

2SD1399

2022

NPN Triple Diffused Planar
Silicon Transistor

T-33-13

Color TV Horizontal Deflection Output Applications (with Damper Diode)

©1225C

Features:

- High Breakdown Voltage and High Reliability.
- High Switching Speed.
- Capable of being mounted easily due to one-point fixing type plastics mold package.

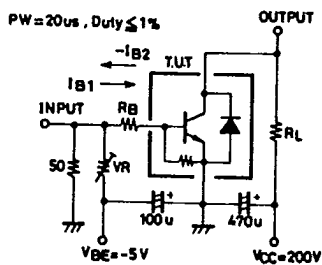
Absolute Maximum Ratings at $T_a=25^\circ\text{C}$

			unit
Collector to Base Voltage	VCBO	1500	V
Collector to Emitter Voltage	VCEO	800	V
Emitter to Base Voltage	VEBO	7	V
Collector Current	IC	6	A
Peak Collector Current*	icp	16	A
Collector Dissipation	PC	120	W
Junction Temperature	Tj	150	°C
Storage Temperature	Tstg	-55 to +150	°C

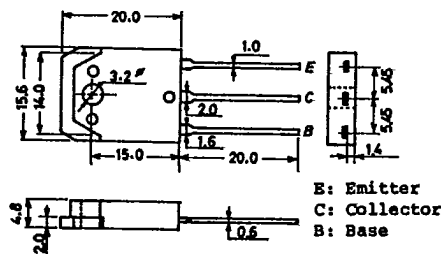
Electrical Characteristics at $T_a=25^\circ\text{C}$

			min	typ	max	unit
Collector Cutoff Current	ICBO	VCB=800V, IE=0			10	uA
Emitter Cutoff Current	IEBO	VEB=4V, IC=0	40		130	mA
DC Current Gain	hFE	VCE=5V, IC=1A	8			
Gain Bandwidth Product	fT	VCE=10V, IC=1A		3		MHz
C-E Saturation Voltage	VCE(sat)	IC=5A, IB=1A			5	V
B-E Saturation Voltage	VBE(sat)	IC=5A, IB=1A			1.5	V
C-B Breakdown Voltage	V(BR)CBO	IC=5mA, IE=0	1500			V
C-E Breakdown Voltage	V(BR)CEO	IC=100mA, RBE=∞	800			V
E-B Breakdown Voltage	V(BR)EBO	IE=200mA, IC=0	7			V
Diode Forward Voltage	VF	IEC=6A			2	V
Fall Time	tF	IC=5A, IB1=1A, IB2=-2A VCC=200V, RL=40ohm			0.4	us

Switching Time Test Circuit



Case Outline 2022 (unit:mm)

