

2SD1652



2039

NPN Triple Diffused Planar Silicon Transistor

Color TV Horizontal Deflection Output Applications(with Damper Diode)

©1750B

Applications

- High-voltage, power switching

Features

- Fast speed ($t_{f,max}=0.4\mu s$).
- High reliability (Adoption of HVP process).
- High breakdown voltage ($V_{CB0}=1500V$).
- Micaless package facilitating mounting operation.

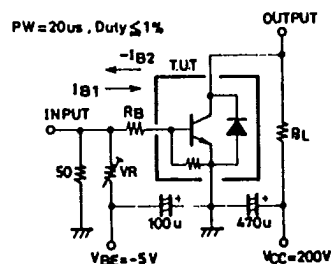
Absolute Maximum Ratings at Ta=25°C

Collector to Base Voltage	V_{CB0}	1500	V
Collector to Emitter Voltage	V_{CE0}	800	V
Emitter to Base Voltage	V_{EB0}	6	V
Collector Current	I_C	6	A
Peak Collector Current	i_{op}	16	A
Collector Dissipation	P_C	60	W
Junction Temperature	T_j	150	$^{\circ}\text{C}$
Storage Temperature	T_{stg}	-55 to +150	$^{\circ}\text{C}$

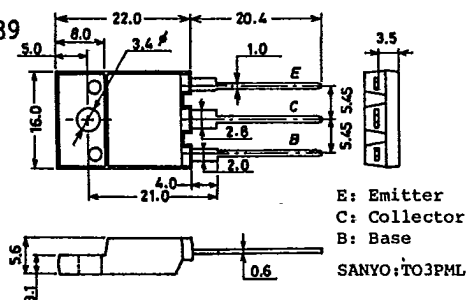
Electrical Characteristics at Ta=25°C

Electrical Characteristics at Ta=25°C			min	typ	max	unit
Collector Cutoff Current	I_{CBO}	$V_{CB}=800V, I_E=0$			10	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=4V, I_C=0$	40		130	mA
DC Current Gain	h_{FE}	$V_{CE}=5V, I_C=1A$	8			
Gain Bandwidth Product	f_T	$V_{CE}=10V, I_C=1A$		3		MHz
Collector to Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=5A, I_B=1A$			5	V
Base to Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=5A, I_B=1A$			1.5	V
Collector to Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=5mA, I_E=0$	1500			V
Collector to Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=100mA, R_{BE}=\infty$	800			V
Emitter to Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=200mA, I_C=0$	7			V
Diode Forward Voltage	V_F	$I_{EC}=6A$			2	V
Fall Time	t_f	$I_C=5A, I_{B1}=1A, I_{B2}=-2A, V_{CC}=200V, R_f=40\Omega$			0.4	μs

