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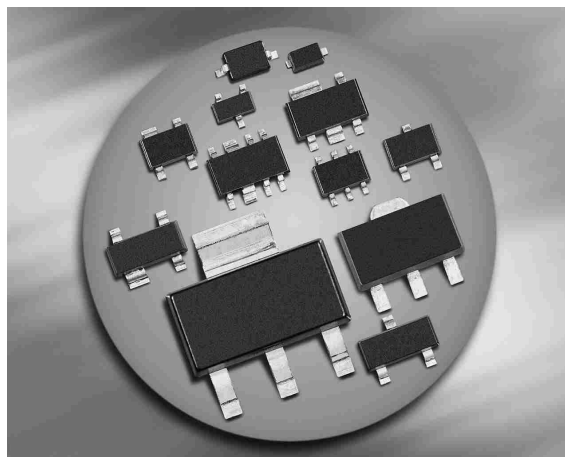
sales@integrated-circuit.com



BAR65...

Silicon PIN Diode

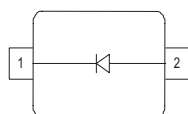
- Series diode for mobile communication in low loss transmit-receiver switches
- Band switch for TV-tuners
- Very low forward resistance (typ. $0.65 \Omega @ 5 \text{ mA}$)
- Low capacitance (typ. $0.5 \text{ pF} @ 0\text{V}$)
- Fast switching applications
- Pb-free (RoHS compliant) package



BAR65-02L

BAR65-02V

BAR65-03W



Type	Package	Configuration	L_S (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	



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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


BAR65...
Electrical Characteristics at $T_A = 25^\circ\text{C}$, unless otherwise specified

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
AC Characteristics					
Diode capacitance	C_T	-	0.45	0.9	pF
$V_R = 1\text{ V}, f = 1\text{ MHz}$		-	0.4	0.8	
$V_R = 3\text{ V}, f = 1\text{ MHz}$		-	0.5	-	
$V_R = 0\text{ V}, f = 100\text{ MHz} \dots 1.8\text{ GHz}$		-	-	-	
Reverse parallel resistance	R_P	-	700	-	k Ω
$V_R = 0\text{ V}, f = 100\text{ MHz}$		-	10	-	
$V_R = 0\text{ V}, f = 1\text{ GHz}$		-	5	-	
$V_R = 0\text{ V}, f = 1.8\text{ GHz}$		-	-	-	
Forward resistance	r_f	-	1	-	Ω
$I_F = 1\text{ mA}, f = 100\text{ MHz}$		-	0.65	0.95	
$I_F = 5\text{ mA}, f = 100\text{ MHz}$		-	0.56	0.9	
$I_F = 10\text{ mA}, f = 100\text{ MHz}$		-	-	-	
Charge carrier life time	τ_{rr}	-	80	-	ns
$I_F = 10\text{ mA}, I_R = 6\text{ mA}$, measured at $I_R = 3\text{ mA}$, $R_L = 100\ \Omega$		-	-	-	
I-region width	W_I	-	3.5	-	μm
Insertion loss ¹⁾	I_L	-	0.08	-	dB
$I_F = 1\text{ mA}, f = 1.8\text{ GHz}$		-	0.06	-	
$I_F = 5\text{ mA}, f = 1.8\text{ GHz}$		-	0.05	-	
$I_F = 10\text{ mA}, f = 1.8\text{ GHz}$		-	-	-	
Isolation ¹⁾	I_{SO}	-	12	-	
$V_R = 0\text{ V}, f = 0.9\text{ GHz}$		-	7	-	
$V_R = 0\text{ V}, f = 1.8\text{ GHz}$		-	5	-	
$V_R = 0\text{ V}, f = 2.45\text{ GHz}$		-	-	-	

