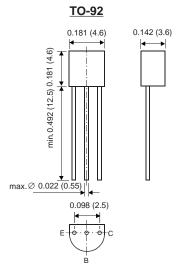
## **MPS2907A**

## **SMALL SIGNAL TRANSISTORS (PNP)**



Dimensions in inches and (millimeters)

#### **FEATURES**

- PNP Silicon Epitaxial Planar Transistor for switching and amplifier applications.
- On special request, this transistor is also manufactured in the pin configuration TO-18.
- This transistor is also available in the SOT-23 case with the type designation MMBT2907A.



## **MECHANICAL DATA**

Case: TO-92 Plastic Package

Weight: approx. 0.18g

## MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified

	SYMBOL	VALUE	UNIT
Collector-Base Voltage	-Vсво	60	Volts
Collector-Emitter Voltage	-Vceo	60	Volts
Emitter-Base Voltage	-V <sub>EBO</sub>	5.0	Volts
Collector Current	-Ic	600	mA
Power Dissipation at T <sub>A</sub> = 25°C Derate above 25°C	P <sub>tot</sub>	625 5.0	mW mW/°C
Power Dissipation at T <sub>C</sub> = 25°C Derate above 25°C	Ptot	1.5 12	mW mW/°C
Thermal Resistance Junction to Ambient Air	R <sub>Θ</sub> JA	200	°C/W
Thermal Resistance Junction Case	Rejc	83.3	°C/W
Junction Temperature	Tj	150	°C
Storage Temperature Range	TS	-500 to +150	°C

#### NOTES:

(1) Valid provided that leads are kept at ambient temperature.



# **MPS2907A**

## **ELECTRICAL CHARACTERISTICS**

Ratings at 25°C ambient temperature unless otherwise specified

	SYMBOL	MIN.	MAX.	UNIT
Collector-Base Breakdown Voltage at $-I_C = 10 \mu A$ , $I_E = 0$	-V(BR)CBO	60	-	Volts
Collector-Emitter Breakdown Voltage at $-I_C = 10$ mA, $I_B = 0$	-V(BR)CEO	60	-	Volts
Emitter-Base Breakdown Voltage at $-I_E = 10 \mu A$ , $I_C = 0$	−V(BR)EBO	5	_	Volts
Collector-Emitter Saturation Voltage at -I <sub>C</sub> = 150 mA, -I <sub>B</sub> = 15 mA at -I <sub>C</sub> = 500 mA, -I <sub>B</sub> = 50 mA	−VCEsat −VCEsat	_ _	0.4 1.6	Volts Volts
Base-Emitter Saturation Voltage at $-IC = 150$ mA, $-IB = 15$ mA at $-IC = 500$ mA, $-IB = 50$ mA	–VBEsat –VBEsat	_ _	1.3 2.6	Volts Volts
Collector Cutoff Current at -VEB = 0.5 V, -VCE = 30 V	-lcex	_	50	nA
Collector Cutoff Current at $-V_{CB} = 50 \text{ V}$ , $I_E = 0$ at $-V_{CB} = 50 \text{ V}$ , $I_E = 0$ , $T_A=150^{\circ}\text{C}$	-Ісво	_	0.01 10	μΑ
Base Cutoff Current at -V <sub>EB</sub> = 0.5 V, -V <sub>CE</sub> = 30 V	-l <sub>BL</sub>	_	50	nA
DC Current Gain  at -Vce = 10 V, -Ic = 0.1 mA  at -Vce = 10 V, -Ic = 1 mA  at -Vce = 10 V, -Ic = 10 mA  at -Vce = 10 V, -Ic = 150 mA  at -Vce = 10 V, -Ic = 500 mA	hfe hfe hfe hfe hfe	75 100 100 100 50	- - - 300 -	- - - -
Gain-Bandwidth Product at –VcE = 20 V, –Ic = 50 mA, f = 100 MHz	fr	200	_	MHz
Output Capacitance at –VcB = 10 V, f = 1 MHz, IE = 0	Cobo	-	8.0	pF
Emitter-Base Capacitance at -VEB = 2.0 V, f = 1 MHz, IE = 0	Cibo	-	30	pF



## **MPS2907A**

## **ELECTRICAL CHARACTERISTICS**

Ratings at 25°C ambient temperature unless otherwise specified

	SYMBOL	MIN.	MAX.	UNIT
Turn-On Time at $-I_{B1}$ = 15 mA, $-I_{C}$ = 150 mA, $-V_{CC}$ = 30 V	t <sub>on</sub>	-	45	ns
Delay Time (See Fig. 1) at $-I_{B1} = 15$ mA, $-I_{C} = 150$ mA, $-V_{CC} = 30$ V	td	-	35	ns
Rise Time (See Fig. 1) at -I <sub>B1</sub> = 15 mA, -I <sub>C</sub> = 150 mA, -V <sub>CC</sub> = 30 V	t <sub>r</sub>	-	35	ns
Turn-Off Time at $-I_{B1} = -I_{B2} = 15$ mA, $-I_{C} = 150$ mA, $-V_{CC} = 6$ V	t <sub>off</sub>	-	100	ns
Storage Time (See Fig. 2) at $I_{B1} = -I_{B2} = 15$ mA, $-I_{C} = 150$ mA, $-V_{CC} = 6$ V	ts	-	225	ns
Fall Time (See Fig. 2) at I <sub>B1</sub> = -I <sub>B2</sub> = 15 mA, -I <sub>C</sub> = 150 mA, -V <sub>CC</sub> = 6 V	t <sub>f</sub>	-	75	ns

## SWITCHING TIME EQUIVALENT TEST CIRCUIT

FIGURE 1 - DELAY AND RISE TIME TEST CIRCUIT

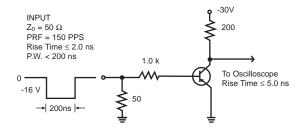


FIGURE 2 - STORAGE AND FALL TIME TEST CIRCUIT