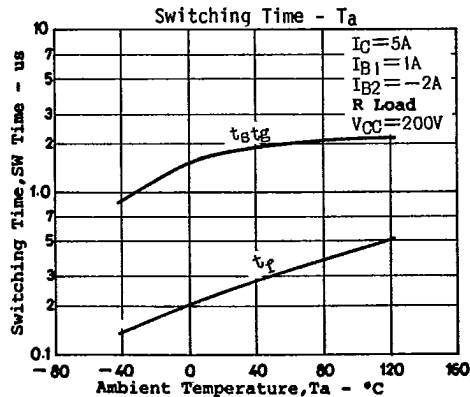
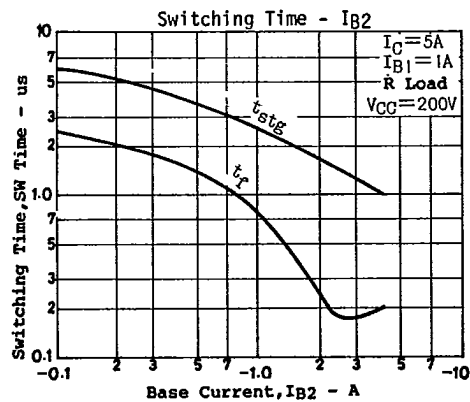
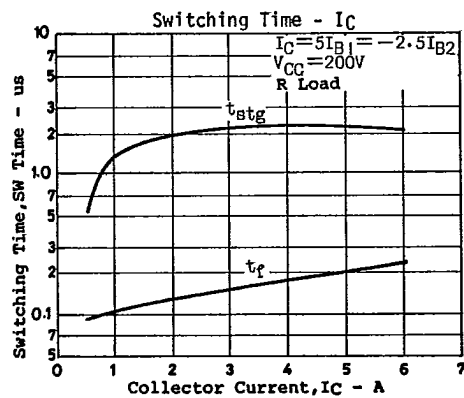
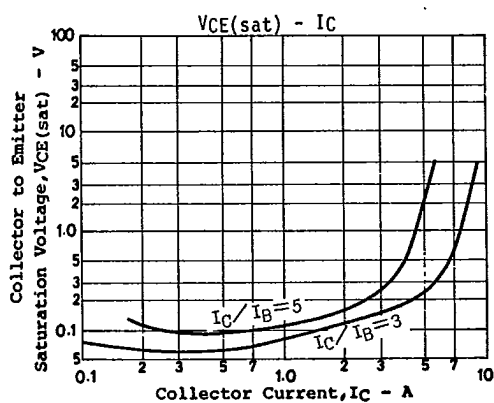
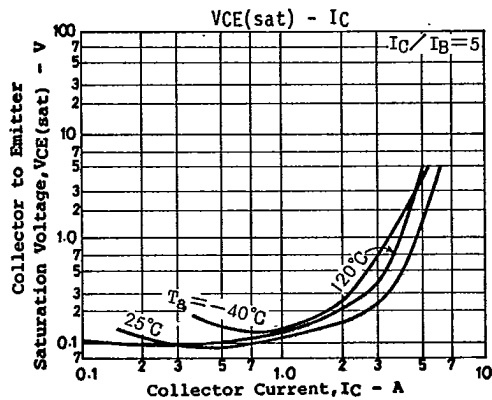
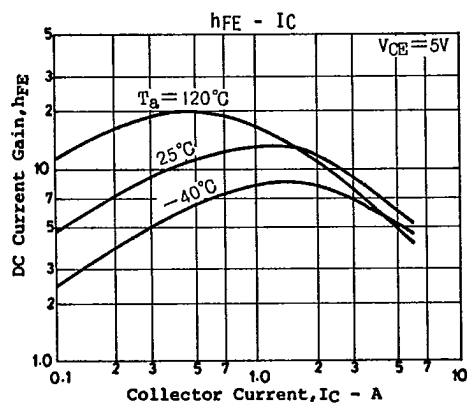
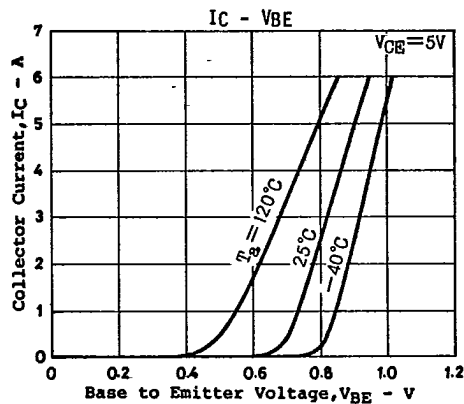
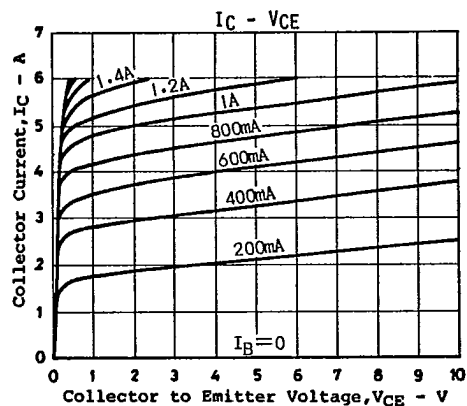


