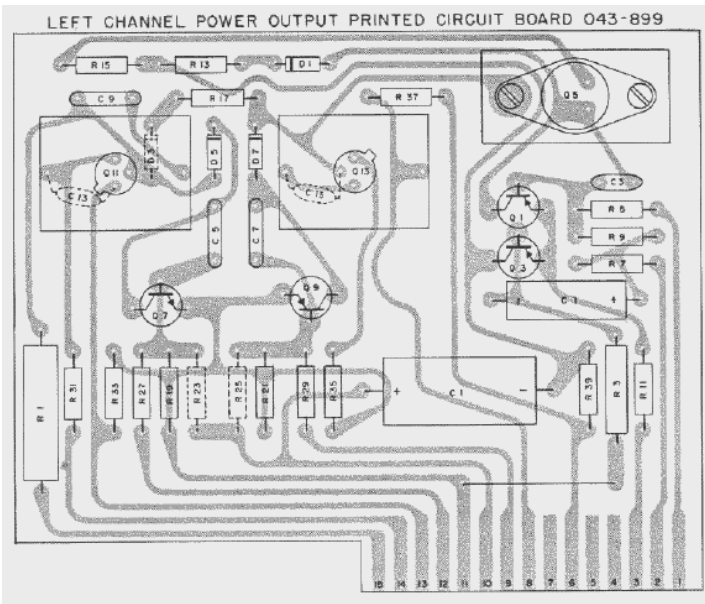


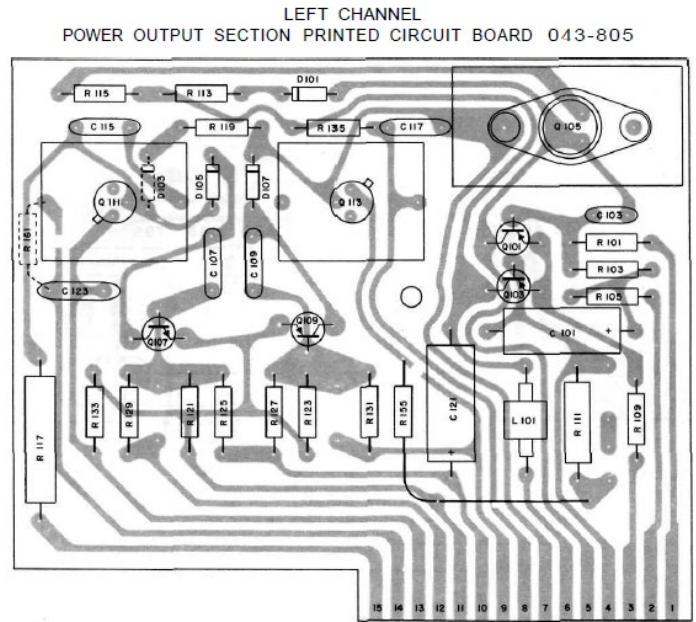


## Notes on MC2100 and MC2105 Installations

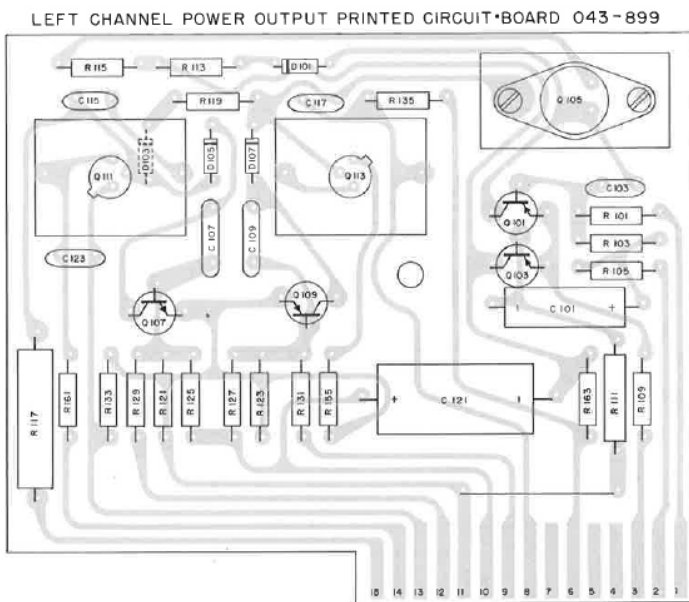
- The MC2100 schematic uses different reference designators and has a few component changes, but otherwise follows the MC2300 schematic closely. In the MC2100, Darlington transistors were used in the current limit section.
- Early revisions of the MC2105 (s/n 10M01 to 26M07) use a different driver PCB with multiple layout and circuit changes that are not natively supported by this board. This document does not include information on these particular early units.
- Later revisions of the MC2105 (s/n 26M08 and beyond) use a very similar driver PCB whose schematic largely matches that of the MC2300 with a few component changes. These revisions also use most of the same reference designators as the MC2300.
- This document compiles information from the original McIntosh MC2100, MC2105, and MC2300 service manuals. It is possible, however, that some changes were not written down by McIntosh. **Please compare your component values and part numbers against those on your original board and service manual.**



