

2SC2912



2009A

T-33-07

NPN/PNP Epitaxial Planar Silicon Transistors

2SA1210

High Voltage Switching, AF 150W Predriver Applications

⑦780C

Features

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

(): 2SA1210

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

Absolute Maximum Ratings/ $T_a = 25^\circ\text{C}$			unit
Collector to base voltage	V_{CB0}	(-)-200	V
Collector to emitter voltage	V_{CEO}	(-)-200	V
Emitter to base voltage	V_{EB0}	(-)-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	$^\circ\text{C}$

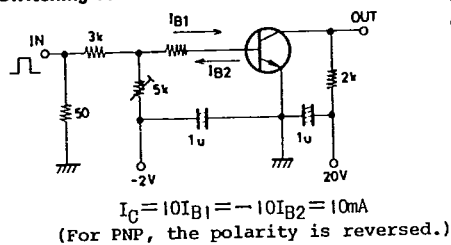
Electrical Characteristics/ $T_a = 25^\circ\text{C}$

Electrical Characteristics/ $T_a = 25^\circ\text{C}$			min	typ	max	unit
Collector cutoff current	I_{CBO}	$V_{CB} = (-)160, I_E = 0$			$(-)0.1$	μA
Emitter cutoff current	I_{EBO}	$V_{EB} = (-)4\text{ V}, I_C = 0$			$(-)0.1$	μA
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		μs
Storage time	t_{stg}	At specified test circuit		1.5		μs
Fall time	t_f	At specified test circuit		0.1		μs

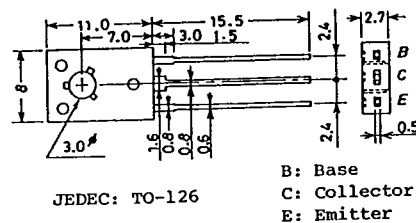
*; The 2SA1210/2SC2912 are classified by 10 mA hFE as follows:

100 R 200	140 S 280	200 T 400
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Switching Time Test Curcuit

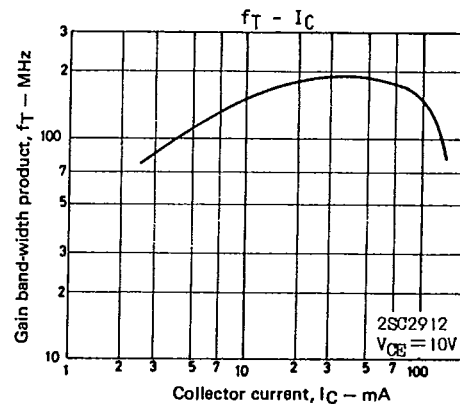
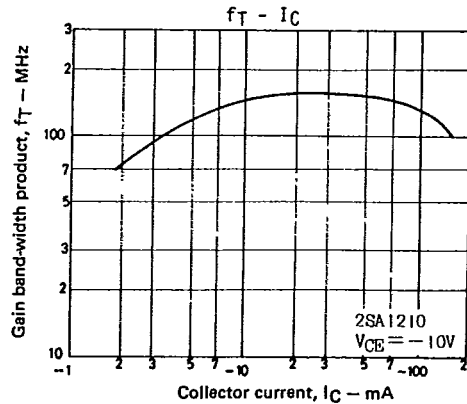
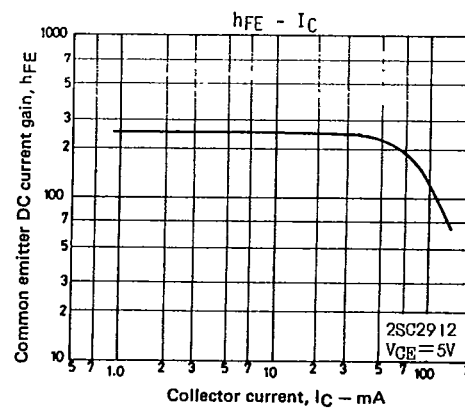
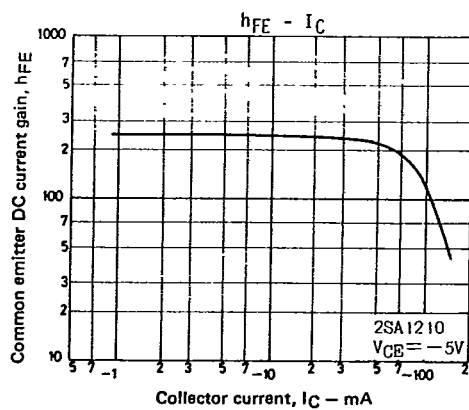
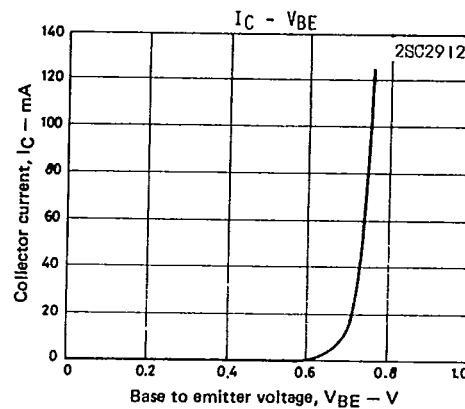
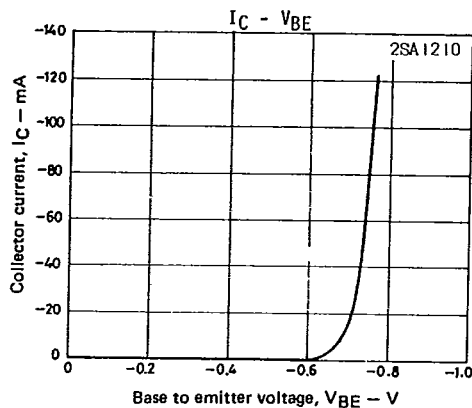
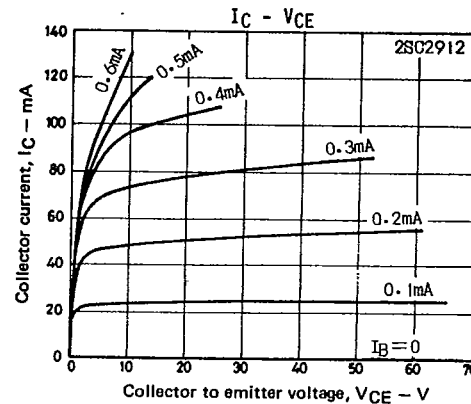
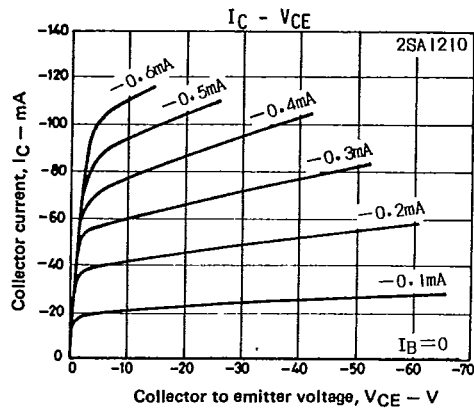


Case Outline 2009A
(unit: mm)



