

2SC930

2033



2003A

T-31-15
T-31-17NPN 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

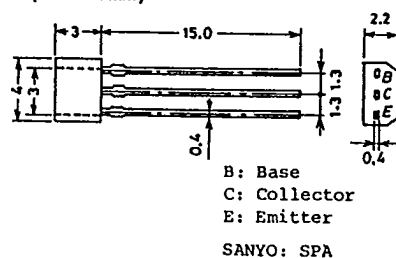
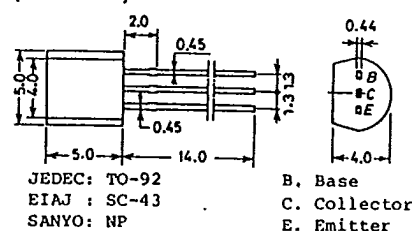
		2SC930SPA	2SC930NP	unit
Collector to Base Voltage	V _{CBO}	30	30	V
Collector to Emitter Voltage	V _{CEO}	20	20	V
Emitter to Base Voltage	V _{EBO}	5	5	V
Collector Current	I _C	30	30	mA
Collector Dissipation	P _C	120	250	mW
Junction Temperature	T _j	125	125	°C
Storage Temperature	T _{stg}	-40 to +125	-55 to +125	°C

Electrical Characteristics at Ta=25°C

			min	typ	max	unit
Collector Cutoff Current	I _{CBO}	V _{CB} =10V, I _E =0			1	uA
Emitter Cutoff Current	I _{EBO}	V _{EB} =4V, I _C =0			1	uA
DC Current Gain	h _{FE}	V _{CE} =6V, I _C =1mA	40*	80	320*	
Gain Bandwidth Product	f _T	V _{CE} =6V, I _C =1mA	170	300		MHz
Reverse Transfer capacitance	C _{re}	V _{CB} =6V, I _C =1MHz (2SC930SPA)	0.8		1.6	pF
		V _{CB} =6V, f=1MHz (2SC930NP)	1.0	1.3	1.8	pF
Base to Collector Time Constant	τ _{bb'cc}	V _{CE} =6V, I _C =1mA		20	36	pS
Noise Figure	NF	f=31.9MHz				
		V _{CE} =6V, I _C =1mA		4.0		dB
Turn-on Time	t _{on}	V _{IN} =+12V, V _{BB} =-3V, appointed circuit		30		ns
Turn-off Time	t _{off}	V _{IN} =-12V, V _{BB} =+3V, appointed circuit		30		ns

*The 2SC930 is graded as follows by 1mA h_{FE}:

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

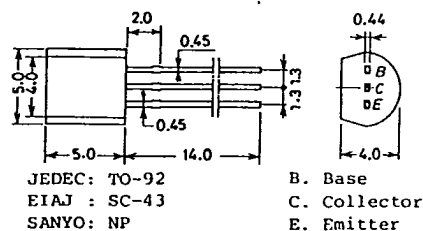
T-91-20

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.

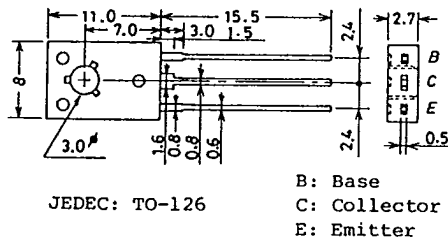
Case Outline—[2003A]

unit:mm



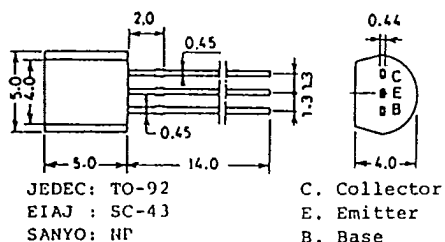
Case Outline—[2009A]

unit:mm



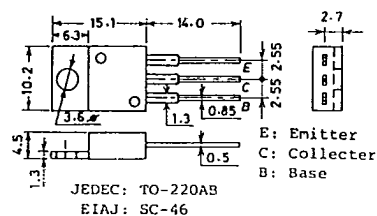
Case Outline—[2004A]

unit:mm



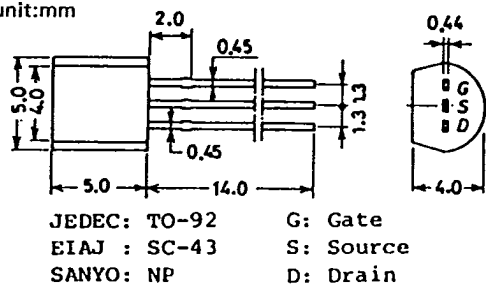
Case Outline—[2010A]

