NPN General - Purpose Amplifier

2N3904

Description

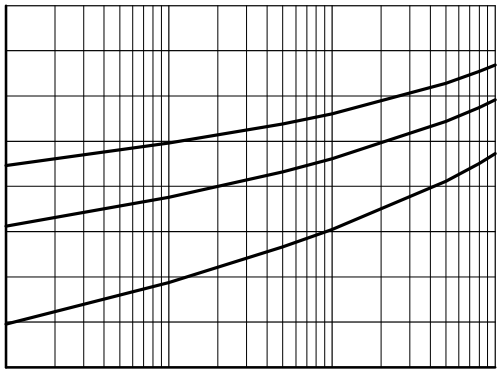
This device is designed as a general−purpose amplifier and switch. The useful dynamic range extends to 100 mA as a switch and to 100 MHz as an amplifier.

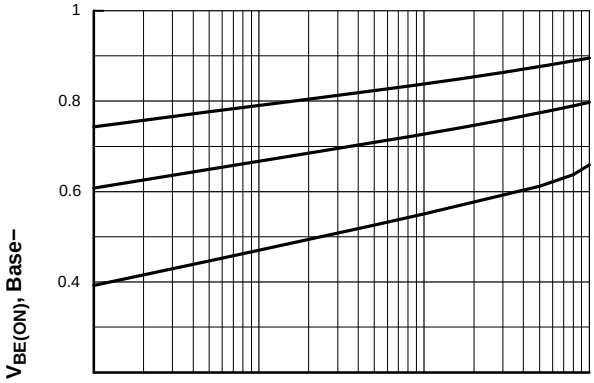
MAXIMUM RATINGS

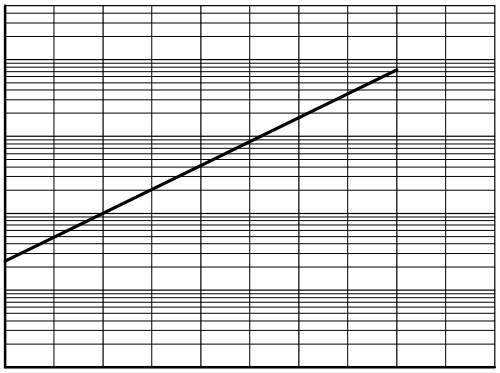
ELECTRICAL CHARACTERISTICS (Values are at T_A = 25°C unless otherwise noted.)

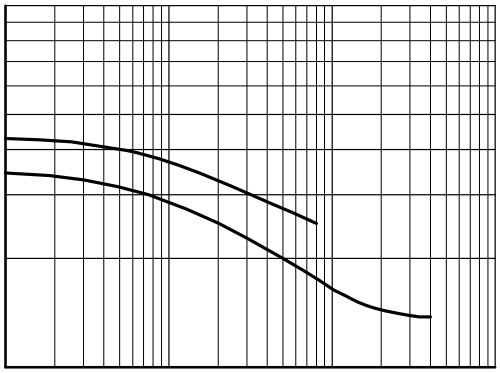
Symbol	Parametr	Conditions	Min	Max	Unit
OFF CHARACTERISTICS					
$V_{(BR)CEO}$	Collector – Emitter Breakdown Voltage	I_C = 1.0 mA, I_B = 0	40	–	V
$V_{(BR)CBO}$	Collector – Base Breakdown Voltage	I_C = 10 μA, I_E = 0	60	–	V
$V_{(BR)EBO}$	Emitter – Base Breakdown Voltage	I_E = 10 μA, I_C = 0	6.0	–	V
I_{BL}	Base Cutoff Current	V_{CE} = 30 V, V_{EB} = 3 V	–	50	nA
I_{CEX}	Collector Cut−Off Current	V_{CE} = 30 V, V_{EB} = 3 V	–	50	nA
ON CHARACTERISTICS (Note 3)					
h_{FE}	DC Current Gain	I_C = 0.1 mA, V_{CE} = 1.0 V	40	–	–
		I_C = 1.0 mA, V_{CE} = 1.0 V	70	–	
		I_C = 10 mA, V_{CE} = 1.0 V	100	300	
		I_C = 50 mA, V_{CE} = 1.0 V	60	–	

