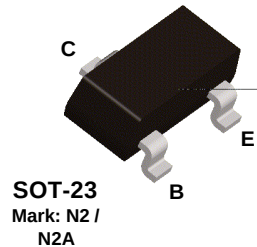
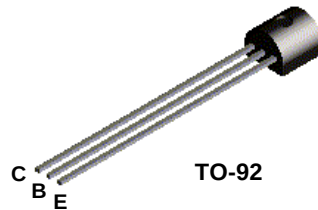


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Discrete POWER & Signal
Technologies

PN200 / MMBT200 / PN200A / MMBT200A

PN200
PN200AMMBT200
MMBT200A

PNP General Purpose Amplifier

This device is designed for general purpose amplifier applications at collector currents to 300 mA. Sourced from Process 68.

Absolute Maximum Ratings*

TA = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
V _{CEO}	Collector-Emitter Voltage	60	V
V _{CBO}	Collector-Base Voltage	45	V
V _{EBO}	Emitter-Base Voltage	6.0	V
I _C	Collector Current - Continuous	500	mA
T _J , T _{stg}	Operating and Storage Junction Temperature Range	-55 to +150	°C

*These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

NOTES:

- 1) These ratings are based on a maximum junction temperature of 150 degrees C.
- 2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

Thermal Characteristics

TA = 25°C unless otherwise noted

Symbol	Characteristic	Max		Units
		PN200A	*MMBT200A	
P _D	Total Device Dissipation Derate above 25°C	625 5.0	350 2.8	mW mW/°C
R _{θJC}	Thermal Resistance, Junction to Case	83.3		°C/W
R _{θJA}	Thermal Resistance, Junction to Ambient	200	357	°C/W

*Device mounted on FR-4 PCB 1.6" X 1.6" X 0.06."

PNP General Purpose Amplifier
(continued)

Electrical Characteristics

TA = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Max	Units
OFF CHARACTERISTICS					
BV _{CBO}	Collector-Base Breakdown Voltage	I _C = 10 µA, I _B = 0	60		V
BV _{CEO}	Collector-Emitter Breakdown Voltage*	I _C = 1.0 mA, I _E = 0	45		V
BV _{EBO}	Emitter-Base Breakdown Voltage	I _E = 10 µA, I _C = 0	6.0		V
I _{CBO}	Collector Cutoff Current	V _{CB} = 50 V, I _E = 0		50	nA
I _{CES}	Collector Cutoff Current	V _{CE} = 40 V, I _E = 10		50	nA
I _{EBO}	Emitter Cutoff Current	V _{EB} = 4.0 V, I _C = 0		50	nA

ON CHARACTERISTICS

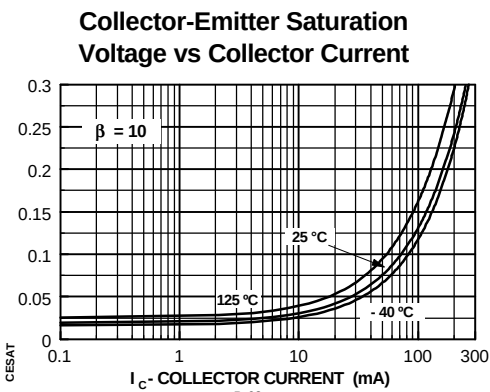
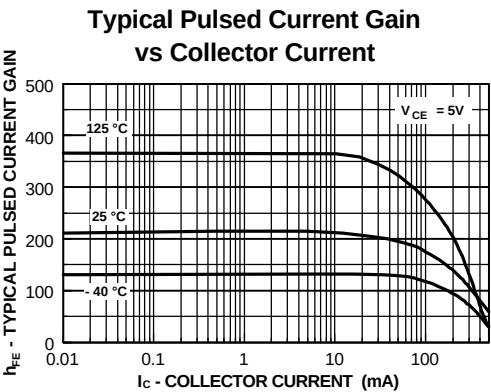
h _{FE}	DC Current Gain	I _C = 100 µA, V _{CE} = 1.0 V	200	80	
			200A	240	
		I _C = 10 mA, V _{CE} = 1.0 V	200	100	450
			200A	300	600
		I _C = 100 mA, V _{CE} = 1.0 V*	200A	100	
V _{CE(sat)}	Collector-Emitter Saturation Voltage	I _C = 10 mA, I _B = 1.0 mA		0.2	V
		I _C = 200 mA, I _B = 20 mA*		0.4	V
V _{BE(sat)}	Base-Emitter Saturation Voltage	I _C = 10 mA, I _B = 1.0 mA		0.85	V
		I _C = 200 mA, I _B = 20 mA*		1.0	V

