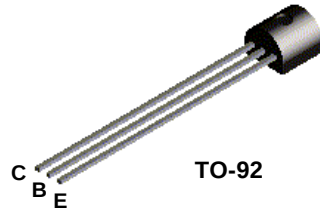
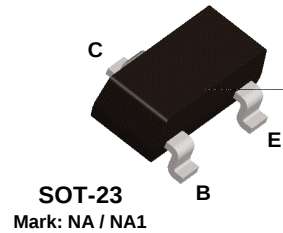


N

Discrete POWER & Signal
TechnologiesPN100
PN100AMMBT100
MMBT100A

PN100 / MMBT100 / PN100A / MMBT100A

NPN General Purpose Amplifier

This device is designed for general purpose amplifier applications at collector currents to 300 mA. Sourced from Process 10.

Absolute Maximum Ratings*

TA=25°C unless otherwise noted

Symbol	Parameter	Value	Units
V _{CEO}	Collector-Emitter Voltage	75	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
		PN100A	*MMBT100A	
P _D	Total Device Dissipation	625	350	mW
	Derate above 25°C	5.0	2.8	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."

NPN 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	75		V
BV _{CEO}	Collector-Emitter Breakdown Voltage*	I _C = 1 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} = 60 V		50	nA
I _{CES}	Collector Cutoff Current	V _{CE} = 40 V		50	nA
I _{EBO}	Emitter Cutoff Current	V _{EB} = 4 V		50	nA

ON CHARACTERISTICS

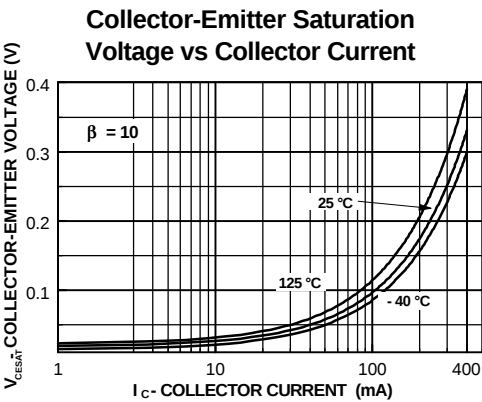
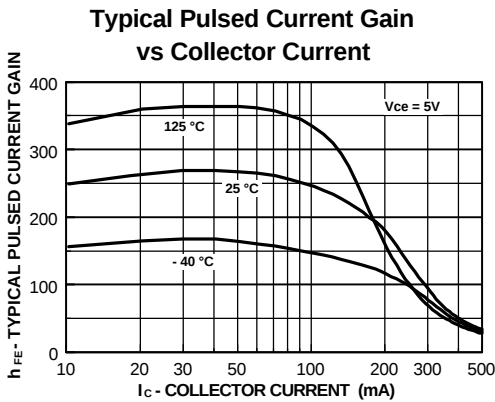
h _{FE}	DC Current Gain	I _C = 100 µA, V _{CE} = 1.0 V	100	80	
			100A	240	
		I _C = 10 mA, V _{CE} = 1.0 V	100	100	450
			100A	300	600
		I _C = 100 mA, V _{CE} = 1.0 V*		100	
V _{CE(sat)}	Collector-Emitter Saturation Voltage	I _C = 10 mA, I _B = 1.0 mA		0.2	V
		I _C = 200 mA, I _B = 20 mA*		0.4	V
V _{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} = 5.0 V, f = 1.0 MHz		4.5	pF
NF	Noise Figure	I _C = 100 µA, V _{CE} = 5.0 V, R _G = 2.0 kΩ, f = 1.0 kHz	100 100A	5.0 4.0	dB dB

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

Typical Characteristics



NPN General Purpose Amplifier
(continued)

PN100 / MMBT100 / PN100A / MMBT100A

Typical Characteristics (continued)

