

2SC693



2003A

NPN Planar Silicon Transistor

T-29-15

Low Frequency, Low Noise Amp Applications

©257E

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

			unit
Collector to Base Voltage	V_{CB0}	40	V
Collector to Emitter Voltage	V_{CE0}	20	V
Emitter to Base Voltage	V_{EB0}	5	V
Collector Current	I_C	50	mA
Collector Dissipation	P_C	100	mW
Junction Temperature	T_j	125	$^{\circ}\text{C}$
Storage Temperature	T_{stg}	-40 to +125	$^{\circ}\text{C}$

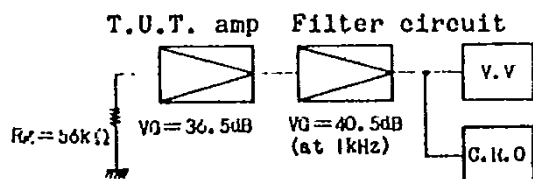
Electrical Characteristics at $T_a=25^{\circ}\text{C}$

			min	typ	max	unit
Collector Cutoff Current	I_{CB0}	$V_{CB}=35\text{V}, I_E=0$			1.0	μA
Emitter Cutoff Current	I_{EB0}	$V_{EB}=4\text{V}, I_C=0$			1.0	μA
DC Current Gain	h_{FE}	$V_{CE}=6\text{V}, I_C=1\text{mA}$	160*		960*	
Gain Bandwidth Product	f_T	$V_{CE}=6\text{V}, I_C=1\text{mA}$		100		MHz
Output Capacitance	c_{ob}	$V_{CB}=6\text{V}, f=1\text{MHz}$		3.5		pF
Output Noise Voltage	V_{NO}	$V_{CC}=30\text{V}, I_C=1\text{mA}, R_g=56\text{k}\Omega,$ $V_G=77\text{dB}, f=1\text{kHz (See Circuit.)}$			105	mV
Output Noise Voltage(Peak)					730	mV

*:The 2SC693 is classified by 1mA h_{FE} as follows:

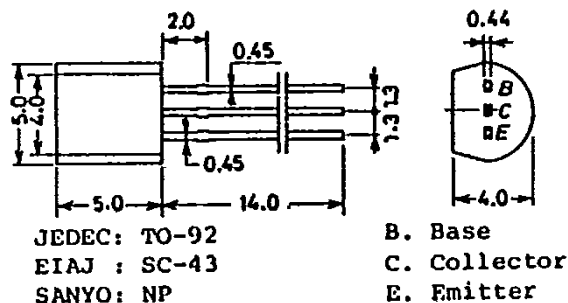
160	F	320	280	G	560	480	H	960
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Noise Test Circuit



Case Outline 2003A

(unit:mm)



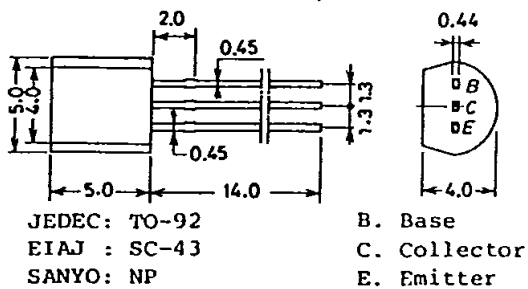
The 2SC693 is scheduled to be discontinued soon. Use the 2SC1570, instead of the 2SC693, in new applications where you are planning to use the 2SC693

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.

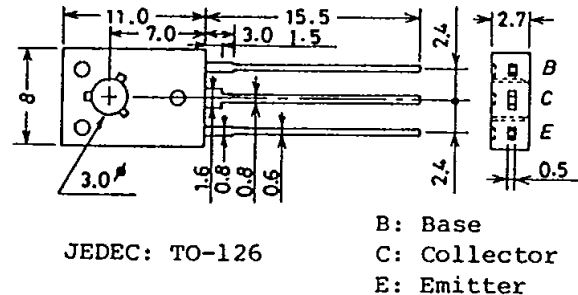
Case Outline—[2003A]

