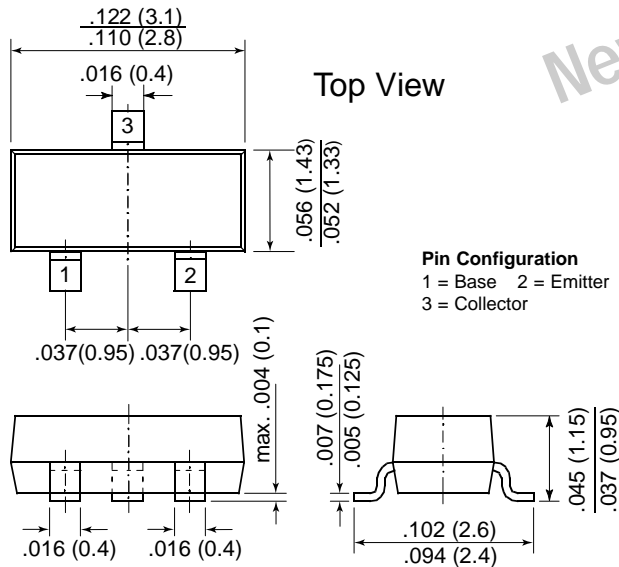


Small Signal Transistor (PNP)



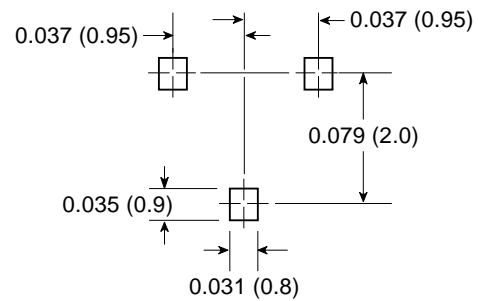
TO-236AB (SOT-23)



Dimensions in inches and (millimeters)

New Product

Mounting Pad Layout



Mechanical Data

Case: SOT-23 Plastic Package

Weight: approx. 0.008g

Marking Code: 2F

Packaging Codes/Options:

E8/10K per 13" reel (8mm tape)

E9/3K per 7" reel (8mm tape)

Features

- PNP Silicon Epitaxial Planar Transistor for switching and amplifier applications.
- This transistor is also available in the TO-92 case with the type designation MPS2907A.

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

Parameters	Symbols	Value	Units
Collector-Emitter Voltage	$-V_{CEO}$	60	V
Collector-Base Voltage	$-V_{CB0}$	60	V
Emitter-Base Voltage	$-V_{EB0}$	5.0	V
Collector Current	$-I_C$	600	mA
Power Dissipation ⁽¹⁾	P_{tot}	225 1.8	mW mW/°C
Power Dissipation ⁽²⁾	P_{tot}	300 2.4	mW mW/°C
Thermal Resistance Junction to Ambient Air	$R_{\theta JA}$	556 417	°C/W
Junction Temperature	T_j	150	°C
Storage Temperature Range	T_s	- 55 to +150	°C

Notes:

(1) FR-5 Board = 1.0 x 0.75 x 0.062 in.

(2) Alumina Substrate = 0.4 x 0.3 x 0.024 in. 99.5% alumina.

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 Cutoff Current	-I _{CEX}	-V _{EB} = 0.5 V, -V _{CE} = 30 V	—	—	50	nA
Collector Cutoff Current	-I _{CB0}	-V _{CB} = 50 V, I _E = 0 -V _{CB} = 50 V, I _E = 0, T _A = 125°C	—	—	0.01 10	μA
Emitter-Base Cutoff Current	-I _{BL}	-V _{EB} = 0.5 V, -V _{CE} = 30 V	—	—	50	nA
Collector-Emitter Saturation Voltage ⁽¹⁾	-V _{CEsat}	-I _C = 150 mA, -I _B = 15 mA -I _C = 500 mA, -I _B = 50 mA	—	—	0.4 1.6	V
Base-Emitter Saturation Voltage ⁽¹⁾	-V _{BEsat}	-I _C = 150 mA, -I _B = 15 mA -I _C = 500 mA, -I _B = 50 mA	—	—	1.3 2.6	V
Collector-Emitter Breakdown Voltage ⁽¹⁾	-V _{(BR)CEO}	-I _C = 10 mA, I _B = 0	60	—	—	V
Collector-Base Breakdown Voltage	-V _{(BR)CBO}	-I _C = 10 μA, I _E = 0	60	—	—	V
Emitter-Base Breakdown Voltage	-V _{(BR)EBO}	-I _E = 10 μA, I _C = 0	5.0	—	—	V
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 = 1.0 MHz I _E = 0	—	—	8	pF
Input Capacitance	C _{ibo}	-V _{EB} = 2.0 V, f = 1.0 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°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Turn-ON Time	t _{on}	-I _{B1} = 15 mA, -I _C = 150 mA -V _{CC} = 30 V	—	—	45	ns
Delay Time	t _d	-I _{B1} = 15 mA, -I _C = 150 mA -V _{CC} = 30 V	—	—	10	ns
Rise Time	t _r	-I _{B1} = 15 mA, -I _C = 150 mA, -V _{CC} = 30 V	—	—	40	ns
Turn-OFF Time	t _{off}	-I _{B1} = 15 mA, -I _C = 150 mA -V _{CC} = 6.0 V	—	—	100	ns
Storage Time	t _s	-I _{B1} = -I _{B2} = 15 mA, -I _C = 150 mA, -V _{CC} = 6.0 V	—	—	80	ns
Fall Time	t _f	-I _{B1} = -I _{B2} = 15 mA, -I _C = 150 mA, -V _{CC} = 6 V	—	—	30	ns

Switching Time Equivalent Test Circuit

Figure 1 - Delay and Rise Time Test Circuit

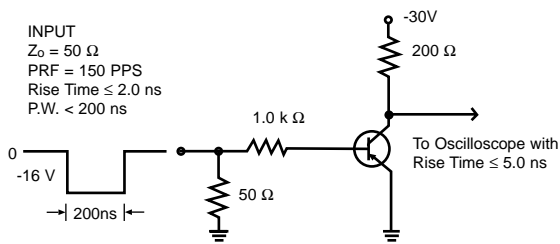


Figure 2 - Storage and Fall Time Test Circuit

