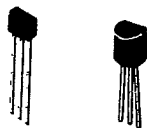


# 2SC930



2033 2003A

NPN Epitaxial Planar Silicon Transistor

T-31-15  
T-31-17

## 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.

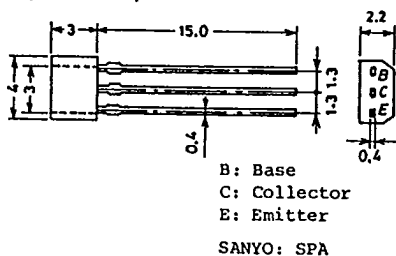
Absolute Maximum Ratings at Ta=25°C		2SC930SPA	2SC930NP	unit
Collector to Base Voltage	V <sub>CBO</sub>	30	30	V
Collector to Emitter Voltage	V <sub>CEO</sub>	20	20	V
Emitter to Base Voltage	V <sub>EBO</sub>	5	5	V
Collector Current	I <sub>C</sub>	30	30	mA
Collector Dissipation	P <sub>C</sub>	120	250	mW
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	
Noise Figure	N <sub>F</sub>	V <sub>CE</sub> =6V, I <sub>C</sub> =1mA f=31.9MHz			20	36		ps
Turn-on Time	t <sub>on</sub>	V <sub>IN</sub> =+12V, V <sub>BB</sub> =-3V, appointed circuit			30			ns
Turn-off Time	t <sub>off</sub>	V <sub>IN</sub> =-12V, V <sub>BB</sub> =+3V, appointed circuit			30			ns

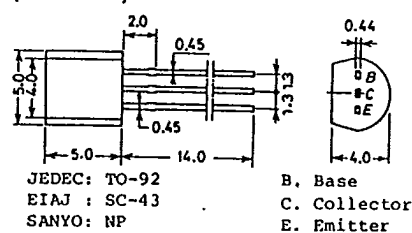
\*The 2SC930 is graded as follows by 1mA h<sub>FE</sub>:

40	C	80	60	D	120	100	E	200	160	F	320
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Case Outline 2033 (unit:mm)



Case Outline 2003A (unit:mm)



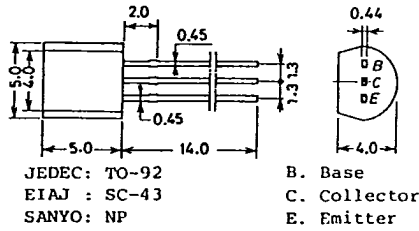
The 2SC930 is scheduled to be discontinued soon. Use the 2SC2839, instead of the 2SC930, in new applications where you are planning to use the 2SC930.

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

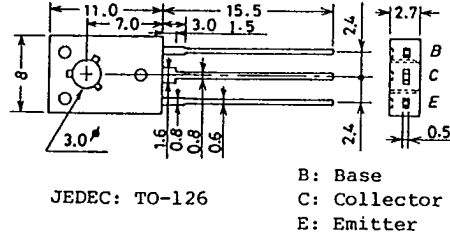
# CASE OUTLINES AND ATTACHMENTS

- 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.

