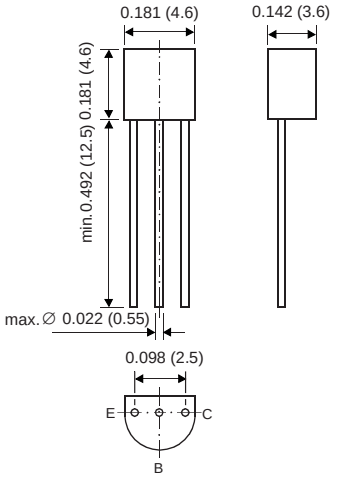
MPS2907A

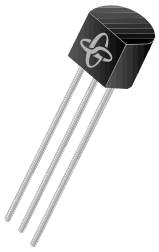
SMALL SIGNAL TRANSISTORS (PNP)

TO-92



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	$-V_{CBO}$	60	Volts
Collector-Emitter Voltage	$-V_{CEO}$	60	Volts
Emitter-Base Voltage	$-V_{EBO}$	5.0	Volts
Collector Current	$-I_C$	600	mA
Power Dissipation at T_A = 25°C Derate above 25°C	P_{tot}	625 5.0	mW mW/°C
Power Dissipation at T_C = 25°C Derate above 25°C	P_{tot}	1.5 12	mW mW/°C
Thermal Resistance Junction to Ambient Air	$R_{\Theta JA}$	200	°C/W
Thermal Resistance Junction Case	$R_{\Theta JC}$	83.3	°C/W
Junction Temperature	T_j	150	°C
Storage Temperature Range	T_S	–500 to +150	°C

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

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ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified

	SYMBOL	MIN.	MAX.	UNIT
Collector-Base Breakdown Voltage at $-I_C$ = 10 μA, 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 μA, I_C = 0	$-V_{(BR)EBO}$	5	–	Volts
Collector-Emitter Saturation Voltage at $-I_C$ = 150 mA, $-I_B$ = 15 mA at $-I_C$ = 500 mA, $-I_B$ = 50 mA	 $-V_{CEsat}$ $-V_{CEsat}$	 – –	 0.4 1.6	 Volts Volts
Base-Emitter Saturation Voltage at $-I_C$ = 150 mA, $-I_B$ = 15 mA at $-I_C$ = 500 mA, $-I_B$ = 50 mA	 $-V_{BEsat}$ $-V_{BEsat}$	 – –	 1.3 2.6	 Volts Volts
Collector Cutoff Current at $-V_{EB}$ = 0.5 V, $-V_{CE}$ = 30 V	$-I_{CEX}$	–	50	nA
Collector Cutoff Current at $-V_{CB}$ = 50 V, I_E = 0 at $-V_{CB}$ = 50 V, I_E = 0, T_A=150°C	$-I_{CBO}$	 –	0.01 10	μA
Base Cutoff Current at $-V_{EB}$ = 0.5 V, $-V_{CE}$ = 30 V	$-I_{BL}$	–	50	nA
DC Current Gain at $-V_{CE}$ = 10 V, $-I_C$ = 0.1 mA at $-V_{CE}$ = 10 V, $-I_C$ = 1 mA at $-V_{CE}$ = 10 V, $-I_C$ = 10 mA at $-V_{CE}$ = 10 V, $-I_C$ = 150 mA at $-V_{CE}$ = 10 V, $-I_C$ = 500 mA	 h_{FE} h_{FE} h_{FE} h_{FE} h_{FE}	 75 100 100 100 50	 – – – 300 –	 – – – – –
Gain-Bandwidth Product at $-V_{CE}$ = 20 V, $-I_C$ = 50 mA, f = 100 MHz	f_T	200	–	MHz
Output Capacitance at $-V_{CB}$ = 10 V, f = 1 MHz, I_E = 0	C_{obo}	–	8.0	pF
Emitter-Base Capacitance at $-V_{EB}$ = 2.0 V, f = 1 MHz, I_E = 0	C_{ibo}	–	30	pF

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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_{on}	–	45	ns
Delay Time (See Fig. 1) at $-I_{B1}$ = 15 mA, $-I_C$ = 150 mA, $-V_{CC}$ = 30 V	t_d	–	35	ns
Rise Time (See Fig. 1) at $-I_{B1}$ = 15 mA, $-I_C$ = 150 mA, $-V_{CC}$ = 30 V	t_r	–	35	ns
Turn-Off Time at $-I_{B1} = -I_{B2}$ = 15 mA, $-I_C$ = 150 mA, $-V_{CC}$ = 6 V	t_{off}	–	100	ns
Storage Time (See Fig. 2) at $I_{B1} = -I_{B2}$ = 15 mA, $-I_C$ = 150 mA, $-V_{CC}$ = 6 V	t_s	–	225	ns
Fall Time (See Fig. 2) at $I_{B1} = -I_{B2}$ = 15 mA, $-I_C$ = 150 mA, $-V_{CC}$ = 6 V	t_f	–	75	ns

SWITCHING TIME EQUIVALENT TEST CIRCUIT

FIGURE 1 - DELAY AND RISE TIME TEST CIRCUIT

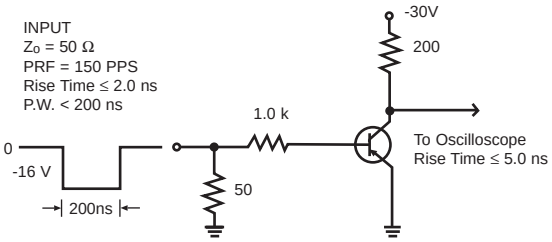

FIGURE 2 - STORAGE AND FALL TIME TEST CIRCUIT