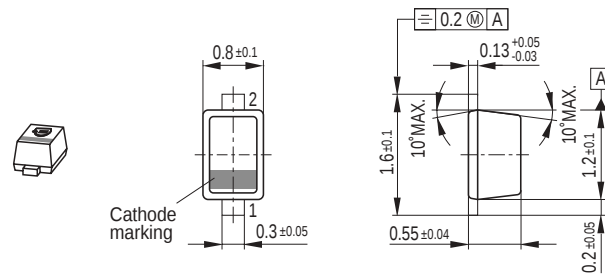
Isolation $I_{SO} = -|S_{21}|^2 = f(f)$

V_R = Paramter

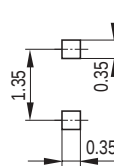
BAR88-02LRH in series configuration, $Z = 50\Omega$



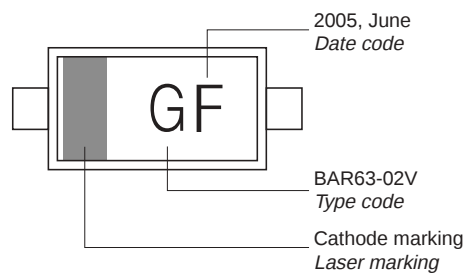
Package Outline



Foot Print

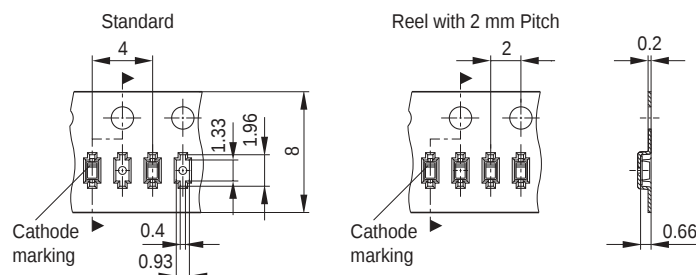


Marking Layout (Example)



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

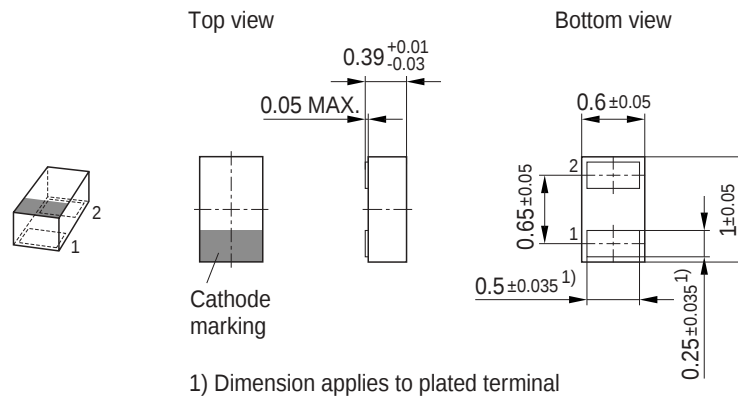


Date Code marking for discrete packages with one digit (SCD80, SC79, SC75¹⁾) CES-Code

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

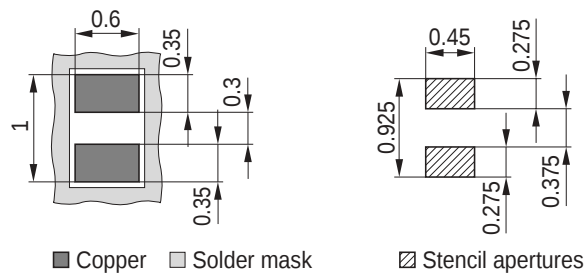
1) New Marking Layout for SC75, implemented at October 2005.

Package Outline

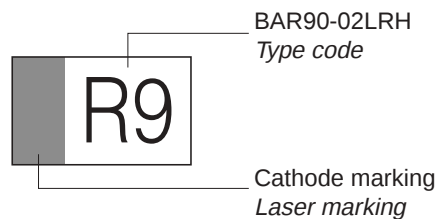


Foot Print

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



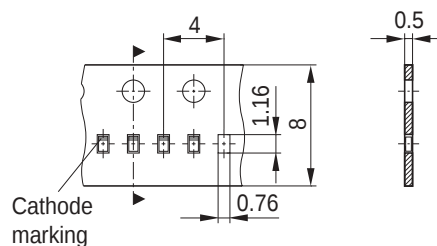
Marking Layout (Example)



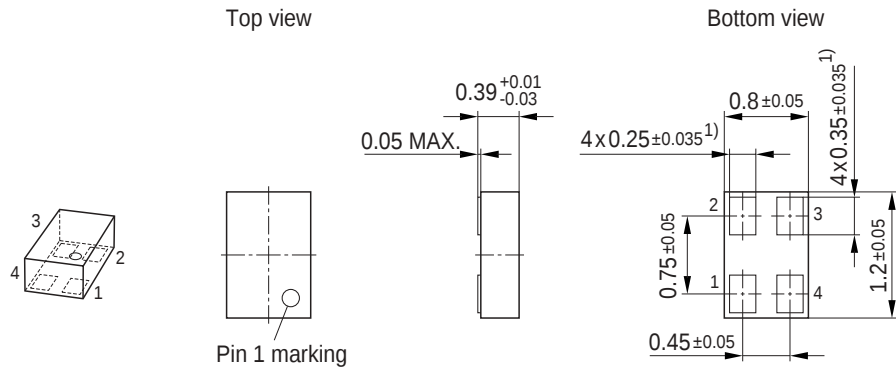
Standard Packing

Reel ø180 mm = 15.000 Pieces/Reel

Reel ø330 mm = 50.000 Pieces/Reel (optional)



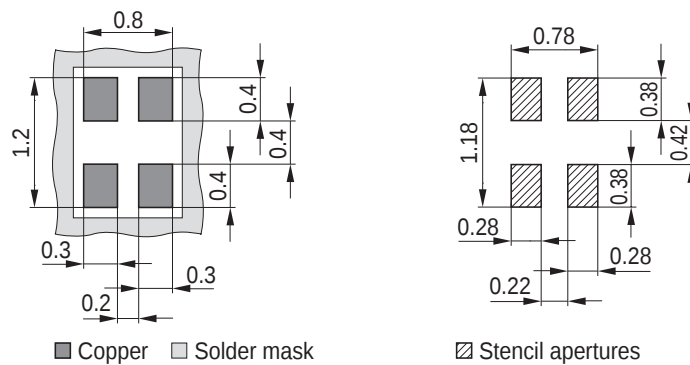
Package Outline



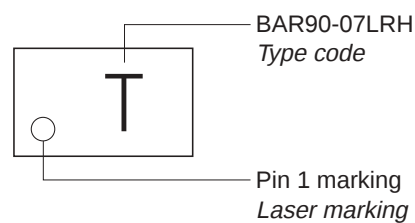
1) Dimension applies to plated terminal

Foot Print

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

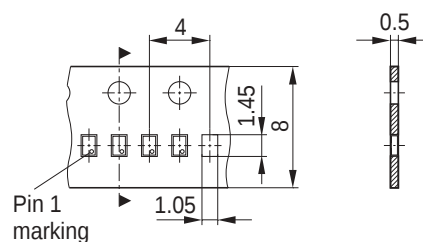


Marking Layout (Example)



Standard Packing

Reel ø180 mm = 15.000 Pieces/Reel



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