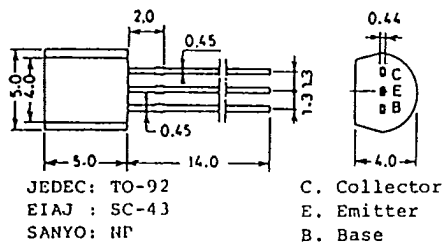
Case Outline-[2003A]  
unit:mm



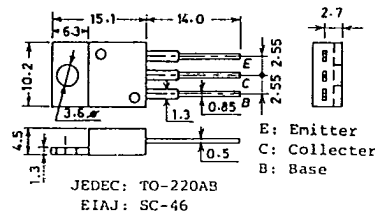
Case Outline-[2009A]  
unit:mm



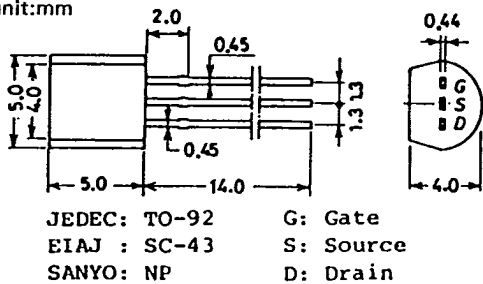
Case Outline-[2004A]  
unit:mm



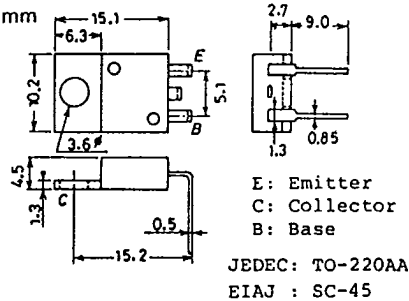
Case Outline-[2010A]  
unit:mm



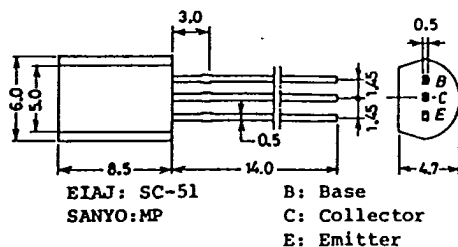
Case Outline-[2005A]  
unit:mm



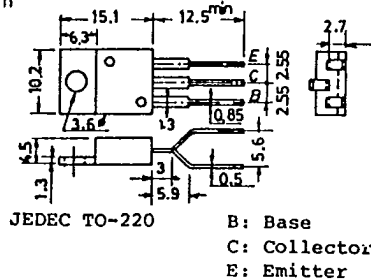
Case Outline-[2012]  