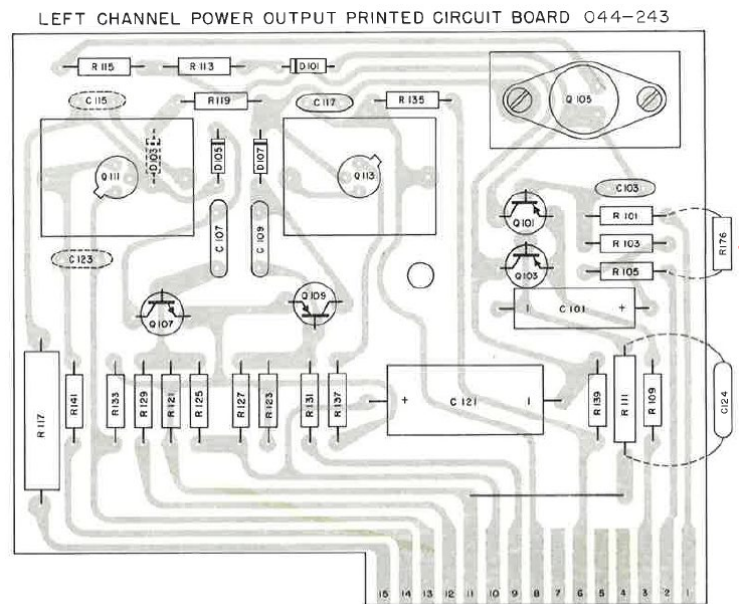
MC2100



MC2105 Early Revision



MC2105 Late Revision



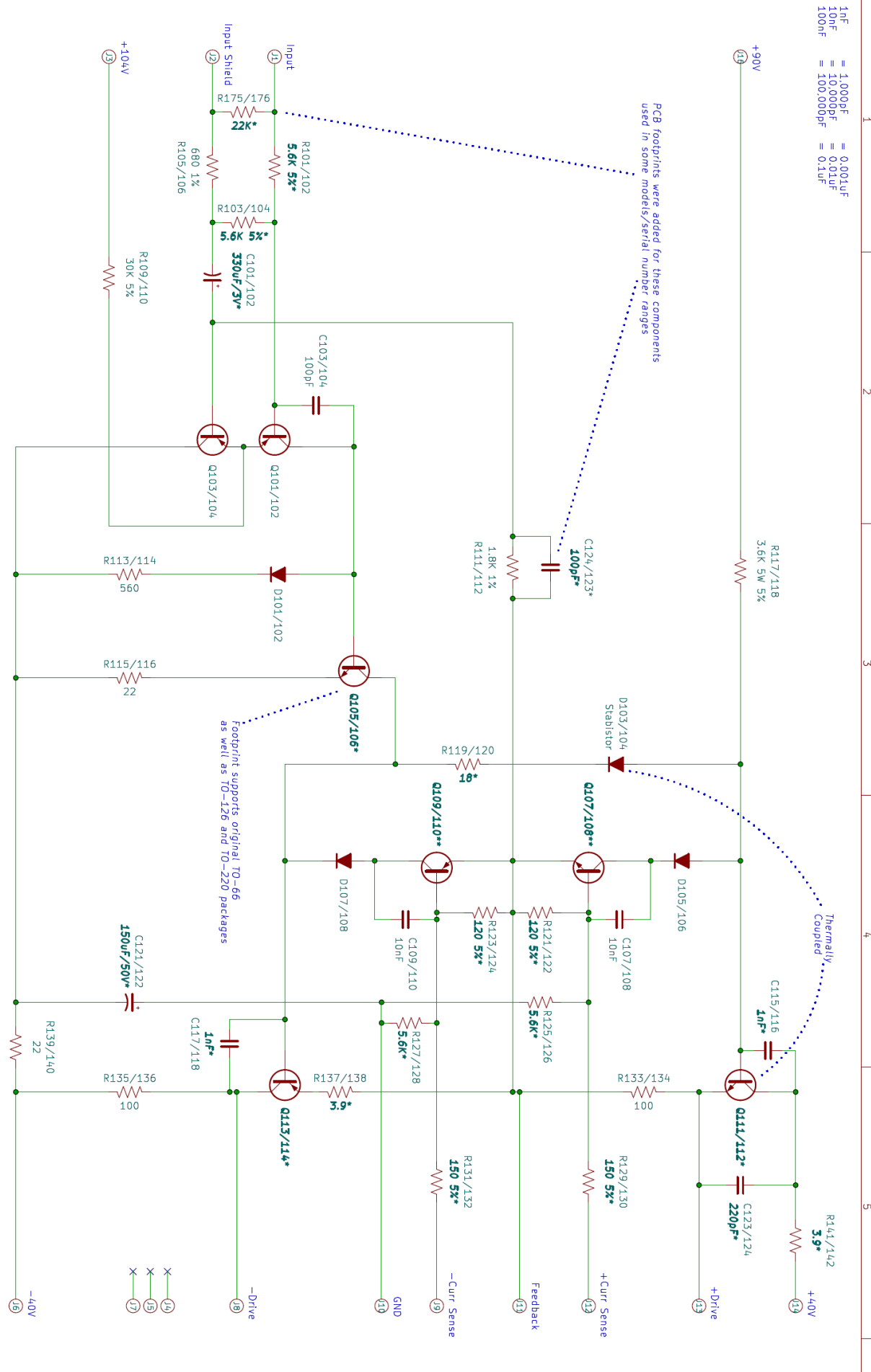
MC2300

These components are given footprints on the new board



1nF = 1,000pF = 0.001uF  
 10nF = 10,000pF = 0.01uF  
 100nF = 100,000pF = 0.1uF

PCB footprints were added for these components used in some models/serial number ranges



**Notes:**

- Per the original schematics, all resistors are 10% tolerance, 1/2 watt unless otherwise specified
- Reference designators follow a L/R format, e.g. Q105/106 is Q105 on the left channel and Q106 on the right
- This schematic is based on the MC2300 and matches the layout of the new driver PCB. The MC2100 schematic is very similar. Later revisions of the MC2105 (26W08 and later) also use a similar schematic with most of the same reference designators.
- **Early revisions of the MC2105 (10M02 to 26M07) have numerous circuit and layout changes that are not easily supported by this PCB**
- **Component values that are bold and italicized have different values depending on model and serial number. Please compare the values on your original board to your McIntosh service manual, noting the revisions listed in the "Schematic Notes" section.**
- **\*\*The MC2100 uses NPN and PNP Darlingtons BJTs in these positions**

**McIntosh Driver Board 128-077**

Original Schematic and Design: McIntosh Laboratories  
Used in MC2100, MC2105, MC2300