unit:mm



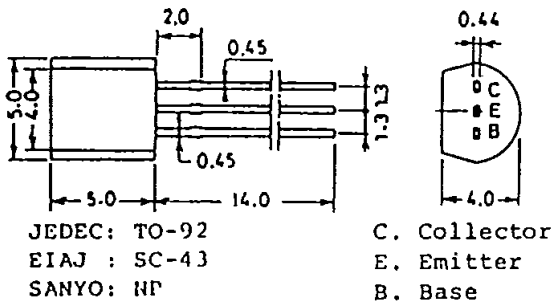
Case Outline—[2009A]

unit:mm



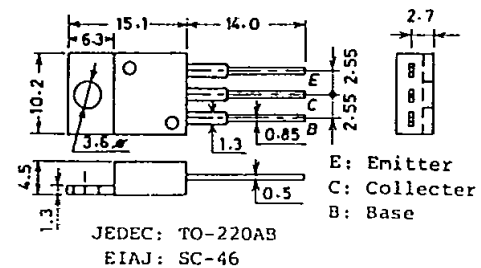
Case Outline—[2004A]

unit:mm



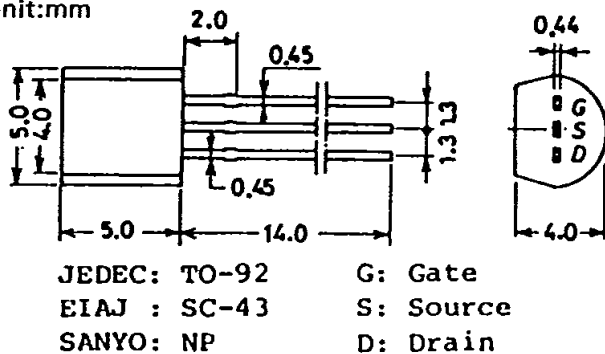
Case Outline—[2010A]

unit:mm



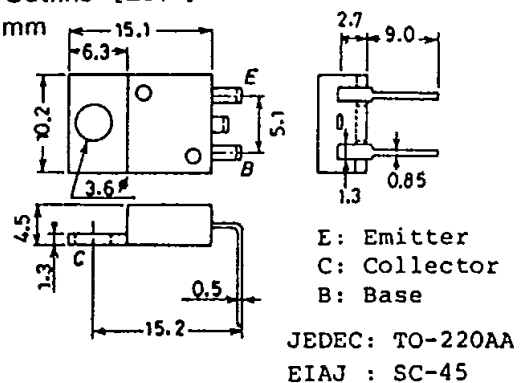
Case Outline—[2005A]

unit:mm



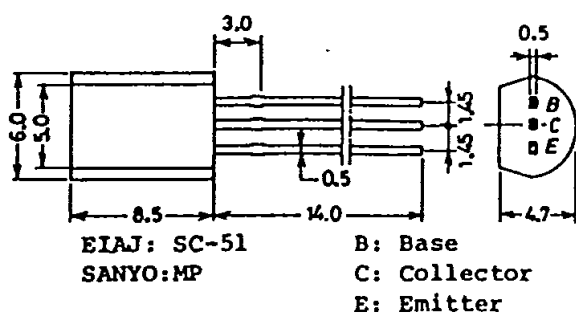
Case Outline—[2012]

unit:mm



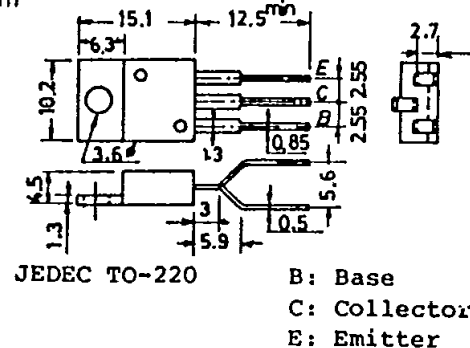
Case Outline—[2006A]

unit:mm



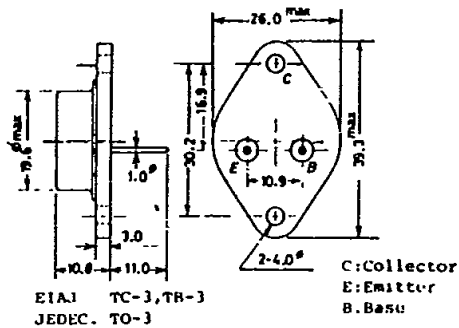
Case Outline—[2013]

unit:mm



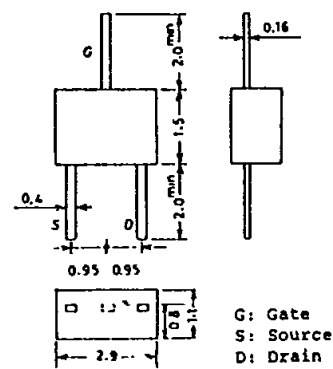
Case Outline—[2017]

unit:mm



Case Outline—[2025]

