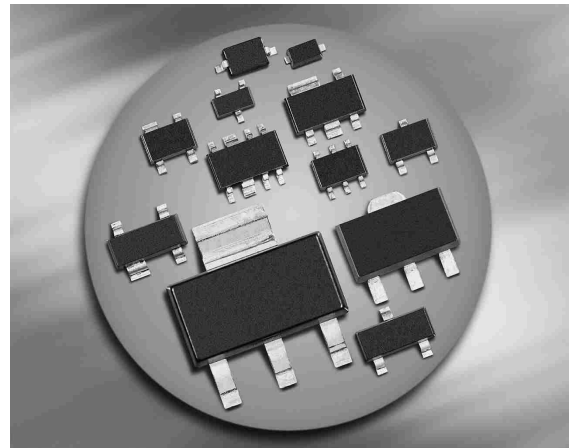
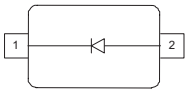
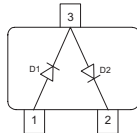
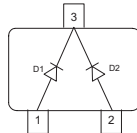
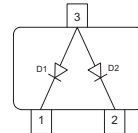
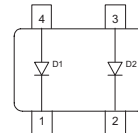


Silicon PIN Diodes

- PIN diode for high speed switching of RF signals
- Very low forward resistance (low insertion loss)
- Very low capacitance (high isolation)
- For frequencies up to 3GHz


BAR63-02..
BAR63-03W

BAR63-04
BAR63-04W

BAR63-05
BAR63-05W

BAR63-06
BAR63-06W

BAR63-07L4


Type	Package	Configuration	L_S (nH)	Marking
BAR63-02L*	TSLP-2-1	single, leadless	0.4	G
BAR63-02V	SC79	single	0.6	G
BAR63-02W	SCD80	single	0.6	GG
BAR63-03W	SOD323	single	1.8	G
BAR63-04	SOT23	series	1.8	G4s
BAR63-04W	SOT323	series	1.4	G4s
BAR63-05	SOT23	common cathode	1.8	G5s
BAR63-05W	SOT323	common cathode	1.4	G5s
BAR63-06	SOT23	common anode	1.8	G6s
BAR63-06W	SOT323	common anode	1.4	G6s
BAR63-07L4*	TSLP-4-4	parallel pair, leadless	0.4	P3s

* preliminary data

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

Parameter	Symbol	Value	Unit
Diode reverse voltage	V_R	50	V
Forward current	I_F	100	mA
Total power dissipation	P_{tot}		mW
BAR63-02L, $T_S \leq 118^\circ\text{C}$		250	
BAR63-02V, -02W, BAR63-03W, $T_S \leq 115^\circ\text{C}$		250	
BAR63-04...BAR63-06, $T_S \leq 55^\circ\text{C}$		250	
BAR63-04S, $T_S \leq 115^\circ\text{C}$		250	
BAR63-04W...BAR63-06W, $T_S \leq 105^\circ\text{C}$		250	
BAR63-07L4, $T_S \leq \text{tdb}$		250	
Junction temperature	T_j	150	°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
BAR63-02L		≤ 125	
BAR63-02V, BAR63-02W		≤ 140	
BAR63-03W		≤ 155	
BAR63-04...BAR63-06		≤ 380	
BAR63-04S		≤ 180	
BAR63-04W...BAR63-06W		≤ 180	
BAR63-07L4		$\leq \text{tdb}$	

¹For calculation of R_{thJA} please refer to the Technical Information

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

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC Characteristics					
Breakdown voltage $I_{(BR)} = 5 \mu\text{A}$	$V_{(BR)}$	50	-	-	V
Reverse current $V_R = 35 \text{ V}$	I_R	-	-	10	nA
Forward voltage $I_F = 100 \text{ mA}$	V_F	-	0.95	1.2	V

