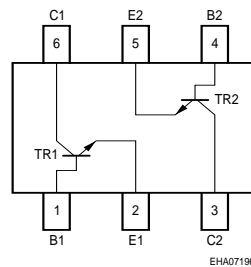
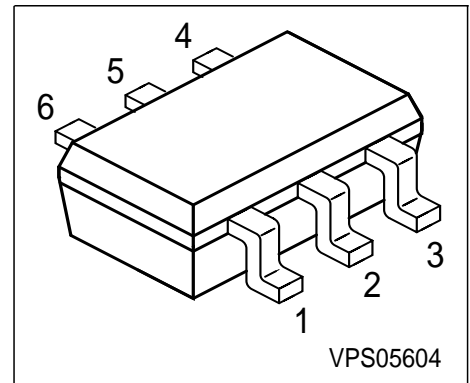


NPN Silicon RF Transistor

- For low-noise, high-gain broadband amplifier at collector currents from 2 mA to 28 mA
- $f_T = 8 \text{ GHz}$
 $F = 1.2 \text{ dB at } 900 \text{ MHz}$
- Two (galvanic) internal isolated Transistors in one package



ESD: Electrostatic discharge sensitive device, observe handling precaution!

Type	Marking	Pin Configuration						Package
BFS483	RHs	1=B	2=E	3=C	4=B	5=E	6=C	SOT363

Maximum Ratings

Parameter	Symbol	Value	Unit
Collector-emitter voltage	V_{CEO}	12	V
Collector-emitter voltage	V_{CES}	20	
Collector-base voltage	V_{CBO}	20	
Emitter-base voltage	V_{EBO}	2	
Collector current	I_C	65	mA
Base current	I_B	5	
Total power dissipation ($T_S \leq 40 \text{ °C}$ 1)	P_{tot}	450	mW
Junction temperature	T_j	150	°C
Ambient temperature	T_A	-65 ... 150	
Storage temperature	T_{stg}	-65 ... 150	

Thermal Resistance

Junction - soldering point ²⁾	R_{thJS}	≤ 245	K/W
--	------------	------------	-----

¹ T_S is measured on the collector lead at the soldering point to the pcb

² 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.	
DC characteristics					
Collector-emitter breakdown voltage $I_C = 1 \text{ mA}, I_B = 0$	$V_{(BR)CEO}$	12	-	-	V
Collector-emitter cutoff current $V_{CE} = 20 \text{ V}, V_{BE} = 0$	I_{CES}	-	-	100	μA
Collector-base cutoff current $V_{CB} = 10 \text{ V}, I_E = 0$	I_{CBO}	-	-	100	nA
Emitter-base cutoff current $V_{EB} = 1 \text{ V}, I_C = 0$	I_{EBO}	-	-	1	μA
DC current gain $I_C = 15 \text{ mA}, V_{CE} = 8 \text{ V}$	h_{FE}	50	100	200	-

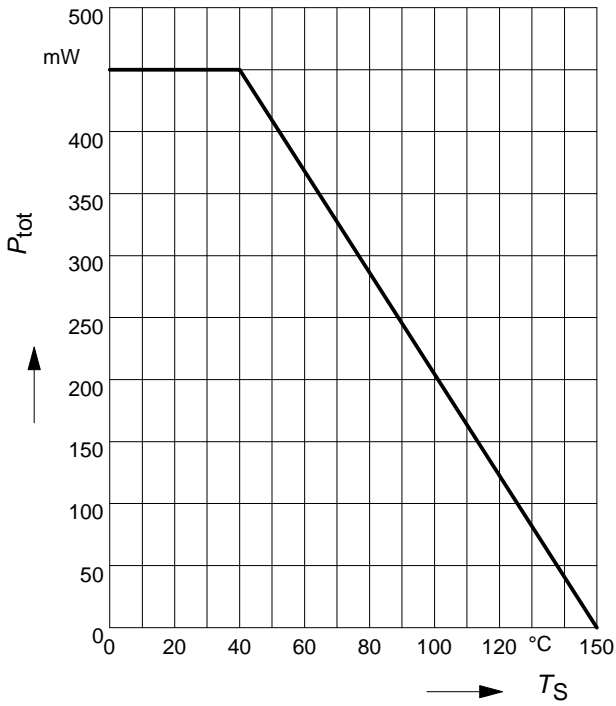
Electrical Characteristics at $T_A = 25^\circ\text{C}$, unless otherwise specified.