TYPICAL PERFORMANCE CHARACTERISTICS

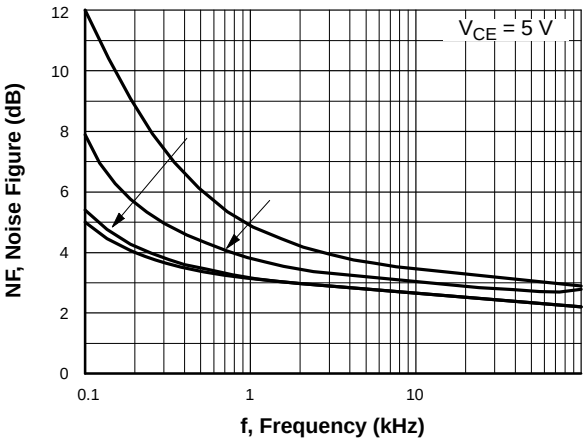








TYPICAL PERFORMANCE CHARACTERISTICS (Continued)



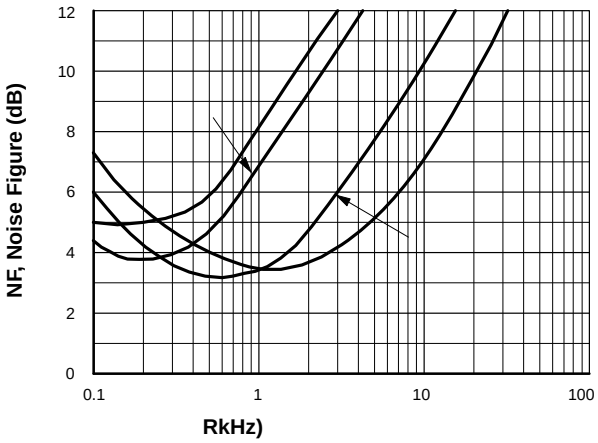
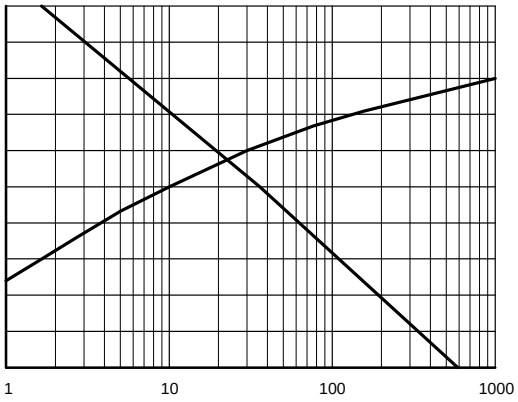
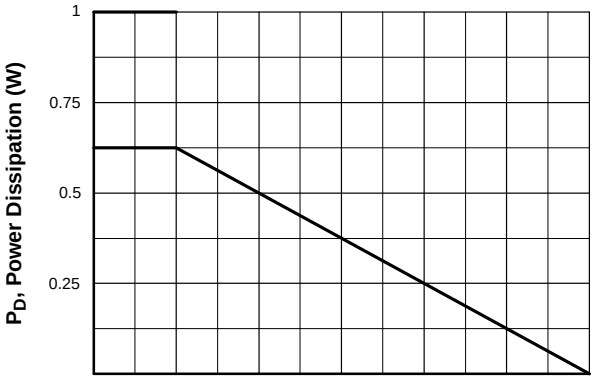
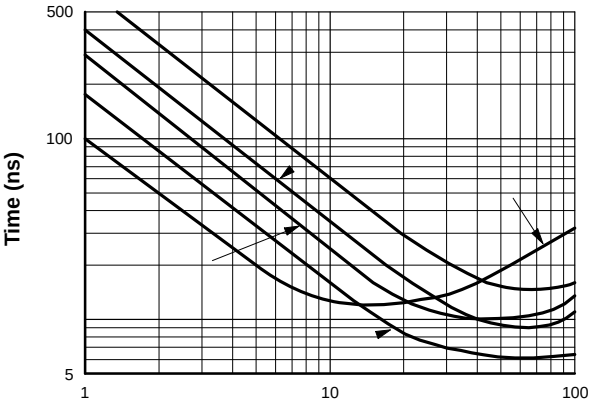
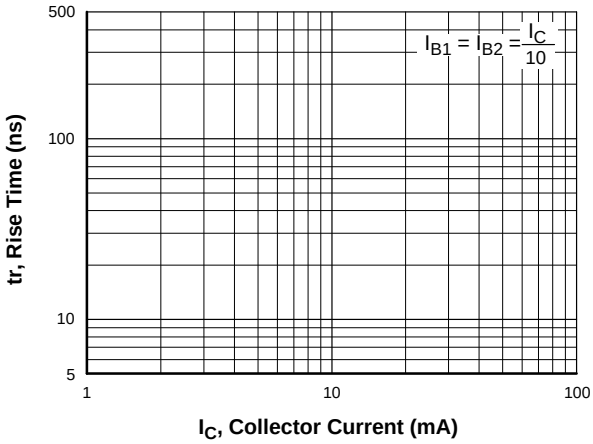