5267KI/2075MW/1203KI, MT No.1225-1/3

1418

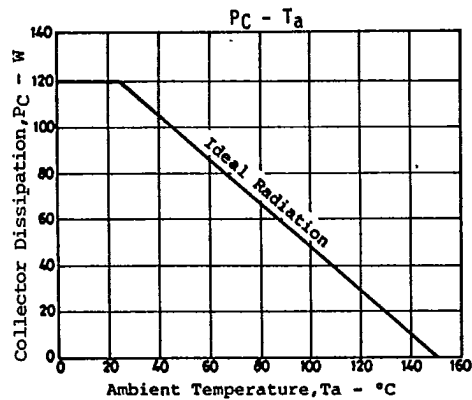
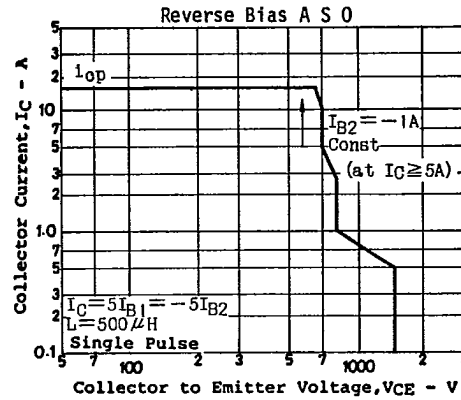
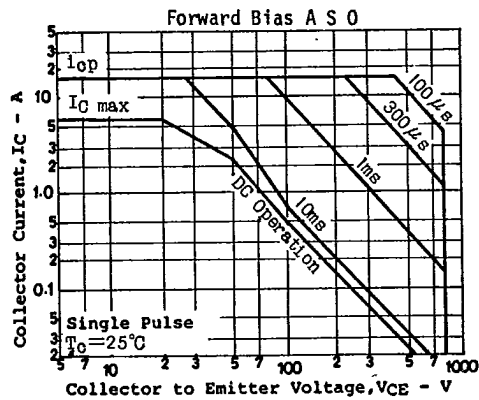
2SD1399

T-33-13

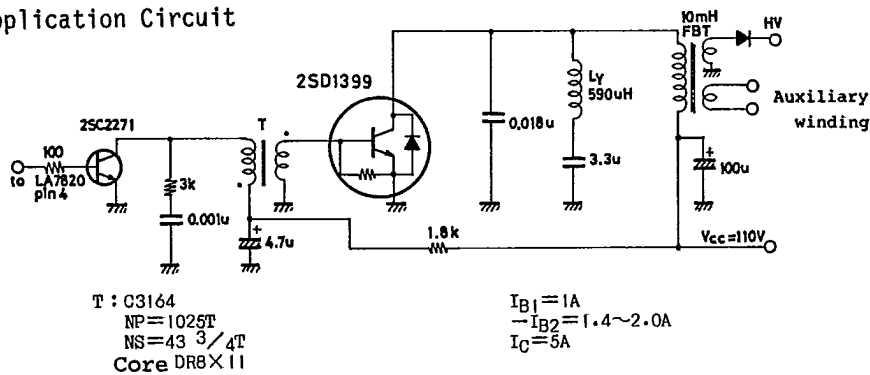


2SD1399

T-33-13



Sample Application Circuit



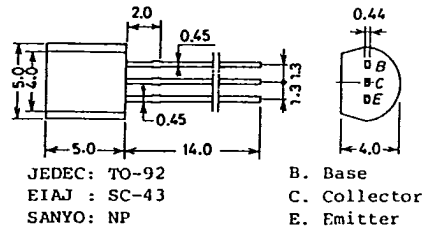
T-91-20

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.

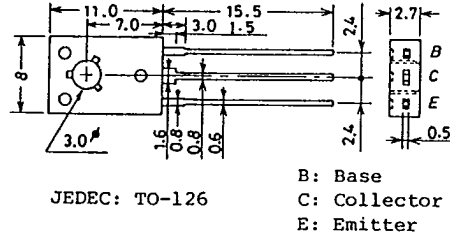
Case Outline—[2003A]

unit:mm



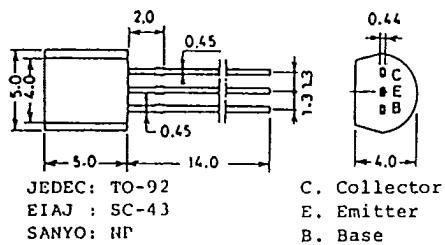
Case Outline—[2009A]