SMALL SIGNAL CHARACTERISTICS

f _T	Current Gain - Bandwidth Product	V _{CE} = 20 V, I _C = 20 mA	250		MHz
C _{obo}	Output Capacitance	V _{CB} = 10 V, f = 1.0 MHz		6.0	pF
NF	Noise Figure	I _C = 100 µA, V _{CE} = 5.0 V,	200	5.0	dB
		R _G = 2.0 kΩ, f = 1.0 kHz	200A	4.0	dB

*Pulse Test: Pulse Width ≤ 300 µs, Duty Cycle ≤ 2.0%

Typical Characteristics

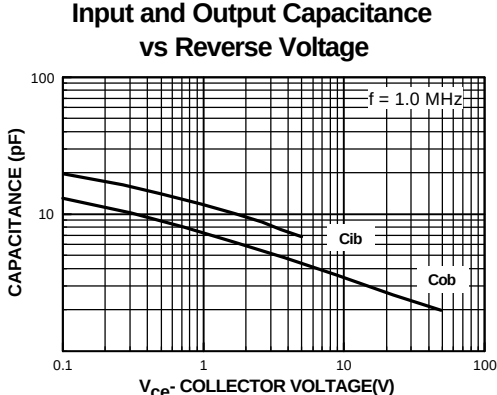
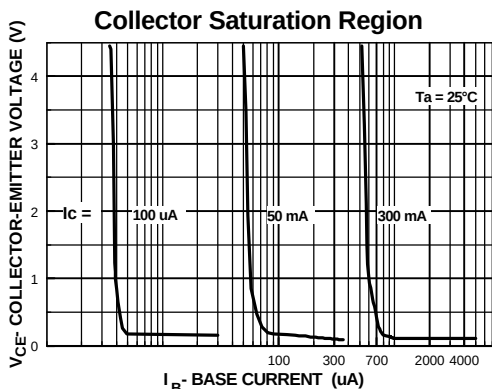
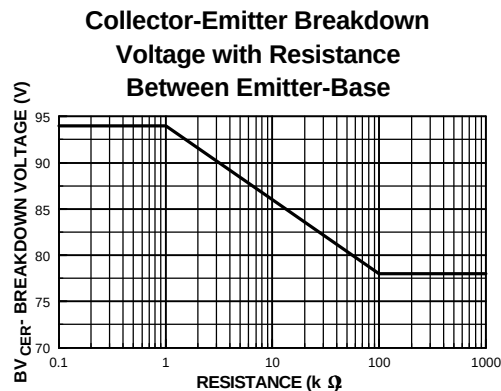
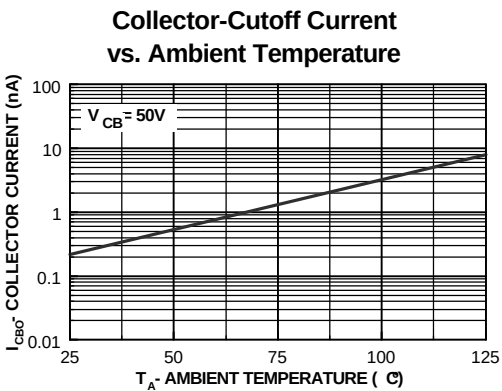
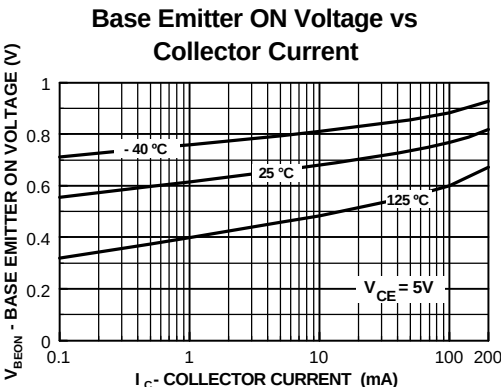
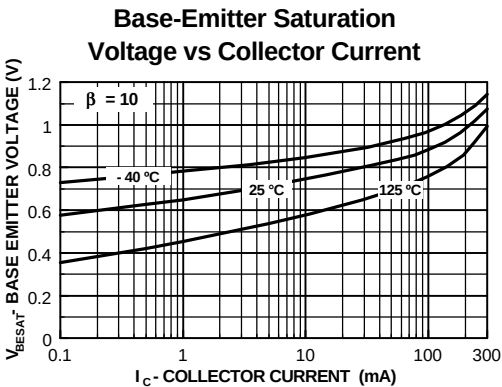


PN200 / MMBT200 / PN200A / MMBT200A

PNP General Purpose Amplifier
(continued)

PN200 / MMBT200 / PN200A / MMBT200A

Typical Characteristics (continued)



PNP General Purpose Amplifier
(continued)

Typical Characteristics (continued)