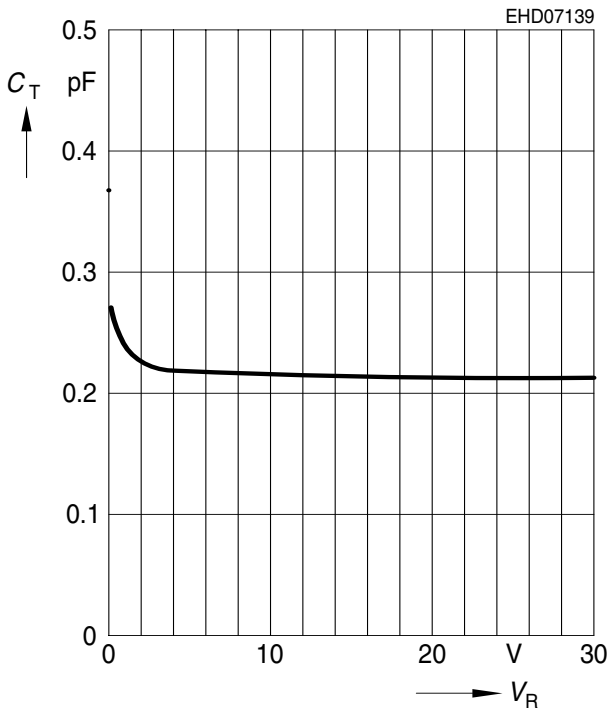
Electrical Characteristics at $T_A = 25^\circ\text{C}$, unless otherwise specified

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
AC Characteristics					
Diode capacitance $V_R = 5\text{ V}, f = 1\text{ MHz}$ $V_R = 0\text{ V}, 100\text{ MHz} \dots 1.8\text{ GHz}$	C_T	- -	0.21 0.3	0.3 -	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	- - -	500 15 5	- - -	k Ω
Forward resistance $I_F = 5\text{ mA}, f = 100\text{ MHz}$ $I_F = 10\text{ mA}, f = 100\text{ MHz}$	r_f	- -	1.2 1	2 -	Ω
Charge carrier life time $I_F = 10\text{ mA}, I_R = 6\text{ mA}$, measured at $I_R = 3\text{ mA}$, $R_L = 100\ \Omega$	τ_{rr}	-	75	-	ns
I-region width	W_I	-	4.5	-	μm
Insertion loss ¹⁾ $I_F = 1\text{ mA}, f = 1.8\text{ GHz}$ $I_F = 5\text{ mA}, f = 1.8\text{ GHz}$ $I_F = 10\text{ mA}, f = 1.8\text{ GHz}$	$ S_{21} ^2$	- - -	-0.15 -0.11 -0.1	- - -	dB
Isolation ¹⁾ $V_R = 0\text{ V}, f = 0.9\text{ MHz}$ $V_R = 0\text{ V}, f = 1.8\text{ MHz}$ $V_R = 0\text{ V}, f = 2.45\text{ MHz}$	$ S_{21} ^2$	- - -	-17.9 -12.3 -10	- - -	