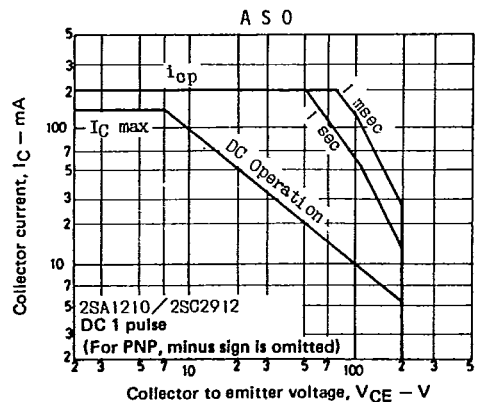
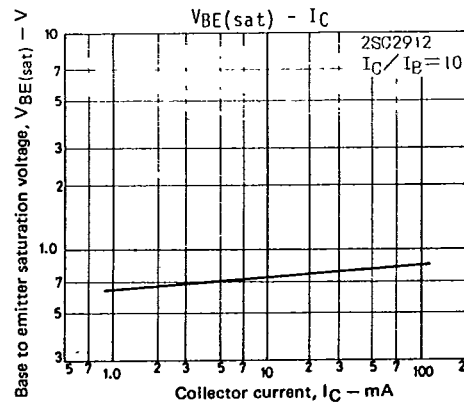
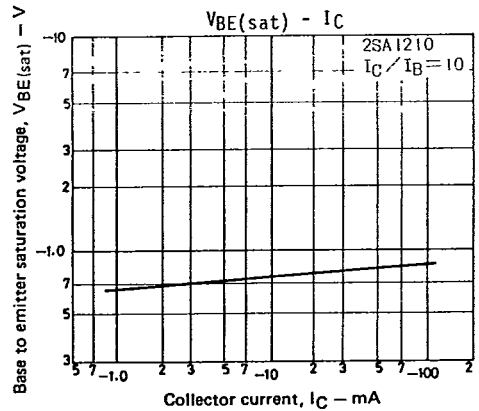
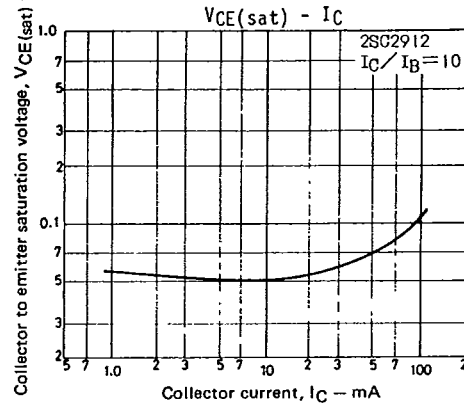
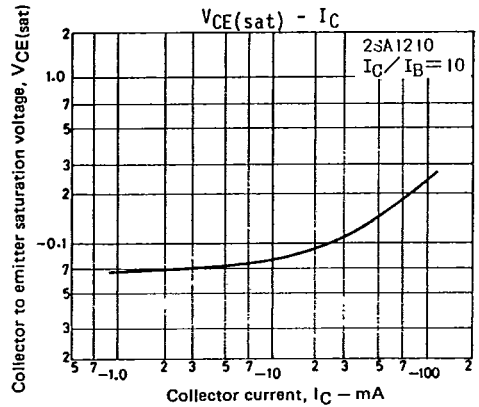
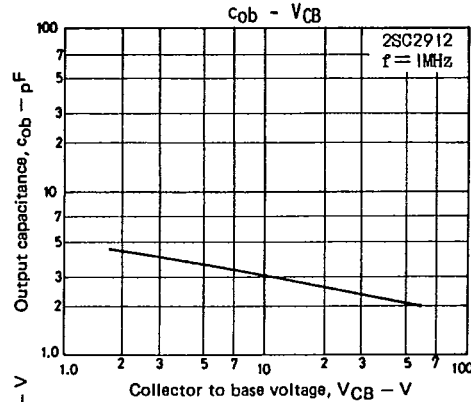
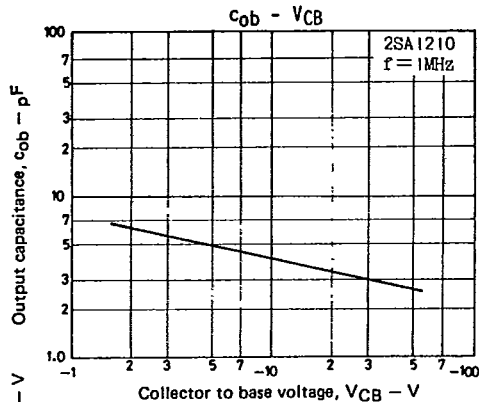
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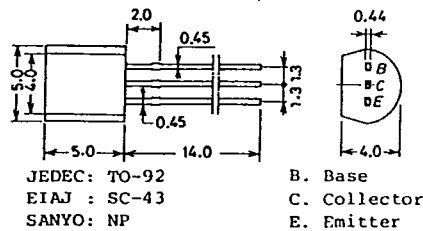
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CASE OUTLINES AND ATTACHMENTS

- 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.