**ProAudio Electronics**

Size: USLetter Date: 2023-09-07

Drawn By: MSJ

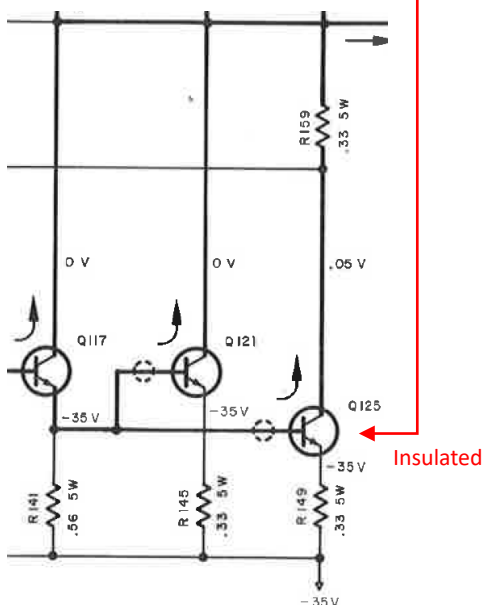
**Rev: 1**  
Id: 1/1



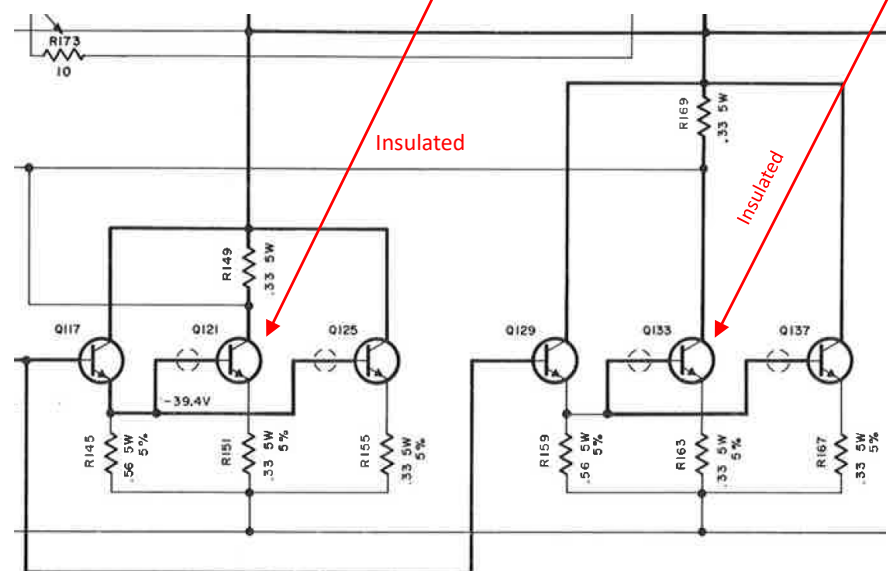
## Install Notes

Here are several points to keep in mind during installation:

- The silkscreen symbol for axial electrolytic capacitor **C101/102** is drawn as nonpolar, but polarized caps are used here. **The positive pad is the one closest to the board edge.**
- The footprint for axial electrolytic capacitor **C121/122** is shorter than the original. **Please try to use axial capacitors 25mm in length or less.**
- The symbol for **D103/104** bias diode was drawn as a Zener to indicate that it is different from the other diodes on the board, however it is not a Zener; it is a **forward reference diode (aka stabistor)** used to bias the output stage. It should be thermally coupled to Q111/112.
- If you are using a TO-66 ("football" shaped) transistor for **Q105/106**, take care to **make sure the heatsink does not short** against the small base/emitter pads on the top side. Using standoffs, fish paper, or a TO-66 insulator may help.
- Footprints were added to the board for two components added in some serial numbers: **C124/123\*** in parallel with the feedback resistor, and **R176/175** across the signal input.
- Substituting semiconductors may require slight changes to the circuit and should be done with caution.
- The silkscreen reference designators follow a L/R pattern based on the MC2300 schematic, e.g., transistor Q105/106 is Q105 on the left channel and Q106 on the right channel.
- If you are repairing the output transistor heatsink assemblies in these units, be wary that there is one NPN TO-3 transistor on each **negative side heat sink** that uses an **insulator**. This is due to the 0.33R collector resistor used for current sensing. Also note that **each output transistor heat sink MUST be insulated from chassis ground.**
- Make sure the shields of the input RCA jacks are making a solid connection to chassis ground, and that the ground connection is solid all the way from the jacks to the volume pots and input preamp board.
- We highly recommend using a "dim bulb" tester (i.e., an incandescent bulb used as a line current limiter) when performing your initial tests.



