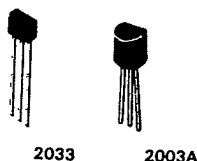


# 2SC930



T-31-15  
T-31-17

NPN Epitaxial Planar  
Silicon Transistor

## AM Converter, FM RF · IF Amp Applications

©545E

The 2SC930 has two types of package: SPA and NP.

**Use**

- FM RF amp, mixer, OSC, converter, and IF amplifier.

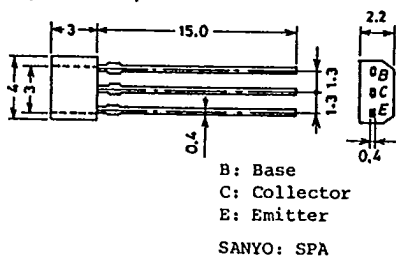
| Absolute Maximum Ratings at Ta=25°C |                  | 2SC930SPA   | 2SC930NP    | unit |
|-------------------------------------|------------------|-------------|-------------|------|
| Collector to Base Voltage           | V <sub>CBO</sub> | 30          | 30          | V    |
| Collector to Emitter Voltage        | V <sub>CEO</sub> | 20          | 20          | V    |
| Emitter to Base Voltage             | V <sub>EBO</sub> | 5           | 5           | V    |
| Collector Current                   | I <sub>C</sub>   | 30          | 30          | mA   |
| Collector Dissipation               | P <sub>C</sub>   | 120         | 250         | mW   |
| Junction Temperature                | T <sub>j</sub>   | 125         | 125         | °C   |
| Storage Temperature                 | T <sub>stg</sub> | -40 to +125 | -55 to +125 | °C   |

| Electrical Characteristics at Ta=25°C |                    |                                                                   |     |     | min  | typ | max | unit |
|---------------------------------------|--------------------|-------------------------------------------------------------------|-----|-----|------|-----|-----|------|
| Collector Cutoff Current              | I <sub>CBO</sub>   | V <sub>CB</sub> =10V, I <sub>E</sub> =0                           |     |     |      |     | 1   | uA   |
| Emitter Cutoff Current                | I <sub>EBO</sub>   | V <sub>EB</sub> =4V, I <sub>C</sub> =0                            |     |     |      |     | 1   | uA   |
| DC Current Gain                       | h <sub>FE</sub>    | V <sub>CE</sub> =6V, I <sub>C</sub> =1mA                          | 40* | 80  | 320* |     |     |      |
| Gain Bandwidth Product                | f <sub>T</sub>     | V <sub>CE</sub> =6V, I <sub>C</sub> =1mA                          | 170 | 300 |      |     |     | MHz  |
| Reverse Transfer capacitance          | C <sub>re</sub>    | V <sub>CB</sub> =6V, I <sub>C</sub> =1MHz (2SC930SPA)             | 0.8 |     |      | 1.6 |     | pF   |
| Base to Collector Time Constant       | τ <sub>bb'cc</sub> | V <sub>CB</sub> =6V, f=1MHz (2SC930NP)                            | 1.0 | 1.3 | 1.8  |     |     | pF   |
| Noise Figure                          | N <sub>F</sub>     | V <sub>CE</sub> =6V, I <sub>C</sub> =1mA<br>f=31.9MHz             |     | 20  | 36   |     |     | ps   |
| Turn-on Time                          | t <sub>on</sub>    | V <sub>IN</sub> =+12V, V <sub>BB</sub> =-3V,<br>appointed circuit |     | 30  |      |     |     | ns   |
| Turn-off Time                         | t <sub>off</sub>   | V <sub>IN</sub> =-12V, V <sub>BB</sub> =+3V,<br>appointed circuit |     | 30  |      |     |     | ns   |

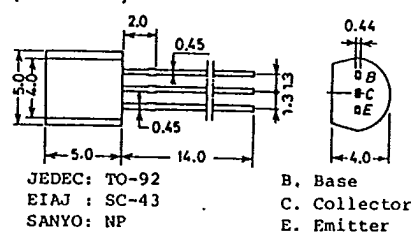
\*The 2SC930 is graded as follows by 1mA h<sub>FE</sub>:

|    |   |    |    |   |     |     |   |     |     |   |     |
|----|---|----|----|---|-----|-----|---|-----|-----|---|-----|
| 40 | C | 80 | 60 | D | 120 | 100 | E | 200 | 160 | F | 320 |
|----|---|----|----|---|-----|-----|---|-----|-----|---|-----|

Case Outline 2033  
(unit:mm)



Case Outline 2003A  
(unit:mm)



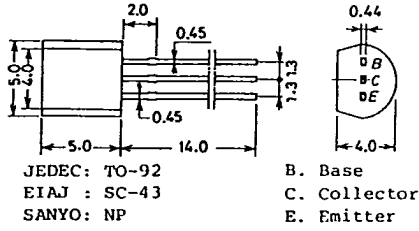
The 2SC930 is scheduled to be discontinued soon. Use the 2SC2839, instead of the 2SC930, in new applications where you are planning to use the 2SC930.

