

**2SA1210**

2009A

PNP/NPN Epitaxial Planar  
Silicon Transistors**2SC2912****High Voltage Switching, AF  
150W Predriver Applications**

©780C

**Features**

- Adoption of FBET process
- High breakdown voltage
- Good linearity of  $h_{FE}$  and small  $c_{ob}$
- Fast switching speed

( ): 2SA1210

**Absolute Maximum Ratings/ $T_a = 25^\circ\text{C}$** 

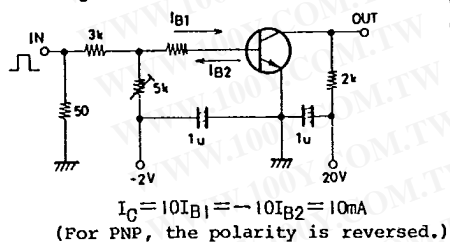
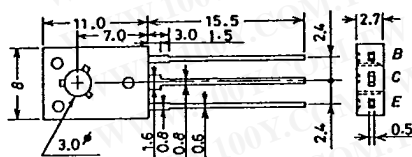
Collector to base voltage	$V_{CBO}$	(-)-200	unit
Collector to emitter voltage	$V_{CEO}$	(-)-200	V
Emitter to base voltage	$V_{EBO}$	(-)-5	V
Collector current	$I_C$	(-)-140	mA
Peak collector current	$i_{cp}$	(-)-200	mA
Collector dissipation	$P_C$	1	W
		10	W
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55 ~ +150	$^\circ\text{C}$

 $T_c = 25^\circ\text{C}$ **Electrical Characteristics/ $T_a = 25^\circ\text{C}$** 

			min	typ	max	unit
Collector cutoff current	$I_{CBO}$	$V_{CB} = (-)160, I_E = 0$			(-)-0.1	$\mu\text{A}$
Emitter cutoff current	$I_{EBO}$	$V_{EB} = (-)4 \text{ V}, I_C = 0$			(-)-0.1	$\mu\text{A}$
Common emitter DC current gain	$h_{FE}$	$V_{CE} = (-)5 \text{ V}, I_C = (-)10 \text{ mA}$	100*		400*	
Gain band-width product	$f_T$	$V_{CE} = (-)10 \text{ V}, I_C = (-)10 \text{ mA}$		150		MHz
Common base output capacitance	$c_{ob}$	$V_{CB} = (-)10 \text{ V}, f = 1 \text{ MHz}$		(4.0)		pF
				3.0		
Collector to emitter saturation voltage $V_{CE(sat)}$		$I_C = (-)50 \text{ mA}, I_B = (-)5 \text{ mA}$		(-)-0.14	(-)-0.4	V
				0.07	0.3	
Turn-on time	$T_{on}$	At specified test circuit		0.1		$\mu\text{s}$
Storage time	$t_{stg}$	At specified test circuit		1.5		$\mu\text{s}$
Fall time	$t_f$	At specified test circuit		0.1		$\mu\text{s}$

\*: The 2SA1210/2SC2912 are classified by 10 mA  $h_{FE}$  as follows:

100	R	200	140	S	280	200	T	400
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**Switching Time Test Circuit****Case Outline 2009A  
(unit: mm)**

JEDEC: TO-126

B: Base  
C: Collector  
E: Emitter

For details, refer to the description of the 2SC2912.

勝特力材料 886-3-5753170  
 勝特力电子(上海) 86-21-54151736  
 勝特力电子(深圳) 86-755-83298787  
[Http://www.100y.com.tw](http://www.100y.com.tw)

3187AT/3135KI/0193KI, TS # No. 780-1/3

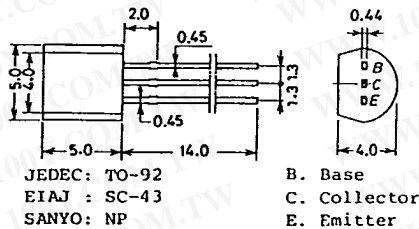
T-91-20

## CASE OUTLINES AND ATTACHMENTS

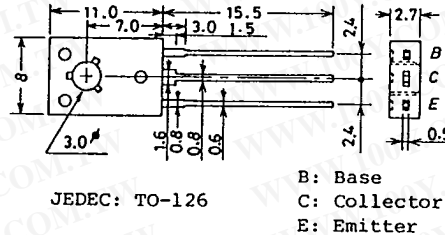
- All of Sanyo Transistor case outlines are illustrated below.
- All dimensions are in mm, and dimensions which are not followed by min. or max. are represented by typical values.
- No marking is indicated.