unit:mm

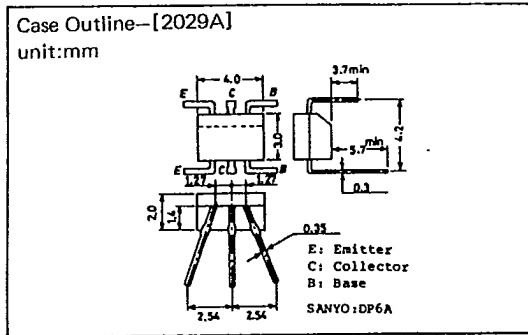
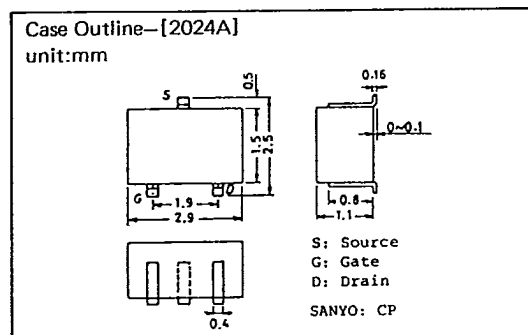
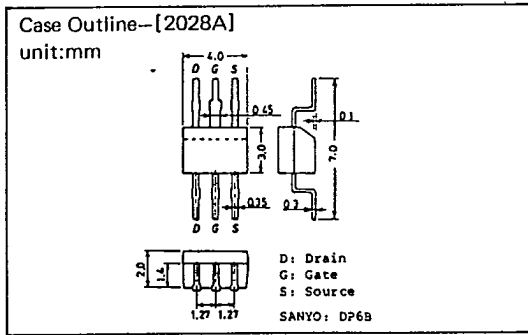
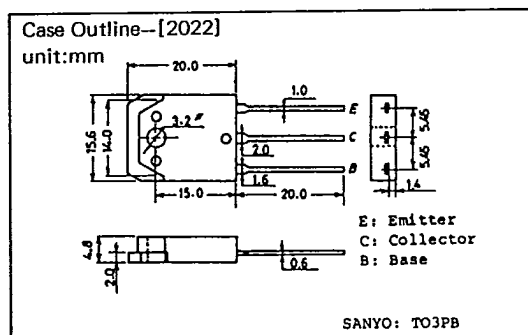
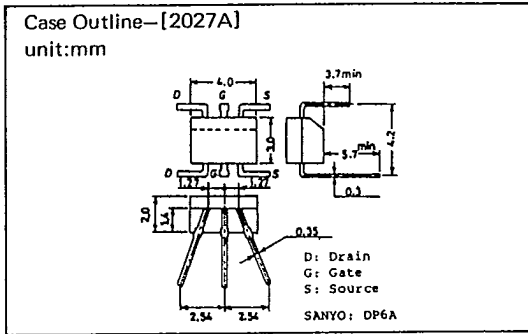
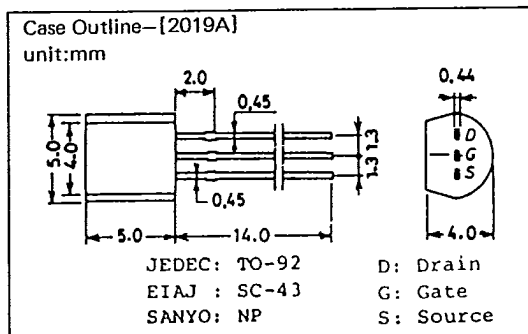
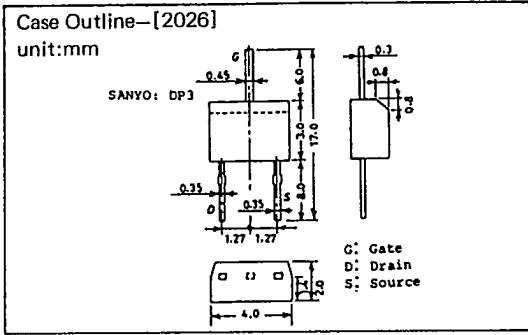
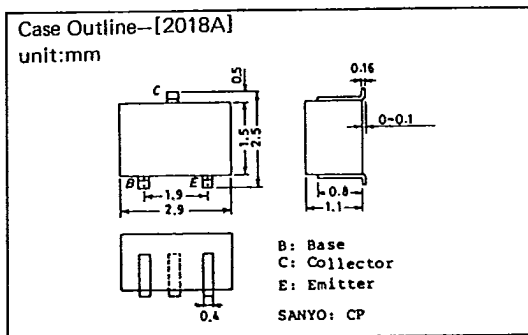
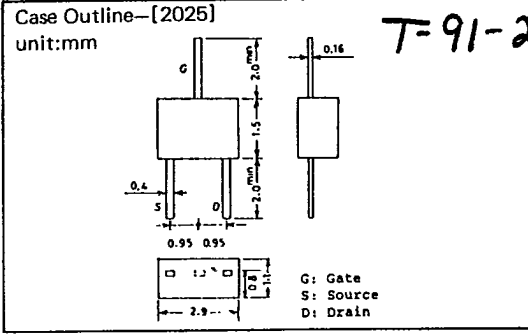
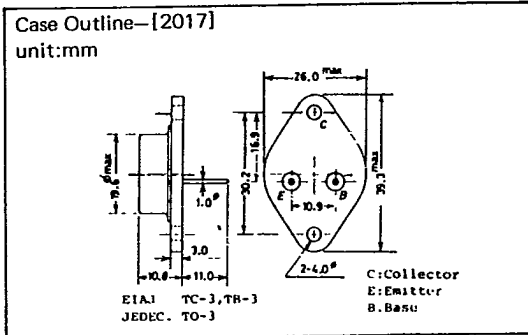