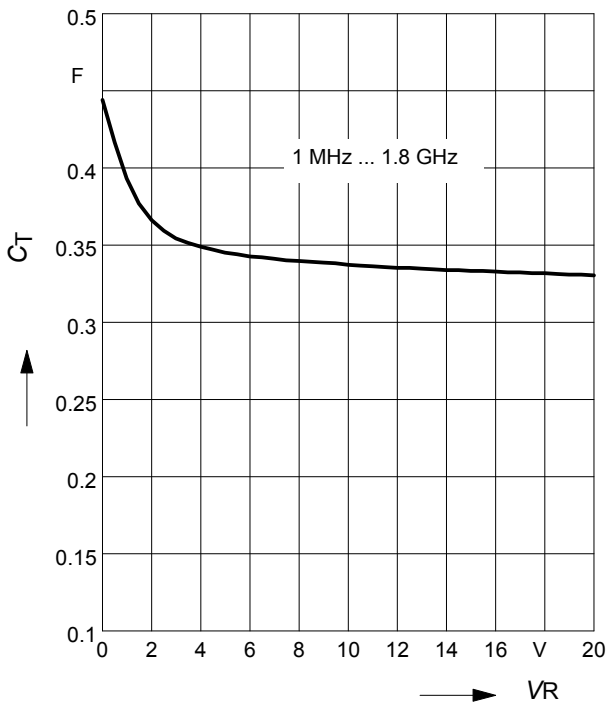
¹BAR65-02L in series configuration, $Z = 50\ \Omega$



BAR65...

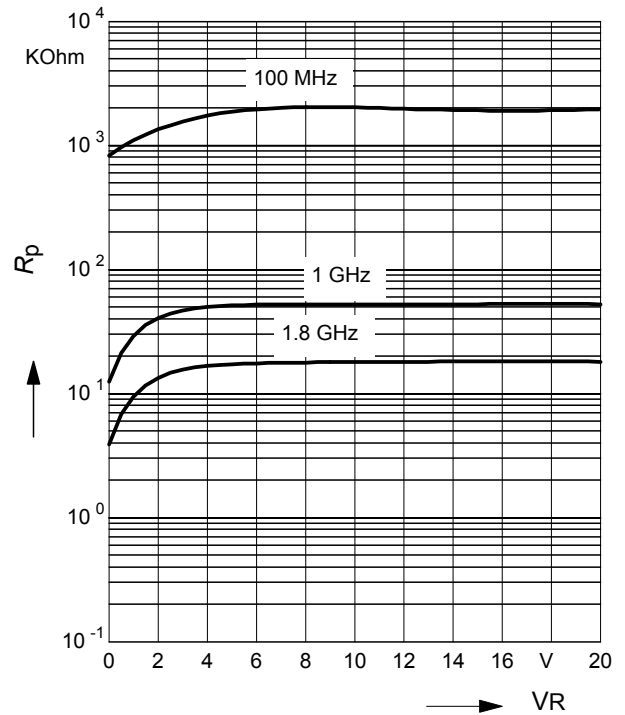
Diode capacitance $C_T = f(V_R)$

$f =$ Parameter



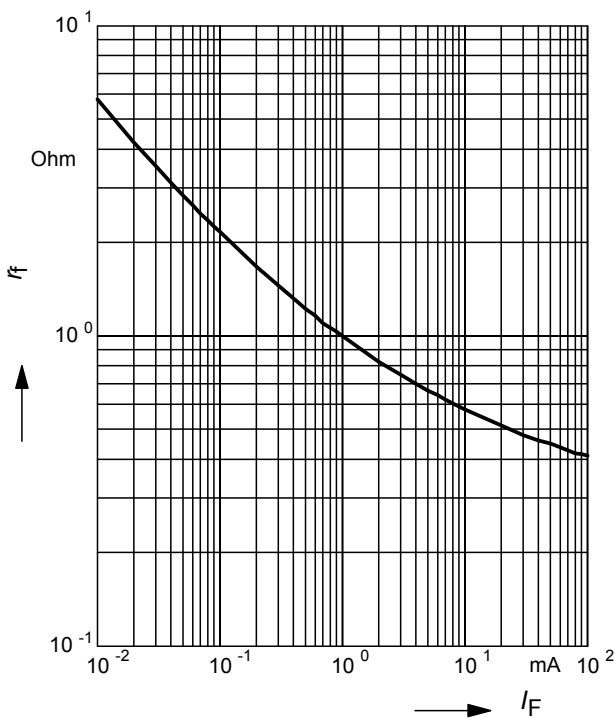
Reverse parallel resistance $R_P = f(V_R)$