勝特力材料 886-3-5753170  
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[Http://www.100y.com.tw](http://www.100y.com.tw)

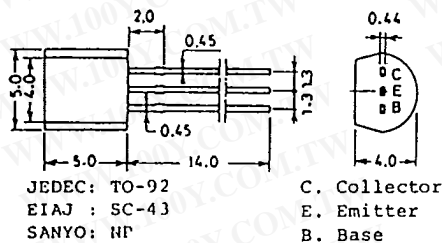
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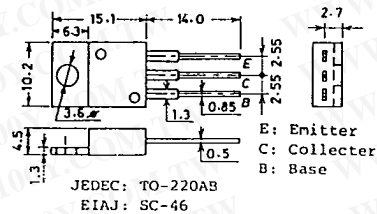
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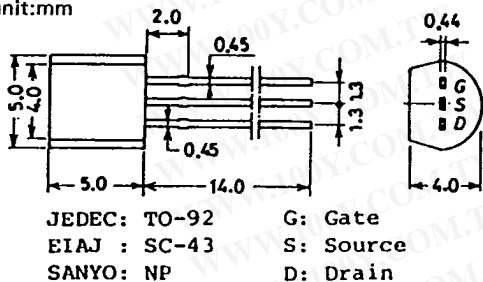
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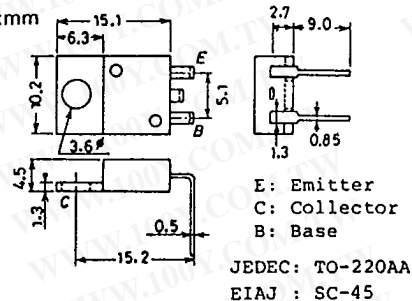
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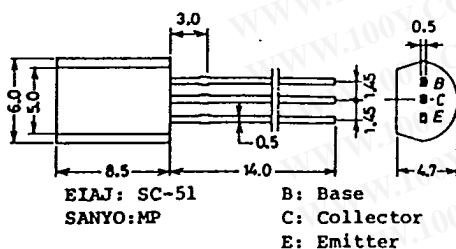
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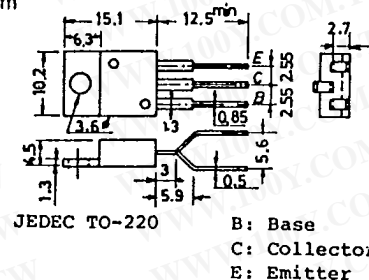
Case Outline-[2012]  
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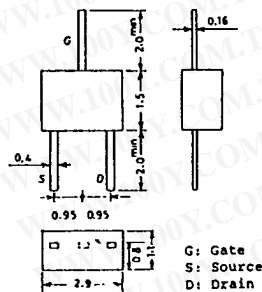
Case Outline-[2006A]  
 unit:mm



Case Outline-[2013]  
 unit:mm



T-91-20



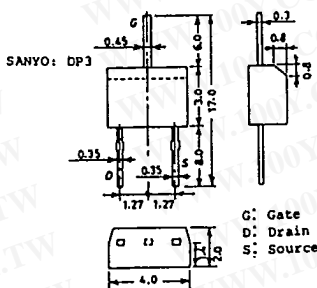
The drawing shows three views of the SANYO CP transistor package:

- Top View:** A rectangular package with a width of 2.9 mm and a height of 3.2 mm. The base (B) is 1.9 mm wide. The collector (C) is 0.5 mm wide and 0.5 mm high. The emitter (E) is 0.5 mm wide. The distance between the base and collector is 0.5 mm.
- Side View:** Shows the package height of 1.1 mm. The base (B) is 0.8 mm wide. The collector (C) is 0.16 mm high. The emitter (E) is 0.1 mm high.
- Bottom View:** Shows the package from below with a width of 0.4 mm.