unit:mm



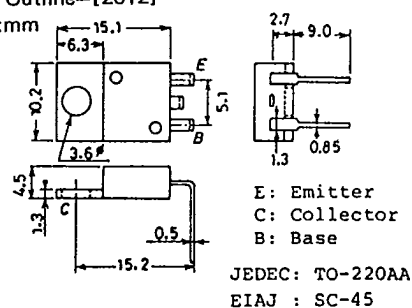
Case Outline—[2005A]

unit:mm



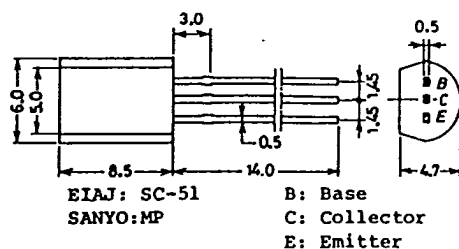
Case Outline—[2012]

unit:mm



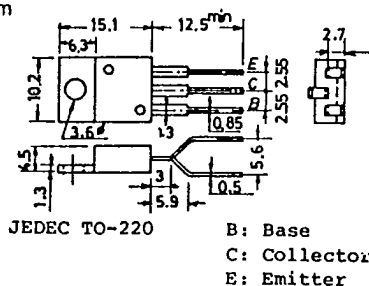
Case Outline—[2006A]

unit:mm



Case Outline—[2013]

unit:mm



EIA-1 TC-3, TH-3
JEDEC. TO-3

G: Gate
S: Source
D: Drain

SANYO : DP6A

E: Emitter
C: Collector
B: Base

SANYO:DP6B

SANYO: JCP

G1: Gate1
\$: Source
D-r Drain
G2: Gate2
SANYO: OP4A

E: Emitter
C: Collector
B: Base

SANYO:TO3PML

B: Base
C: Collector
E: Emitter
SANYO: SPA

G: Gate
S: Source
D: Drain
SANYO: SPA

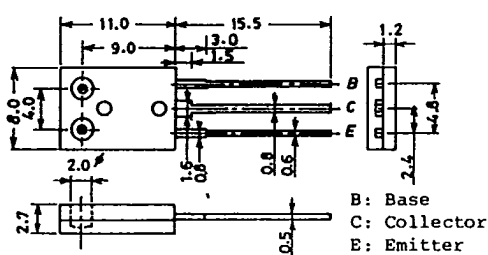
D: Drain
G: Gate
S: Source
SANYO: SPA

SANYO: TO220ML

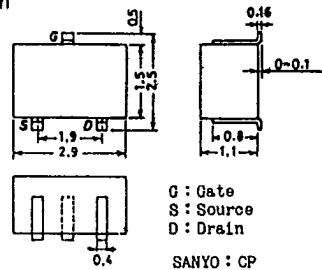
D: Drain
G: Gate
S: Source
SANYO: SP'

SANYO: TO126ML

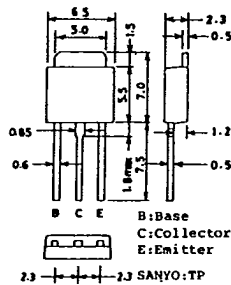
Case Outline—[2043A] unit:mm



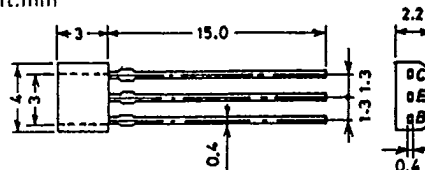
SANYO: TO126LP

Case Outline—[2050]
unit:mm

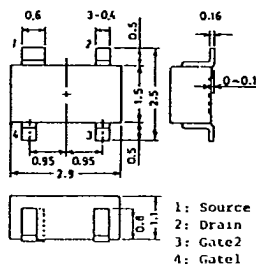
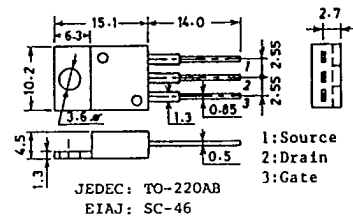
SANYO: CP

Case Outline—[2045]
unit:mm

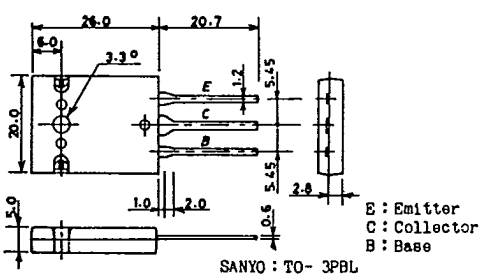
SANYO: TP

Case Outline—[2051]
unit:mm

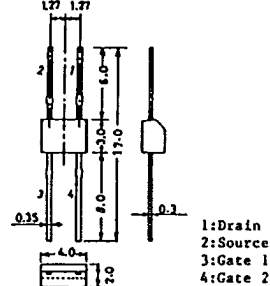
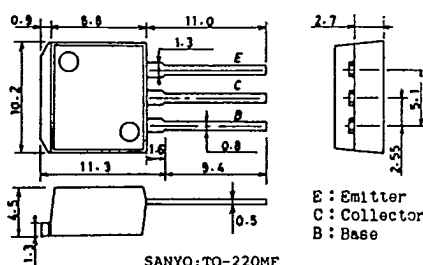
SANYO: SPA