Case Outline-[2006A]  
unit:mm

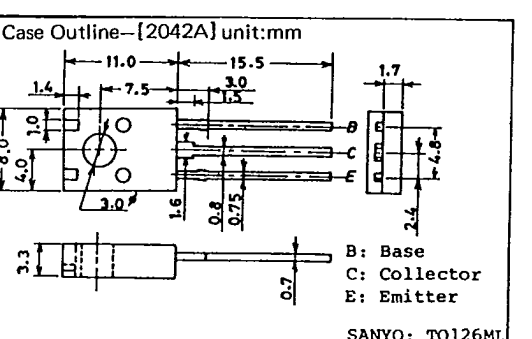
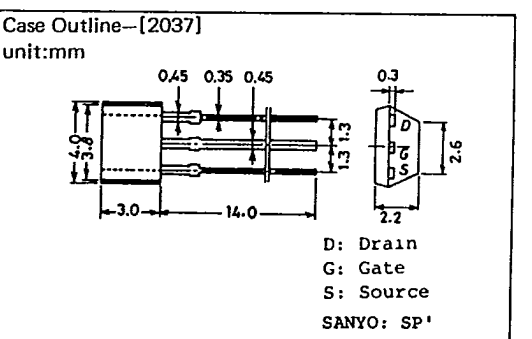
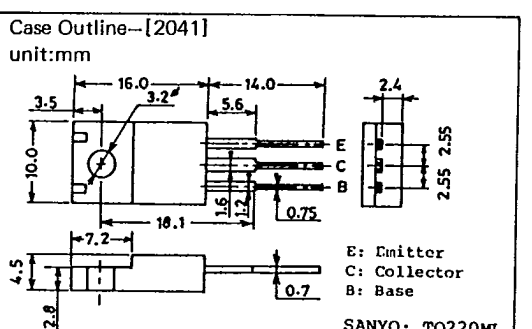
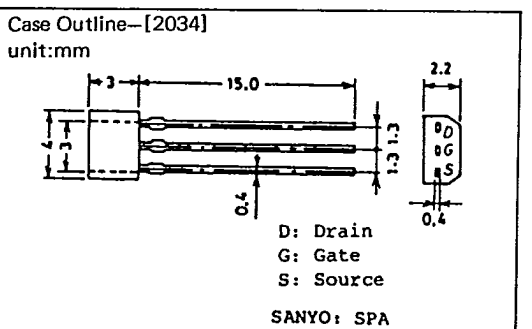
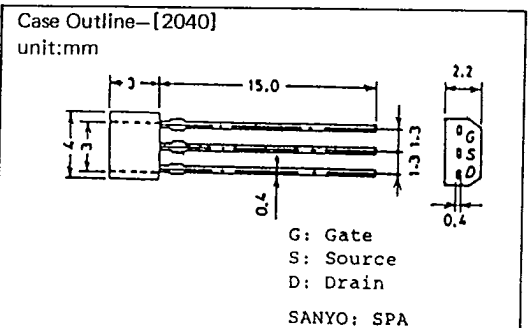