**Legend:**

- B: Base
- C: Collector
- E: Emitter

**SANYO: CP**



JEDEC: TO-92  
 EIAJ: SC-43  
 SANYO: NP

D: Drain  
 G: Gate  
 S: Source

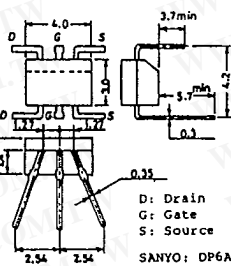


Figure 1: Dimensions of the transistor package. The diagram shows a top view and a side view of a TO-18 package. The top view shows a circular base with a diameter of 20.0 mm. The base has a central hole with a diameter of 3.2 mm. The base is mounted on a 15.0 mm wide lead. The lead has a thickness of 1.0 mm. The lead is connected to the emitter (E), collector (C), and base (B) terminals. The side view shows the package height of 15.6 mm and the lead length of 20.0 mm. The lead has a thickness of 1.0 mm. The lead is connected to the emitter (E), collector (C), and base (B) terminals. The legend indicates: E: Emitter, C: Collector, B: Base.

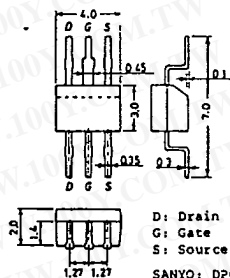
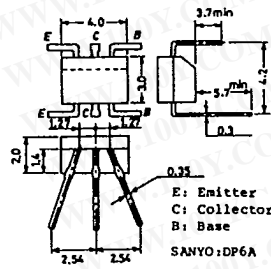


Figure 1 shows the dimensions of the SANYO CP package. The package is a rectangular component with a source (S) and a gate (G) on the top surface, and a drain (D) on the bottom surface. The dimensions are as follows:

- Top view:
  - Width: 5
  - Height: 0.5
  - Distance between gates: 1.9
  - Total width: 2.9
  - Distance between drains: 0.4
- Side view:
  - Height: 0.16
  - Width: 0.8
- Bottom view:
  - Width: 1.1
  - Distance between gates: 0.1

Legend:

- S: Source
- G: Gate
- D: Drain
- SANYO: CP



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E: Emitter  
C: Collector  
B: Base  
SANYO: DP6B

E: Emitter  
C: Collector  
B: Base

G1: Catw1  
\$ : 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

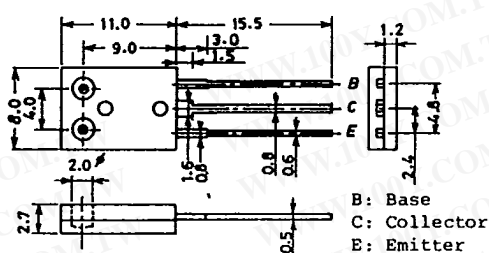
D: Drain  
G: Gate  
S: Source  
SANYO: SPA

SANYO: TO220ML

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

SANYO: TO126ML

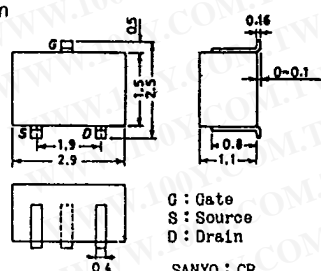
Case Outline—[2043A] unit:mm



SANYO: TO126LP

Case Outline—[2050]

unit:mm

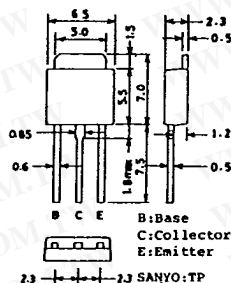


SANYO: CP

T-91-20

Case Outline—[2045]

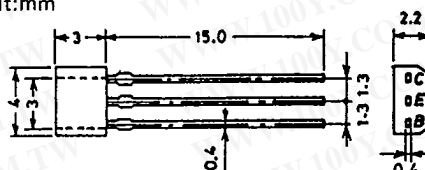
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SANYO: TP

Case Outline—[2051]

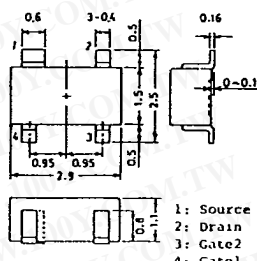
unit:mm



SANYO: SPA

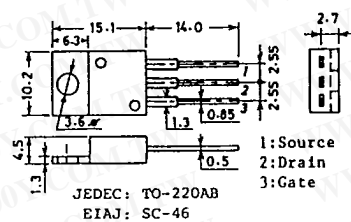
Case Outline—[2046]

unit:mm

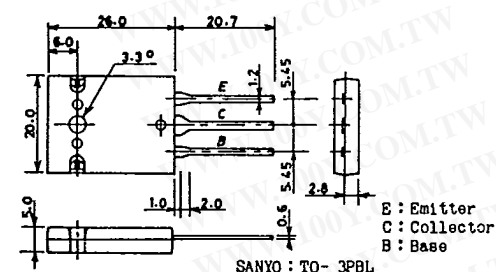


Case Outline—[2052A]