Case Outline—[2046]
unit:mmCase Outline—[2052A]
unit:mmJEDEC: TO-220AB
EIAJ: SC-46

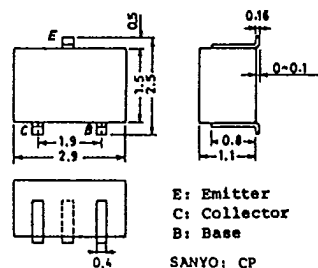
Case Outline—[2048] unit:mm



SANYO: TO-3PBL

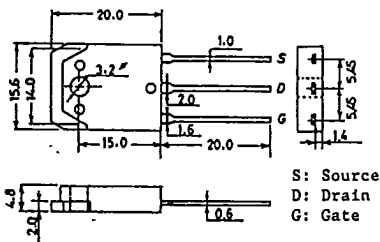
Case Outline—[2053]
unit:mmCase Outline—[2049]
unit:mm

SANYO: TO-220MF

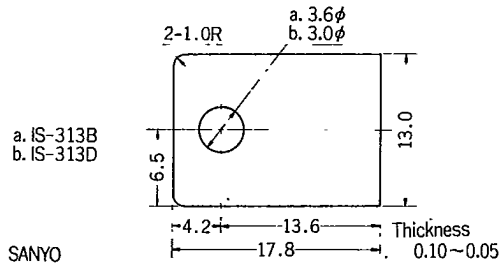
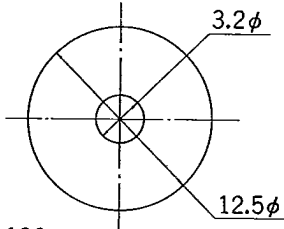
Case Outline—[2054]
unit:mm

SANYO: CP

Case Outline—[2056] unit:mm

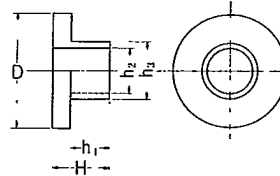


SANYO: TO3PB

Case Outline—[0008]
unit:mmCase Outline—[0004]
unit:mm

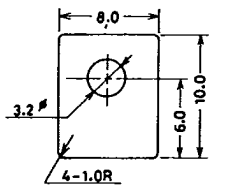
SANYO IS-126

Thickness : 0.075

Case Outline—[0009]
unit:mm

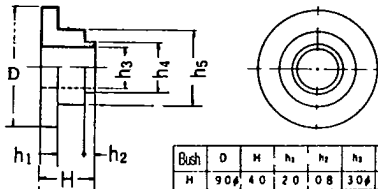
SANYO Bush

Bush	D	H	h ₁	h ₂	h ₃
A	8.0φ	4.0	2.8	3.1φ	3.89φ
B	8.0φ	3.0	1.8	3.1φ	3.89φ
C	8.0φ	5.7	4.5	3.1φ	3.89φ
D	8.0φ	2.7	1.5	3.1φ	3.89φ
E	8.0φ	3.4	2.2	3.1φ	3.89φ
F	8.0φ	4.0	2.8	3.0φ	3.59φ
K	16.0φ	3.4	1.4	3.1φ	6.0φ
L	6.0φ	3.1	1.5	2.6φ	3.5φ
M	6.0φ	3.1	1.5	3.0φ	3.59φ
P	6.0φ	2.3	1.1	3.0φ	3.59φ

Case Outline—[0005]
unit:mm

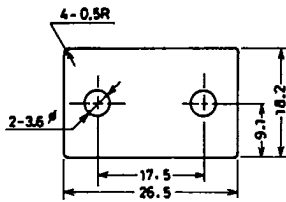
Thickness : 0.075

SANYO IS-126A Mica

Case Outline—[0010]
unit:mm

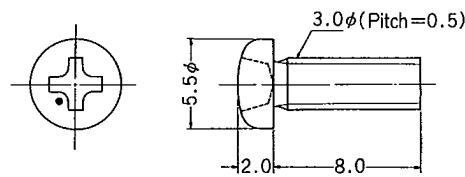
SANYO Bush

Bush	D	H	h ₁	h ₂	h ₃	h ₄	h ₅
H	9.0φ	4.0	2.0	0.8	3.0φ	3.59φ	5.6φ
T	9.0φ	5.8	2.0	2.6	3.0φ	3.59φ	5.6φ
UB	16.0φ	6.8	1.5	3.3	3.0φ	3.89φ	8.0φ