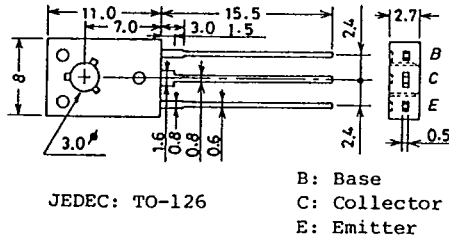
Case Outline—[2003A]

unit:mm



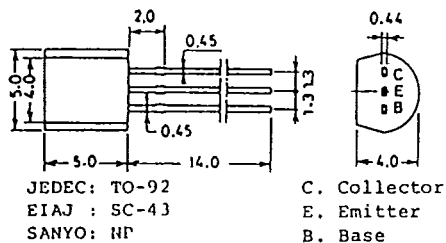
Case Outline—[2009A]

unit:mm



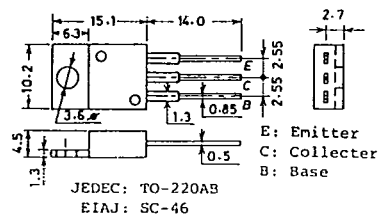
Case Outline—[2004A]

unit:mm



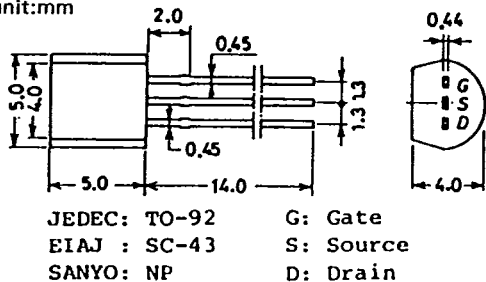
Case Outline—[2010A]

unit:mm



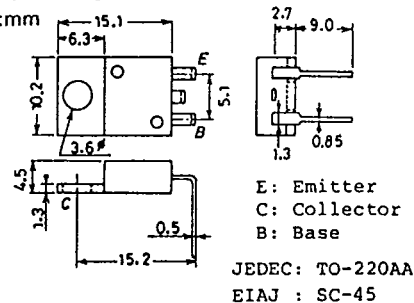
Case Outline—[2005A]

unit:mm



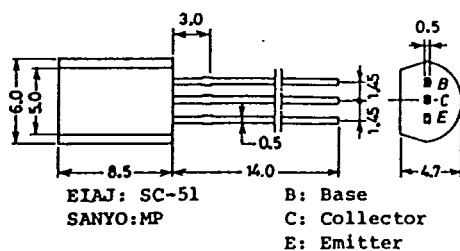
Case Outline—[2012]

unit:mm



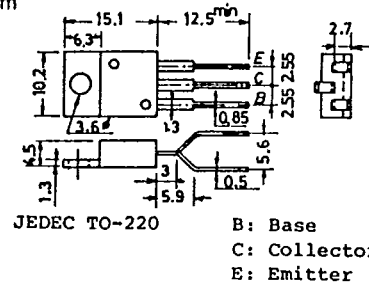
Case Outline—[2006A]

unit:mm

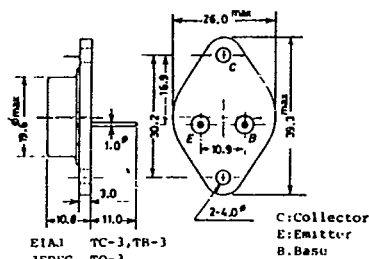


Case Outline—[2013]