Switching Time Test Circuit

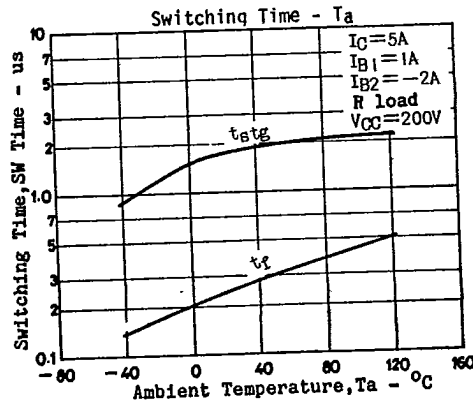
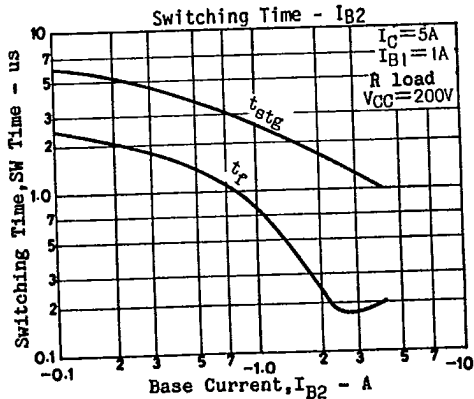
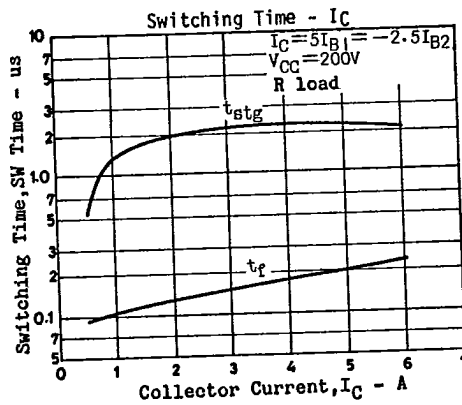
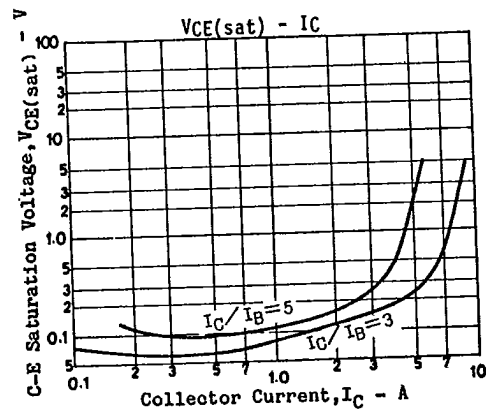
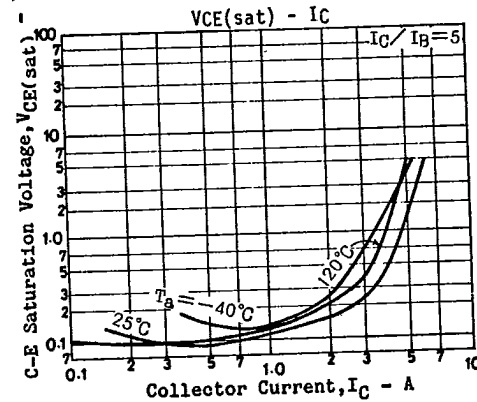
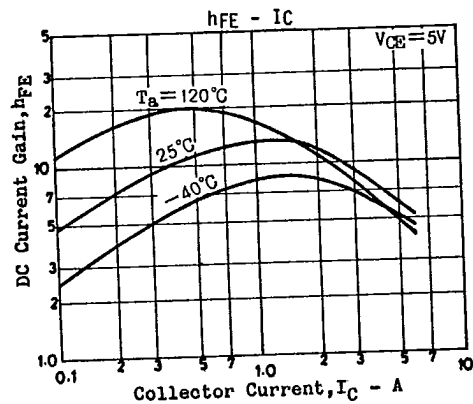
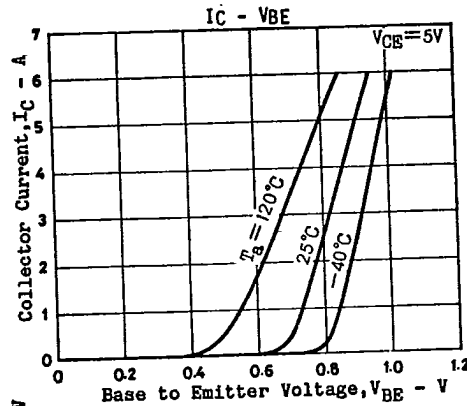
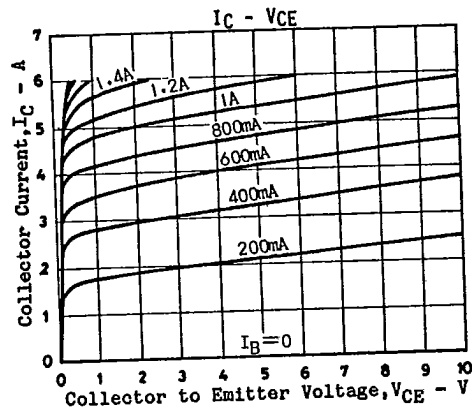


Case Outline 2039
(unit:mm)