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
AC characteristics (verified by random sampling)					
Transition frequency $I_C = 25\text{ mA}$, $V_{CE} = 8\text{ V}$, $f = 500\text{ MHz}$	f_T	6	8	-	GHz
Collector-base capacitance $V_{CB} = 10\text{ V}$, $f = 1\text{ MHz}$	C_{cb}	-	0.4	0.6	pF
Collector-emitter capacitance $V_{CE} = 10\text{ V}$, $f = 1\text{ MHz}$	C_{ce}	-	0.13	-	
Emitter-base capacitance $V_{EB} = 0.5\text{ V}$, $f = 1\text{ MHz}$	C_{eb}	-	1	-	
Noise figure $I_C = 5\text{ mA}$, $V_{CE} = 8\text{ V}$, $Z_S = Z_{Sopt}$, $f = 900\text{ MHz}$ $f = 1.8\text{ GHz}$	F	-	1.2 2	-	dB
Power gain, maximum stable ¹⁾ $I_C = 15\text{ mA}$, $V_{CE} = 8\text{ V}$, $Z_S = Z_{Sopt}$, $Z_L = Z_{Lopt}$, $f = 900\text{ MHz}$	G_{ms}	-	19	-	
Power gain, maximum available ²⁾ $I_C = 15\text{ mA}$, $V_{CE} = 8\text{ V}$, $Z_S = Z_{Sopt}$, $Z_L = Z_{Lopt}$, $f = 1.8\text{ GHz}$	G_{ma}	-	12.5	-	
Transducer gain $I_C = 15\text{ mA}$, $V_{CE} = 8\text{ V}$, $Z_S = Z_L = 50\Omega$, $f = 900\text{ MHz}$ $f = 1.8\text{ GHz}$	$ S_{21e} ^2$	-	15 9.5	-	