4157KI/D054MW/4263KI/4092KI, MT No. 545-1/17

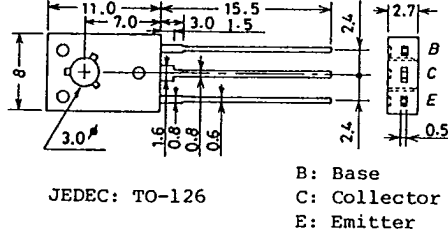
# CASE OUTLINES AND ATTACHMENTS

- All of Sanyo Transistor case outlines are illustrated below.
- All dimensions are in mm, and dimensions which are not followed by min. or max. are represented by typical values.
- No marking is indicated.

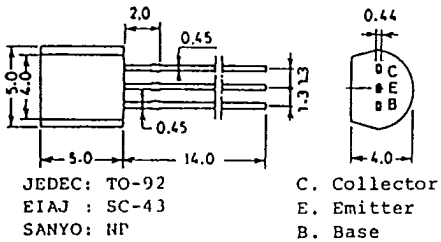
Case Outline-[2003A]  
unit:mm



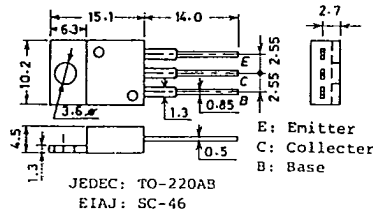
Case Outline-[2009A]  
unit:mm



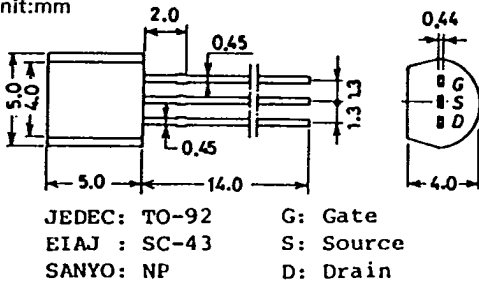
Case Outline-[2004A]  
unit:mm



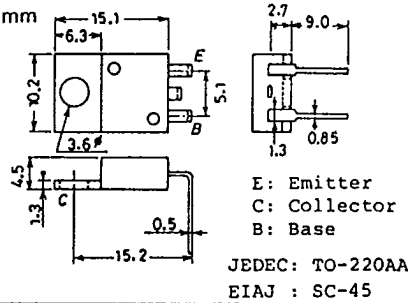