unit:mm



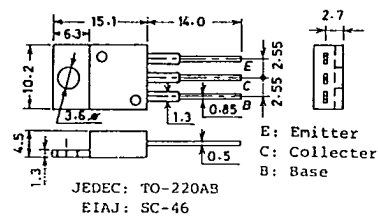
Case Outline—[2004A]

unit:mm



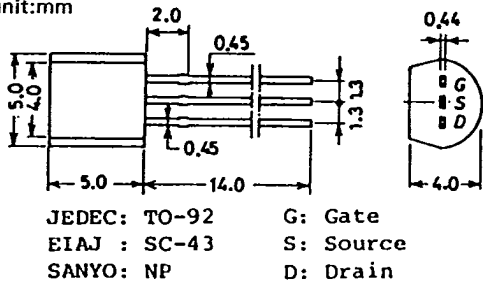
Case Outline—[2010A]

unit:mm



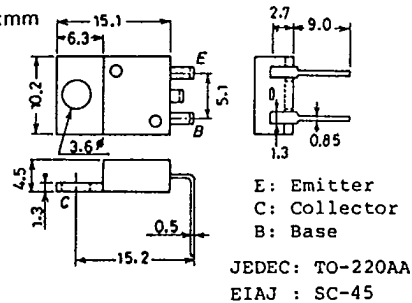
Case Outline—[2005A]

unit:mm



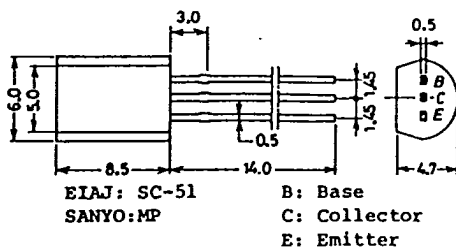
Case Outline—[2012]

unit:mm



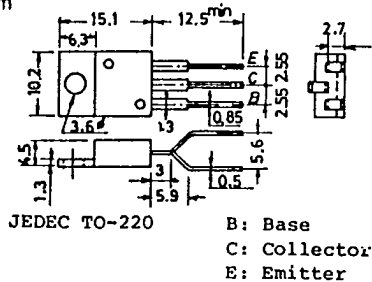
Case Outline—[2006A]

unit:mm



Case Outline—[2013]

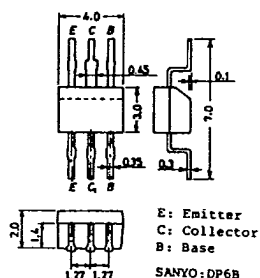
unit:mm



T-91-20

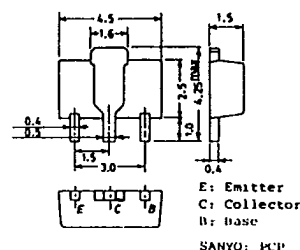
Case Outline—[2030A]

unit:mm



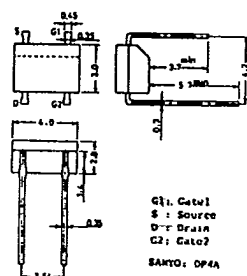
Case Outline—[2038]

unit:mm



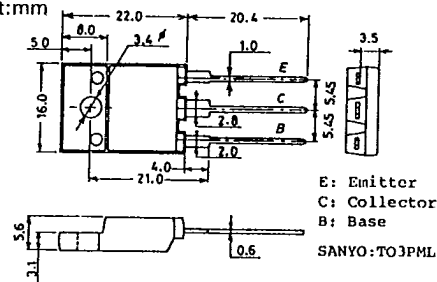
Case Outline—[2031A]

unit:mm



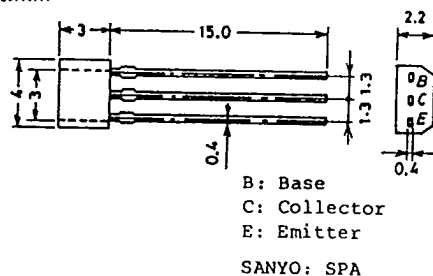
Case Outline—[2039]

