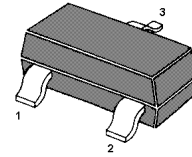


### NPN General Purpose Amplifier

For low noise, high gain, general purpose amplifier applications at collector currents from 1 $\mu$ A to 50 mA.



1. Base 2. Emitter 3. Collector

SOT-23 Plastic Package

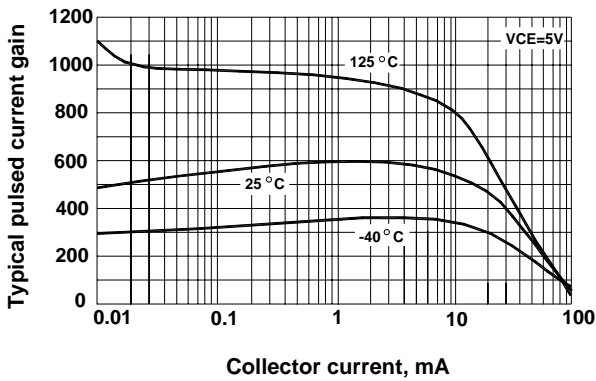
#### Absolute Maximum Ratings ( $T_a = 25^\circ\text{C}$ )

	Symbol	Value	Unit
Collector Emitter Voltage	$V_{CEO}$	25	V
Collector Base Voltage	$V_{CBO}$	30	V
Emitter Base Voltage	$V_{EBO}$	4.5	V
Collector Current - Continuous	$I_C$	100	mA
Total Device Dissipation Derate above 25°C	$P_{tot}$	200 2.8	mW mW/°C
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	357	°C/W
Operating and Storage Junction Temperature Range	$T_J, T_{Stg}$	-55 to +150	°C

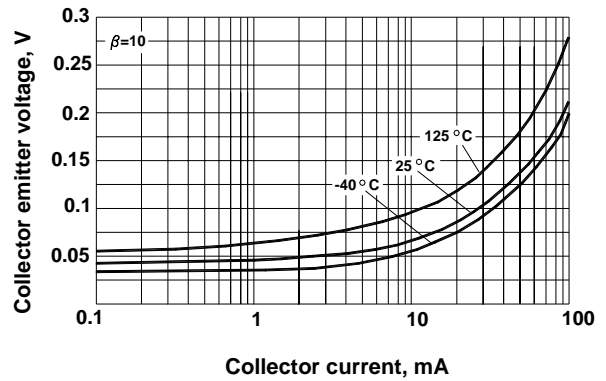
**Characteristics at  $T_{amb}=25\text{ }^{\circ}\text{C}$** 

	Symbol	Min.	Max.	Unit
DC Current Gain				
at $V_{CE}=5V, I_C=100\mu A$	$h_{FE}$	400	1200	-
at $V_{CE}=5V, I_C=1mA$	$h_{FE}$	450	-	-
at $V_{CE}=5V, I_C=10mA$	$h_{FE}$	400	-	-
Small Signal Current Gain				
at $V_{CE}=5V, I_C=1mA, f=1KHz$	$h_{fe}$	450	1800	-
Collector Base Breakdown Voltage				
at $I_C=100\mu A$	$V_{(BR)CBO}$	30	-	V
Collector Emitter Breakdown Voltage				
at $I_C=1mA$	$V_{(BR)CEO}$	25	-	V
Collector Emitter Saturation Voltage				
at $I_C=10mA, I_B=1mA$	$V_{CEsat}$	-	0.5	V
Base Emitter On Voltage				
at $I_C=10mA, V_{CE}=5V$	$V_{BEon}$	-	0.8	V
Collector Cutoff Current				
at $V_{CB}=15V$	$I_{CBO}$	-	50	nA
Emitter Cutoff Current				
at $V_{EB}=3V$	$I_{EBO}$	-	50	nA
at $V_{EB}=4.5V$	$I_{EBO}$	-	100	nA
Gain Bandwidth Product				
at $V_{CE}=5V, I_C=500\mu A, f=20MHz$	$f_T$	50	-	MHz
Collector Base Capacitance				
at $V_{CB}=5V, f=100KHz$	$C_{cb}$	-	4	pF
Emitter Base Capacitance				
at $V_{BE}=0.5V, f=100KHz$	$C_{eb}$	-	10	pF
Noise Figure				
at $V_{CE}=5V, I_C=100\mu A, R_s=10K\Omega, f=10Hz$ to $15.7KHz$	NF	-	2	dB