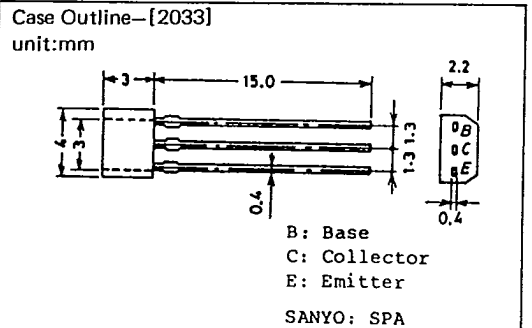
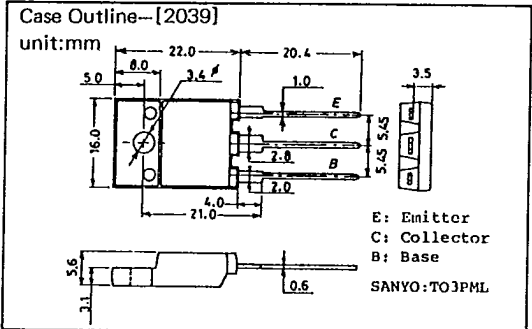
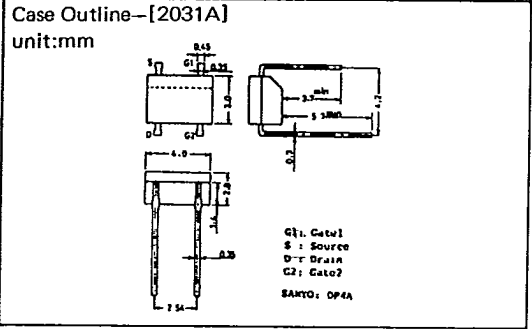
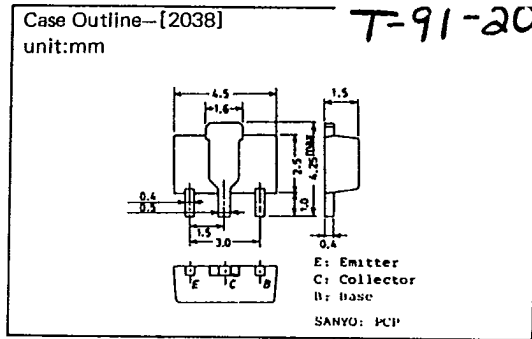
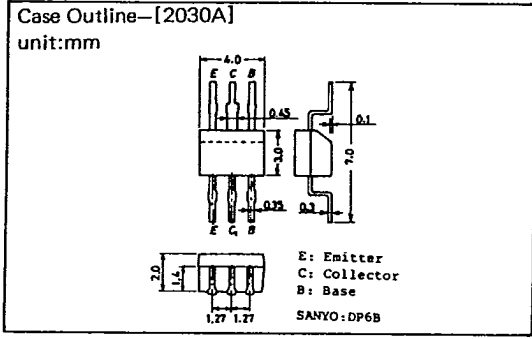