unit:mm



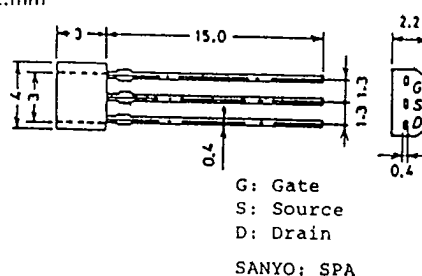
Case Outline—[2033]

unit:mm



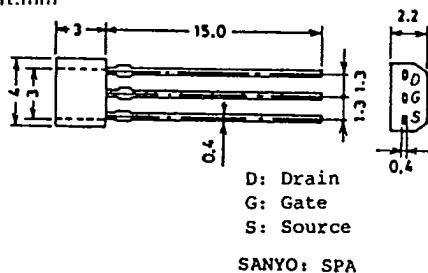
Case Outline—[2040]

unit:mm



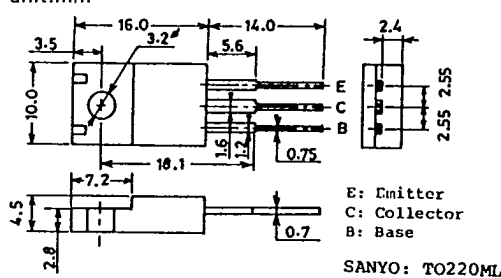
Case Outline—[2034]

unit:mm



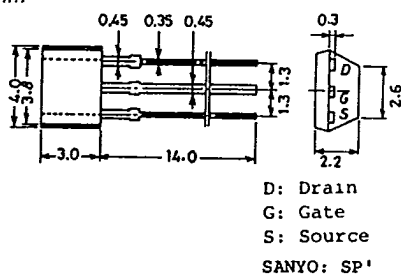
Case Outline—[2041]

unit:mm

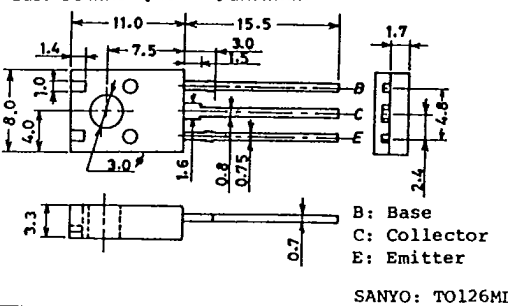


Case Outline—[2037]