MC2100/2105 Negative Heatsink



MC2300 Negative Heatsinks

### Parts List – Resistors

- Resistors highlighted in red may have different values depending on serial number. Please refer to the “Schematic Notes” section in your McIntosh service manual
- Original resistors were 10% tolerance, ½ watt unless otherwise specified

Reference Designator	MC2100	MC2105, Late Rev.	MC2300	Remarks
R115/116	22	22	22	
R113/114	560	560	560	
R119/120	18	22	18 – 27	Adjusts output stage bias current
R135/136	100	100	100	
R101/102	3.6K 5%	3.6K 5%	3.6K – 5.6K 5%	
R103/104	3.3K – 10K	3.3K	3.3K – 5.6K 5%	
R105/106	680 1%	680 5%	680 1%	
R175/176	Unused Or 10K – 15K	Unused	Unused Or 22K – 39K	Added across signal input. Given footprint on new PCB
R117/118	3.6K 5W 5%	3.6K 5W 5%	3.6K 5W 5%	High power dissipation
R141/142	10	10	3.9 – 10	
R133/134	100	100	100	
R129/130	100 – 1K	100	150 – 180 5%	
R121/122	120 – 470 5%	120 5%	120 5%	
R125/126	Unused Or 18K	18K	5.6K – 18K	
R127/128	Unused Or 18K	18K	5.6K – 18K	
R123/124	150 – 470 5%	120 – 150 5%	120 5%	
R131/132	100 – 1K	100	150 5%	
R137/138	10	10	3.9 – 10	
R139/140	22	22	22	
R111/112	1.8K 1%	1.8K 1W 5%	1.8K 1%	
R109/110	30K 5%	30K 5%	30K 5%	

### Parts List – Capacitors

- Capacitors highlighted in red may have different values depending on serial number. Please refer to the “Schematic Notes” section in your McIntosh service manual
- Original capacitors were ceramic unless otherwise specified

Reference Designator	MC2100	MC2105, Late Rev.	MC2300	Remarks
C115/116	680pF – 1.2nF	680pF – 1.2nF	Unused Or 1nF – 1.2nF	
C117/118	680pF – 1.2nF	680pF – 1.2nF	1nF – 1.2nF	
C103/104	100pF	100pF	100pF	
C123/124	Unused Or 220pF	Unused Or 220pF	Unused Or 220pF	
C107/108	10nF	10nF	10nF	
C109/110	10nF	10nF	10nF	
C101/102	330uF 3V Aluminum Electrolytic	330uF 3V Aluminum Electrolytic	47uF 16V – 330uF 3V Aluminum Electrolytic	Positive lead is closest to board edge. Use axial caps 23mm in length or less
C121/122	150uF 50V Axial Aluminum Electrolytic	150uF 50V Axial Aluminum Electrolytic	150uF 50V Axial Aluminum Electrolytic	Use axial caps 25mm in length or less
C124/123*	Unused	Unused	Unused Or 100pF	Added across feedback resistor. Given footprint on new PCB

Value in microfarads (uF) <i>micro = 10<sup>-6</sup></i>	Value in nanofarads (nF) <i>nano = 10<sup>-9</sup></i>	Value in picofarads (pF) <i>pico = 10<sup>-12</sup></i>
0.001	1	1,000
0.0012	1.2	1,200
0.01	10	10,000
0.1	100	100,000
1	1,000	1,000,000

### Parts List – Semiconductors

- Semiconductors highlighted in red may have different part numbers depending on serial number. Please refer to the “Schematic Notes” section in your McIntosh service manual. McIntosh semiconductor cross reference data is provided on the next page.