Case Outline-[2010A]  
unit:mm



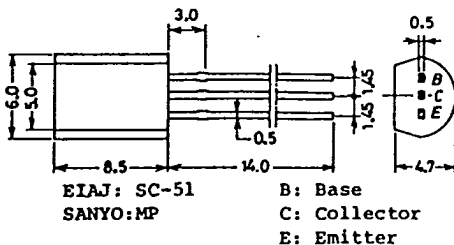
Case Outline-[2005A]  
unit:mm



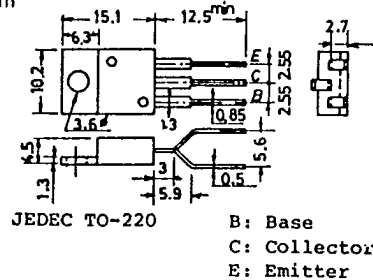
Case Outline-[2012]  
unit:mm

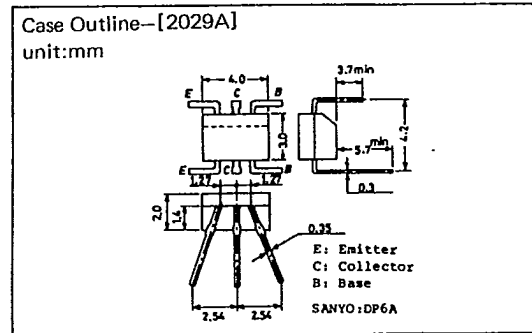
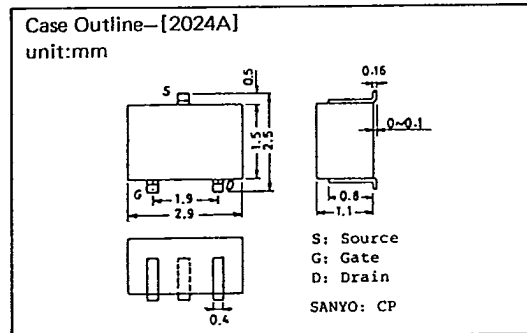
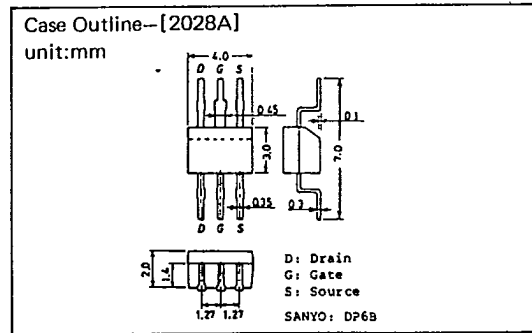
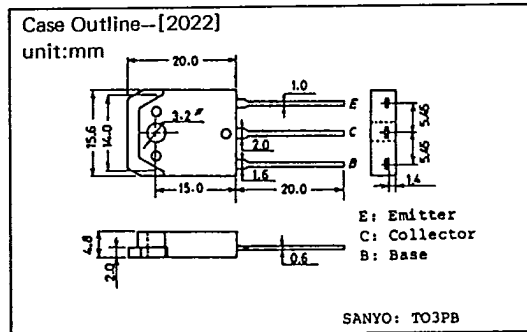
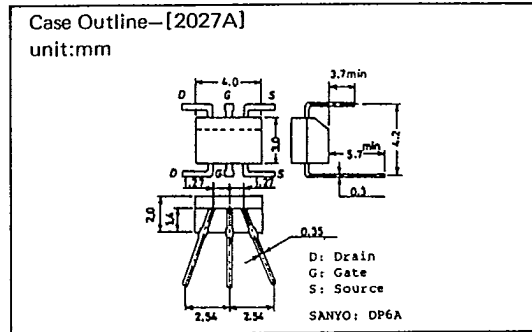
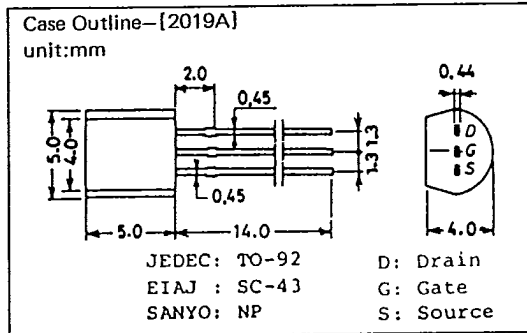
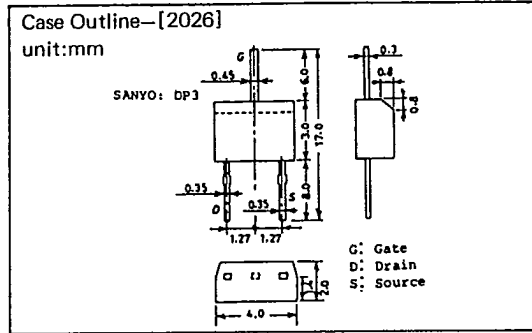
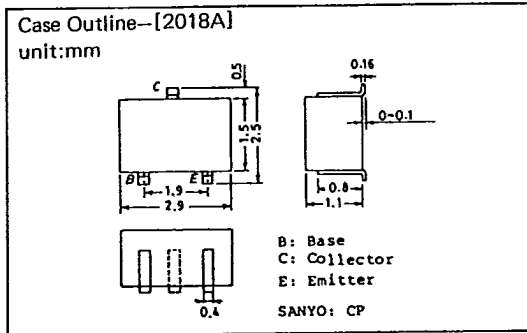
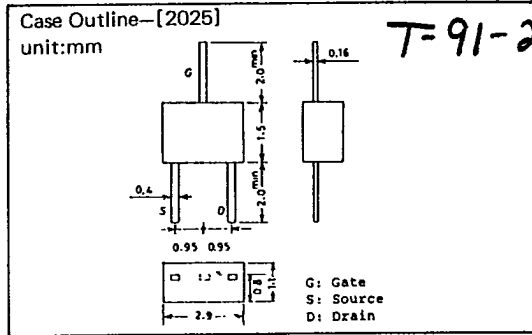
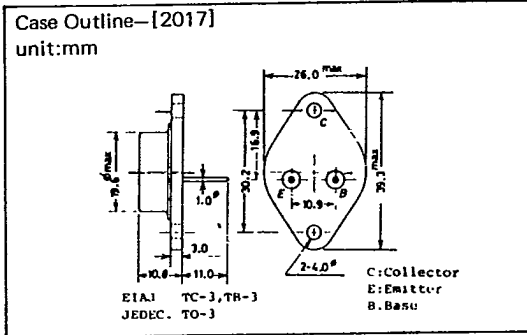