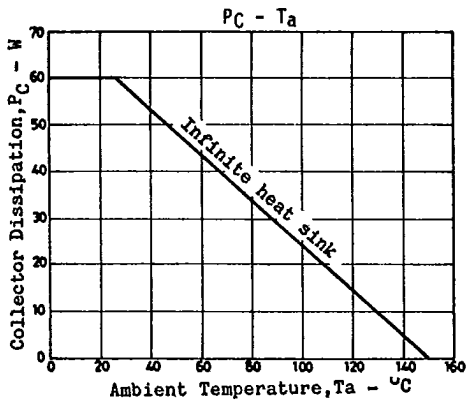
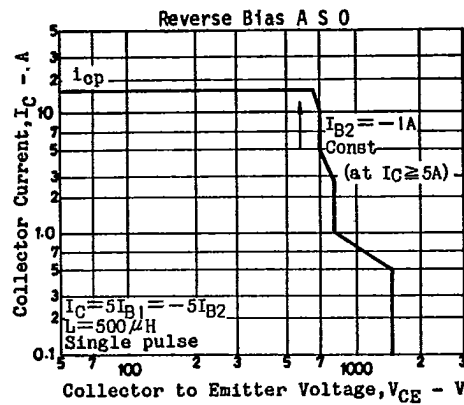
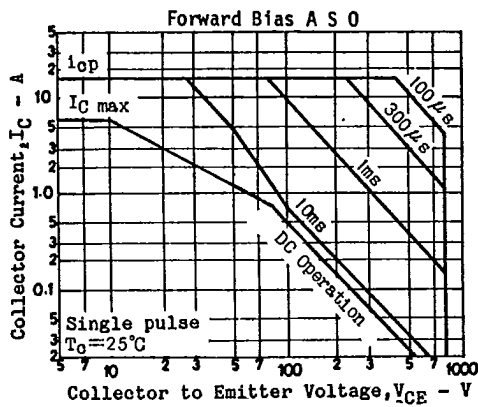
5277KI/D244KI, TS No. 1750-1/3

1479

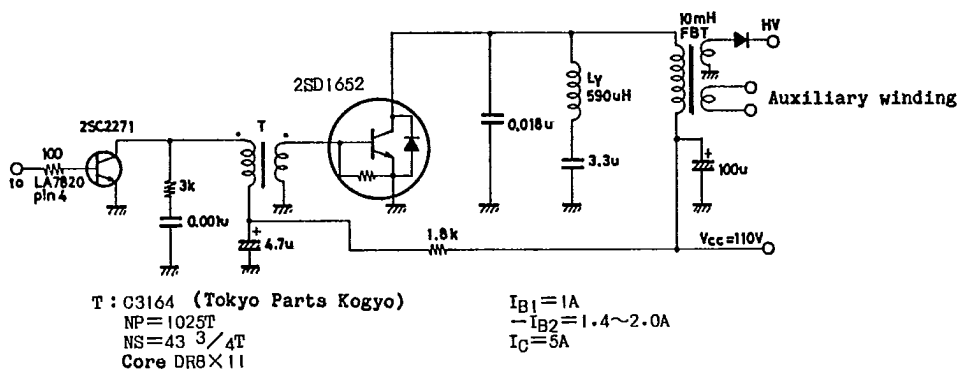


2SD1652

T-33-11



Sample Application Circuit

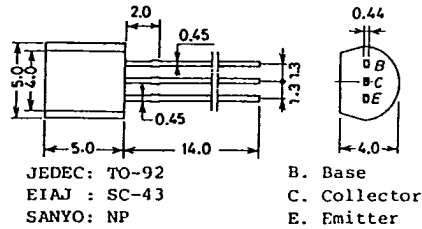


T-91-20

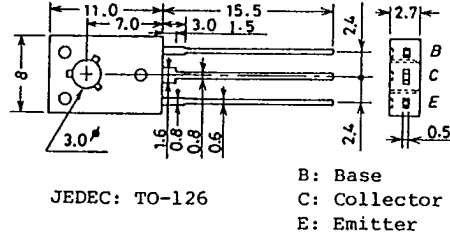
CASE OUTLINES AND ATTACHMENTS

- 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.