¹BAR63-02L in series configuration, $Z = 50\ \Omega$

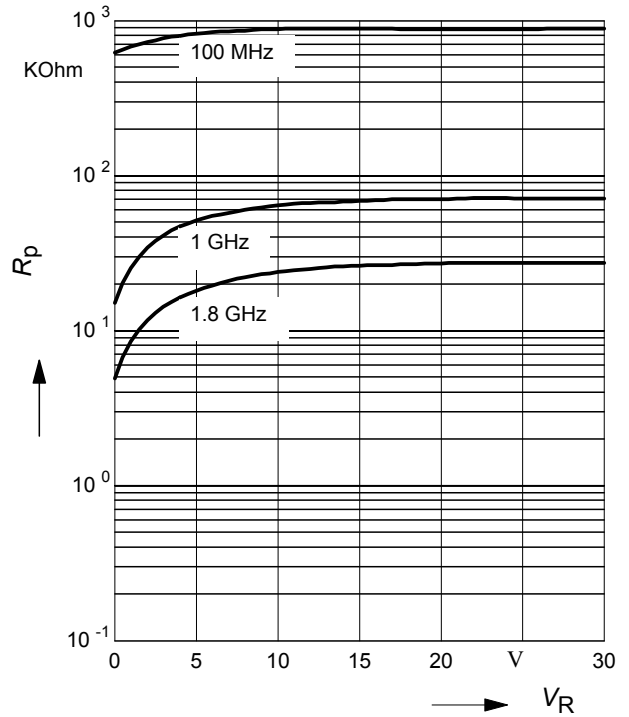
Diode capacitance $C_T = f(V_R)$

$f = 1\text{MHz} - 1.8\text{GHz}$



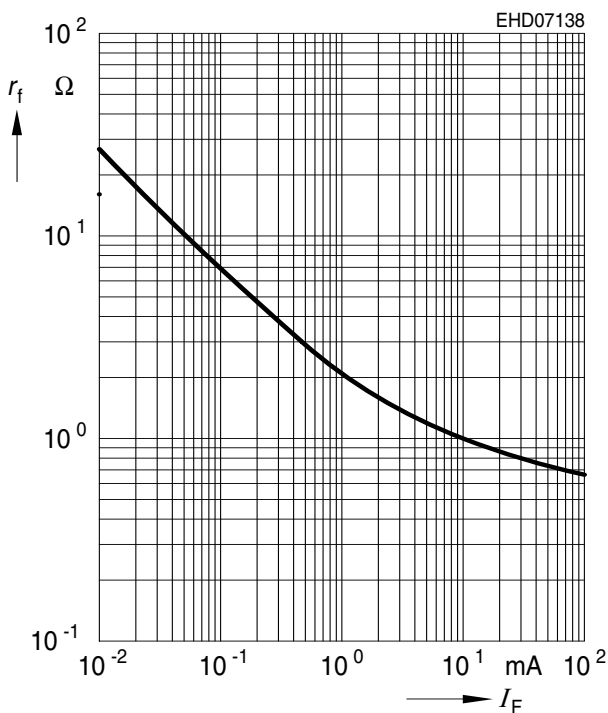
Reverse parallel resistance $R_p = f(V_R)$