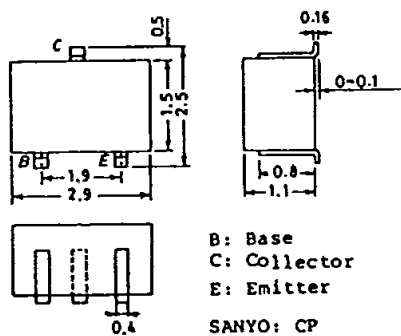
unit:mm



T=91-20

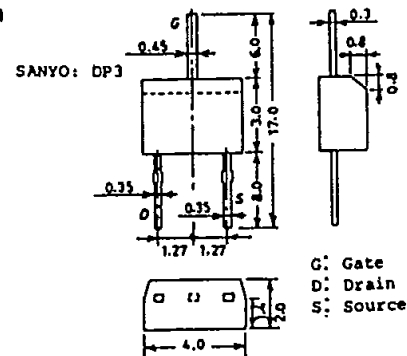
Case Outline—[2018A]

unit:mm



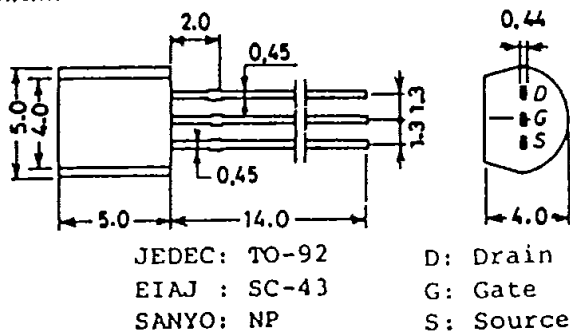
Case Outline—[2026]

unit:mm



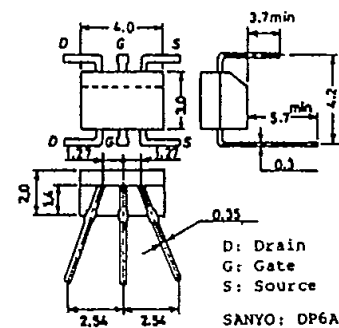
Case Outline—[2019A]

unit:mm



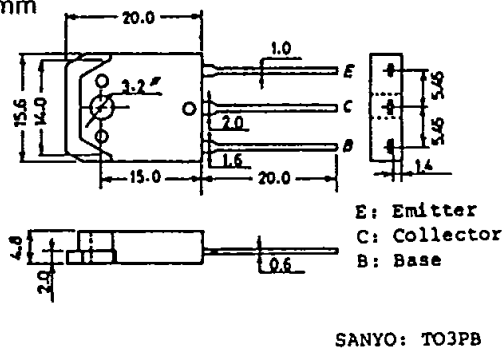
Case Outline—[2027A]

unit:mm



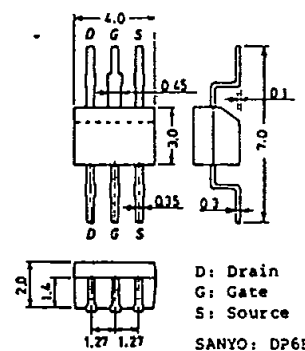
Case Outline—[2022]

unit:mm



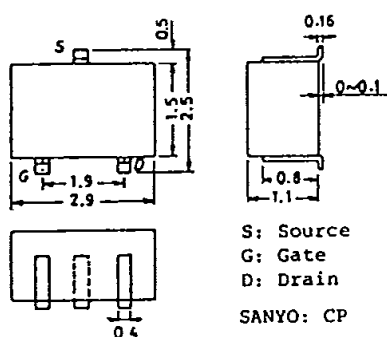
Case Outline—[2028A]