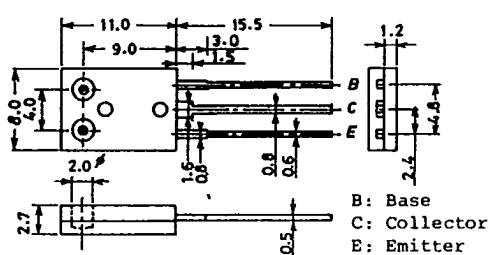
unit:mm



Case Outline—[2042A] unit:mm

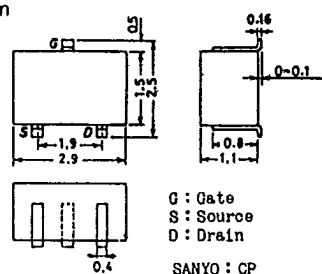


Case Outline—[2043A] unit:mm



SANYO: TO126LP

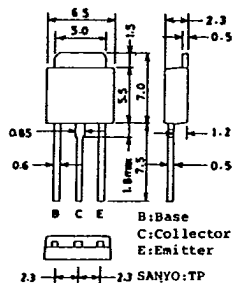
Case Outline—[2050] unit:mm



SANYO: CP

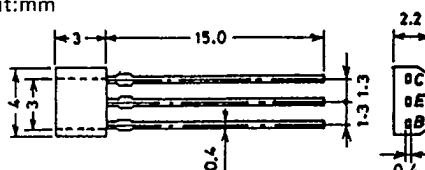
T-91-20

Case Outline—[2045] unit:mm



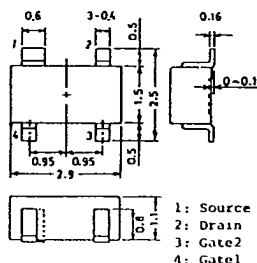
SANYO: TP

Case Outline—[2051] unit:mm

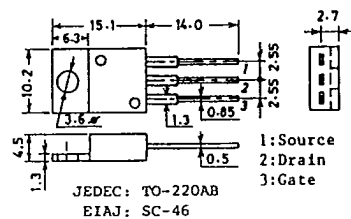


SANYO: SPA

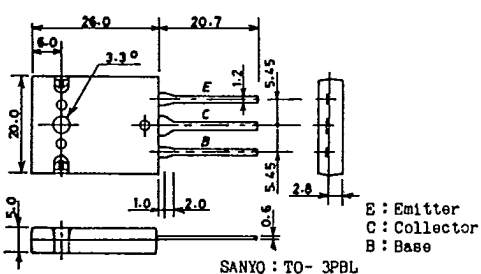
Case Outline—[2046] unit:mm



Case Outline—[2052A] unit:mm

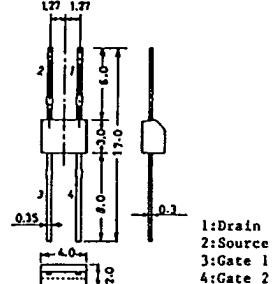
JEDEC: TO-220AB
EIAJ: SC-46

Case Outline—[2048] unit:mm

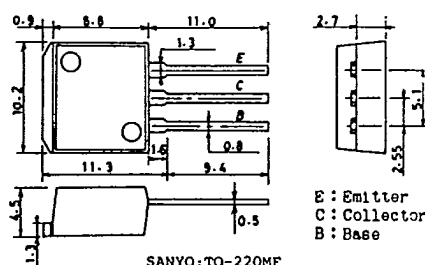


SANYO: TO-3PBL

Case Outline—[2053] unit:mm

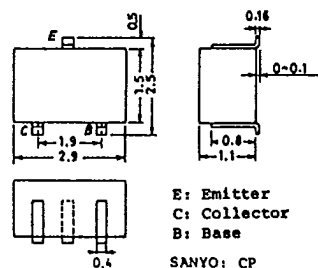


Case Outline—[2049] unit:mm



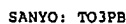
SANYO: TO-220MF

Case Outline—[2054] unit:mm

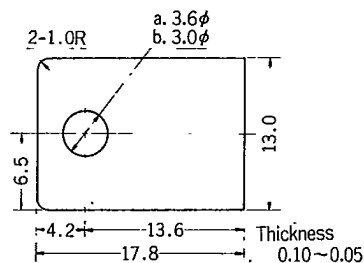


SANYO: CP

T-91-20



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



Technical drawing of a circular part with a central hole. The outer diameter is labeled 3.2ϕ and the inner diameter is labeled 12.5ϕ . The drawing includes center lines and a 45-degree chamfer line.

SANYO IS-126

Thickness : 0.075

Technical drawing of a stepped shaft. The left view is a side elevation showing a shaft with a total diameter D . It has a central step with a height h_1 . The shaft has two main sections: a larger outer section with diameter D and a smaller inner section with diameter d . The distance from the centerline to the start of the step is h_2 , and the distance from the centerline to the end of the step is h_3 . The right view is a top-down cross-section showing the circular profile of the shaft with the central hole.

Bush	D	H	h_1	h_2	h_3
A	8.0¢	4.0	2.8	3.1¢	3.89¢
B	8.0¢	3.0	1.8	3.1¢	3.89¢
C	8.0¢	5.7	4.5	3.1¢	3.89¢
D	8.0¢	2.7	1.5	3.1¢	3.89¢
E	8.0¢	3.4	2.2	3.1¢	3.89¢
F	8.0¢	4.0	2.8	3.0¢	3.59¢
K	16.0¢	3.4	1.4	3.1¢	6.0¢
L	6.0¢	3.1	1.5	2.6¢	3.5¢
M	6.0¢	3.1	1.5	3.0¢	3.5¢
P	6.0¢	2.3	1.1	3.0¢	3.5¢

SANYO Bush

Thickness : 0.075

SANYO IS-126A Mica

Technical drawing of a bush showing a side view and a top view. The side view labels dimensions: D (outer diameter), h_1 (total height), h_2 (height of the lower section), h_3 (height of the upper section), h_4 (height of the lower section), and h_5 (height of the upper section). The top view shows concentric circles representing the inner and outer diameters.