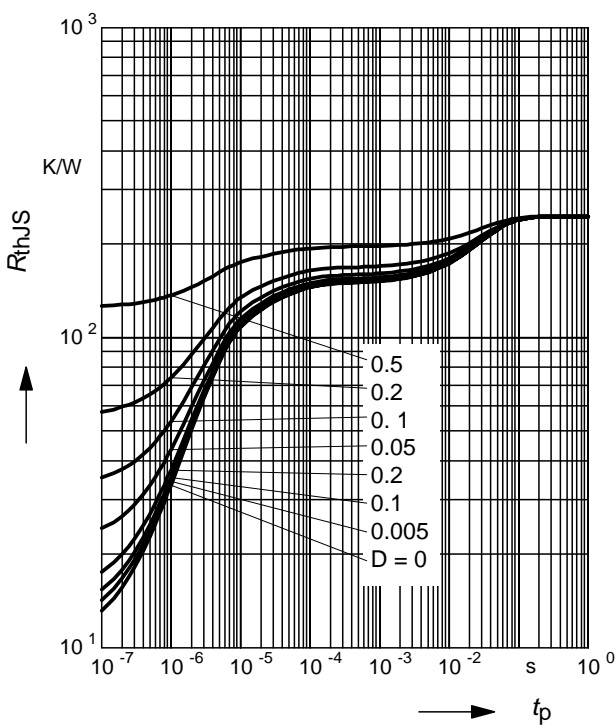
$$^1G_{ms} = |S_{21} / S_{12}|$$

$$^2G_{ma} = |S_{21} / S_{12}| (k - (k^2 - 1)^{1/2})$$

Total power dissipation $P_{tot} = f(T_S)$

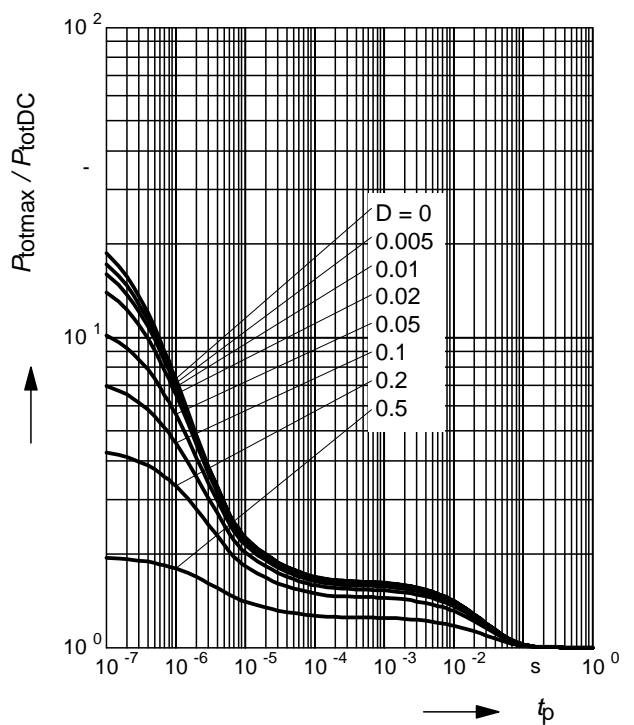


Permissible Pulse Load $R_{thJS} = f(t_p)$



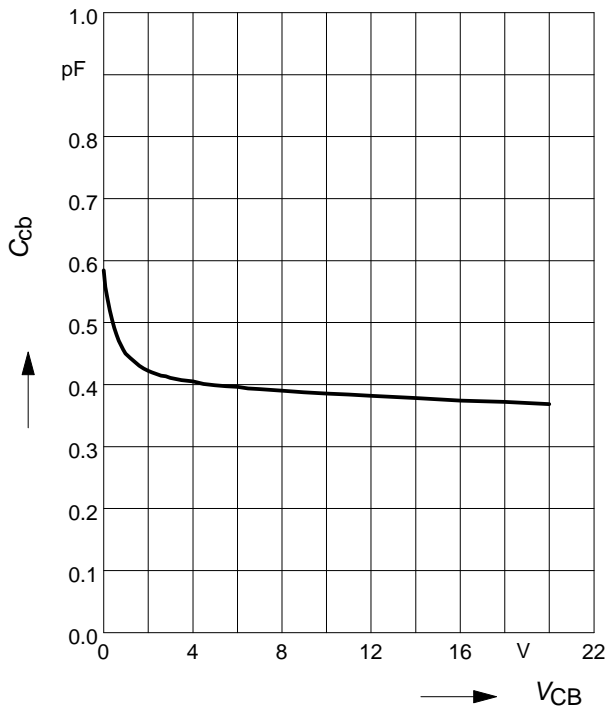
Permissible Pulse Load

$P_{totmax}/P_{totDC} = f(t_p)$



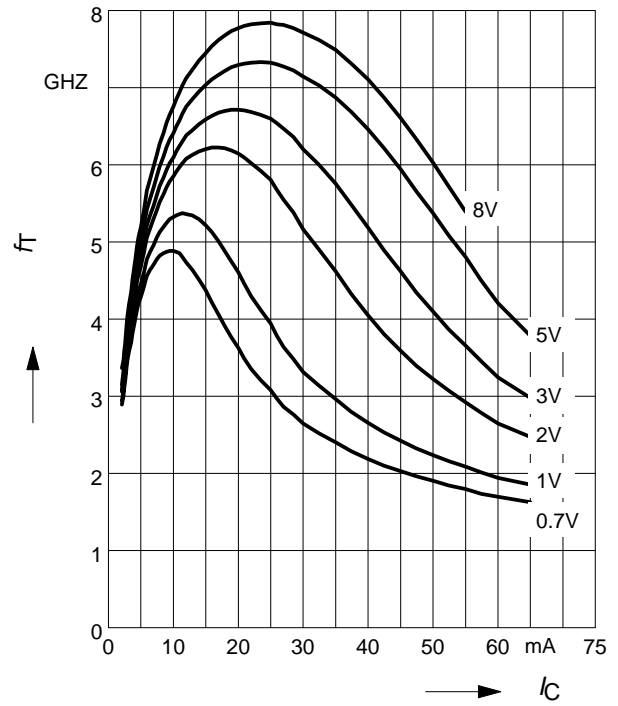
Collector-base capacitance $C_{cb} = f(V_{CB})$