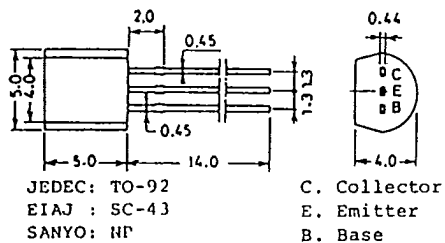
Case Outline—[2003A]
unit:mm



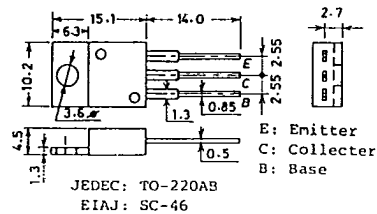
Case Outline—[2009A]
unit:mm



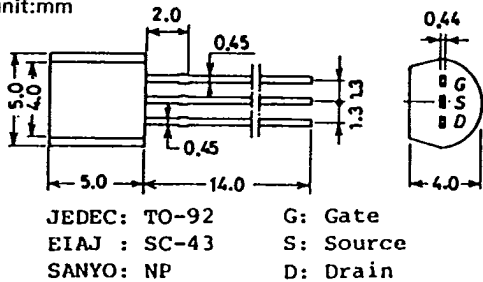
Case Outline—[2004A]
unit:mm



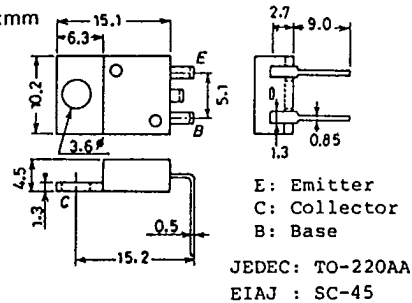
Case Outline—[2010A]
unit:mm



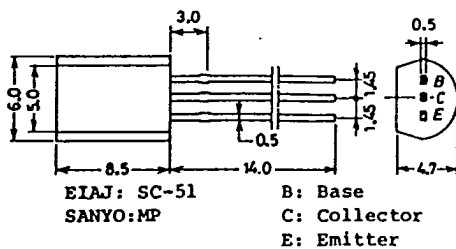
Case Outline—[2005A]
unit:mm



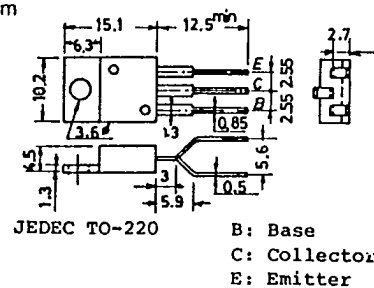
Case Outline—[2012]
unit:mm



Case Outline—[2006A]
unit:mm



Case Outline—[2013]
unit:mm

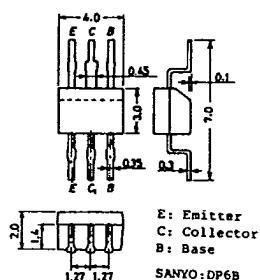


EIAI TC-3, TR-3
JEDEC TO-3

G: Gate
S: Source
D: Drain

SANYO : DP6A

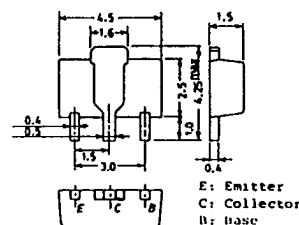
unit:mm



E: Emitter
C: Collector
B: Base

SANYO: DP6B

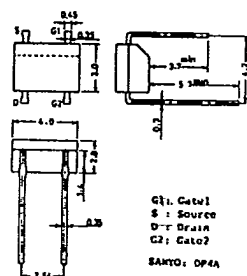
unit:mm



E: Emitter
C: Collector
B: Base

SANYO: PCP

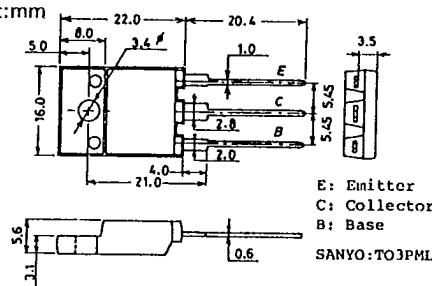
unit:mm



G1: Cat1
\$: Source
D-r Drain
G2: Gate2
SANKO: OP4A

SANTO: OP4A

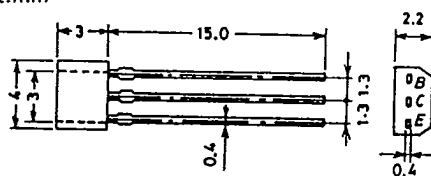