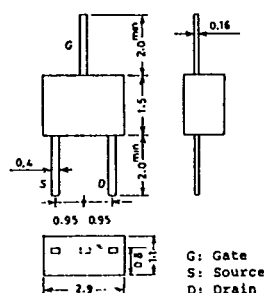
unit:mm



unit:mm

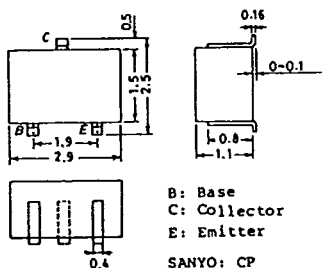


unit:mm

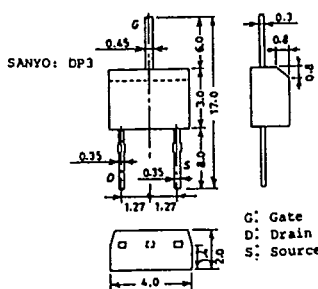


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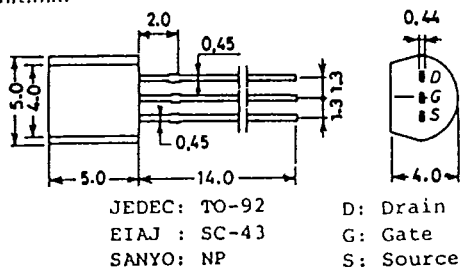
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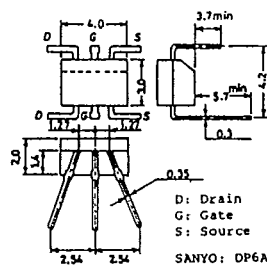
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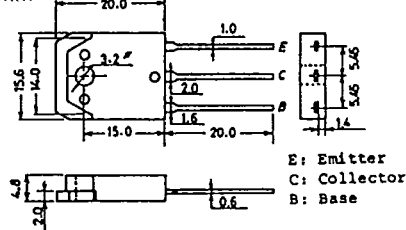
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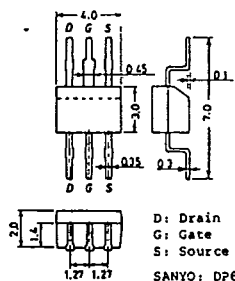
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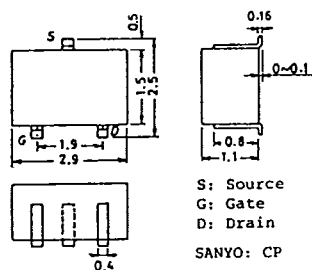
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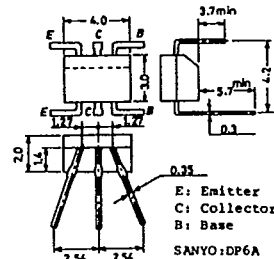
unit:mm