Reference Designator	MC2100	MC2105, Late Rev.	MC2300	Remarks
D103/104	070-046	070-040	070-046	Stabistor/forward reference diode. Thermally coupled to Q111/112
D105/106	070-047	070-022	070-047	Signal diode
D107/108	070-047	070-022	070-047	Signal diode
Q105/106	132-028	132-515	132-028	NPN BJT TO-66 PCB Supports TO-220 and TO-126
Q111/112	132-038 132-153	132-038	132-038 132-153	NPN BJT TO-39 <b>MC2300: 132-153 preferred</b>
Q113/114	132-039 132-154	132-039	132-039 132-154	PNP BJT TO-39 <b>MC2300: 132-154 preferred</b>
Q101/102	132-056	132-056	132-056	PNP BJT
Q103/104	132-056	132-056	132-056	PNP BJT
Q107/108	132-090	132-021	132-021	NPN BJT <b>MC2100: Darlington</b>
Q109/110	132-100	132-032	132-032	PNP BJT <b>MC2100: Darlington</b>

*TO-92 devices with an EBC or CBE pinout (base in the center) are preferred*



### McIntosh Semiconductor Cross Reference Information

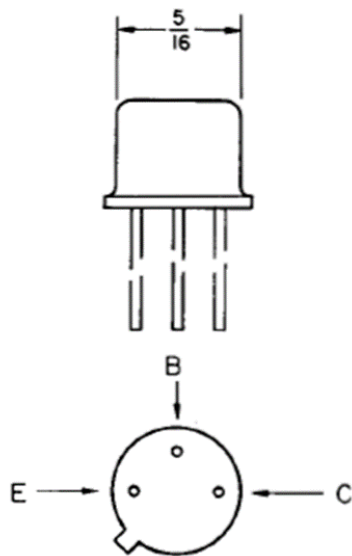
- The semiconductor cross reference information below is borrowed from the McIntosh 1975 semiconductor cross reference datasheet. Commercial (non-McIntosh) part numbers from the datasheet are *italicized*. The column on the right can be used to write down your own substitute part numbers. Case style diagrams are provided on the next page.

McIntosh P/N	Type	Case Style	Substitutes	Chosen Substitute
070-022	Signal diode	20	070-047 <i>1N914A</i>	
070-040	Stabistor	23	070-046 <i>GE STB 581</i>	
070-046	Stabistor	29	<i>MOT./MZ2361</i>	
070-047	Signal diode	23	070-022 <i>1N4148</i>	
132-021	NPN BJT	8	<i>2N3569</i>	
132-028	NPN BJT	10	<i>2N3738</i>	
132-032	PNP BJT	8	<i>2N3645 (c)</i>	
132-038	NPN BJT	12	132-145 <i>RCA40409 (c)</i>	
132-039	PNP BJT	12	132-146 <i>RCA40410 (c)</i>	
132-056	PNP BJT	13C	132-096 <i>2N5087</i>	
132-090	NPN Darlington	13C	<i>MOTO./MP5A14</i>	
132-096	PNP BJT	44A	<i>SIEM/BC416C</i>	
132-100	PNP Darlington	13C	<i>MOTO./MP5A66</i>	
132-145	NPN BJT	12	<i>RCA/2N5320-23</i>	
132-146	PNP BJT	12	<i>RCA/2N5322-23</i>	
132-153	NPN BJT	1	<i>MOT/2N5681</i> <i>FAIR/2N5320</i>	
132-154	PNP BJT	1	<i>MOT/2N5679</i> <i>FAIR/2N5322</i>	