Case Outline-[2006A]  
unit:mm

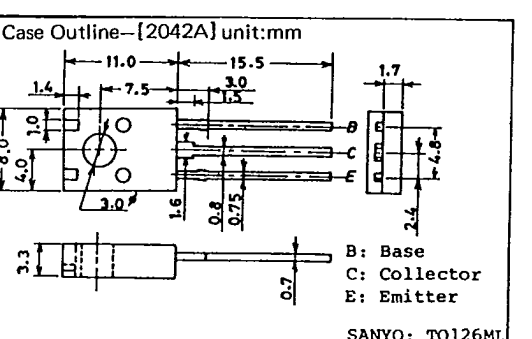
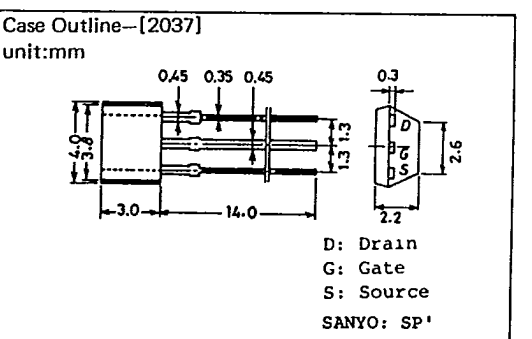
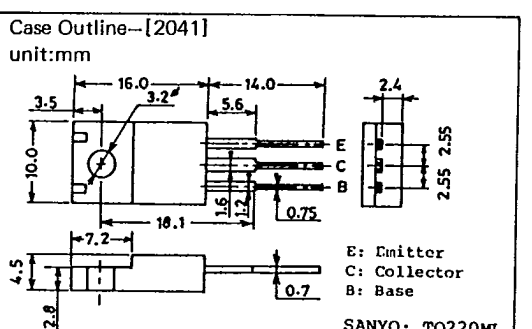
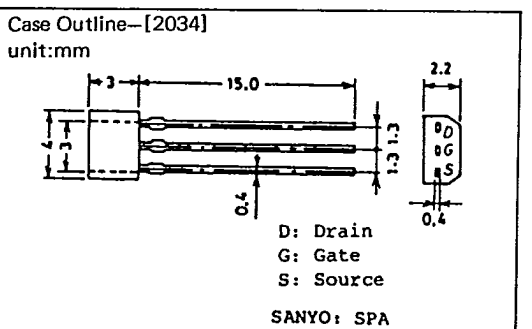
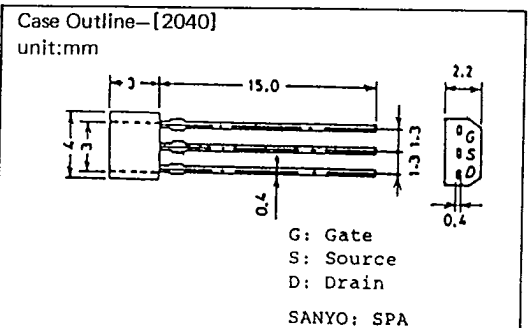
