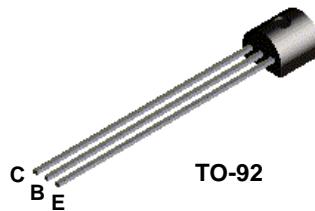
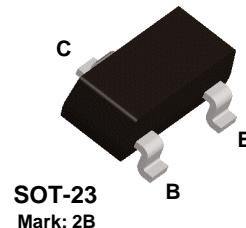


**PN2907**



**MMBT2907**



**PNP General Purpose Amplifier**

This device is designed for use as general purpose amplifiers and switches requiring collector currents to 500 mA. Sourced from Process 63. See PN2907A for characteristics.

**Absolute Maximum Ratings\***

TA = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
$V_{CEO}$	Collector-Emitter Voltage	40	V
$V_{CBO}$	Collector-Base Voltage	60	V
$V_{EBO}$	Emitter-Base Voltage	5.0	V
$I_C$	Collector Current - Continuous	800	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
		PN2907	*MMBT2907	
$P_D$	Total Device Dissipation Derate above 25°C	625 5.0	350 2.8	mW mW/°C
$R_{\theta JC}$	Thermal Resistance, Junction to Case	83.3		°C/W
$R_{\theta JA}$	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					
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage*	$I_C = 10 \text{ mA}, I_B = 0$	40		V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C = 10 \mu\text{A}, I_E = 0$	60		V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E = 10 \mu\text{A}, I_C = 0$	5.0		V
$I_{CEX}$	Collector Cutoff Current	$V_{CE} = 30 \text{ V}$		50	nA
$I_B$	Base Cutoff Current	$V_{BE} = 0.5 \text{ V}$		50	nA
$I_{CBO}$	Collector Cutoff Current	$V_{CB} = 50 \text{ V}, I_E = 0$ $V_{CB} = 50 \text{ V}, I_E = 0, T_A = 150 \text{ }^\circ\text{C}$		20	nA
				20	$\mu\text{A}$

## ON CHARACTERISTICS\*

$h_{FE}$	DC Current Gain	$V_{CE} = 10 \text{ V}, I_C = 0.1 \text{ mA}$ $V_{CE} = 10 \text{ V}, I_C = 1.0 \text{ mA}$ $V_{CE} = 10 \text{ V}, I_C = 10 \text{ mA}$ $V_{CE} = 10 \text{ V}, I_C = 150 \text{ mA}$ $V_{CE} = 10 \text{ V}, I_C = 500 \text{ mA}$	35 50 75 100 30	300	
$V_{CE(\text{sat})}$	Collector-Emitter Saturation Voltage	$I_C = 150 \text{ mA}, I_B = 15 \text{ mA}$ $I_C = 500 \text{ mA}, I_B = 50 \text{ mA}$		0.4 1.6	V V
$V_{BE(\text{sat})}$	Base-Emitter Saturation Voltage	$I_C = 150 \text{ mA}, I_B = 15 \text{ mA}$ $I_C = 500 \text{ mA}, I_B = 50 \text{ mA}$		1.3 2.6	V V

## SMALL SIGNAL CHARACTERISTICS

$C_{ob}$	Output Capacitance	$V_{CB} = 10 \text{ V}, f = 1.0 \text{ MHz}$		8.0	pF
$C_{ib}$	Input Capacitance	$V_{EB} = 2.0 \text{ V}, f = 1.0 \text{ MHz}$		30	pF
$h_{fe}$	Small-Signal Current Gain	$I_C = 50 \text{ mA}, V_{CE} = 20 \text{ V}, f = 100 \text{ MHz}$	2.0		

## SWITCHING CHARACTERISTICS

$t_{on}$	Turn-on Time	$V_{CC} = 30 \text{ V}, I_C = 150 \text{ mA}, I_{B1} = 15 \text{ mA}, PW = 200 \text{ ns}$		45	ns
$t_d$	Delay Time			10	ns
$t_r$	Rise Time			40	ns
$t_{off}$	Turn-off Time	$V_{CC} = 6.0 \text{ V}, I_C = 150 \text{ mA}, I_{B1} = I_{B2} = 15 \text{ mA}$		100	ns
$t_s$	Storage Time			80	ns
$t_f$	Fall Time			30	ns

\*Pulse Test: Pulse Width  $\leq 300 \mu\text{s}$ , Duty Cycle  $\leq 2.0\%$

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