	D	H	h_1	h_2	h_3
Bush	90	40	20	08	30
H					

Bush	D	H	n_1	n_2	n_3	n_4	n_5
H	90¢	40	20	08	30¢	3.59¢	56¢
T	90¢	58	20	26	30¢	3.59¢	56¢
UB	160¢	68	15	33	30¢	3.89¢	80¢

SANYO Bush

Thickness : 0.05~0.1

SANYO IS-20MA Mica

JIS No.B1111 M3×0.5

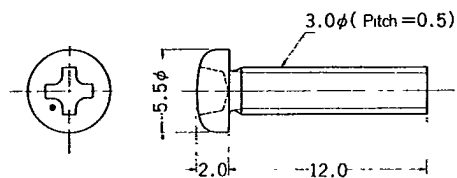
[illegible]

a. IS-313
b. IS-313A

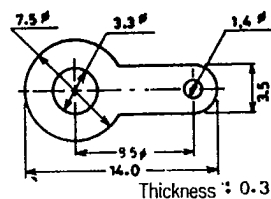
Thickness
0.10~0.05

Technical drawing of a bolt and nut. The bolt is shown in side and end views. The side view shows a head with a diameter of 5.5ϕ and a length of 2.0, followed by a threaded section with a diameter of 3.0ϕ and a length of 10.0. The end view shows a cross-section of the head with a central hole and a slot.

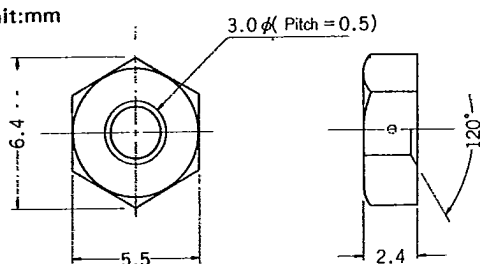
JIS No.B1111 M3×0.5

Case Outline—[0013]
unit:mm

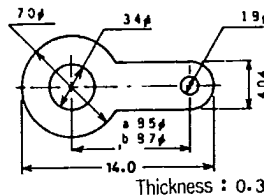
JIS No. B1111 M3×0.5

Case Outline—[0018]
unit:mm

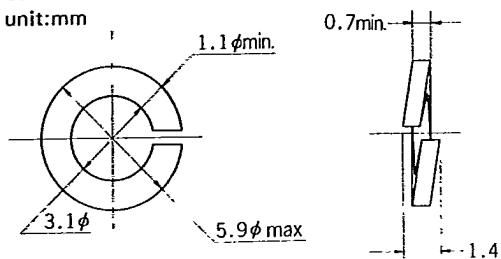
SANYO Lug 1.4

Case Outline—[0014]
unit:mm

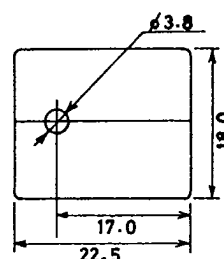
JIS No. B1181 M3×0.5

Case Outline—[0019]
unit:mm

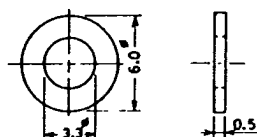
SANYO Lug 1.8φ

Case Outline—[0015]
unit:mm

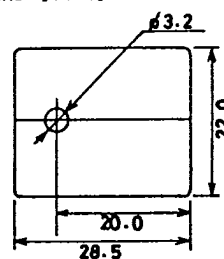
JIS No. B 1251 Spring washer (M3)

Case Outline—[0020]
unit:mm

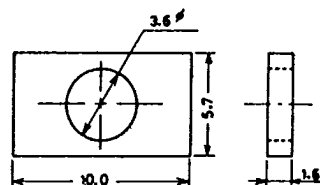
SANYO IS-3MP Mica

Case Outline—[0016]
unit:mm

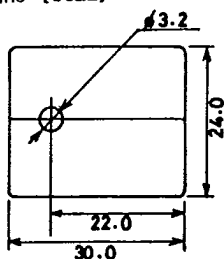
JIS No. B1252 Flat washer

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