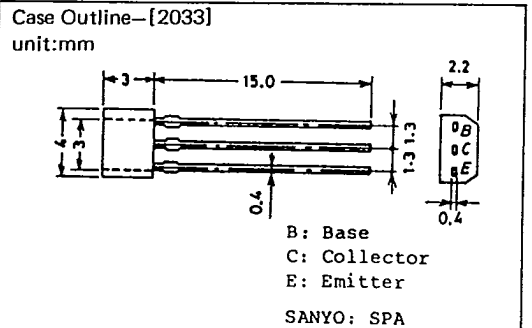
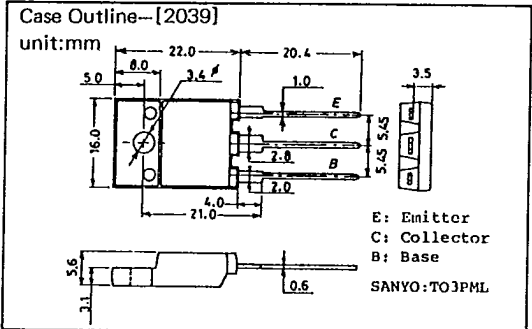
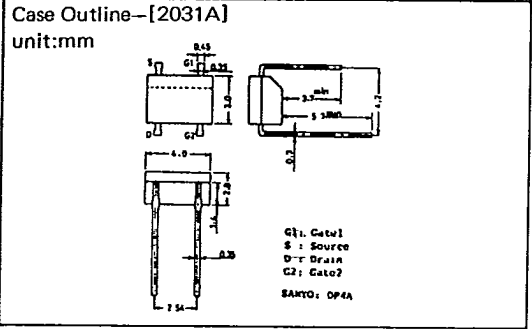
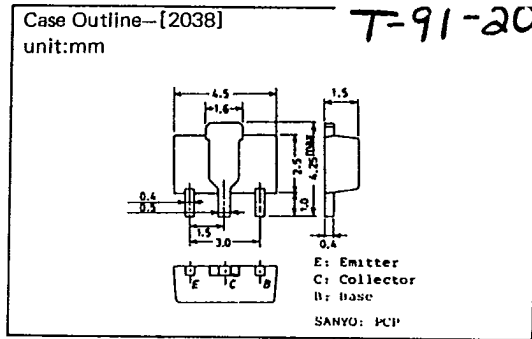
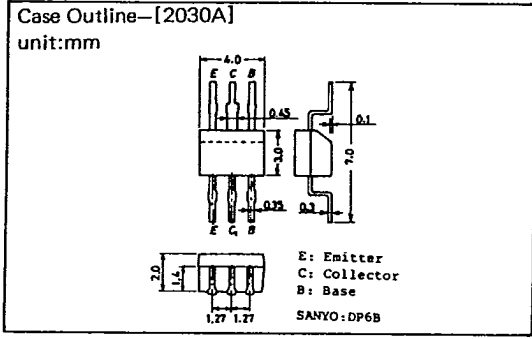