unit:mm

JEDEC: TO-220AB  
EIAJ: SC-46

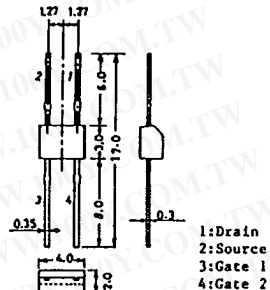
Case Outline—[2048] unit:mm



SANYO: TO-3PBL

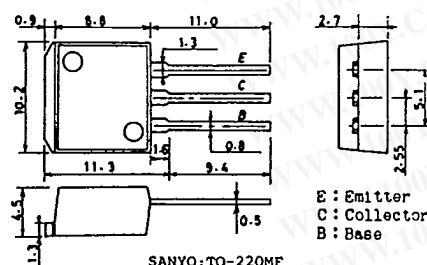
Case Outline—[2053]

unit:mm



Case Outline—[2049]

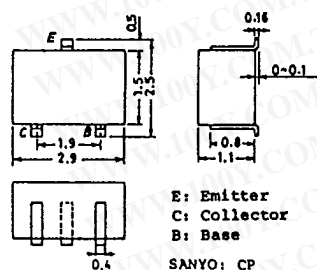
unit:mm



SANYO: TO-220MF

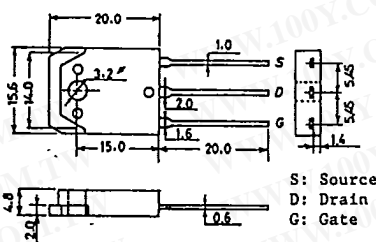
Case Outline—[2054]