Case Outline-[2013]  
unit:mm

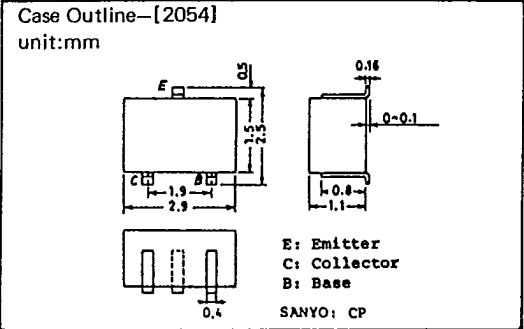
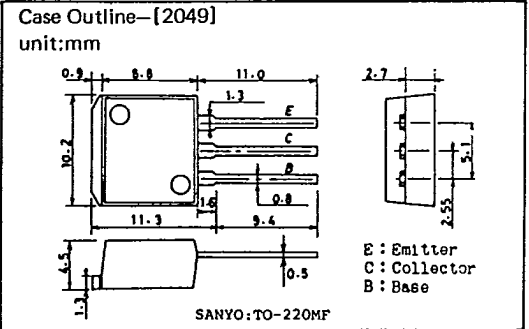
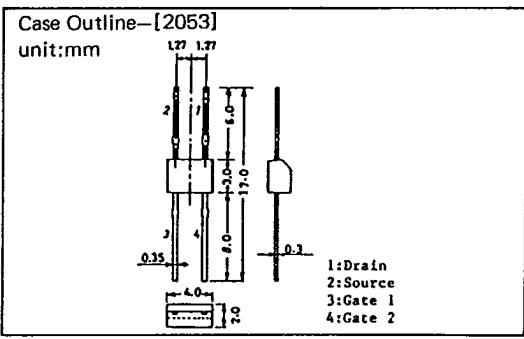
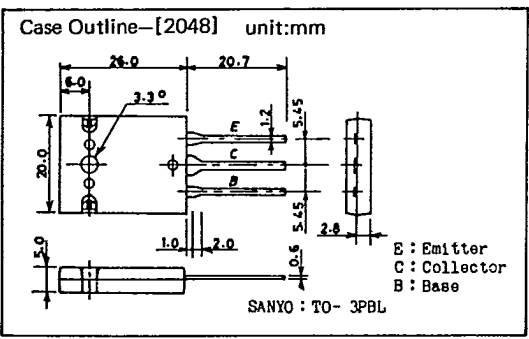
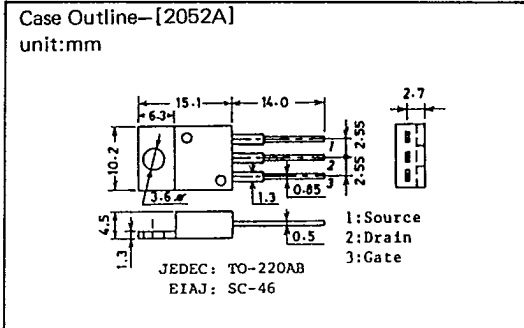
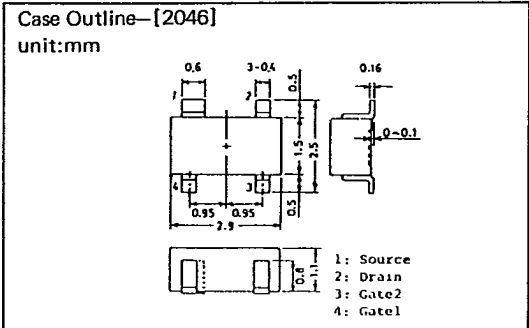
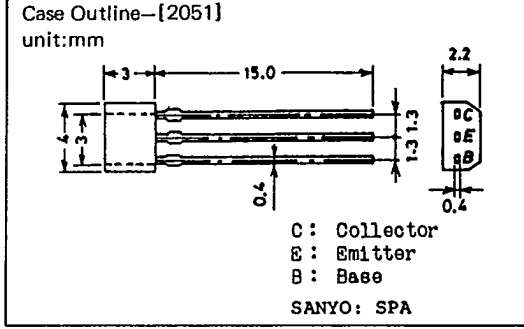
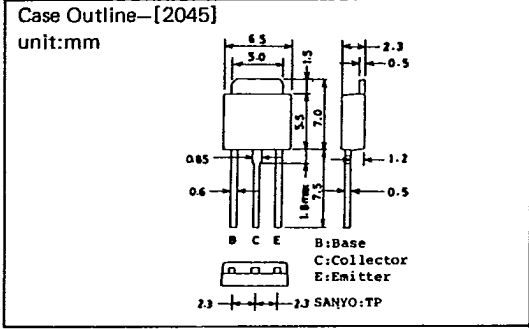
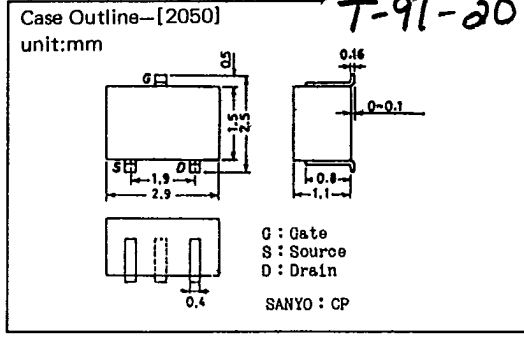
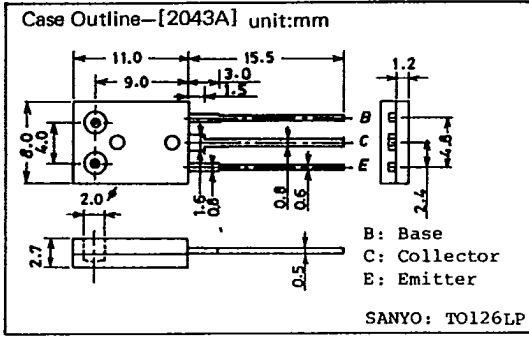