$f =$ Parameter



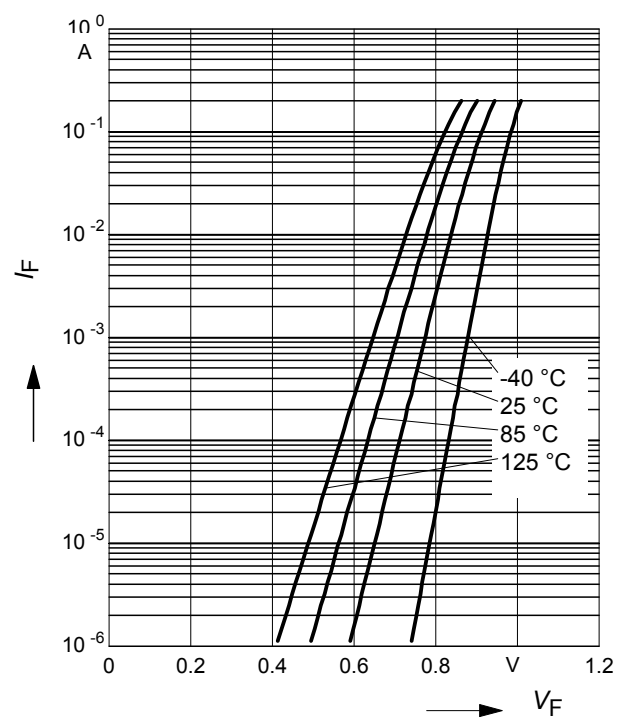
Forward resistance $r_f = f(I_F)$

$f = 100\text{MHz}$



Forward current $I_F = f(V_F)$

$T_A =$ Parameter

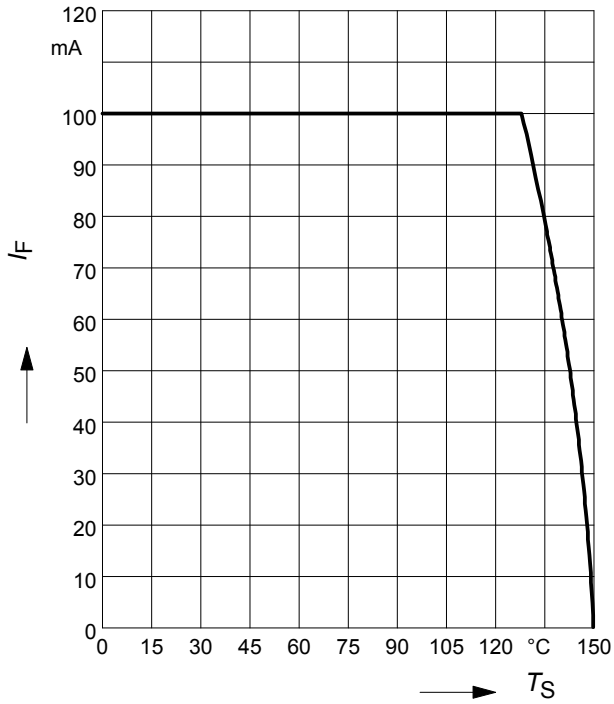




BAR65...