McIntosh Semiconductor Case Styles

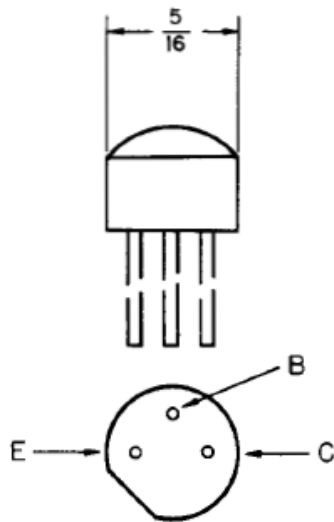
①

TO-5 & TO-39



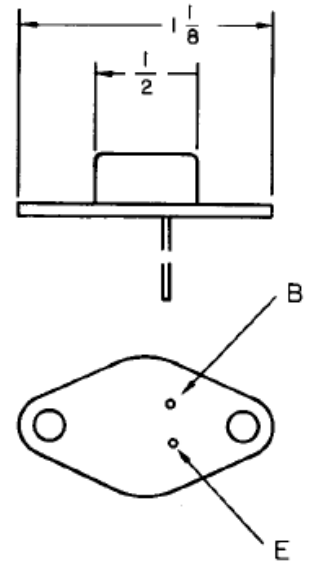
⑧

TO-105



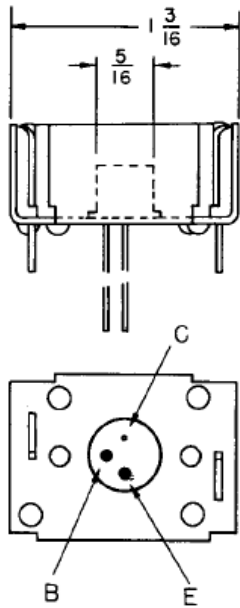
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TO-66



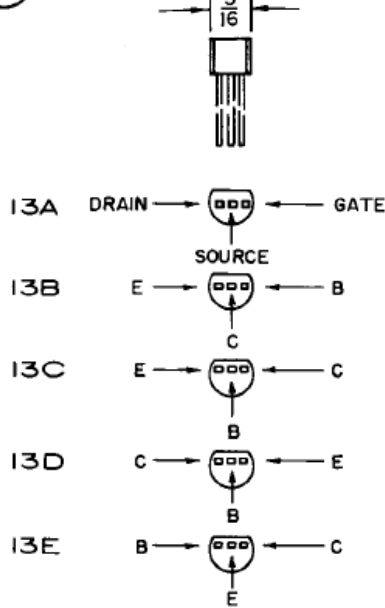
⑫

TO-5/W HEATSINK



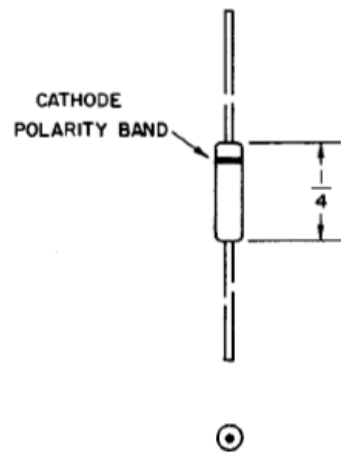
⑬

TO-92



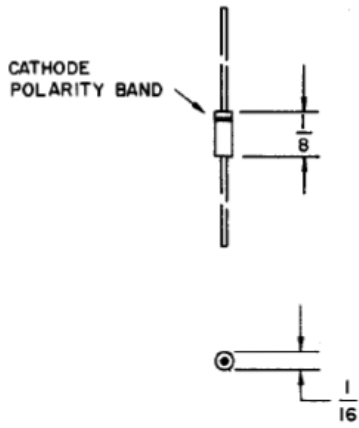
⑳

DO-7 (GLASS)

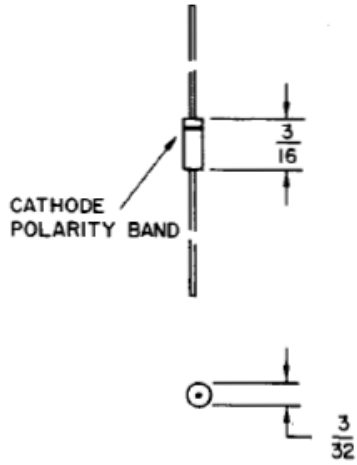


McIntosh Semiconductor Case Styles, Continued

23



29



44