$f = \text{Parameter}$



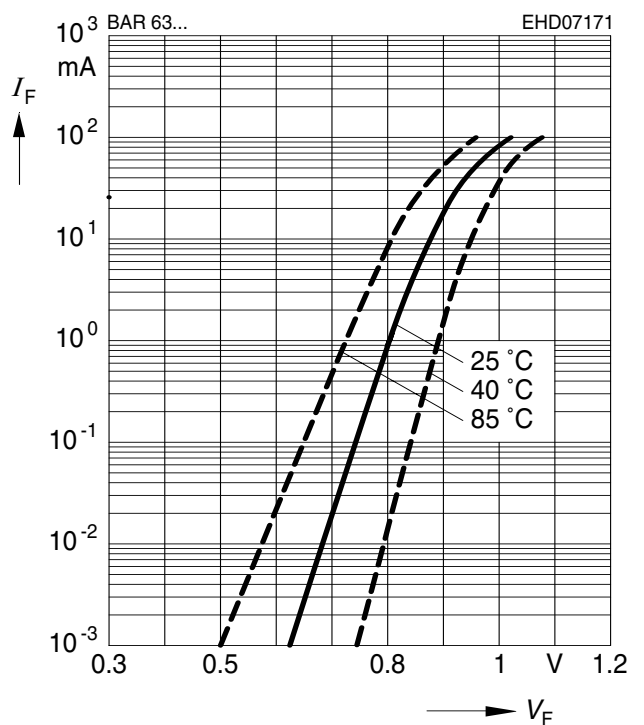
Forward resistance $r_f = f(I_F)$

$f = 100\text{MHz}$



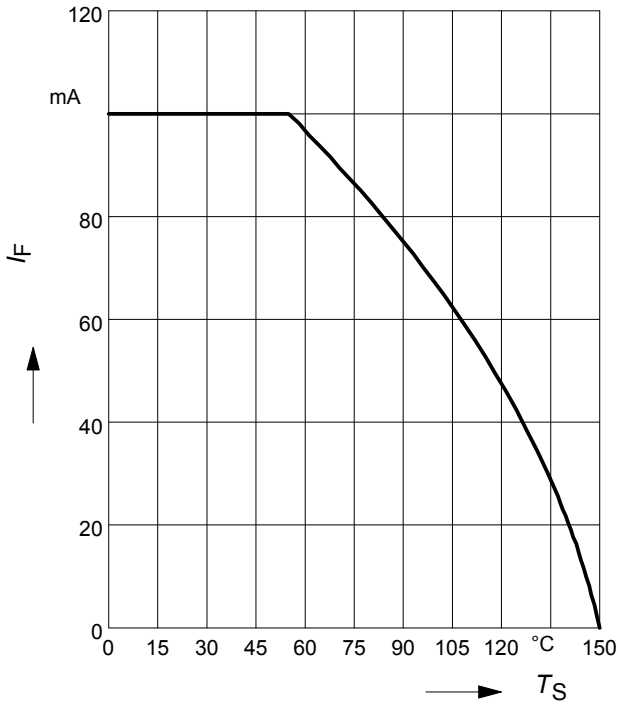
Forward current $I_F = f(V_F)$

$T_A = \text{Parameter}$



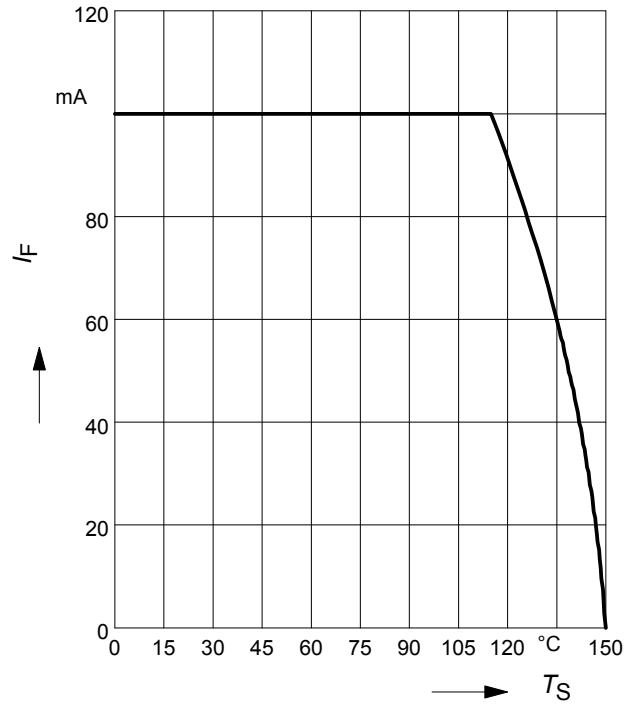
Forward current $I_F = f(T_S)$

BAR63-04...BAR63-06



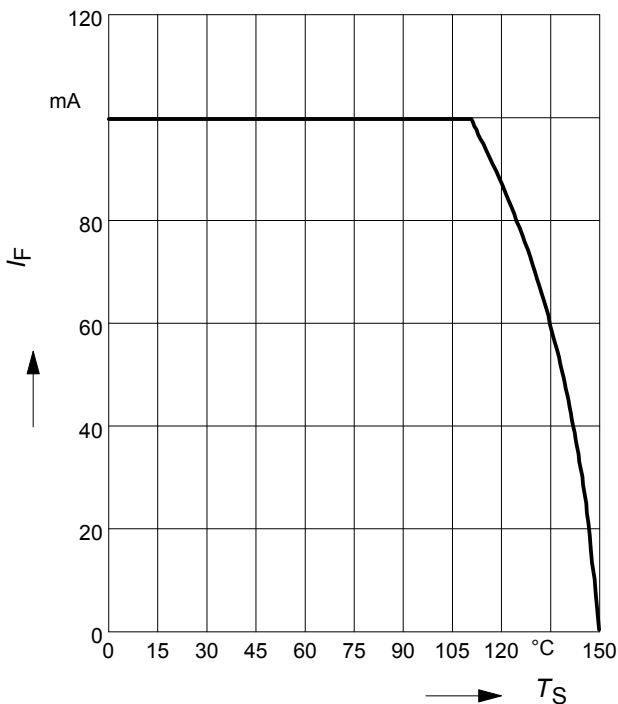