Case Outline-[2013]  
unit:mm

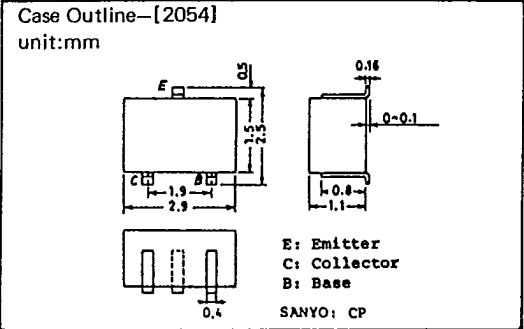
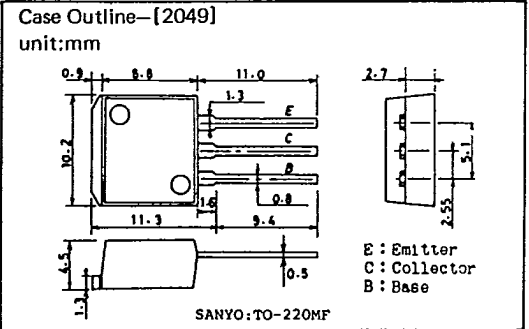
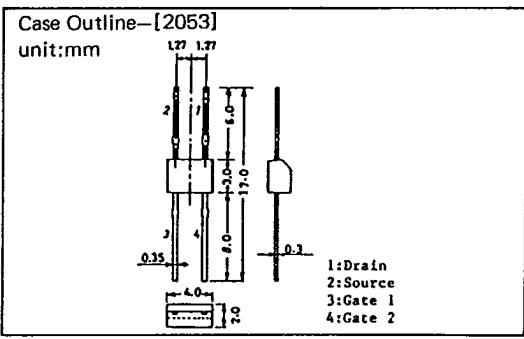
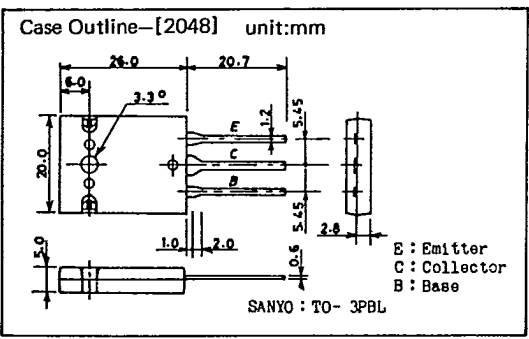
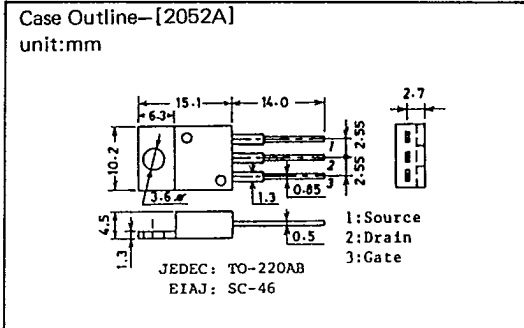
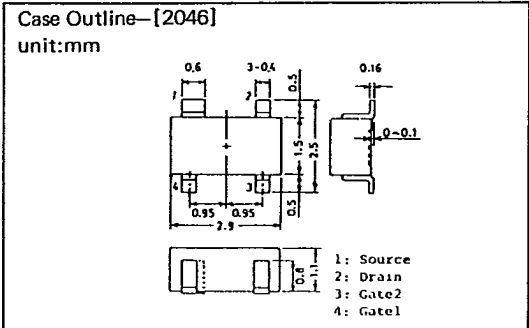
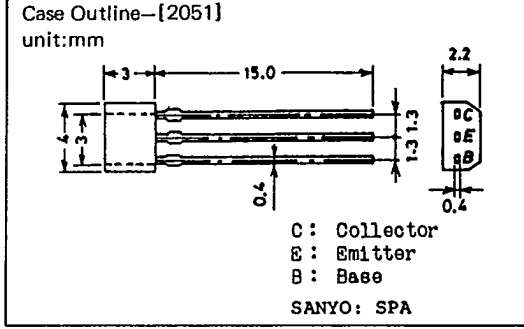
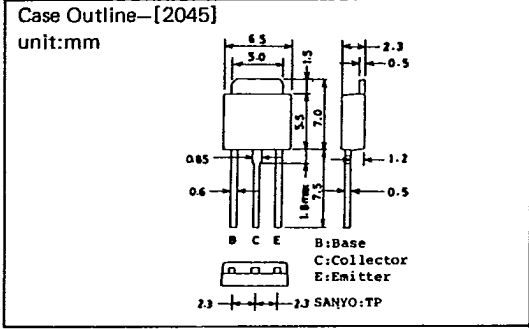
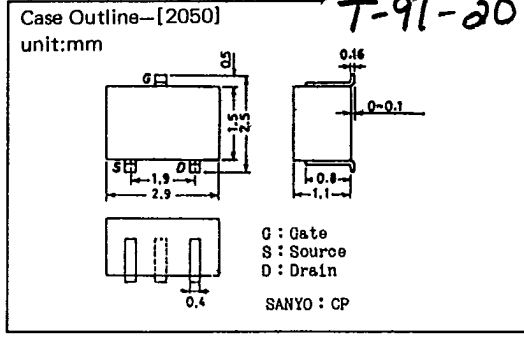
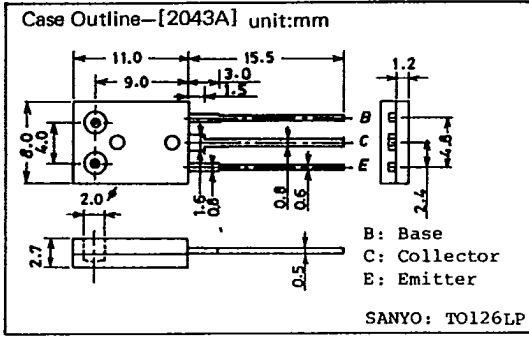


