

2SC3085

2017

NPN Triple Diffused Planar
Silicon Transistor

T-33-15

Switching Regulator Applications

©1055A

Features

- High breakdown voltage ($V_{CB0} \geq 500V$)
- Fast switching speed.
- Wide ASO.

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

			unit
Collector to Base Voltage	V_{CB0}	500	V
Collector to Emitter Voltage	V_{CEO}	400	V
Emitter to Base Current	V_{EBO}	7	V
Collector Current	I_C	25	A
Peak Collector Current	i_{cp}	$PW \leq 300\mu s$, Duty Cycle $\leq 10\%$	40 A
Base Current	I_B	8	A
Collector Dissipation	P_C	$T_c = 25^\circ C$	160 W
Junction Temperature	T_J	150	$^\circ C$
Storage Temperature	T_{stg}	-55 to +150	$^\circ C$

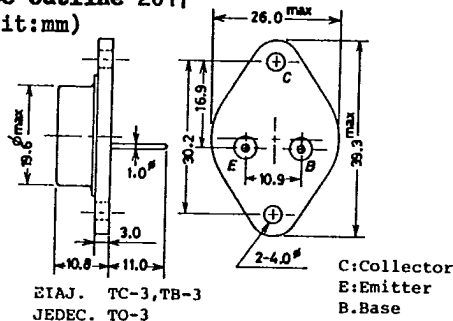
Electrical Characteristics at $T_a = 25^\circ C$

			min	typ	max	unit
Collector Cutoff Current	I_{CBO}	$V_{CB} = 400V, I_E = 0$			10	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = 5V, I_C = 0$			10	μA
DC Current Gain	$h_{FE(1)}$	$V_{CE} = 5V, I_C = 3.2A$	15*		50*	
	$h_{FE(2)}$	$V_{CE} = 5V, I_C = 16A$	8			
Gain Bandwidth Product	f_T	$V_{CE} = 10V, I_C = 3.2A$		20		MHz
Output Capacitance	c_{ob}	$V_{CB} = 10V, f = 1MHz$		320		pF
C-E Saturation Voltage	$V_{CE(sat)}$	$I_C = 16A, I_B = 3.2A$			1.0	V
B-E Saturation Voltage	$V_{BE(sat)}$	$I_C = 16A, I_B = 3.2A$			1.5	V
C-B Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 1mA, I_E = 0$	500			V
C-E Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 10mA, R_{BE} = \infty$	400			V
E-B Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 1mA, I_C = 0$	7			V
C-E Sustain Voltage	$V_{CEO(sus)}$	$I_C = 25A, L = 50\mu H, I_B = 5A$	400			V
C-E Sustain Voltage	$V_{CEX(sus)}$	$I_C = 25A, I_{B1} = 5A, L = 200\mu H$	400			V
	(1)	$I_{B2} = -5A, \text{clamped}$				
C-E Sustain Voltage	$V_{CEX(sus)}$	$I_C = 6A, I_{B1} = 1.2A, L = 200\mu H$	450			V
	(2)	$I_{B2} = -1.2A, \text{clamped}$				

*: The $h_{FE(1)}$ of the 2SC3085 is classified by 3.2A h_{FE} as follows. When specifying the $h_{FE(1)}$ rank, specify two ranks or more in principle.