Forward current $I_F = f(T_S)$

BAR63-02V, BAR63-02W



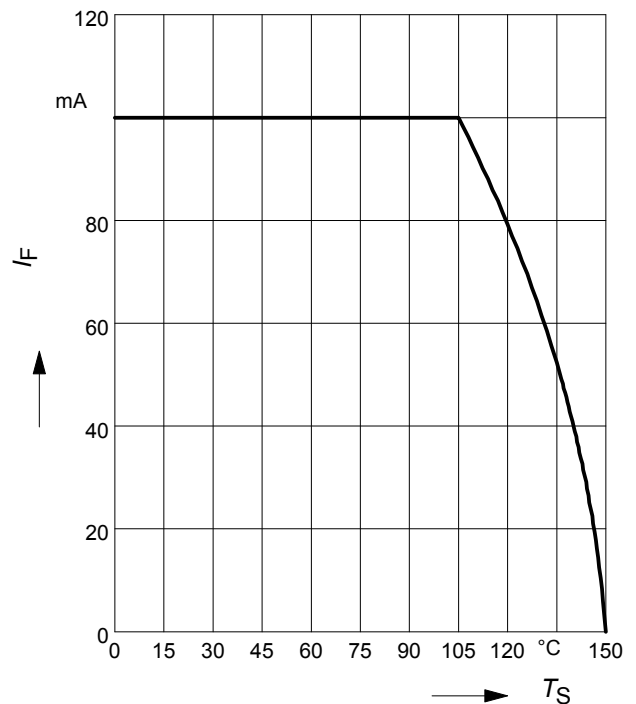
Forward current $I_F = f(T_S)$

BAR63-03W



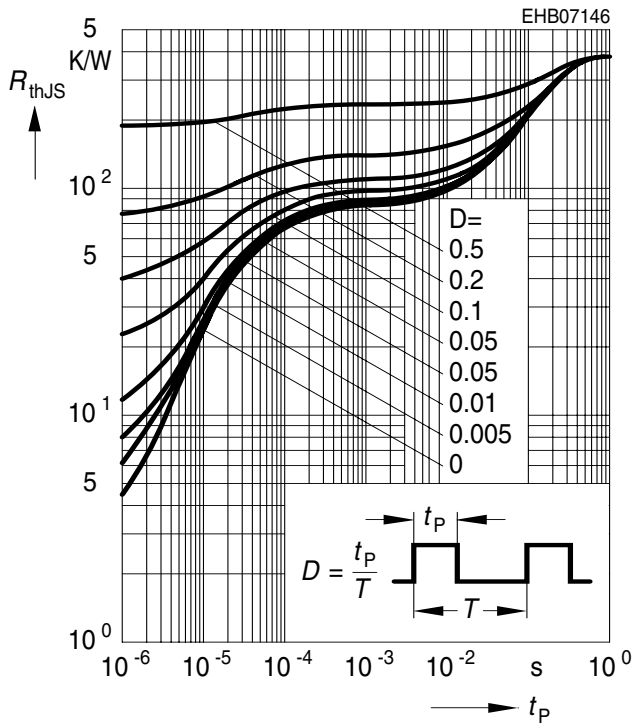
Forward current $I_F = f(T_S)$

BAR63-04W...BAR63-06W



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

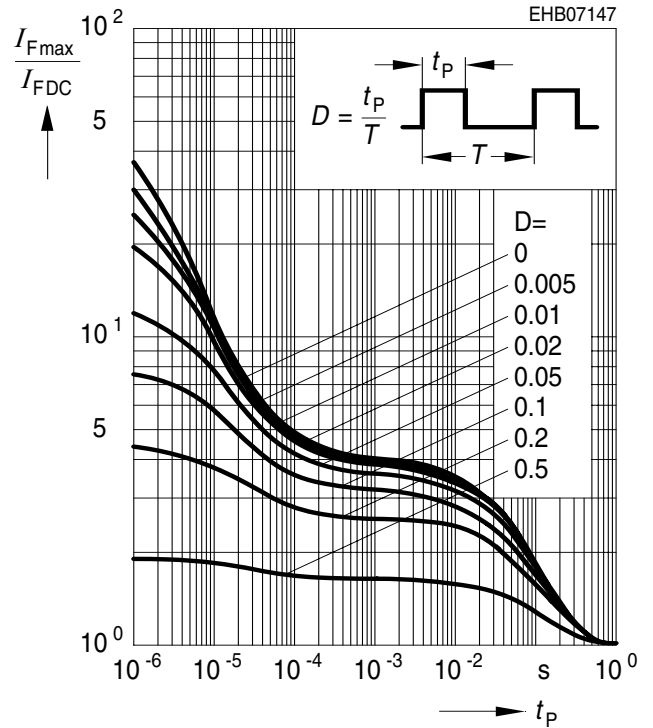
BAR63-04...BAR63-06