unit:mm



E: Emitter
C: Collector
B: Base

SANYO:TO3PML

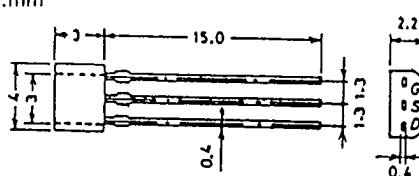
unit:mm



B: Base
C: Collector
E: Emitter

SANYO: SPA

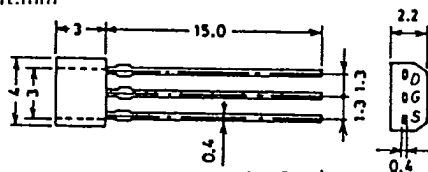
unit:mm



G: Gate
S: Source
D: Drain

SANYO: SPA

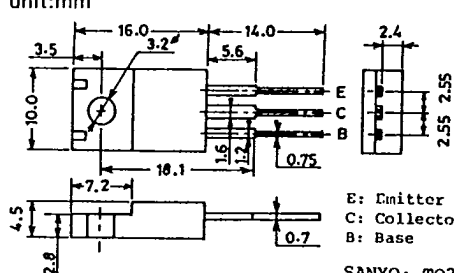
unit:mm



D: Drain
G: Gate
S: Source

SANYO: SPA

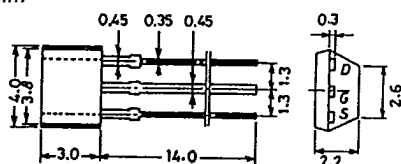
unit:mm



E: Emitter
C: Collector
B: Base

SANYO: TO220ML

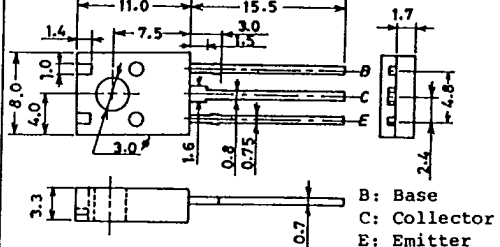
unit:mm



D: Drain
G: Gate
S: Source

SANYO: SP'

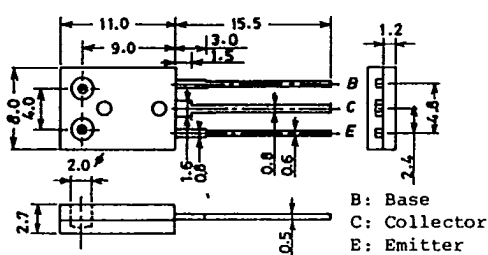
11.0 15.5



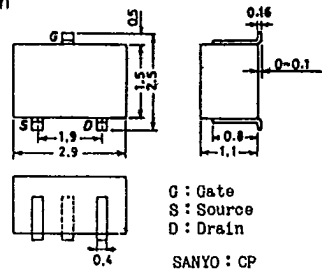
B: Base
C: Collector
E: Emitter

SANYO: TO126ML

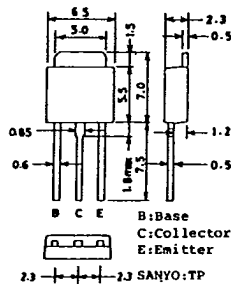
Case Outline—[2043A] unit:mm



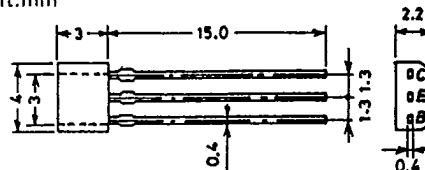
SANYO: TO126LP

Case Outline—[2050]
unit:mm

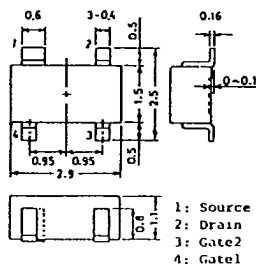
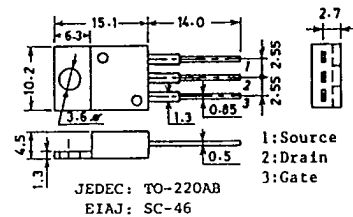
SANYO: CP