Figure 7. Noise Figure vs. Frequency

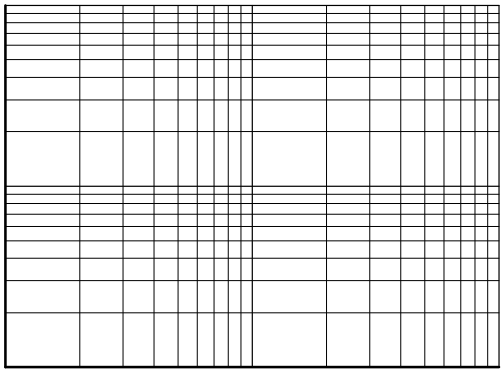


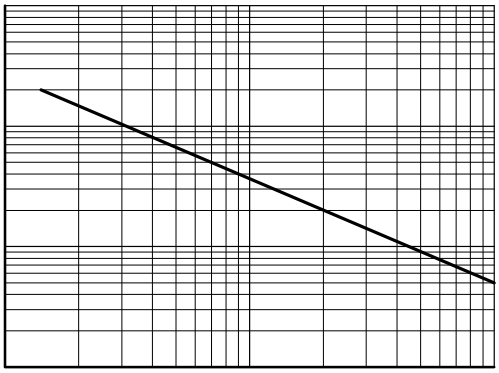


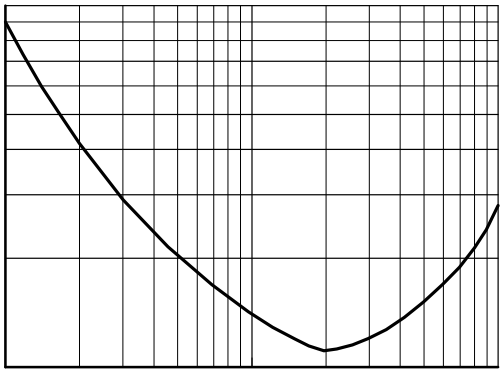




TYPICAL PERFORMANCE CHARACTERISTICS (Continued)







TEST CIRCUITS

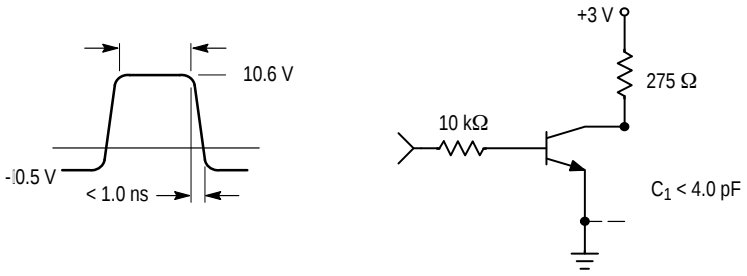


Figure 19. Delay and Rise Time Equivalent Test Circuit

Figure 20. Storage and Fall Time Equivalent Test Circuit

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