Permissible Pulse Load

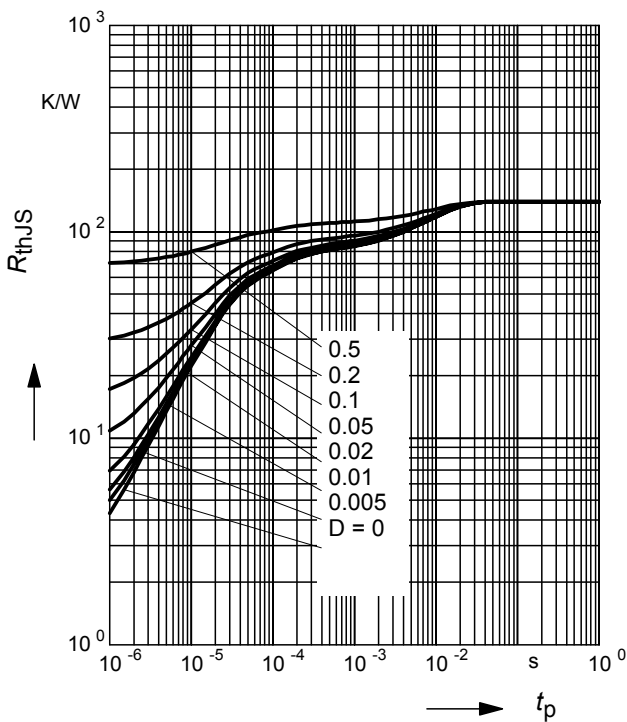
$I_{Fmax} / I_{FDC} = f(t_p)$

BAR63-04...BAR63-06



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

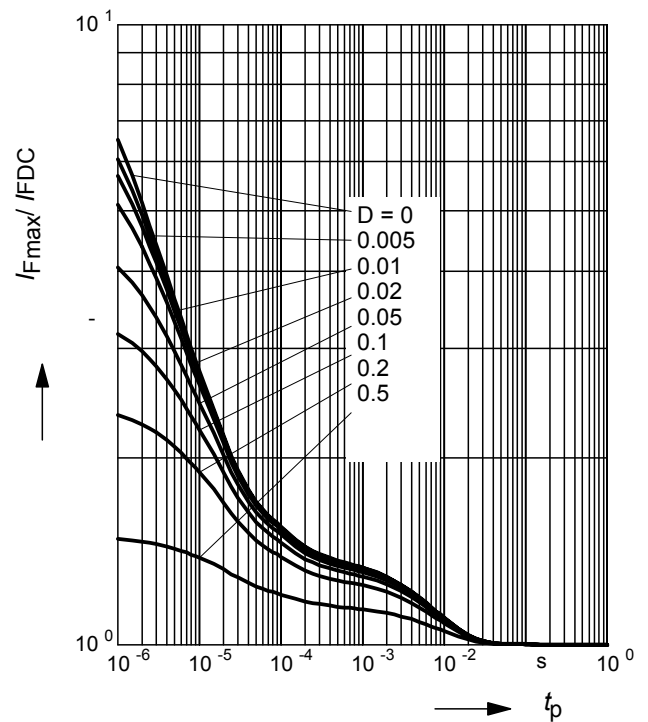
BAR63-02V, BAR63-02W



Permissible Pulse Load

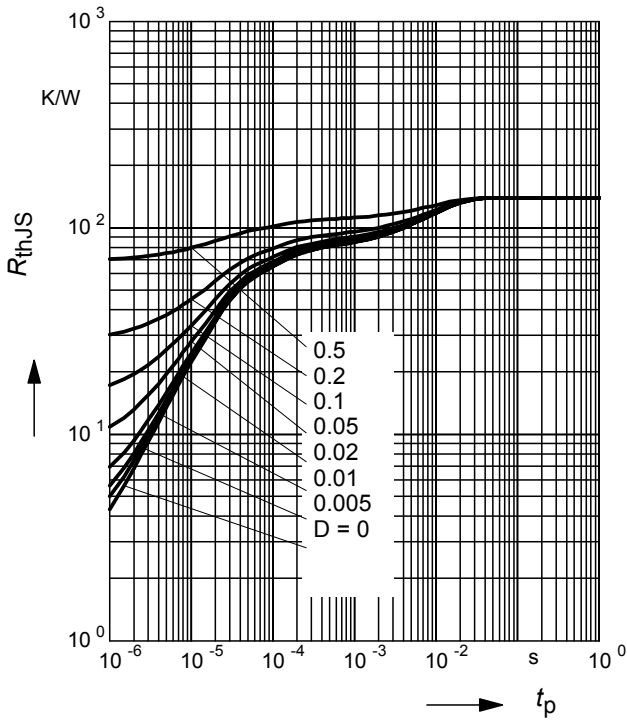
$I_{Fmax} / I_{FDC} = f(t_p)$

BAR63-02V, BAR63-02W