Case Outline—[2045]
unit:mm

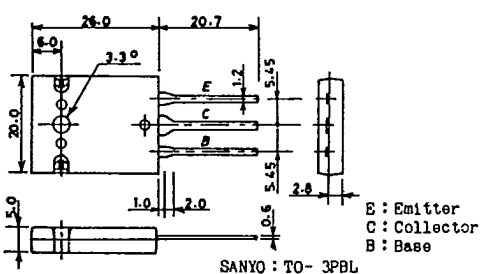
SANYO: TP

Case Outline—[2051]
unit:mm

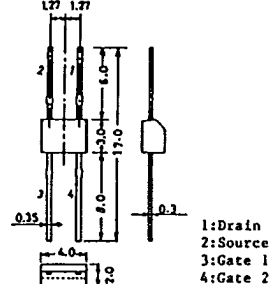
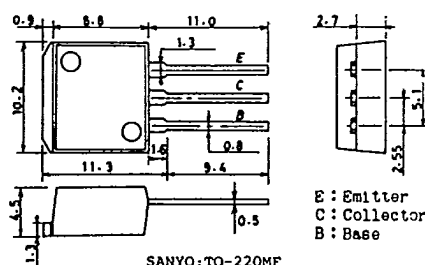
SANYO: SPA

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

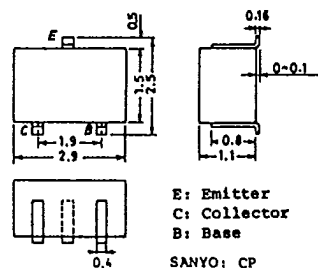
Case Outline—[2048] unit:mm



SANYO: TO-3PBL

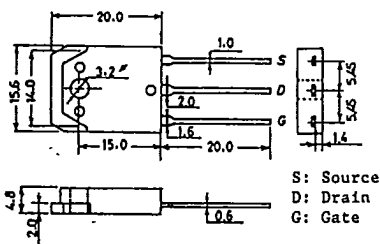
Case Outline—[2053]
unit:mmCase Outline—[2049]
unit:mm

SANYO: TO-220MF

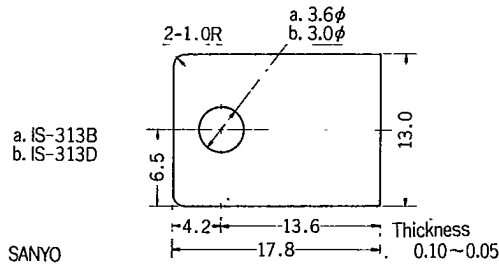
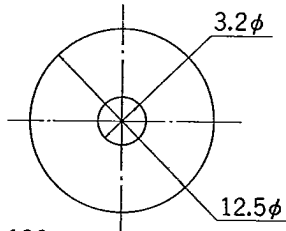
Case Outline—[2054]
unit:mm

SANYO: CP

Case Outline—[2056] unit:mm

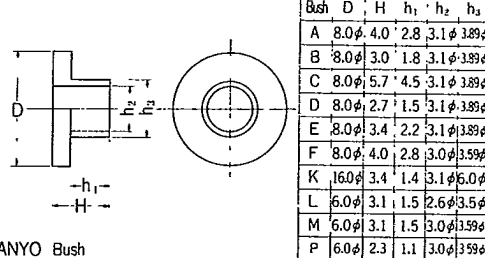
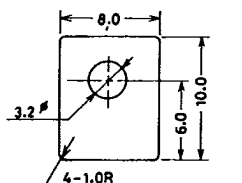


SANYO: TO3PB

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

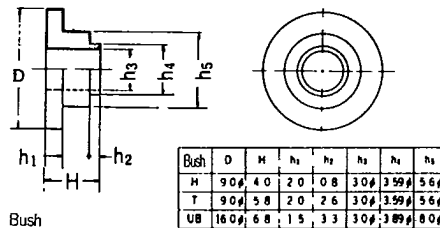
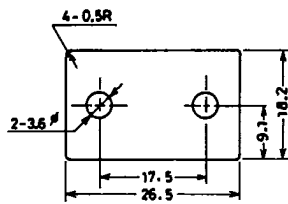
SANYO IS-126