unit:mm



unit:mm



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

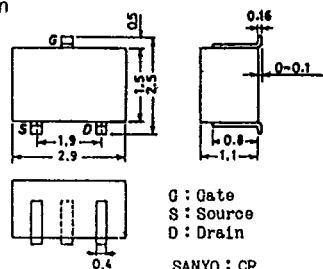
SANYO: TO220ML

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

SANYO: TO126ML

T-91-20

unit:mm

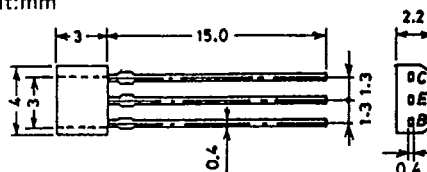


SANYO: TO126LP

G : Gate
S : Source
D : Drain

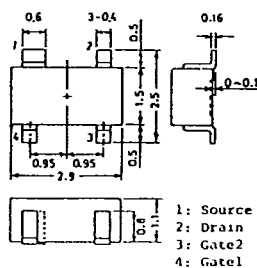
SANYO : CP

unit:mm



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

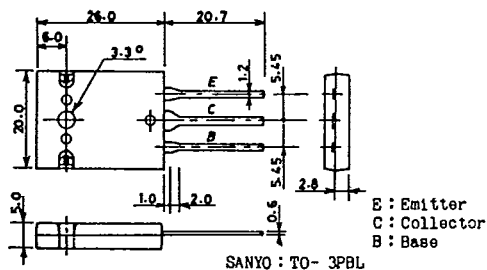
unit:mm



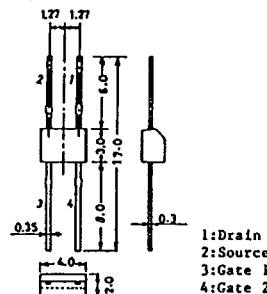
JEDEC: TO-220AB
EIAJ: SC-46

1:Source
2:Drain
3:Gate

unit:mm

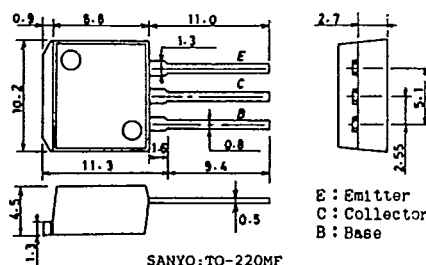


SANYO : TO- 3PBL

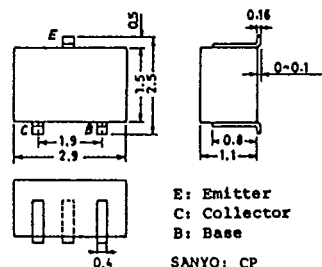


1: Drain
2: Source
3: Gate 1
4: Gate 2

unit:mm



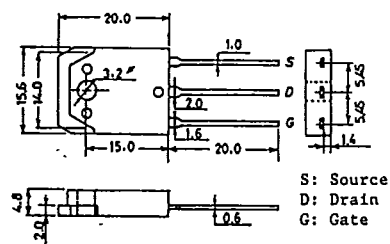
SANYO:TO-220MF



E: Emitter
C: Collector
B: Base

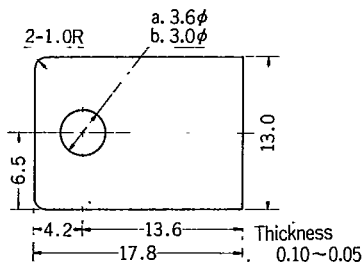
SANYO: CP

Case Outline—[2056] unit:mm



SANYO: TO3PB

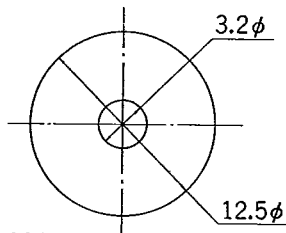
Case Outline—[0008] unit:mm

a. IS-313B
b. IS-313D

SANYO

Case Outline—[0004] unit:mm

unit:mm

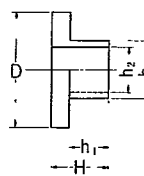


SANYO IS-126

Thickness : 0.075

Case Outline—[0009] unit:mm

unit:mm

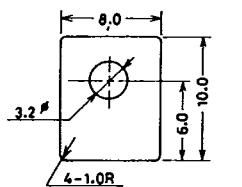


SANYO Bush

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

unit:mm

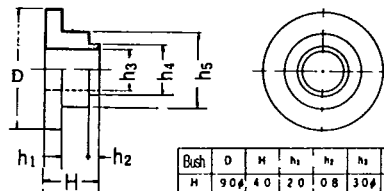


Thickness : 0.075

SANYO IS-126A Mica

Case Outline—[0010] unit:mm