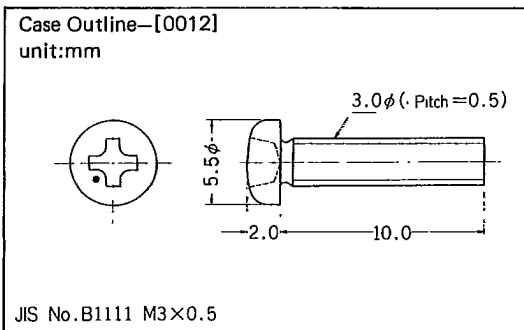
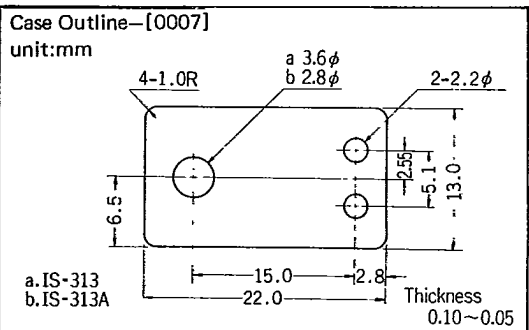
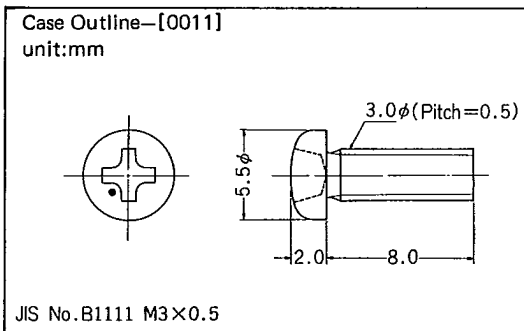
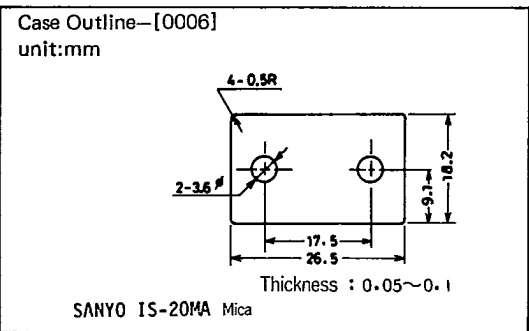
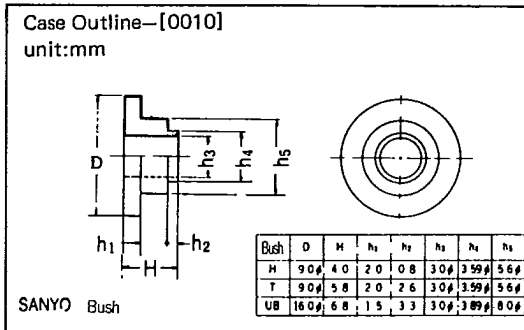
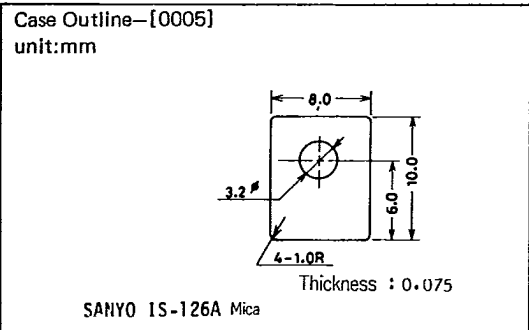
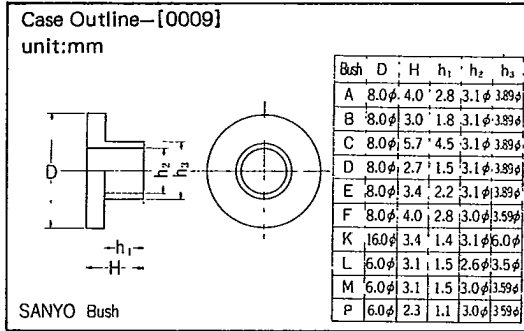
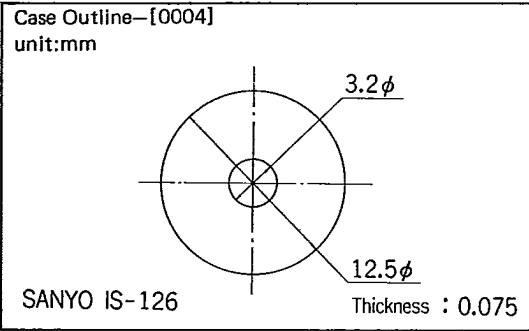
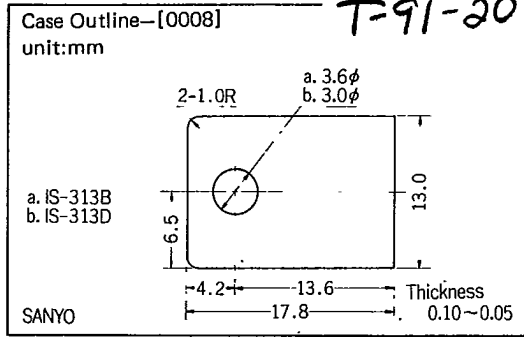
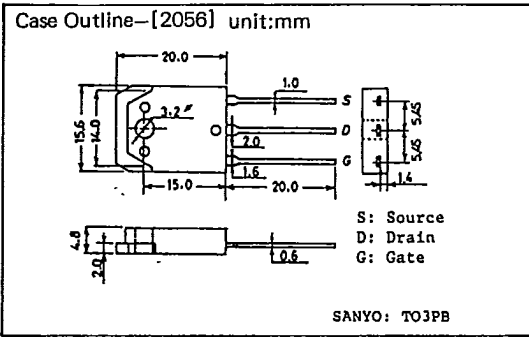