Thickness : 0.075

Case Outline—[0009]
unit:mmCase Outline—[0005]
unit:mm

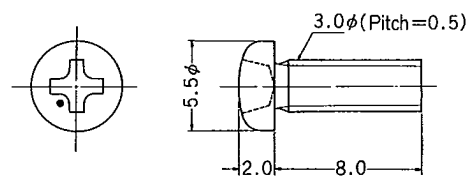
Thickness : 0.075

SANYO IS-126A Mica

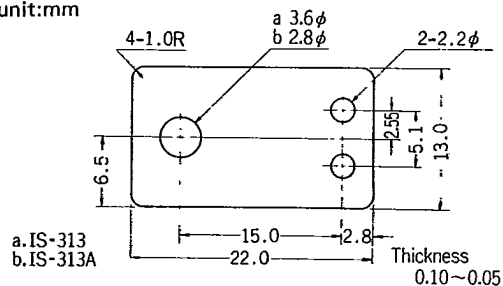
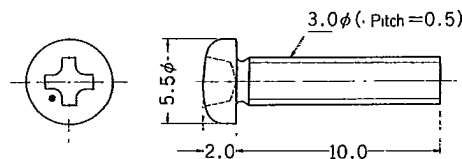
Case Outline—[0010]
unit:mmCase Outline—[0006]
unit:mm

Thickness : 0.05~0.1

SANYO IS-20MA Mica

Case Outline—[0011]
unit:mm

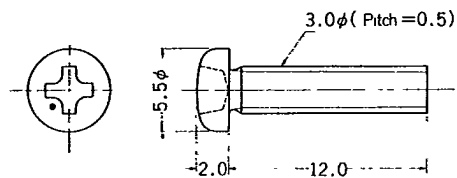
JIS No.B1111 M3×0.5

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

JIS No.B1111 M3×0.5

Case Outline—[0013]

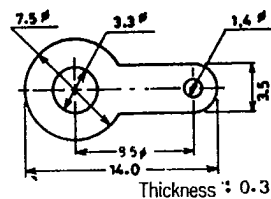
unit:mm



JIS No. B1111 M3×0.5

Case Outline—[0018]

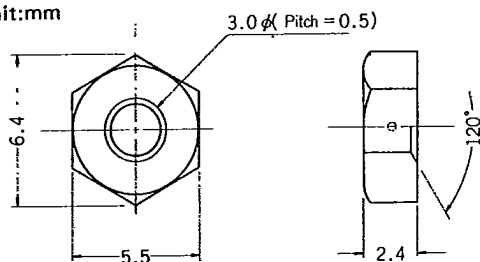
unit:mm



SANYO Lug 1.4

Case Outline—[0014]

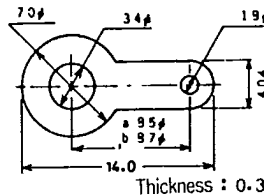
unit:mm



JIS No. B1181 M3×0.5

Case Outline—[0019]

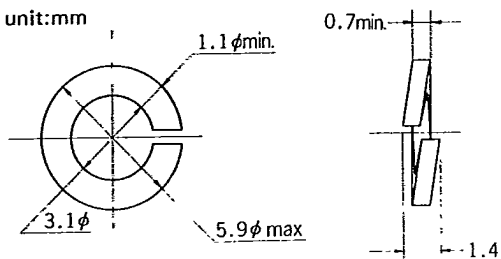
unit:mm



SANYO Lug 1.8φ

Case Outline—[0015]

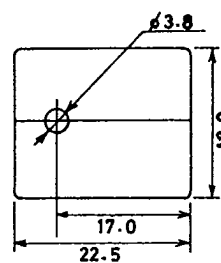
unit:mm



JIS No. B 1251 Spring washer (M3)

Case Outline—[0020]

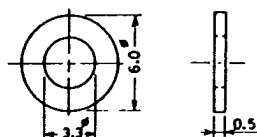
unit:mm



SANYO IS-3MP Mica

Case Outline—[0016]

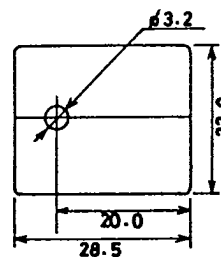
unit:mm



JIS No. B1252 Flat washer

Case Outline—[0021]

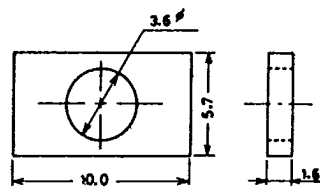
unit:mm



SANYO IS-MPC Mica

Case Outline—[0017]

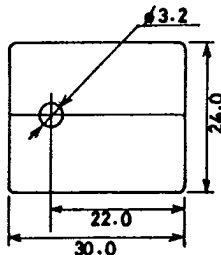
unit:mm



JIS No. G3141 Rectangular washer

Case Outline—[0022]

unit:mm



SANYO IS-3PBL Mica