unit:mm



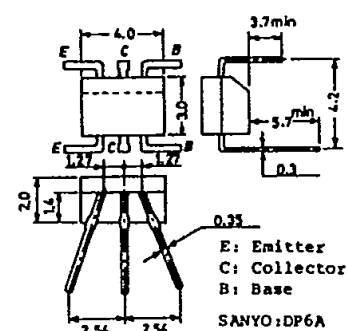
Case Outline—[2024A]

unit:mm

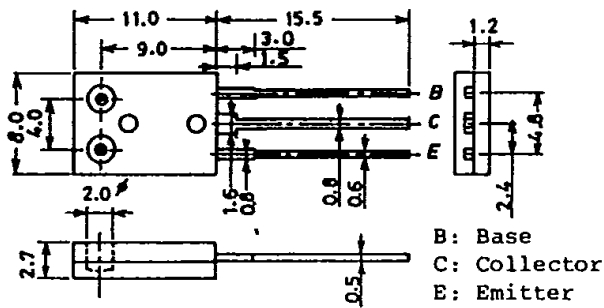


Case Outline—[2029A]

unit:mm



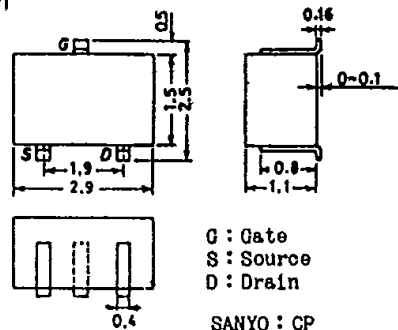
Case Outline—[2043A] unit:mm



SANYO: TO126LP

Case Outline—[2050]

unit:mm

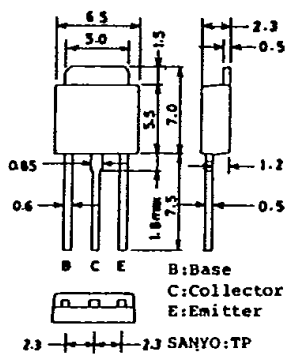


SANYO: CP

T-91-20

Case Outline—[2045]

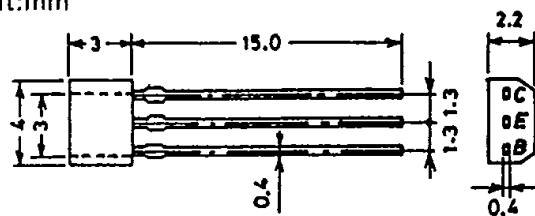
unit:mm



SANYO: TP

Case Outline—[2051]

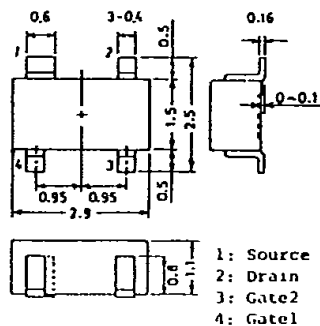
unit:mm



SANYO: SPA

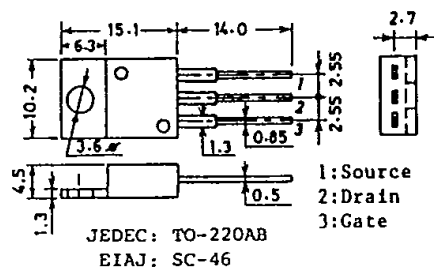
Case Outline—[2046]

unit:mm



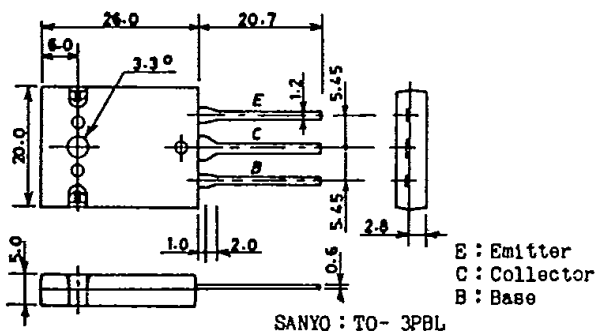
Case Outline—[2052A]

