Selecting Parts for Your miniPCB

Introduction

This document provides information about component footprints and packages typically used on miniPCBs.

Revision History

Revision	Note	Date
A	Initial Release	DDMMMYYYY

Resistors

Surface Mount: 0805

Through Hole: 7 mm between holes

Capacitors

Surface Mount: 0805

Through Hole: 5 mm between holes

Transistors

BJT symbols are used in all miniPCB schematics. It is possible to use MOSFET devices that have the footprints and pinouts shown here.

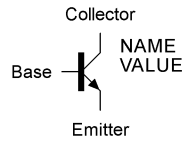
N-type MOSFETs can be used in place of NPN BJTs; and P-type MOSFETS can be used in place of PNP BJTs.

Surface Mount: SOT23 (3 pin)

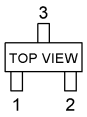
PART: NPN Bipolar Junction Transistor

FOOTPRINT: SOT23

SCHEMATIC SYMBOL



PINOUT



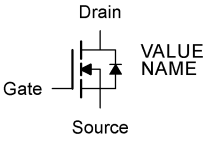
PIN	DESCRIPTION
1	Base
2	Emitter
3	Collector

Note: Pinouts vary per parts. Double-check that your part matches this pinout.

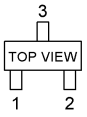
PART: N-Channel MOSFET, Enhancement Mode

FOOTPRINT: SOT23

SCHEMATIC SYMBOL



PINOUT



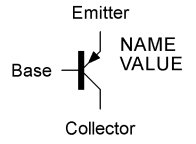
PIN	DESCRIPTION
1	Gate
2	Source
3	Drain

Note: Pinouts vary per parts. Double-check that your part matches this pinout.

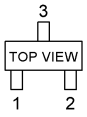
PART: PNP Bipolar Junction Transistor

FOOTPRINT: SOT23

SCHEMATIC SYMBOL



PINOUT



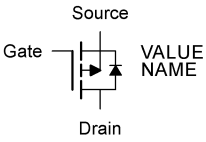
PIN	DESCRIPTION
1	Base
2	Emitter
3	Collector

Note: Pinouts vary per parts. Double-check that your part matches this pinout.

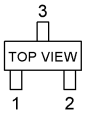
PART: P-Channel MOSFET, Enhancement Mode

FOOTPRINT: SOT23

SCHEMATIC SYMBOL



PINOUT



PIN	DESCRIPTION
1	Gate
2	Source
3	Drain

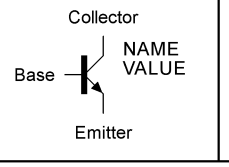
Note: Pinouts vary per parts. Double-check that your part matches this pinout.

Through Hole: TO92

PART: NPN Bipolar Junction Transistor

FOOTPRINT: TO-92

SCHEMATIC SYMBOL



PINOUT

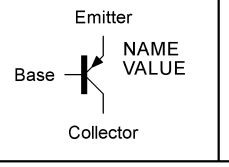
PIN	DESCRIPTION
1	Emitter
2	Base
3	Collector

Note: Pinouts vary per parts. Double-check that your part matches this pinout.

PART: PNP Bipolar Junction Transistor

FOOTPRINT: TO-92

SCHEMATIC SYMBOL



PINOUT

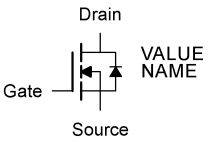
PIN	DESCRIPTION
1	Emitter
2	Base
3	Collector

Note: Pinouts vary per parts. Double-check that your part matches this pinout.

PART: N-Channel MOSFET, Enhancement Mode

FOOTPRINT: TO-92

SCHEMATIC SYMBOL



PINOUT

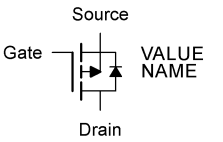
PIN	DESCRIPTION
1	Source
2	Gate
3	Drain

Note: Pinouts vary per parts. Double-check that your part matches this pinout.

PART: P-Channel MOSFET, Enhancement Mode

FOOTPRINT: TO-92

SCHEMATIC SYMBOL



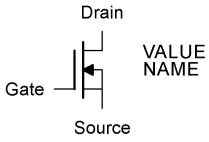
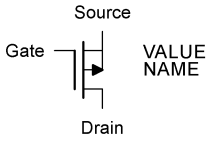
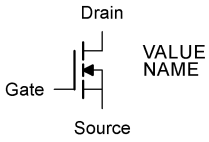
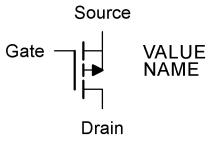
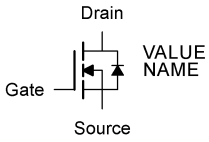
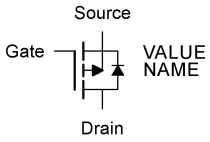
PINOUT

PIN	DESCRIPTION
1	Source
2	Gate
3	Drain

Note: Pinouts vary per parts. Double-check that your part matches this pinout.

It is good to know that a MOSFET is either a depletion-mode type or enhancement-mode type.

Standard schematic symbols for each type are shown here:

	NMOS	PMOS
DEPLETION MODE		
ENHANCEMENT MODE		
ENHANCEMENT MODE ...with body-diode drawn		

Operational Amplifiers

Single Opamp

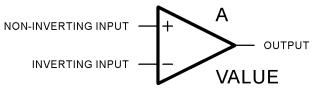
Surface Mount: SOT23-5 (5 pins)

Through Hole: N/A (no miniPCBs use a THD single opamp)

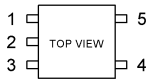
SINGLE OPAMP

FOOTPRINT: SOT23-5

SCHEMATIC SYMBOL



PINOUT



PIN	DESCRIPTION
1	Output, A
2	-V Supply (Vss)
3	Non-Inverting Input, A
4	Inverting Input, A
5	+V Supply (Vdd)

Dual Opamp

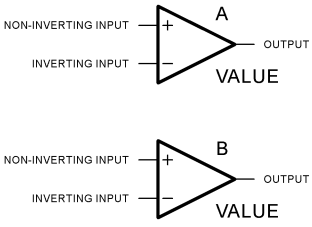
Surface Mount: SOIC8 (8 pins)

Through Hole: DIP8 (8 pins)

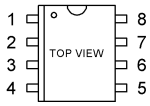
DUAL OPAMP

FOOTPRINT: SOIC8, DIP8

SCHEMATIC SYMBOL



PINOUT



PIN	DESCRIPTION
1	Output, A
2	Inverting Input, A
3	Non-Inverting Input, A
4	-V Supply
5	Non-Inverting Input, B
6	Inverting Input, B
7	Output, B
8	+V Supply