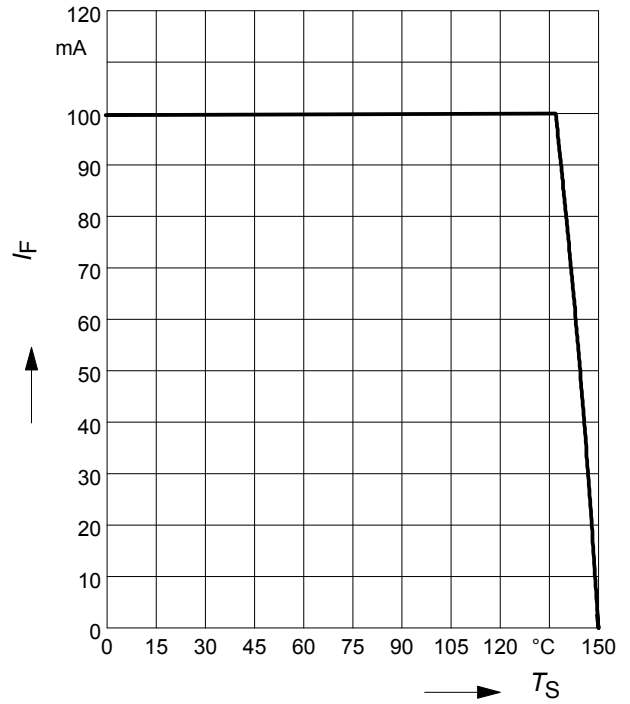
Forward current $I_F = f(T_S)$

BAR65-02L



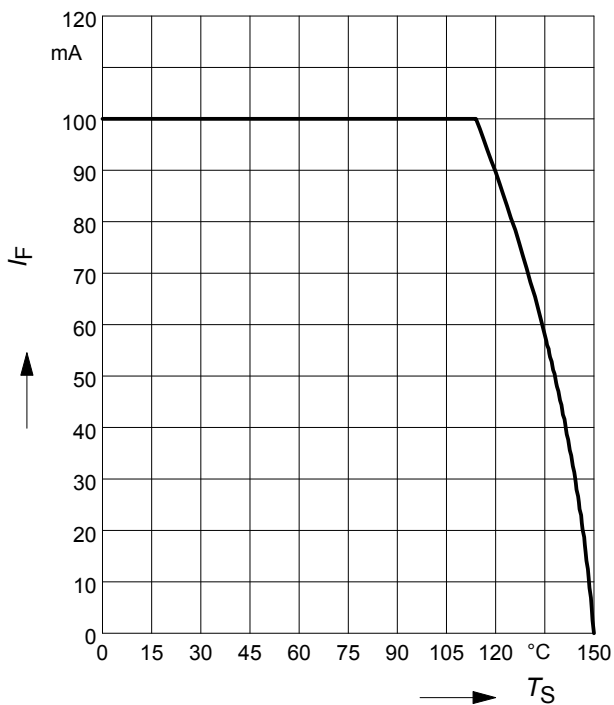
Forward current $I_F = f(T_S)$

BAR65-02V



Forward current $I_F = f(T_S)$

BAR65-03W

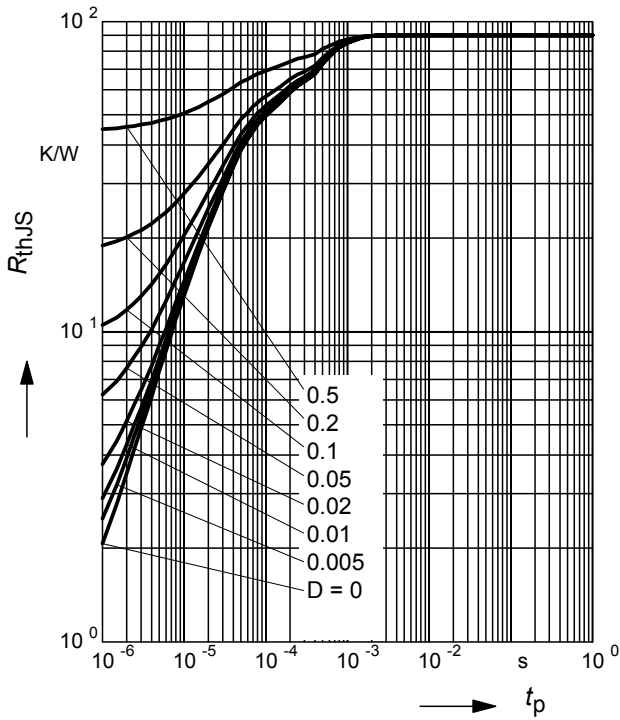




BAR65...