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

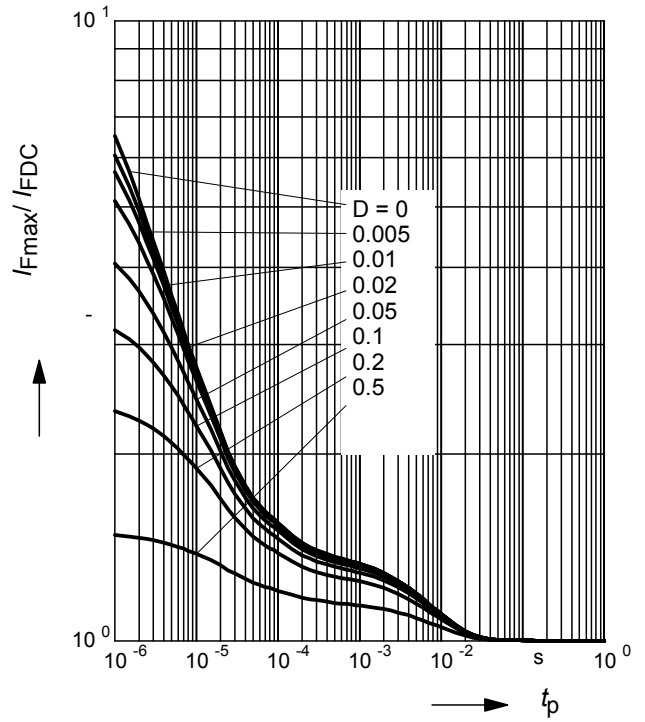
BAR63-03W



Permissible Pulse Load

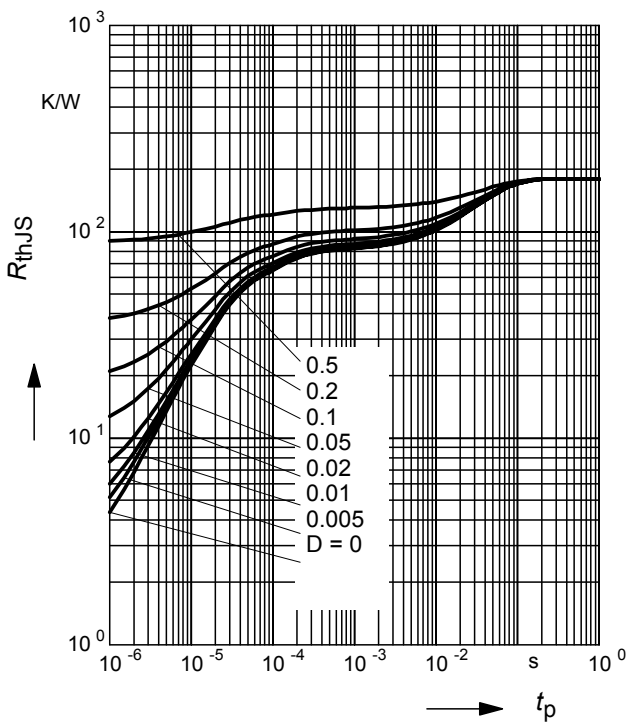
$I_{Fmax} / I_{FDC} = f(t_p)$

BAR63-03W



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

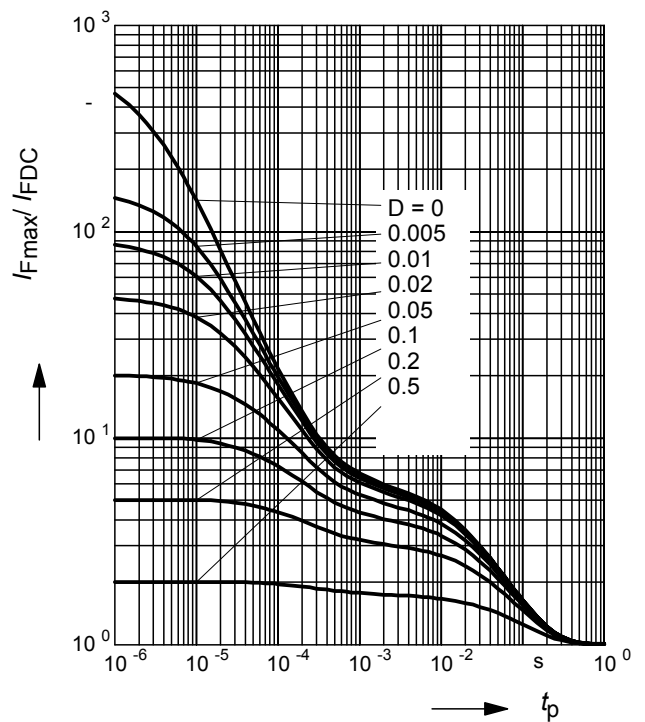
BAR63-04W...BAR63-06W



Permissible Pulse Load

