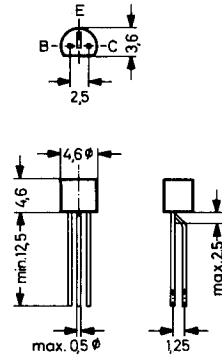


BF254, BF255

NPN Silicon Epitaxial Planar Transistors

The BF 254 is suited for AM/FM IF amplifiers and also for short-wave, medium-wave and long-wave receiver input stages, whilst the BF 255 is preferably for use in input stages, mixers and oscillators of FM receivers.



Plastic case \approx TO-92
 TO-18 compatible
 The case is impervious to light

Weight approximately 0.18 g
 Dimensions in mm

Absolute Maximum Ratings

	Symbol	Value	Unit
Collector Base Voltage	V_{CBO}	30	V
Collector Emitter Voltage	V_{CEO}	20	V
Emitter Base Voltage	V_{EBO}	5	V
Collector Current	I_C	30	mA
Power Dissipation at $T_{amb} = 25\text{ }^\circ\text{C}$	P_{tot}	220 ¹⁾	mW
Junction Temperature	T_j	125	$^\circ\text{C}$
Storage Temperature Range	T_s	-65 ... +125	$^\circ\text{C}$

¹⁾ Valid provided that leads are kept at ambient temperature at a distance of 2 mm from case

Characteristics at $T_{amb} = 25\text{ }^{\circ}\text{C}$

		Symbol	Min.	Typ.	Max.	Unit		
DC Current Gain at $V_{CE} = 10\text{ V}$, $I_C = 1\text{ mA}$	BF254	h_{FE}	–	115	–	–		
	BF255	h_{FE}	–	67	–	–		
Base-Current at $V_{CE} = 10\text{ V}$, $I_C = 1\text{ mA}$	BF254	I_B	4.5	8.7	15	μA		
	BF255	I_B	8	15	28	μA		
Base Emitter Voltage at $V_{CE} = 10\text{ V}$, $I_C = 1\text{ mA}$		V_{BE}	–	0.68	–	V		
Thermal Resistance Junction to Ambient		R_{thA}	–	–	450 ¹⁾	K/W		
Gain Bandwidth Product at $V_{CE} = 10\text{ V}$, $I_C = 1\text{ mA}$	BF254	f_T	–	260	–	MHz		
	BF255	f_T	–	200	–	MHz		
Noise Figure at $V_{CE} = 10\text{ V}$, $I_C = 1\text{ mA}$ at $f = 200\text{ kHz}$, $g_s = 2\text{ mS}$ at $f = 1\text{ MHz}$, $g_s = 1.5\text{ mS}$ at $f = 1\text{ MHz}$, $g_s = 20\text{ mS}$ at $f = 100\text{ MHz}$, $g_s = 10\text{ mS}$	BF254	F	–	1.5	–	dB		
	BF254	F	–	1.2	–	dB		
	BF255	F	–	3.5	–	dB		
	BF255	F	–	4	–	dB		
Noise Figure in Mixer Stages at $V_{CE} = 10\text{ V}$, $I_C = 1\text{ mA}$ at $f = 200\text{ kHz}$, $g_s = 0.6\text{ mS}$ at $f = 1\text{ MHz}$, $g_s = 1.2\text{ mS}$ at $f = 200\text{ kHz}$, $g_s = 1.2\text{ mS}$ at $f = 1\text{ MHz}$, $g_s = 1.5\text{ mS}$	BF254	F_c	–	3	–	dB		
	BF254	F_c	–	2	–	dB		
	BF255	F_c	–	4	–	dB		
	BF255	F_c	–	2.5	–	dB		
Feedback Capacitance at $V_{CE} = 10\text{ V}$, $I_C = 1\text{ mA}$, $f = 450\text{ kHz}$		$-C_{re}$	–	0.85	–	pF		
Four Pole Parameters at $V_{CE} = 10\text{ V}$, $I_C = 1\text{ mA}$ at $f = 450\text{ kHz}$, grounded emitter	Real Part of Input Admittance	BF254 BF255	g_{ie}	–	0.33 0.5	–	mS mS	
	Imaginary Part of Input Admittance	BF254	b_{ie}	–	0.065	–	mS	
		BF255	b_{ie}	–	0.09	–	mS	
	Input Capacitance	BF254	C_{ie}	–	23	–	pF	
		BF255	C_{ie}	–	32	–	pF	
	Real Part of Output Admittance	BF254	g_{oe}	–	6	–	μS	
		BF255	g_{oe}	–	2.7	–	μS	
	Imaginary Part of Output Admittance		b_{oe}	–	4.5	–	μS	
	Output Capacitance		C_{oe}	–	1.6	–	pF	
	Module for Reverse Transconductance	BF254	$ y_{re} $	–	2.8	–	μS	
		BF255	$ y_{re} $	–	2.6	–	μS	
	Phase of Reverse Transconductance		$-\varphi_{re}$	–	90°	–	–	
	Module of Forward Transconductance		$ y_{re} $	–	36	–	mS	
	Phase of Forward Transconductance		$-\varphi_{ie}$	–	0°	–	–	
	at $f = 10.7\text{ MHz}$, grounded emitter	Real Part of Input Admittance	BF254 BF255	g_{ie}	–	0.45 0.6	–	mS mS
		Imaginary Part of Input Admittance	BF254	b_{ie}	–	1.5	–	mS
			BF255	b_{ie}	–	2	–	mS
Input Capacitance		BF254	C_{ie}	–	22	–	pF	
		BF255	C_{ie}	–	30	–	pF	
Real Part of Output Admittance		BF254	g_{oe}	–	8.5	–	μS	
		BF255	g_{oe}	–	4.5	–	μS	