unit:mm



JEDEC: TO-220AB
EIAJ: SC-46

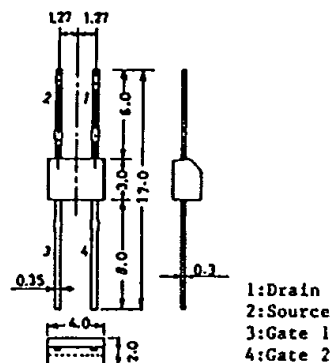
Case Outline—[2048] unit:mm



SANYO: TO-3PBL

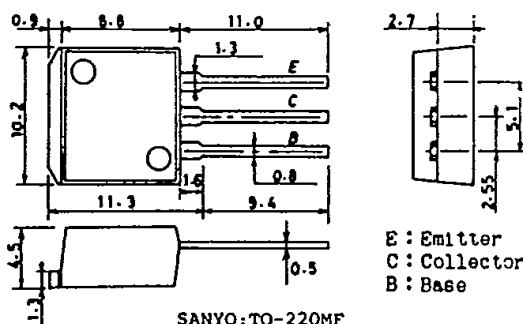
Case Outline—[2053]

unit:mm



Case Outline—[2049]

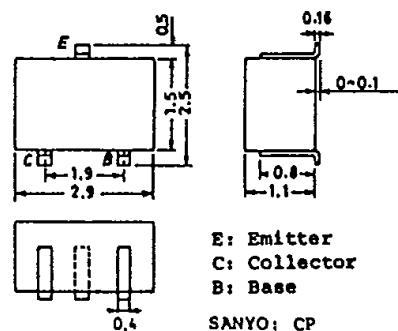
unit:mm



SANYO: TO-220MF

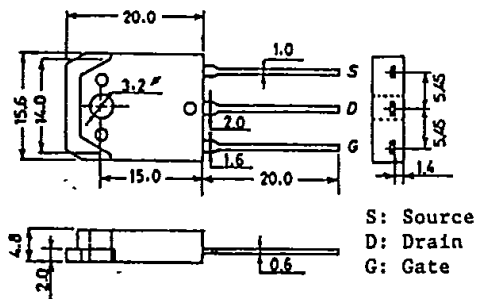
Case Outline—[2054]

unit:mm



SANYO: CP

Case Outline—[2056] unit:mm

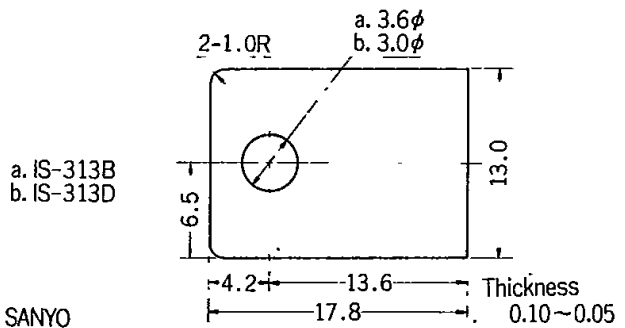


S: Source
D: Drain
G: Gate

SANYO: TO3PB

Case Outline—[0008]

unit:mm

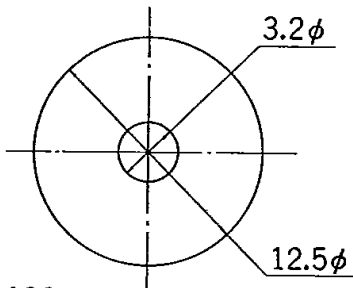


a. IS-313B
b. IS-313D

SANYO

Case Outline—[0004]

unit:mm

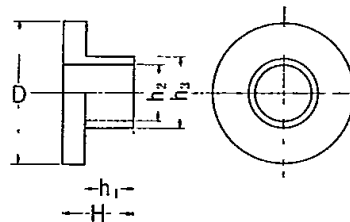


SANYO IS-126

Thickness : 0.075

Case Outline—[0009]

unit:mm

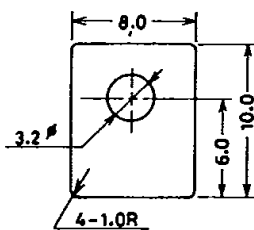


Bush	D	H	h ₁	h ₂	h ₃
A	8.0φ	4.0	2.8	3.1φ	3.89φ
B	8.0φ	3.0	1.8	3.1φ	3.89φ
C	8.0φ	5.7	4.5	3.1φ	3.89φ
D	8.0φ	2.7	1.5	3.1φ	3.89φ
E	8.0φ	3.4	2.2	3.1φ	3.89φ
F	8.0φ	4.0	2.8	3.0φ	3.59φ
K	16.0φ	3.4	1.4	3.1φ	6.0φ
L	6.0φ	3.1	1.5	2.6φ	3.5φ
M	6.0φ	3.1	1.5	3.0φ	3.59φ
P	6.0φ	2.3	1.1	3.0φ	3.59φ