$f = 1\text{MHz}$



Transition frequency $f_T = f(I_C)$

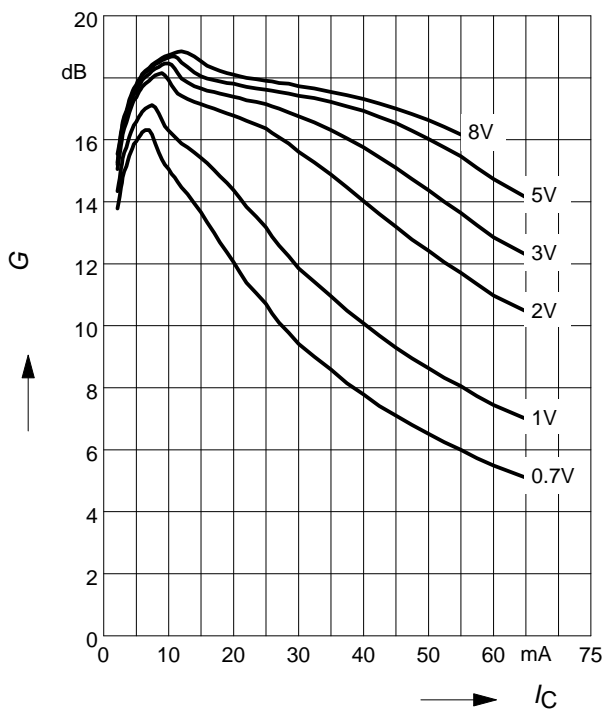
$V_{CE} = \text{Parameter}$



Power Gain $G_{ma}, G_{ms} = f(I_C)$

$f = 0.9\text{GHz}$

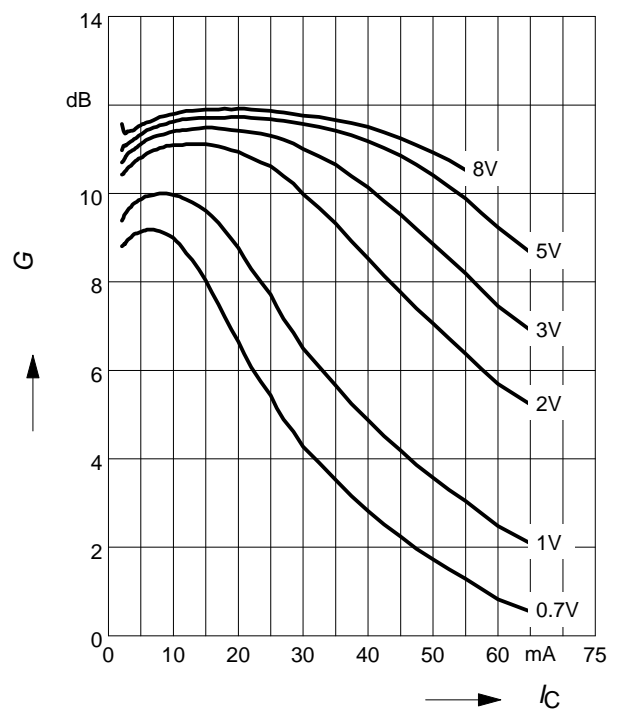
$V_{CE} = \text{Parameter}$



Power Gain $G_{ma}, G_{ms} = f(I_C)$

$f = 1.8\text{GHz}$

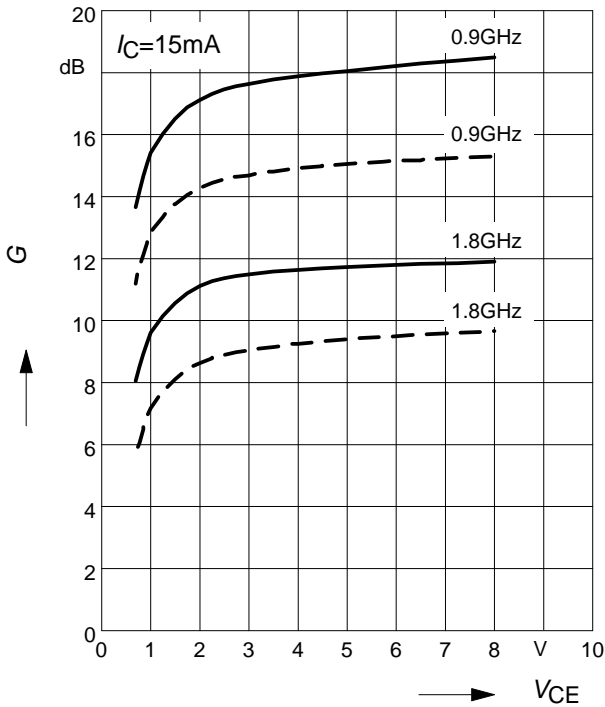
$V_{CE} = \text{Parameter}$



Power Gain $G_{ma}, G_{ms} = f(V_{CE})$:

$|S_{21}|^2 = f(V_{CE})$ -----

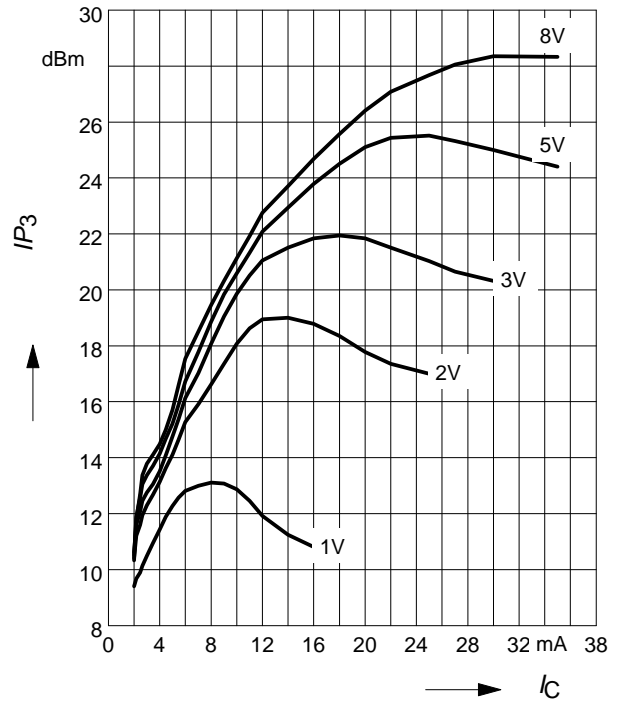
$f =$ Parameter



Intermodulation Intercept Point $IP_3 = f(I_C)$

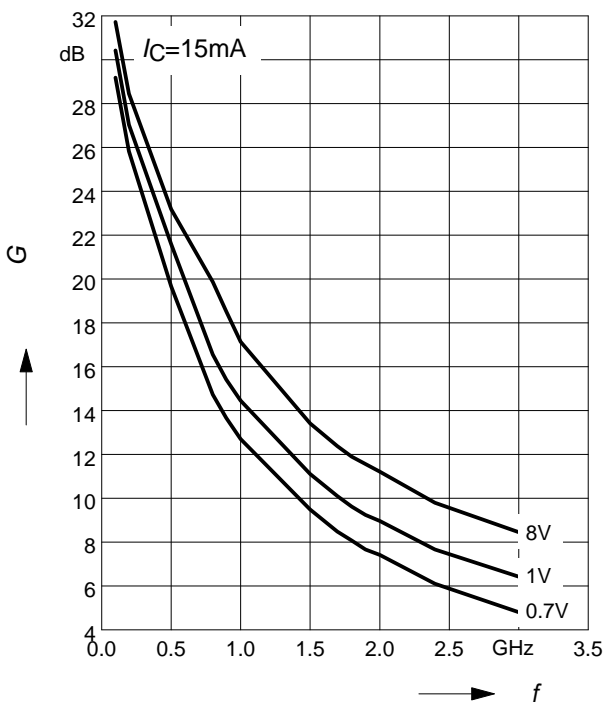
(3rd order, Output, $Z_S = Z_L = 50\Omega$)

$V_{CE} =$ Parameter, $f = 900\text{MHz}$



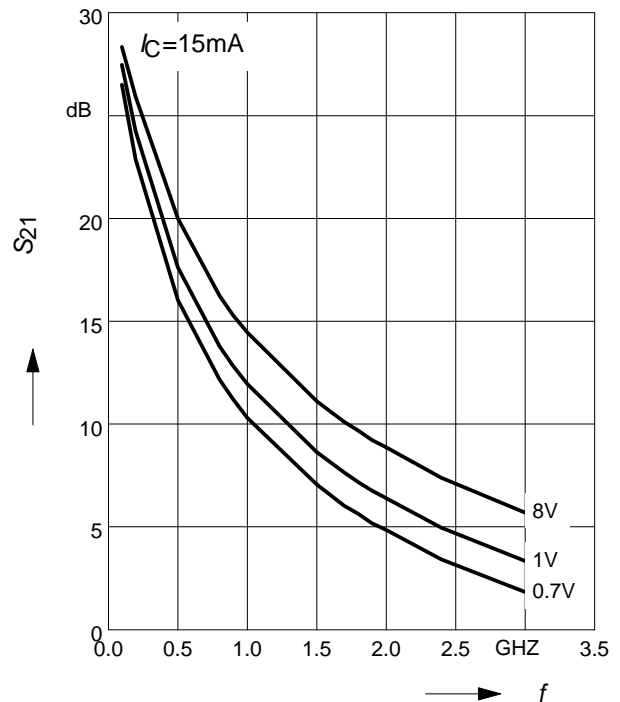
Power Gain $G_{ma}, G_{ms} = f(f)$

$V_{CE} =$ Parameter



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

$V_{CE} =$ Parameter





LittleDiode supplies new, hard to find or obsolete electronic components and semiconductors all over the world.

With over two million different components listed you are sure to find the part you need.

Feel free to visit us today at our online store:

LittleDiode.com

Looking forward to providing you with the best possible service.