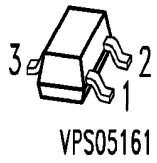
SIEMENS

NPN Silicon RF Transistor — BF 777

Preliminary Data

- For UHF/VHF frequency converters and local oscillators.
- f_T = 2.2 GHz



ESD: Electrostatic discharge sensitive device, observe handling precautions!

Type	Marking	Ordering Code (tape and reel)	Pin Configuration 1	2	3	Package[1]
BF 777	LFs	Q62702-F1426	B	E	C	SOT-23

Maximum Ratings

Parameter	Symbol	Values	Unit
Collector-emitter voltage	V_{CE0}	20	V
Collector-emitter voltage, V_{BE} = 0	V_{CES}	25	
Collector-base voltage	V_{CB0}	30	
Emitter-base voltage	V_{EB0}	3	
Collector current	I_C	50	mA
Peak collector current, $f \geq 10$ MHz	I_{CM}	50	
Base current	I_B	8	
Peak base current, $f \geq 10$ MHz	I_{BM}	10	
Total power dissipation, $T_S \leq 97$ °C[3]	P_{tot}	150	mW
Junction temperature	T_j	150	°C
Ambient temperature range	T_A	– 65 … + 150	
Storage temperature range	T_{stg}	– 65 … + 150	

Thermal Resistance

Junction - ambient[2]	$R_{th\ JA}$	≤ 430	K/W
Junction - soldering point[3]	$R_{th\ JS}$	≤ 350	

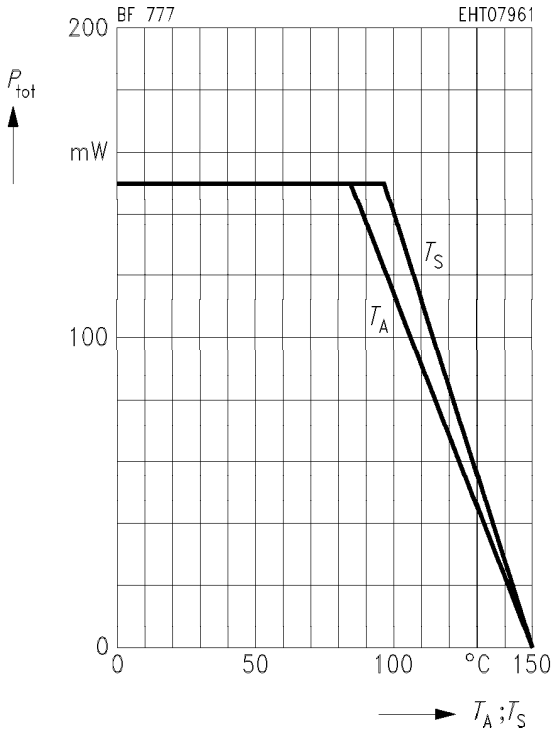
1) For detailed information see chapter Package Outlines.
2) Package mounted on alumina 15 mm × 16.7 mm × 0.7 mm.
3) T_S is measured on the collector lead at the soldering point to the pcb.

Electrical Characteristics

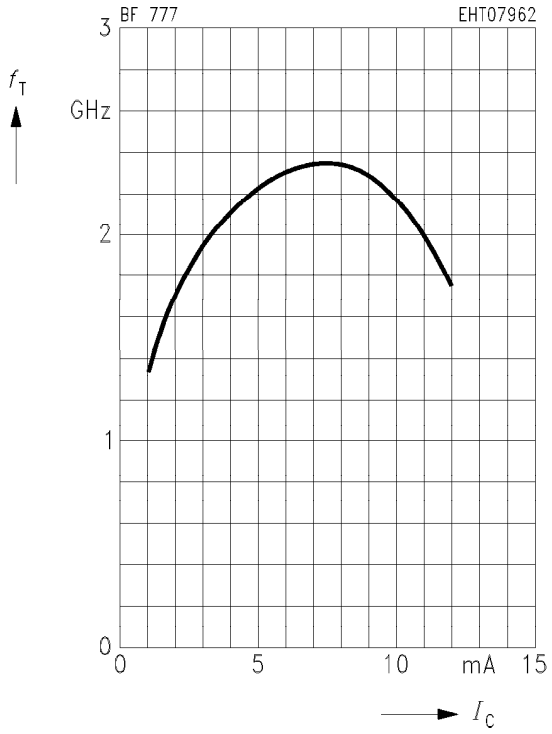
at T_A = 25 °C, unless otherwise specified.

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC Characteristics					
Collector-emitter breakdown voltage I_C = 1 mA, I_B = 0	$V_{(BR)CE0}$	20	–	–	V
Collector-emitter cutoff current V_{CE} = 15 V, V_{BE} = 0	I_{CES}	–	–	1	µA
Collector-base cutoff current V_{CB} = 30 V, I_E = 0 V_{CB} = 15 V, I_E = 0	I_{CB0}	 – –	 – –	 1.0 0.5	
Emitter-base cutoff current V_{EB} = 3 V, I_C = 0	I_{EB0}	–	–	10	
DC current gain I_C = 5 mA, V_{CE} = 10 V	h_{FE}	30	–	200	–
Collector-emitter saturation voltage I_C = 10 mA, I_B = 5 mA I_C = 10 mA, I_B = 1 mA	V_{CEsat}	 – –	 – 0.1	 0.7 0.4	V
AC Characteristics					
Transition frequency I_C = 5 mA, V_{CE} = 10 V, f = 200 MHz	f_t	1.4	2.2	–	GHz
Collector-base capacitance V_{CB} = 10 V, V_{BE} = v_{be} = 0, f = 1 MHz	C_{cb}	–	0.5	0.85	pF
Collector-emitter capacitance V_{CE} = 10 V, V_{BE} = v_{be} = 0, f = 1 MHz	C_{ce}	–	0.33	–	

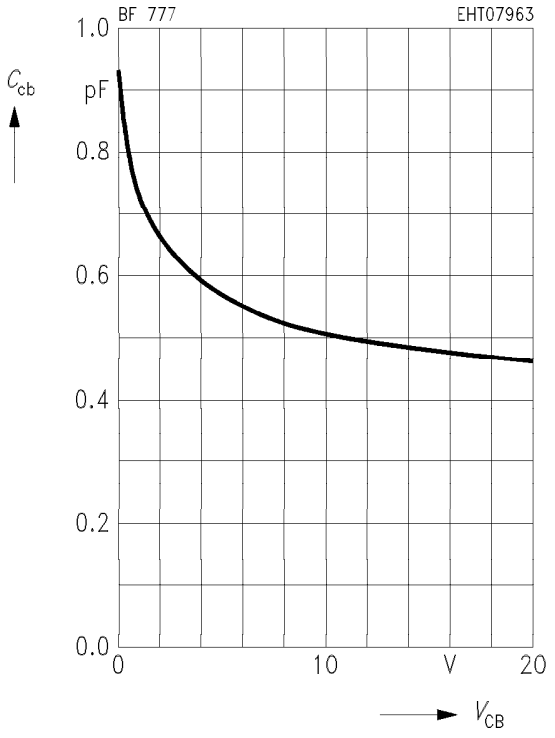
Total power dissipation $P_{tot} = f(T_A^*; T_S)$
*Package mounted on alumina



Transition frequency $f_T = f(I_C)$
V_{CE} = 10 V, f = 200 MHz



Collector-base capacitance $C_{cb} = f(V_{CB})$
$V_{BE} = v_{be} = 0$, f = 1 MHz



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