SANYO Bush

Case Outline—[0005]

unit:mm

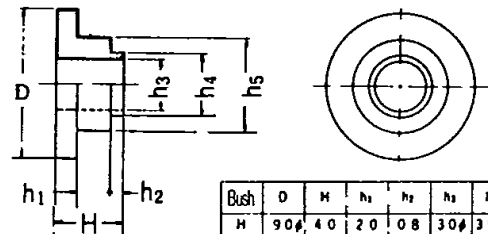


Thickness : 0.075

SANYO IS-126A Mica

Case Outline—[0010]

unit:mm

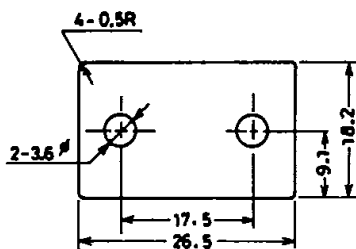


Bush	D	H	h ₁	h ₂	h ₃	h ₄	h ₅
H	9.0φ	4.0	2.0	0.8	3.0φ	3.59φ	5.6φ
T	9.0φ	5.8	2.0	2.6	3.0φ	3.59φ	5.6φ
UB	16.0φ	6.8	1.5	3.3	3.0φ	3.89φ	8.0φ

SANYO Bush

Case Outline—[0006]

unit:mm

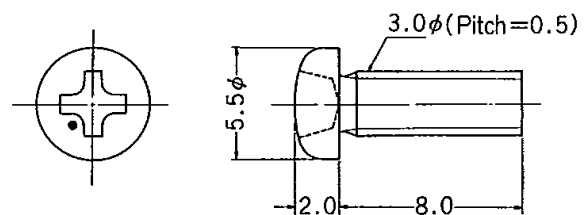


Thickness : 0.05~0.1

SANYO IS-20MA Mica

Case Outline—[0011]

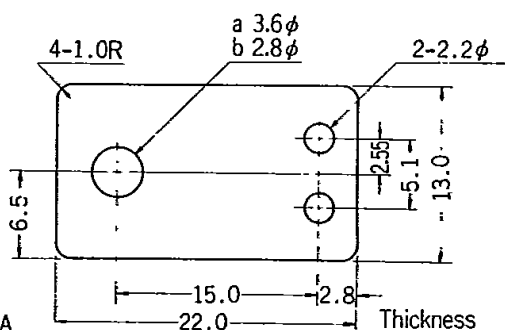
unit:mm



JIS No. B1111 M3×0.5

Case Outline—[0007]

unit:mm

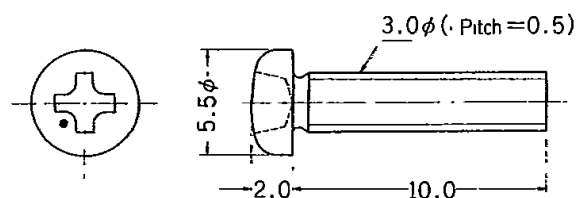


a. IS-313
b. IS-313A

Thickness
0.10~0.05

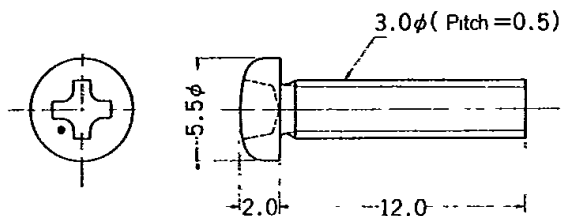
Case Outline—[0012]