unit:mm

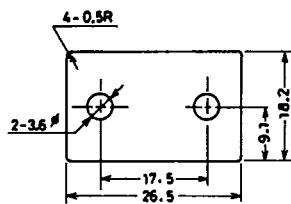


SANYO Bush

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

unit:mm

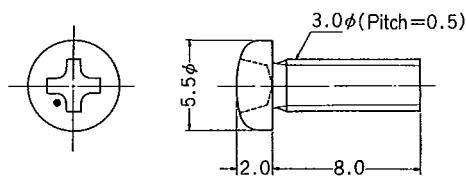


Thickness : 0.05~0.1

SANYO IS-20MA Mica

Case Outline—[0011] unit:mm

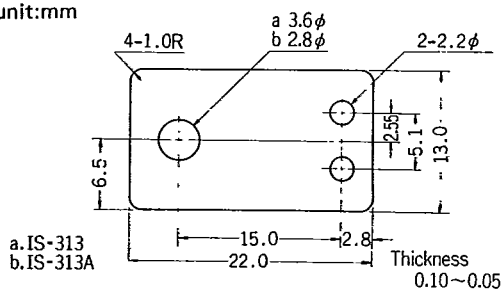
unit:mm



JIS No. B1111 M3×0.5

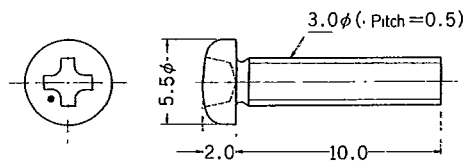
Case Outline—[0007] unit:mm

unit:mm



Case Outline—[0012] unit:mm

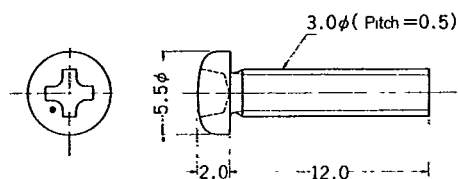
unit:mm



JIS No. B1111 M3×0.5

Case Outline—[0013]

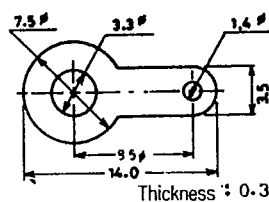
unit:mm



JIS No. B1111 M3×0.5

Case Outline—[0018]

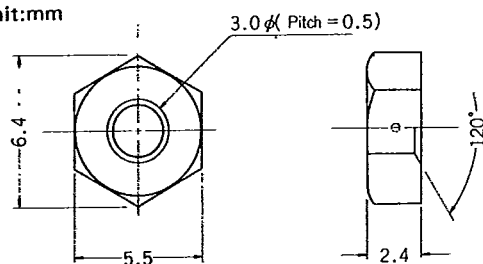
unit:mm



SANYO Lug 1.4

Case Outline—[0014]

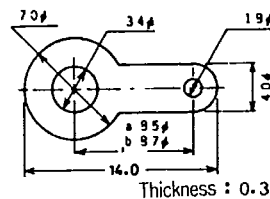
unit:mm



JIS No. B1181 M3×0.5

Case Outline—[0019]

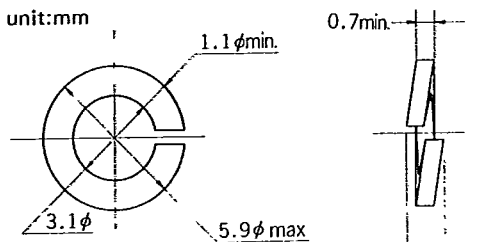
unit:mm



SANYO Lug 1.8φ

Case Outline—[0015]

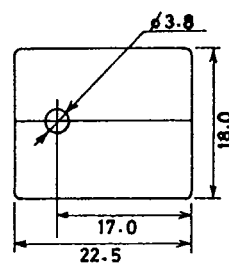
unit:mm



JIS No. B 1251 Spring washer (M3)

Case Outline—[0020]

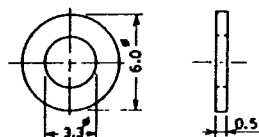
unit:mm



SANYO IS-3MP Mica

Case Outline—[0016]

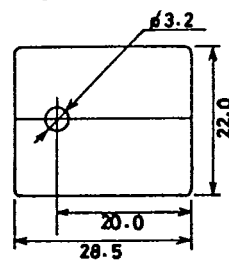
unit:mm



JIS No. B1252 Flat washer

Case Outline—[0021]

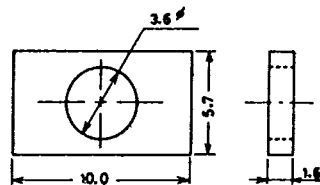
unit:mm



SANYO IS-MPC Mica

Case Outline—[0017]

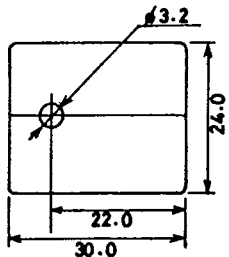
unit:mm



JIS No. G3141 Rectangular washer

Case Outline—[0022]

unit:mm



SANYO IS-3PBL Mica