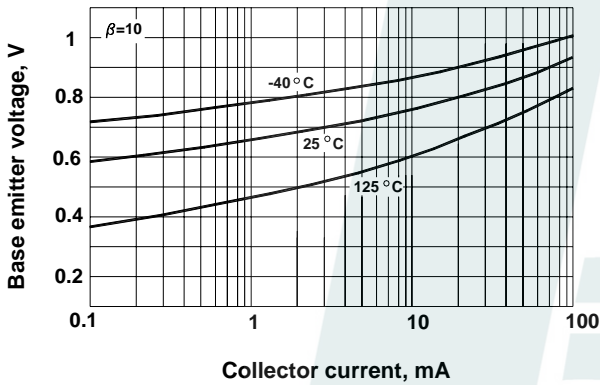
**Typical pulsed current gain vs. collector current**



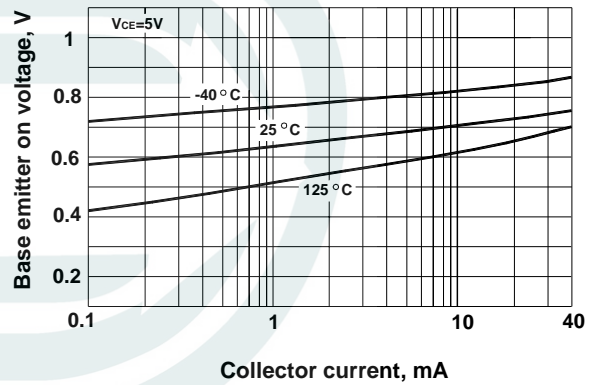
**Collector emitter saturation voltage vs. collector current**



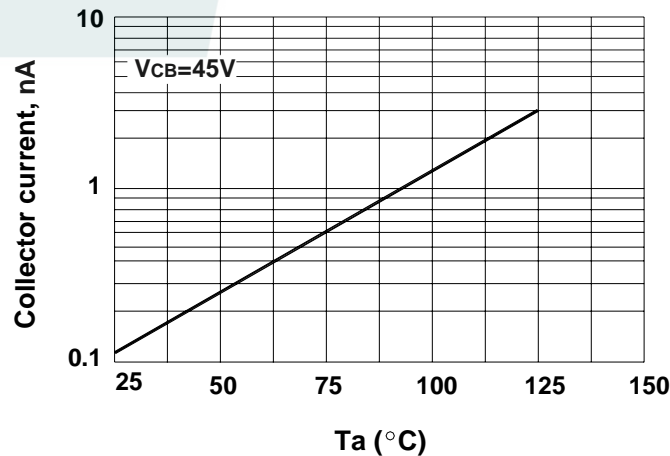
**Base emitter saturation voltage vs. collector current**



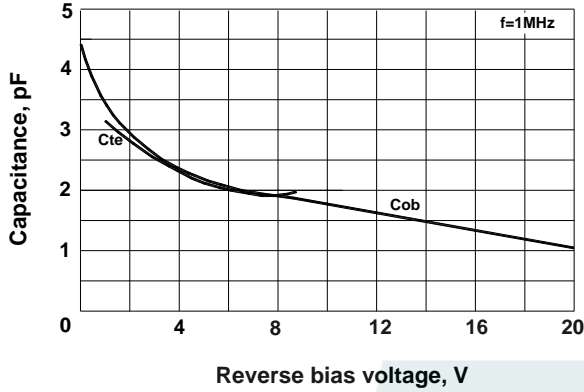
**Base emitter on voltage vs. collector current**



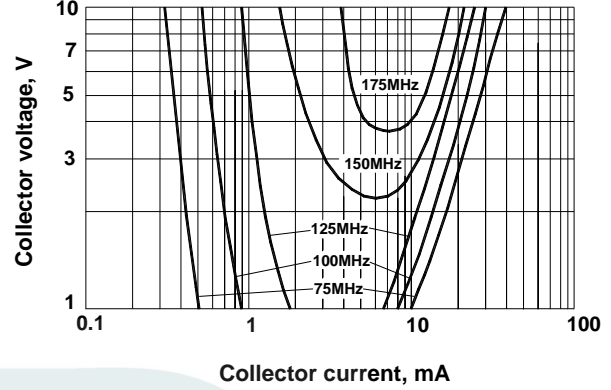
**Collector cutoff current vs. ambient temperature**



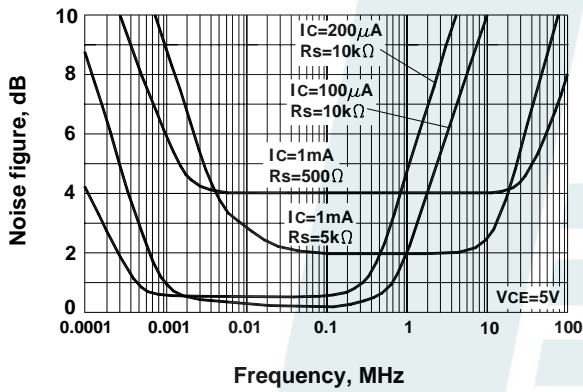
**Input and output capacitance vs. reverse bias voltage**