15	L	30	20	M	40	30	N	50
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Case Outline 2017 (unit:mm)



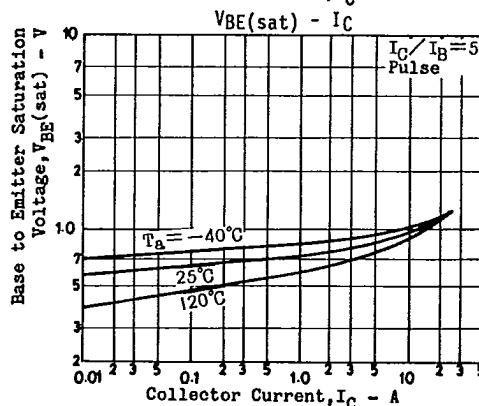
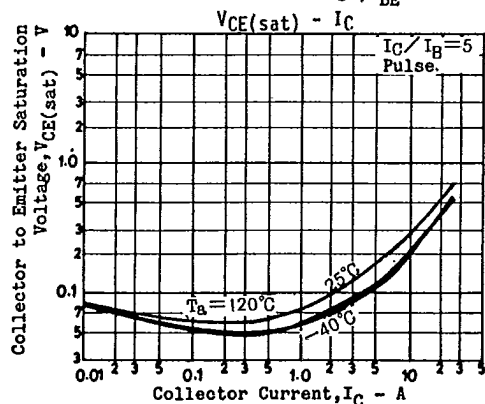
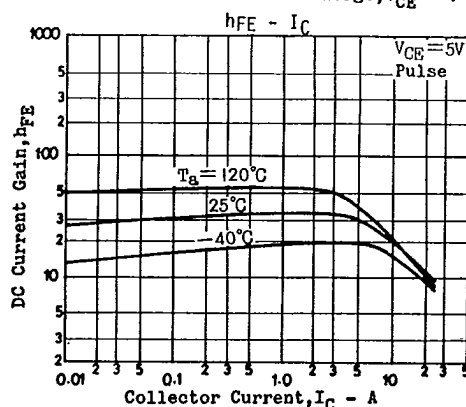
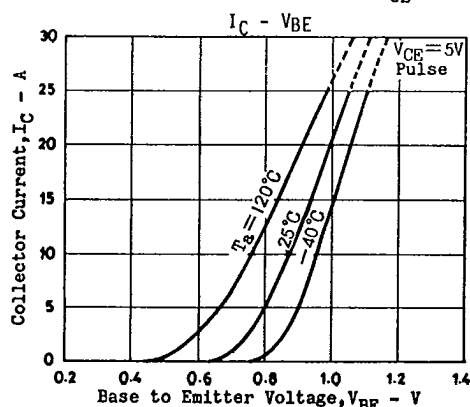
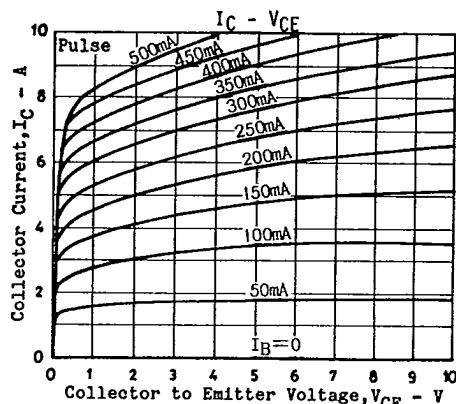
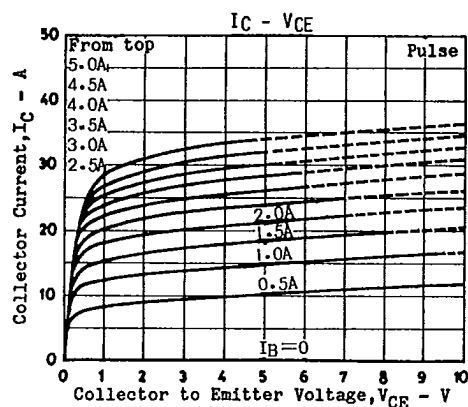
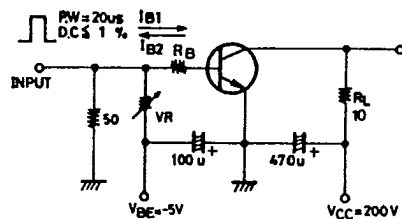
4207KI/2125MW, TS No. 1055-1/3