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

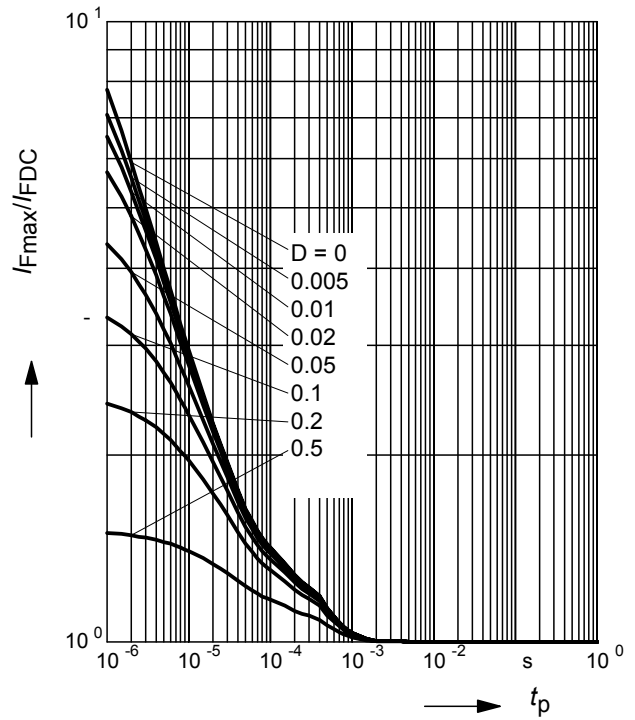
BAR65-02L



Permissible Pulse Load

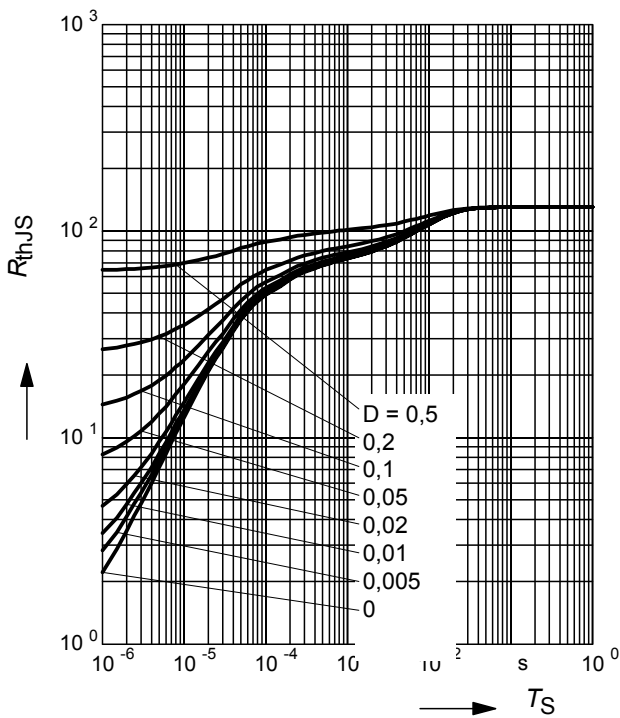
$I_{Fmax} / I_{FDC} = f(t_p)$

BAR65-02L



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

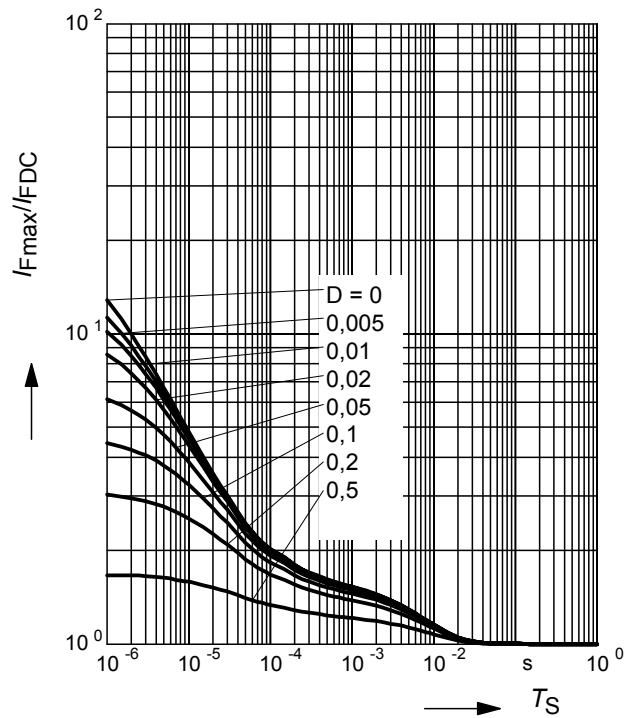
BAR65-02V



Permissible Pulse Load

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

BAR65-02V

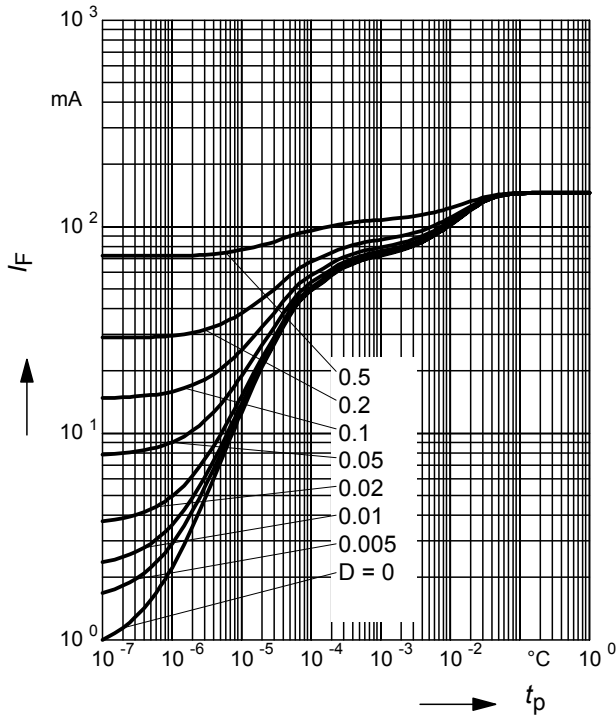




BAR65...