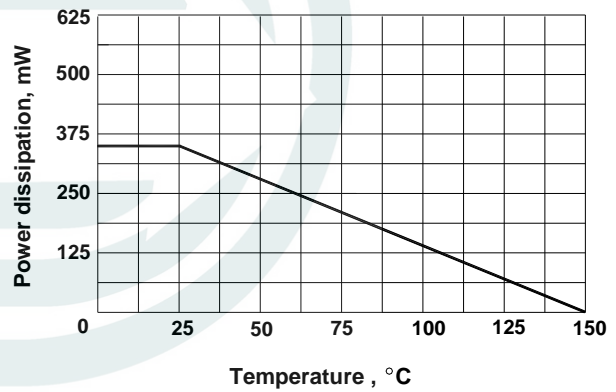
**Contours of constant gain bandwidth product**



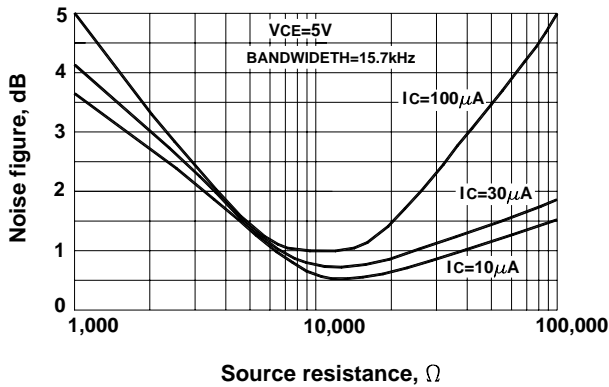
**Noise figure vs. frequency**



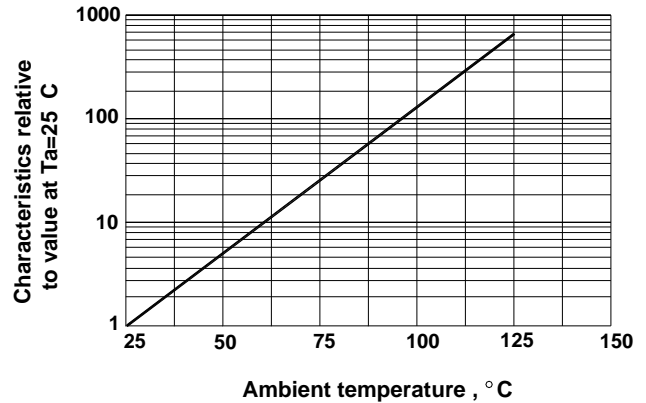
**Power dissipation vs. ambient temperature**



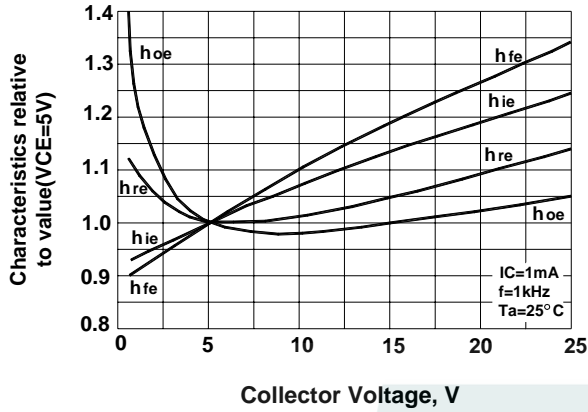
**Wideband noise frequency vs. source resistance**



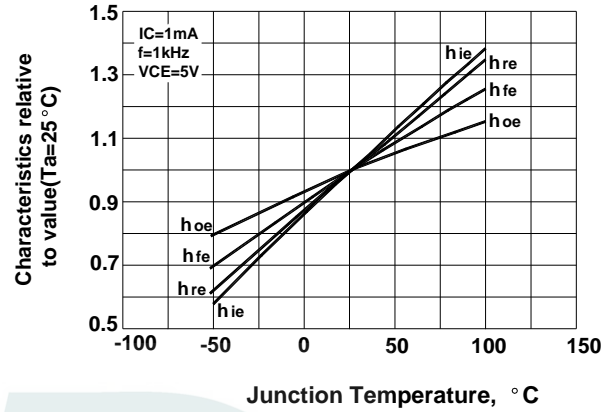
**Normalized collector cutoff current vs. ambient temperature**



Typical common emitter characteristics



Typical common emitter characteristics



Typical common emitter characteristics