T-91-20

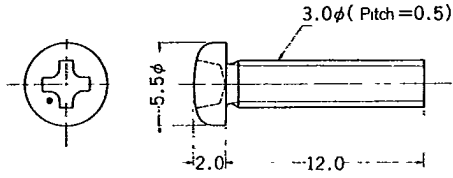


T-91-20



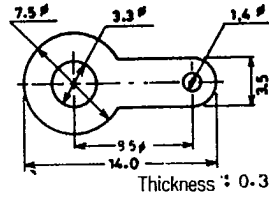


Case Outline-[0013]  
unit:mm



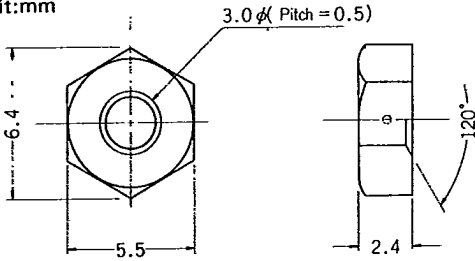
JIS No. B1111 M3×0.5

Case Outline-[0018]  
unit:mm



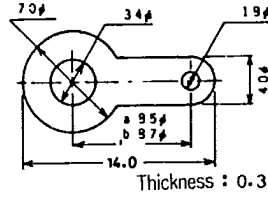
SANYO Lug 1.4

Case Outline-[0014]  
unit:mm



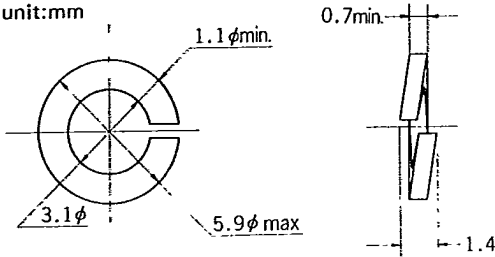
JIS No. B1181 M3×0.5

Case Outline-[0019]  
unit:mm



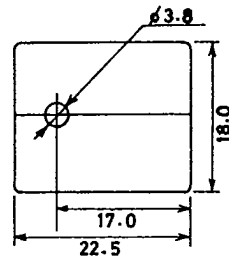
SANYO Lug 1.8φ

Case Outline-[0015]  
unit:mm



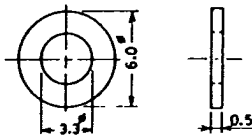
JIS No. B 1251 Spring washer (M3)

Case Outline-[0020]  
unit:mm



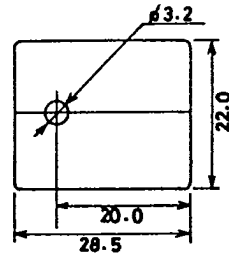
SANYO IS-3MP Mica

Case Outline-[0016]  
unit:mm



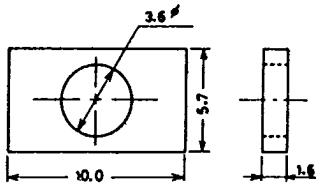
JIS No. B1252 Flat washer

Case Outline-[0021]  
unit:mm



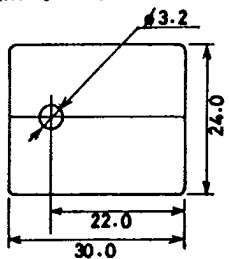
SANYO IS-MPC Mica

Case Outline-[0017]  
unit:mm



JIS No. G3141 Rectangular washer

Case Outline-[0022]  
unit:mm



SANYO IS-3PBL Mica

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Datasheets for electronic components.