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

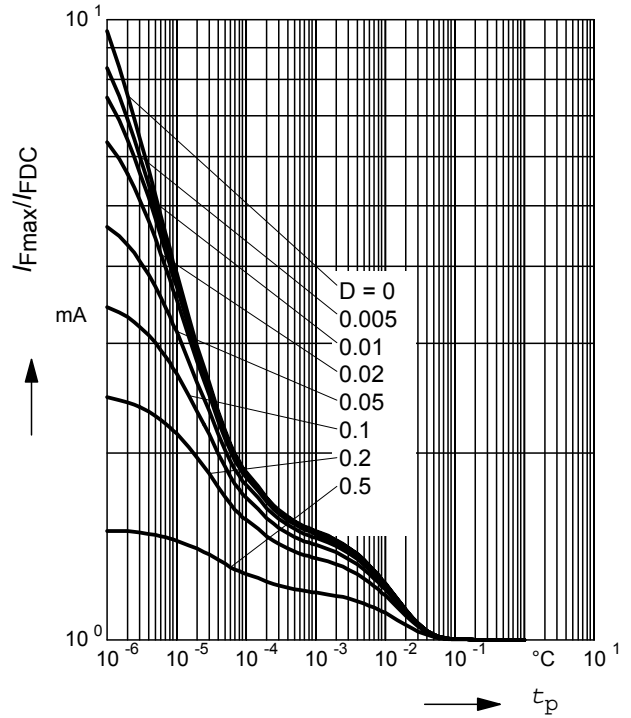
BAR65-03W



Permissible Pulse Load

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

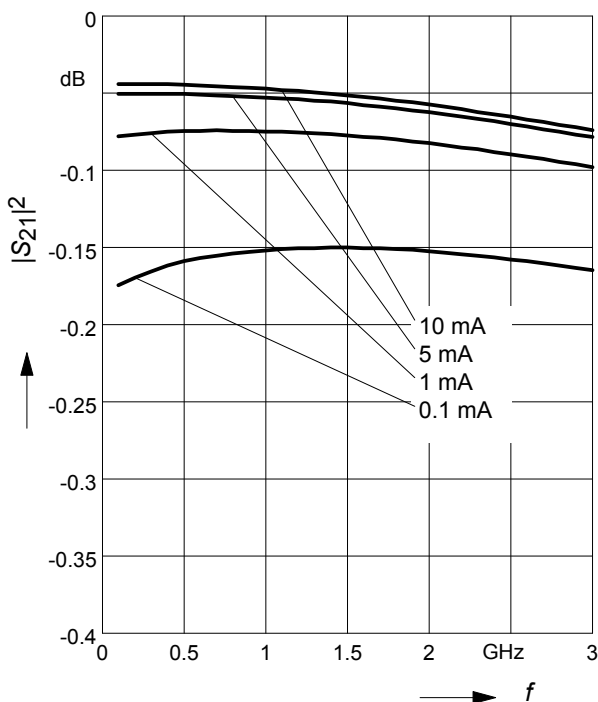
BAR65-03W



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

I_F = Parameter

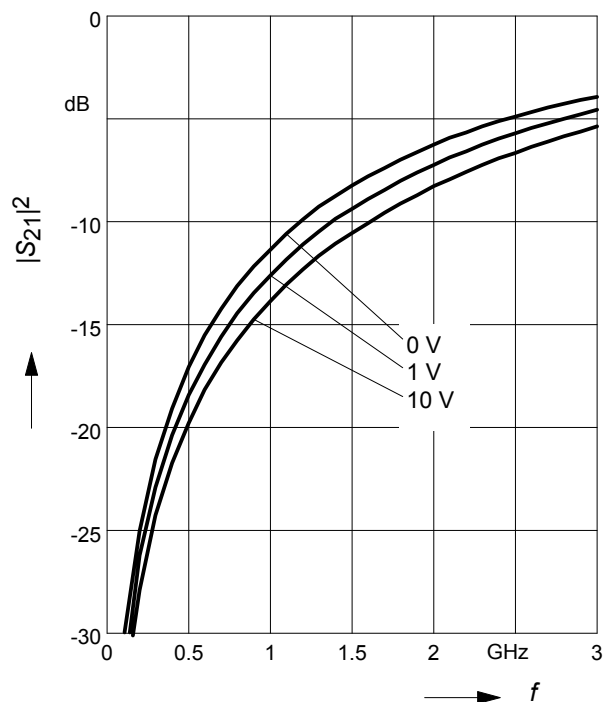
BAR65-02L in series configuration, $Z = 50\Omega$



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

V_R = Parameter

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