unit:mm



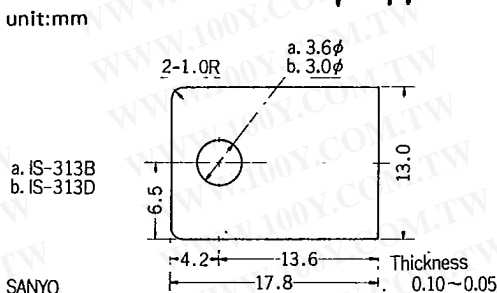
SANYO: CP

Case Outline—[2056] unit:mm

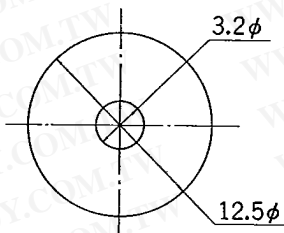


SANYO: TO3PB

Case Outline—[0008] unit:mm



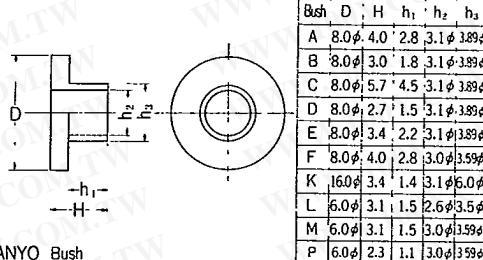
Case Outline—[0004] unit:mm



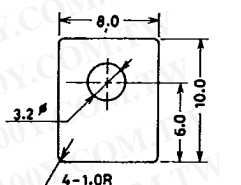
SANYO IS-126

Thickness : 0.075

Case Outline—[0009] unit:mm



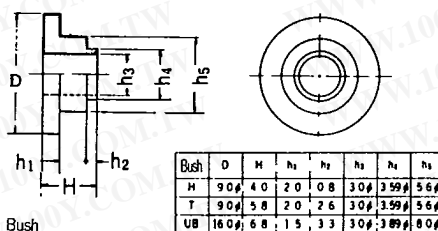
Case Outline—[0005] unit:mm



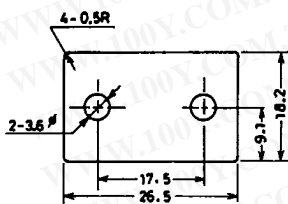
Thickness : 0.075

SANYO IS-126A Mica

Case Outline—[0010] unit:mm



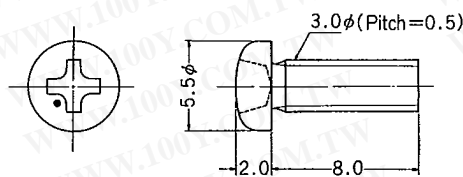
Case Outline—[0006] unit:mm



Thickness : 0.05~0.1

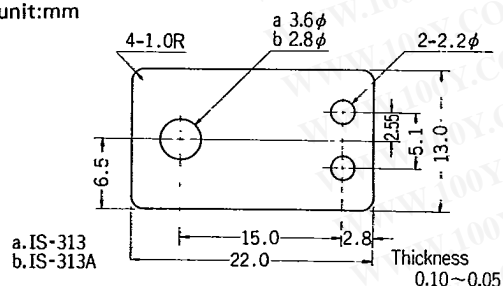
SANYO IS-20MA Mica

Case Outline—[0011] unit:mm

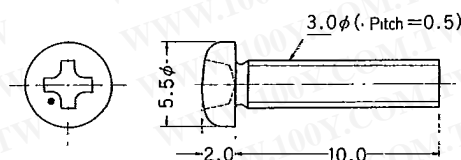


JIS No.B1111 M3×0.5

Case Outline—[0007] unit:mm



Case Outline—[0012] unit:mm

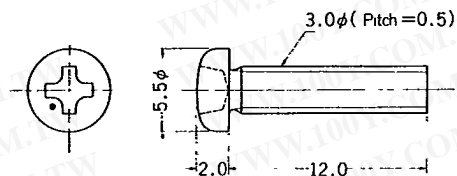


JIS No.B1111 M3×0.5



Case Outline—[0013]

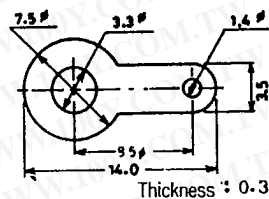
unit:mm



JIS No. B1111 M3×0.5

Case Outline—[0018]

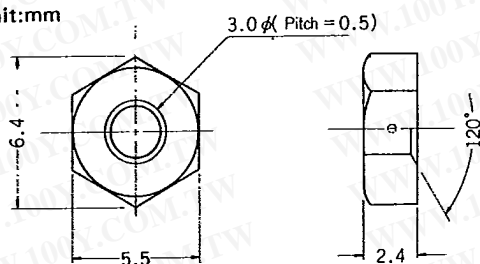
unit:mm



SANYO Lug 1.4

Case Outline—[0014]

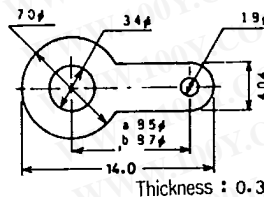
unit:mm



JIS No. B1181 M3×0.5

Case Outline—[0019]

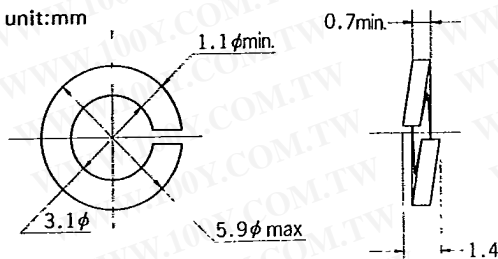
unit:mm



SANYO Lug 1.8φ

Case Outline—[0015]

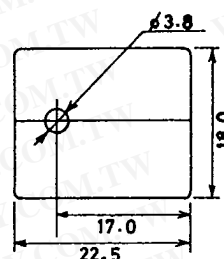
unit:mm



JIS No. B 1251 Spring washer (M3)

Case Outline—[0020]

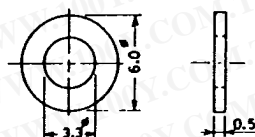
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SANYO IS-3MP Mica

Case Outline—[0016]

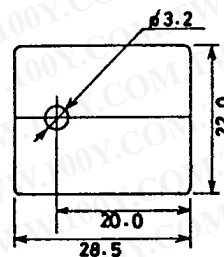
unit:mm



JIS No. B1252 Flat washer

Case Outline—[0021]

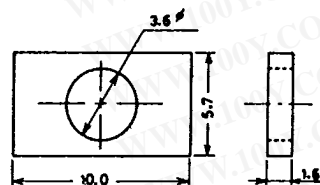
unit:mm



SANYO IS-MPC Mica

Case Outline—[0017]

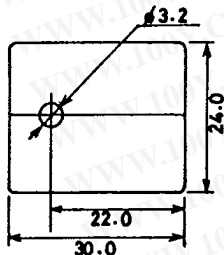
unit:mm



JIS No. G3141 Rectangular washer

Case Outline—[0022]

unit:mm



SANYO IS-3PBL Mica