BF254, BF255

Characteristics, continuation

		Symbol	Min.	Typ.	Max.	Unit
Imaginary Part of Output Admittance		b_{oe}	—	0.11	—	mS
Output Capacitance		C_{oe}	—	1.6	—	pF
Module of Reverse Transconductance	BF254	$ y_{re} $	—	65	—	μ S
	BF255	$ y_{re} $	—	60	—	μ S
Phase of Reverse Transconductance		$-\varphi_{re}$	—	90°	—	—
Module of Forward Transconductance		$ y_{fe} $	—	36	—	mS
Phase of Forward Transconductance		$-\varphi_{fe}$	—	10°	—	—
at f = 100 MHz, grounded base						
Real Part of Input Admittance	BF254	g_{ib}	—	36	—	mS
	BF255	g_{ib}	—	38	—	mS
Imaginary Part of Input Admittance	BF254	$-b_{ib}$	—	3	—	mS
	BF255	$-b_{ib}$	—	1	—	mS
Input Capacitance	BF254	$-C_{ib}$	—	4.8	—	pF
	BF255	$-C_{ib}$	—	1.6	—	pF
Real Part of Output Admittance	BF254	g_{ob}	—	22	—	μ S
	BF255	g_{ob}	—	12	—	μ S
Imaginary Part of Output Admittance		b_{ob}	—	1.1	—	mS
Output Capacitance		C_{ob}	—	1.75	—	pF
Module of Reverse Transconductance	BF254	$ y_{rb} $	—	420	—	μ S
	BF255	$ y_{rb} $	—	410	—	μ S
Phase of Reverse Transconductance	BF254	$-\varphi_{rb}$	—	88°	—	—
	BF255	$-\varphi_{rb}$	—	85°	—	—
Module of Forward Transconductance	BF254	$ y_{fb} $	—	33	—	mS
	BF255	$ y_{fb} $	—	34	—	mS
Phase of Forward Transconductance	BF254	$-\varphi_{fb}$	—	146°	—	—
	BF255	$-\varphi_{fb}$	—	140°	—	—

¹⁾ Valid provided that leads are kept at ambient temperature at a distance of 2 mm from case

**Admissible power dissipation
versus temperature**

Valid provided that leads are kept at ambient
temperature at a distance of 2 mm from case