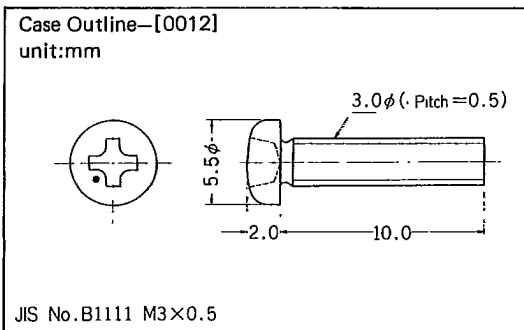
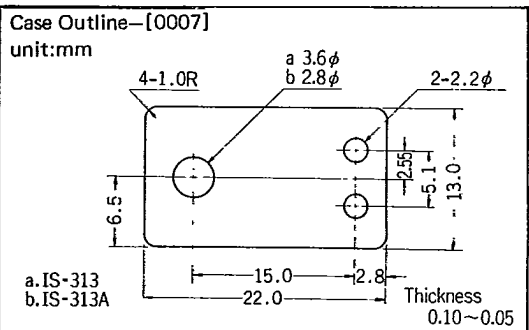
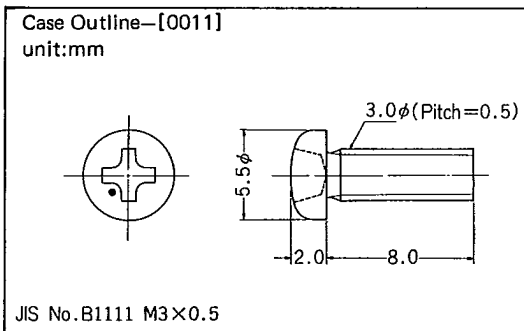
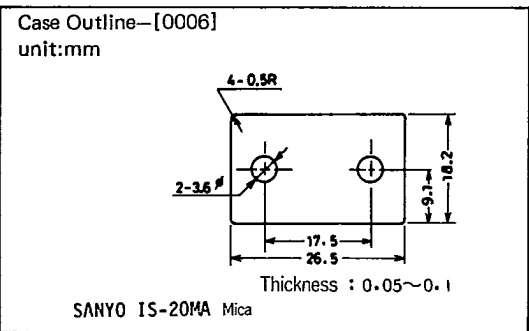
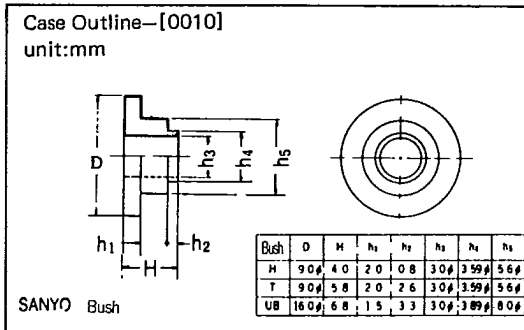
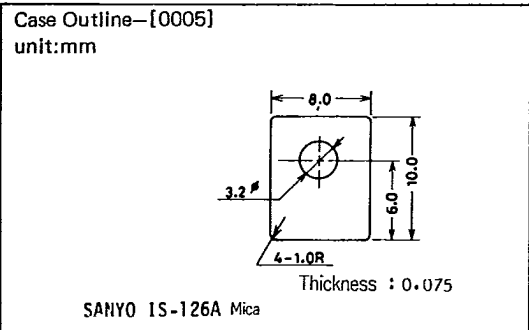
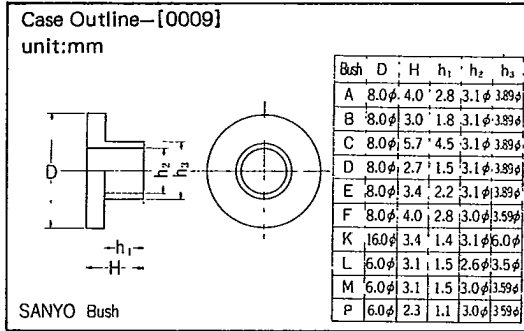
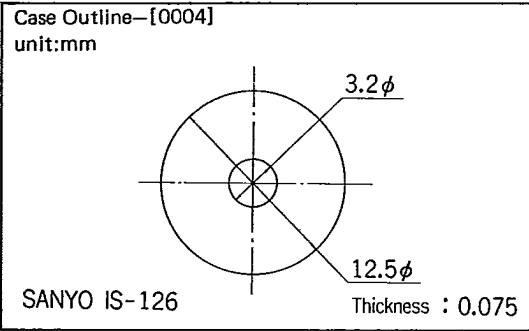
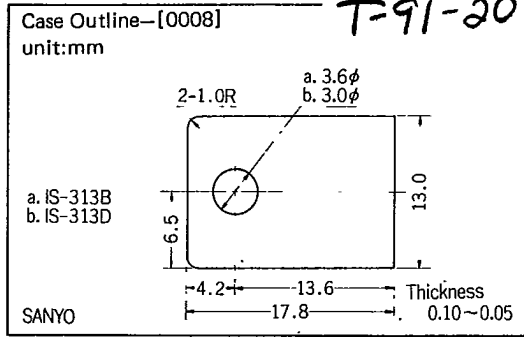
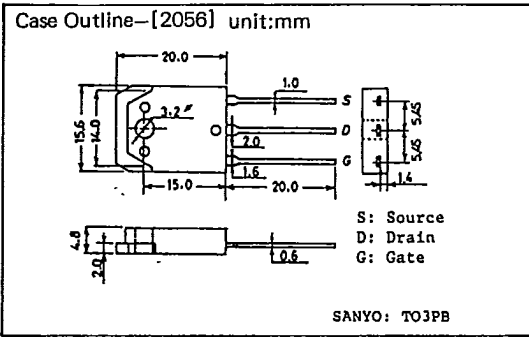


