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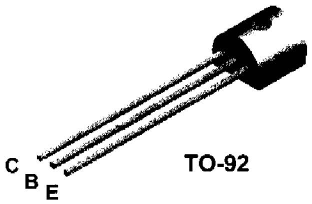
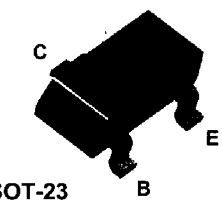
PN918 MMBT918





NPN RF Transistor

This device is designed for use as RF amplifiers, oscillators and multipliers with collector currents in the 1.0 mA to 30 mA range. Sourced from Process 43.

Absolute Maximum Ratings* TA = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
V_{CEO}	Collector-Emitter Voltage	15	V
V_{CBO}	Collector-Base Voltage	30	V
V_{EBO}	Emitter-Base Voltage	3.0	V
I_C	Collector Current - Continuous	50	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
		PN918	*MMBT918	
P_D	Total Device Dissipation Derate above 25°C	350 2.8	225 1.8	mW mW/°C
$R_{\theta JC}$	Thermal Resistance, Junction to Case	125		°C/W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	357	556	°C/W

Electrical Characteristics

TA = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Max	Units
OFF CHARACTERISTICS					
$V_{CEO(SUS)}$	Collector-Emitter Sustaining Voltage*	$I_C = 3.0$ mA, $I_B = 0$	15		V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C = 1.0$ μA, $I_E = 0$	30		V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E = 10$ μA, $I_C = 0$	3.0		V
I_{CBO}	Collector Cutoff Current	$V_{CB} = 15$ V, $I_E = 0$ $V_{CB} = 15$ V, $T_A = 150°C$		0.01 1.0	μA μA
ON CHARACTERISTICS					
h_{FE}	DC Current Gain	$I_C = 3.0$ mA, $V_{CE} = 1.0$ V	20		
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 10$ mA, $I_B = 1.0$ mA		0.4	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = 10$ mA, $I_B = 1.0$ mA		1.0	V
SMALL SIGNAL CHARACTERISTICS					
f_T	Current Gain - Bandwidth Product	$I_C = 4.0$ mA, $V_{CE} = 10$ V, f = 100 MHz	600		MHz
C_{obo}	Output Capacitance	$V_{CB} = 10$ V, $I_E = 0$, f = 1.0 MHz $V_{CB} = 0$, $I_E = 0$, f = 1.0 MHz		1.7 3.0	pF pF
C_{ibo}	Input Capacitance	$V_{BE} = 0.5$ V, $I_C = 0$, f = 1.0 MHz		2.0	pF
NF	Noise Figure	$I_C = 1.0$ mA, $V_{CE} = 6.0$ V, $R_G = 400\Omega$, f = 60 MHz		6.0	dB
FUNCTIONAL TEST					
G_{pe}	Amplifier Power Gain	$V_{CB} = 12$ V, $I_C = 6.0$ mA, f = 200 MHz	15		dB
P_O	Power Output	$V_{CB} = 15$ V, $I_C = 8.0$ mA, f = 500 MHz	30		mW
η	Collector Efficiency	$V_{CB} = 15$ V, $I_C = 8.0$ mA, f = 500 MHz	25		%

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