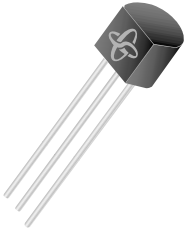
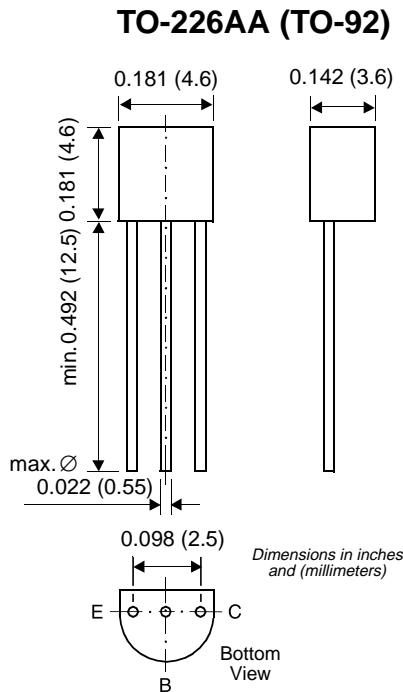


Small Signal Transistor (PNP)



New Product



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

Packaging Codes/Options:

E6/Bulk - 5K per container

E7/4K per Ammo tape

Maximum Ratings & Thermal Characteristics Ratings at 25°C ambient temperature unless otherwise specified.

Parameters	Symbols	Value	Units
Collector-Base Voltage	$-V_{CBO}$	60	V
Collector-Emitter Voltage	$-V_{CEO}$	60	V
Emitter-Base Voltage	$-V_{EBO}$	5.0	V
Collector Current	$-I_C$	600	mA
Power Dissipation	P_{tot}	$T_A = 25^\circ\text{C}$	625
		Derate above 25°C	5.0
Power Dissipation	P_{tot}	$T_C = 25^\circ\text{C}$	1.5
		Derate above 25°C	12
Thermal Resistance Junction to Ambient Air	$R_{\theta JA}$	200 ⁽¹⁾	°C/W
Thermal Resistance Junction to Case	$R_{\theta JC}$	83.3	°C/W
Junction Temperature	T_j	150	°C
Storage Temperature Range	T_s	- 55 to +150	°C

Notes:

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

Small Signal Transistor (PNP)

Electrical Characteristics (T_J = 25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
DC Current Gain	h _{FE}	-V _{CE} = 10 V, -I _C = 0.1 mA	75	—	—	—
		-V _{CE} = 10 V, -I _C = 1 mA	100	—	—	—
		-V _{CE} = 10 V, -I _C = 10 mA	100	—	—	—
		-V _{CE} = 10 V, -I _C = 150 mA ⁽¹⁾	100	300	—	—
		-V _{CE} = 10 V, -I _C = 500 mA ⁽¹⁾	50	—	—	—
Collector-Base Breakdown Voltage	-V _{(BR)CBO}	-I _C = 10 μA, I _E = 0	60	—	—	V
Collector-Emitter Breakdown Voltage ⁽¹⁾	-V _{(BR)CEO}	-I _C = 10 mA, I _B = 0	60	—	—	V
Emitter-Base Breakdown Voltage	-V _{(BR)EBO}	-I _E = 10 μA, I _C = 0	5	—	—	V
Collector-Emitter Saturation Voltage ⁽¹⁾	-V _{CEsat}	-I _C = 150 mA, -I _B = 15 mA	—	—	0.4	V
		-I _C = 500 mA, -I _B = 50 mA	—	—	1.6	V
Base-Emitter Saturation Voltage ⁽¹⁾	-V _{BEsat}	-I _C = 150 mA, -I _B = 15 mA	—	—	1.3	V
		-I _C = 500 mA, -I _B = 50 mA	—	—	2.6	V
Collector Cut-off Current	-I _{CEX}	-V _{EB} = 0.5 V, -V _{CE} = 30 V	—	—	50	nA
Collector Cut-off Current	-I _{CBO}	-V _{CB} = 50 V, I _E = 0	—	—	0.01	μA
		-V _{CB} = 50 V, I _E = 0, T _A = 150°C	—	—	10	μA
Base Cut-off Current	-I _{BL}	-V _{EB} = 0.5 V, -V _{CE} = 30 V	—	—	50	nA
Current Gain-Bandwidth Product	f _T	-V _{CE} = 20 V, -I _C = 50 mA f = 100 MHz	200	—	—	MHz
Output Capacitance	C _{obo}	-V _{CB} = 10 V, f = 1 MHz, I _E = 0	—	—	8.0	pF
Emitter-Base Capacitance	C _{ibo}	-V _{EB} = 2.0 V, f = 1 MHz, I _C = 0	—	—	30	pF

Notes:

(1) Pulse Test: Pulse width ≤ 300 μs, duty cycle ≤ 2.0%

Small Signal Transistor (PNP)

Electrical Characteristics ($T_J = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Turn-ON Time	t_{on}	$-I_{B1} = 15\text{ mA}, -I_C = 150\text{ mA}, -V_{CC} = 30\text{ V}$	—	—	45	ns
Delay Time (see fig. 1)	t_d	$-I_{B1} = 15\text{ mA}, -I_C = 150\text{ mA}, -V_{CC} = 30\text{ V}$	—	—	10	ns
Rise Time (see fig. 1)	t_r	$-I_{B1} = 15\text{ mA}, -I_C = 150\text{ mA}, -V_{CC} = 30\text{ V}$	—	—	40	ns
Turn-OFF Time	t_{off}	$-I_{B1} = -I_{B2} = 15\text{ mA}, -I_C = 150\text{ mA}, -V_{CC} = 6\text{ V}$	—	—	100	ns
Storage Time (see fig. 2)	t_s	$-I_{B1} = -I_{B2} = 15\text{ mA}, -I_C = 150\text{ mA}, -V_{CC} = 6\text{ V}$	—	—	80	ns
Fall Time (see fig. 2)	t_f	$-I_{B1} = -I_{B2} = 15\text{ mA}, -I_C = 150\text{ mA}, -V_{CC} = 6\text{ V}$	—	—	30	ns

Switching Time Equivalent Test Circuit

Figure 1: Delay and Rise Time test circuit

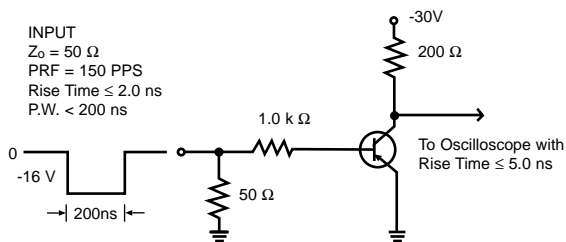


Figure 2: Storage and Fall Time test circuit