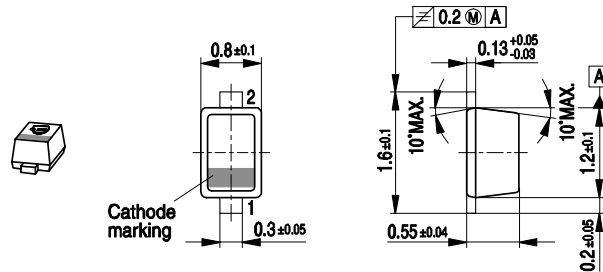




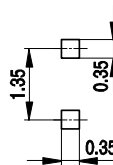
Package SC79

BAR65...

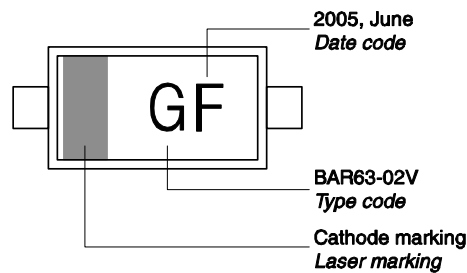
Package Outline



Foot Print

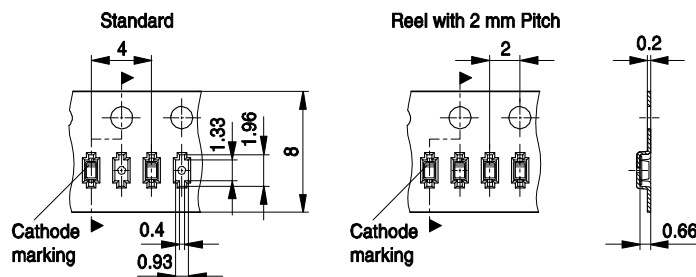


Marking Layout (Example)



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





BAR65...

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

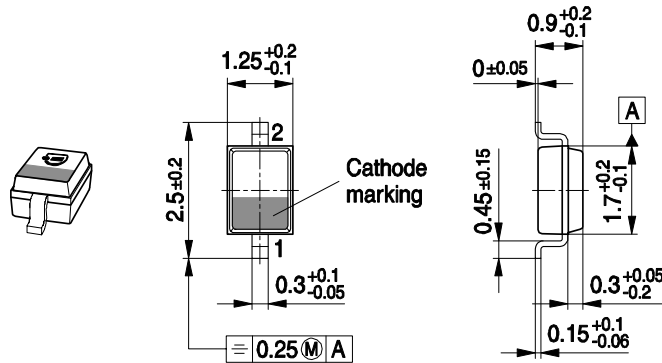
1) New Marking Layout for SC75, implemented at October 2005.