unit:mm



JIS No. B1111 M3×0.5

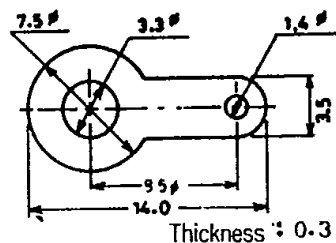
Case Outline—[0013]
unit:mm



JIS No. B1111 M3X0.5

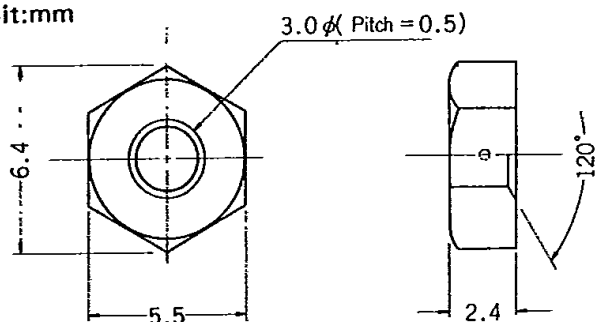
Case Outline—[0018]
unit:mm

T=91-20



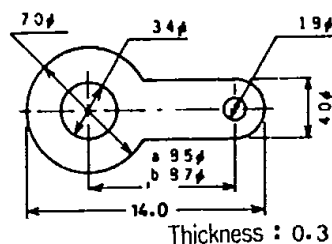
SANYO Lug 1.4

Case Outline—[0014]
unit:mm



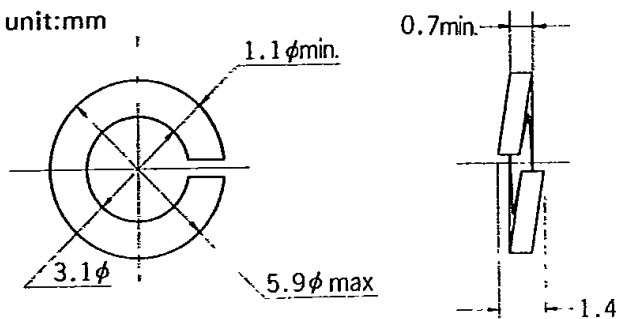
JIS No. B1181 M3X0.5

Case Outline—[0019]
unit:mm



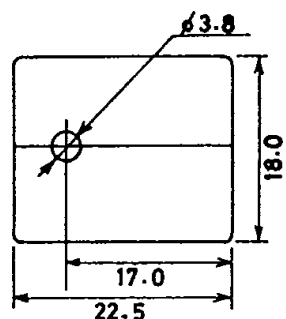
SANYO Lug 1.8φ

Case Outline—[0015]
unit:mm



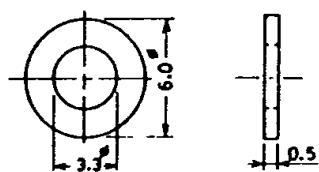
JIS No. B 1251 Spring washer (M3)

Case Outline—[0020]
unit:mm



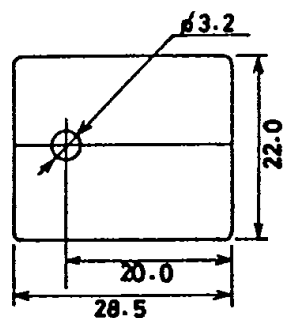
SANYO IS-3MP Mica

Case Outline—[0016]
unit:mm



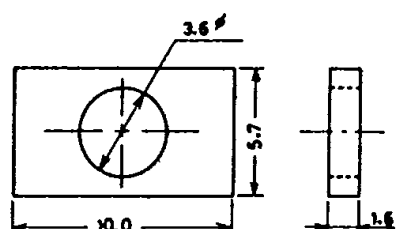
JIS No. B1252 Flat washer

Case Outline—[0021]
unit:mm



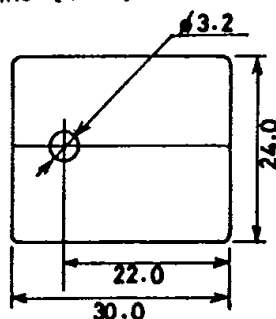
SANYO IS-MPC Mica

Case Outline—[0017]
unit:mm



JIS No. G3141 Rectangular washer

Case Outline—[0022]
unit:mm



SANYO IS-3PBL Mica