

New Jersey Semi-Conductor Products, Inc.

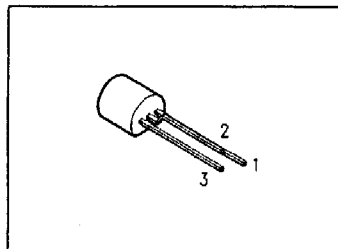
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NPN Silicon RF Transistors

BF 254
BF 255

- For AM and FM stages



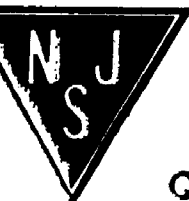
Type	Marking	Pin Configuration			Package ¹⁾
		1	2	3	
BF 254 BF 255	-	C	E	B	TO-92

Maximum Ratings

Parameter	Symbol	Values	Unit
Collector-emitter voltage	V_{CE0}	20	V
Collector-base voltage	V_{CBS}	30	
Emitter-base voltage	V_{EBS}	5	
Collector current	I_C	30	mA
Total power dissipation, $T_A \leq 45^\circ\text{C}$	P_{tot}	250	mW
Junction temperature	T_j	150	°C
Storage temperature range	T_{stg}	- 65 ... + 150	

Thermal Resistance

Junction - ambient	R_{thJA}	≤ 420	K/W
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Quality Semi-Conductors

BF 254
BF 255

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

Parameter	Symbol	Values			Unit
		min.	typ.	max.	

DC Characteristics

DC current gain $I_C = 1\text{ mA}$, $V_{CE} = 10\text{ V}$ BF 254 BF 255	h_{FE}	65 35	— —	220 130	—
Base-emitter voltage $I_C = 1\text{ mA}$, $V_{CE} = 10\text{ V}$	V_{BE}	—	0.68	—	V

AC Characteristics

Transition frequency $I_C = 1\text{ mA}$, $V_{CE} = 10\text{ V}$, $f = 100\text{ MHz}$ BF 254 BF 255	f_T	— —	260 220	— —	MHz
Collector-base capacitance $V_{CB} = 10\text{ V}$, $V_{BE} = 0\text{ V}$, $f = 1\text{ MHz}$	C_{cb}	—	0.6	—	pF
Collector-emitter capacitance $V_{CE} = 10\text{ V}$, $V_{BE} = 0\text{ V}$, $f = 1\text{ MHz}$	C_{ce}	—	0.6	—	
Noise figure $I_C = 1\text{ mA}$, $V_{CE} = 10\text{ V}$ $f = 1\text{ MHz}$, $g_s = 1.5\text{ mS}^{1)}$ $f = 100\text{ MHz}$, $g_s = 10\text{ mS}^{1)}$	F	— —	1.2 3.8	— —	dB

Y parameters, typical values, $I_C = 10\text{ V}$

f MHz		g_{11} mS	b_{11} mS	$ y_{12} $ μS	ϕ_{12} deg.	$ y_{21} $ mS	ϕ_{21} deg.	g_{22} μS	b_{22} μS
Common emitter									
0.45	BF 254	0.3	0.06	1.7	-90	38	0	3.2	3.4
	BF 255	0.45	0.08	1.7	-90	38	0	2.7	3.4
10.7	BF 254	0.4	1.5	41	-90	37	-10	4	8.1
	BF 255	0.5	1.75	41	-90	37	-10	3.8	8.1
Common base									
100	BF 255	34	-3.5	250	-85	33	150	18	700

¹⁾ g_s = generator conductance