T-91-20

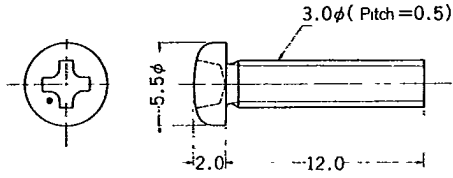


T-91-20



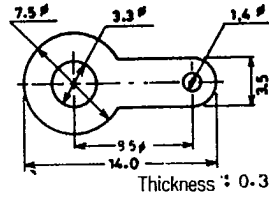


Case Outline-[0013]  
unit:mm



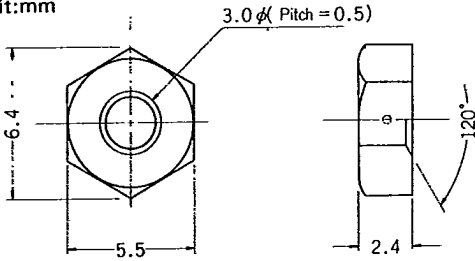
JIS No. B1111 M3×0.5

Case Outline-[0018]  
unit:mm



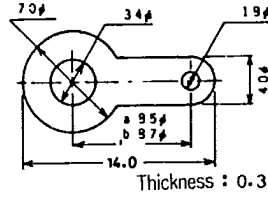
SANYO Lug 1.4

Case Outline-[0014]  
unit:mm



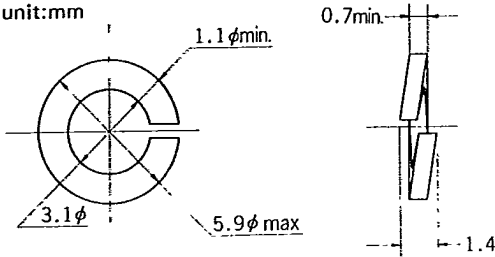
JIS No. B1181 M3×0.5

Case Outline-[0019]  
unit:mm



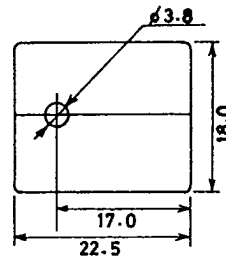
SANYO Lug 1.8φ

Case Outline-[0015]  
unit:mm



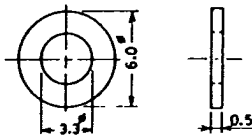
JIS No. B 1251 Spring washer (M3)

Case Outline-[0020]  
unit:mm



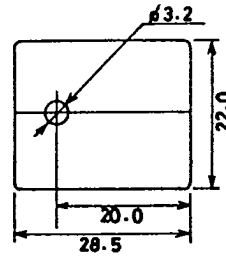
SANYO IS-3MP Mica

Case Outline-[0016]  
unit:mm



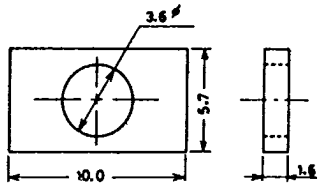
JIS No. B1252 Flat washer

Case Outline-[0021]  
unit:mm



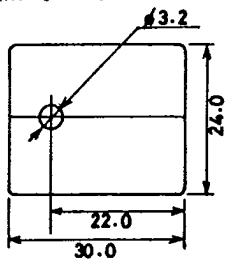
SANYO IS-MPC Mica

Case Outline-[0017]  
unit:mm



JIS No. G3141 Rectangular washer

Case Outline-[0022]  
unit:mm



SANYO IS-3PBL Mica