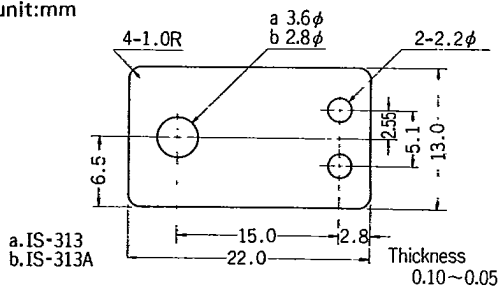
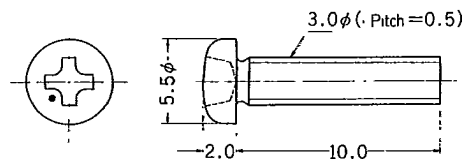
Case Outline—[0006]
unit:mm

Thickness : 0.05~0.1

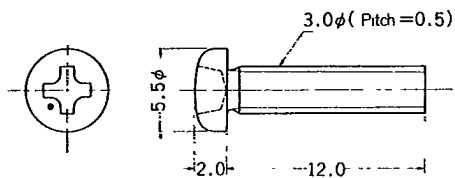
SANYO IS-20MA Mica

Case Outline—[0011]
unit:mm

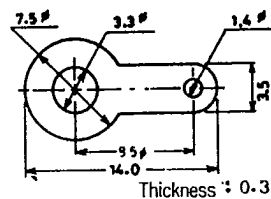
JIS No.B1111 M3×0.5

Case Outline—[0007]
unit:mmCase Outline—[0012]
unit:mm

JIS No.B1111 M3×0.5

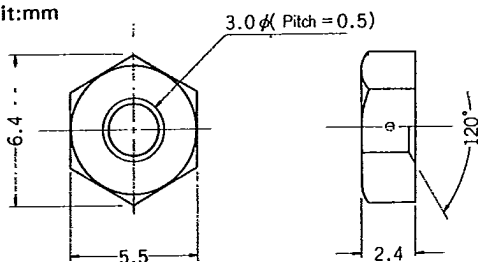
Case Outline—[0013]
unit:mm

JIS No. B1111 M3×0.5

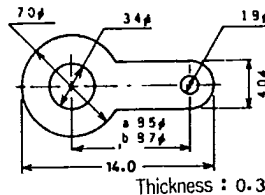
Case Outline—[0018]
unit:mm

SANYO Lug 1.4

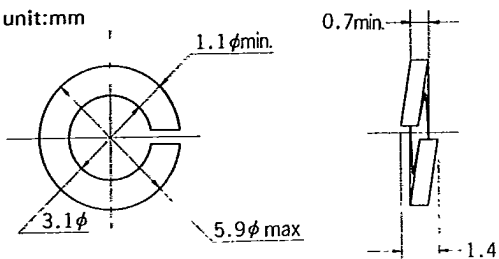
T=91-20

Case Outline—[0014]
unit:mm

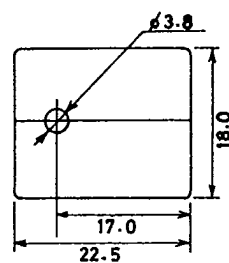
JIS No. B1181 M3×0.5

Case Outline—[0019]
unit:mm

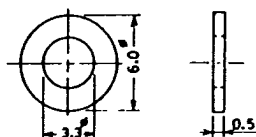
SANYO Lug 1.8φ

Case Outline—[0015]
unit:mm

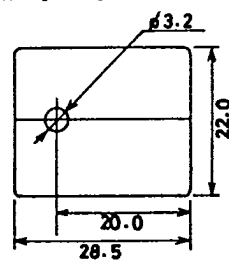
JIS No. B 1251 Spring washer (M3)

Case Outline—[0020]
unit:mm

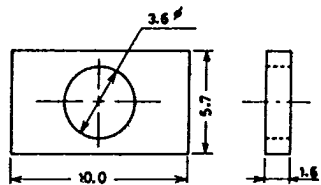
SANYO IS-3MP Mica

Case Outline—[0016]
unit:mm

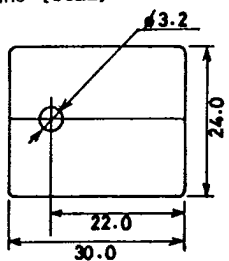
JIS No. B1252 Flat washer

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