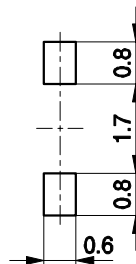
Package SOD323

BAR65...

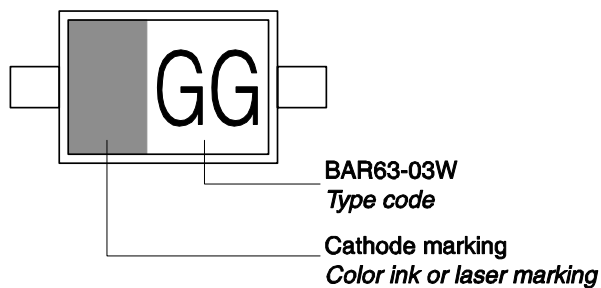
Package Outline



Foot Print

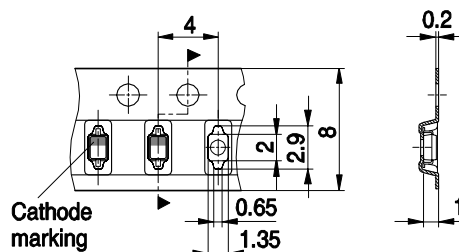


Marking Layout (Example)



Standard Packing

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

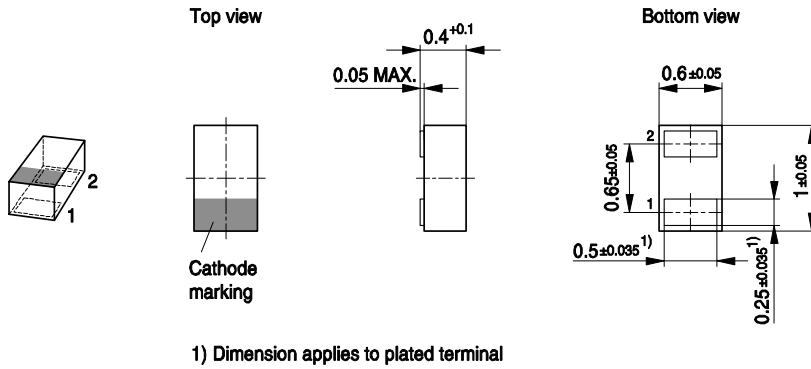




Package TSLP-2-1

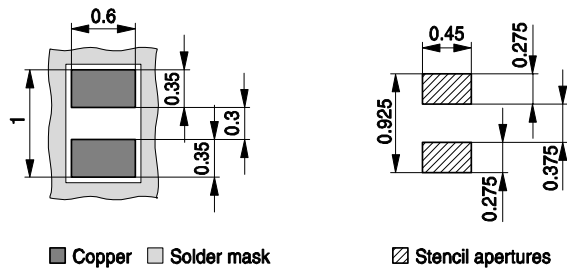
BAR65...

Package Outline

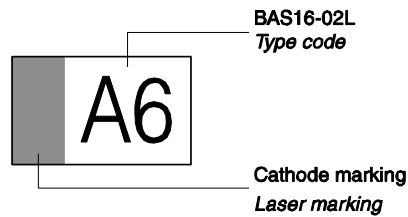


Foot Print

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

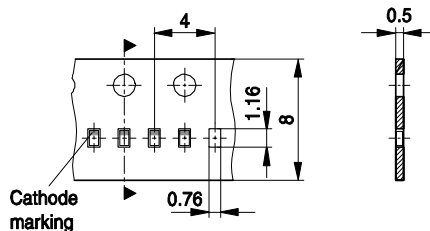


Marking Layout (Example)



Standard Packing

Reel ø180 mm = 15.000 Pieces/Reel
 Reel ø330 mm = 50.000 Pieces/Reel (optional)





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