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

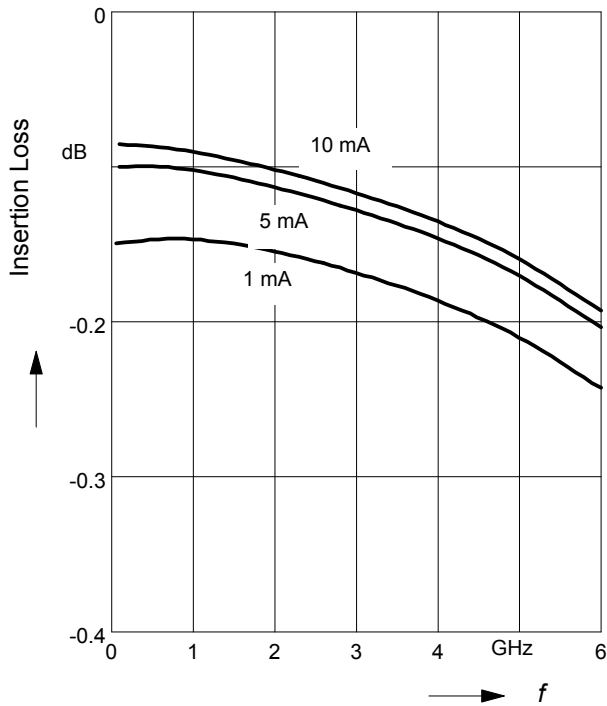
BAR63-04W...BAR63-06W



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

I_F = Parameter

BAR63-02L in series configuration, $Z = 50\Omega$



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

V_R = Parameter

BAR63-02L in series configuration, $Z = 50\Omega$