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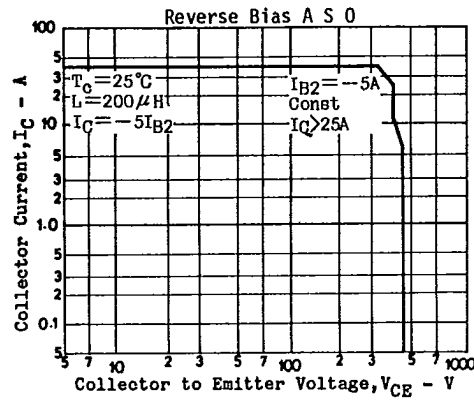
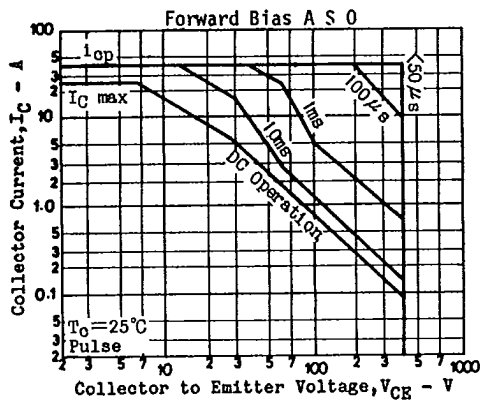
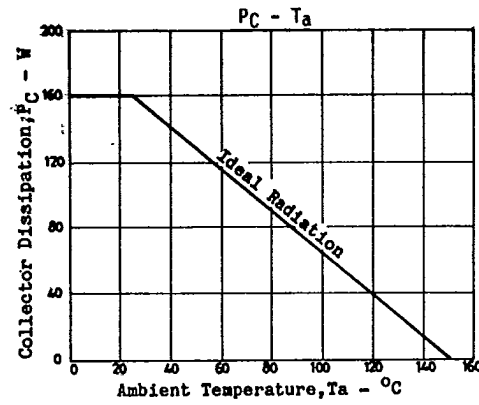
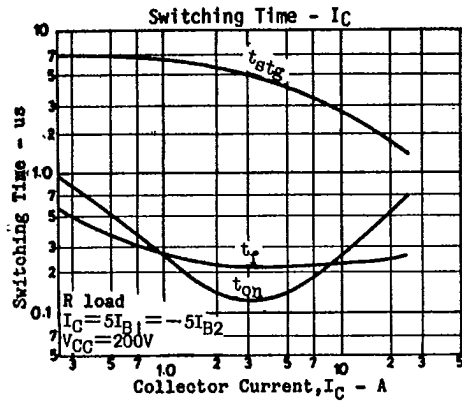
			min	typ	max	unit
Turn-ON Time	t_{on}	$I_C=20A, I_{B1}=4A, I_{B2}=-4A,$ $R_L=10\Omega, V_{CC}=200V$			1.0	us
Storage Time	t_{stg}	" "			2.5	us
Fall Time	t_f	" "			1.0	us

Switching Time Test Circuit



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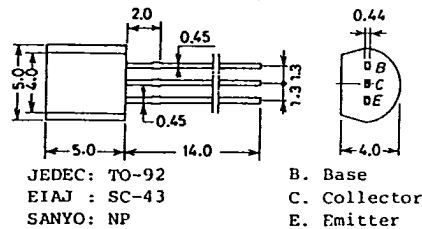
T-91-20

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.

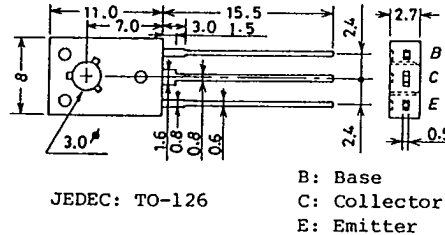
Case Outline—[2003A]

unit:mm



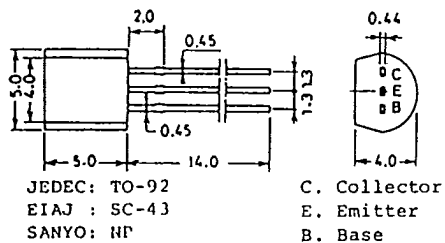
Case Outline—[2009A]

unit:mm



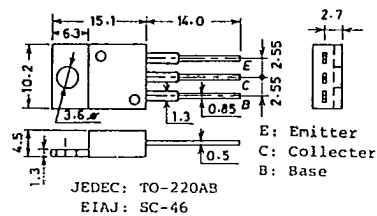
Case Outline—[2004A]

unit:mm



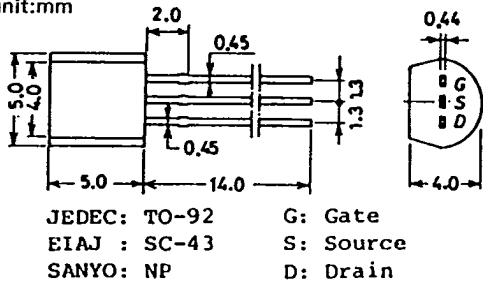
Case Outline—[2010A]

unit:mm



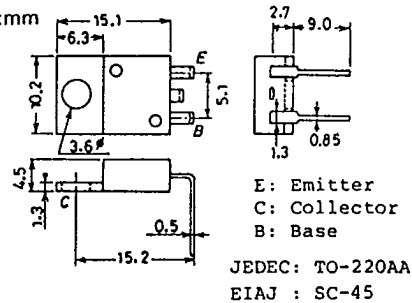
Case Outline—[2005A]

unit:mm



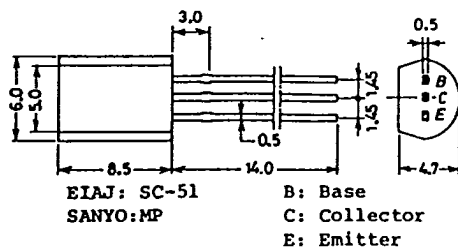
Case Outline—[2012]

unit:mm



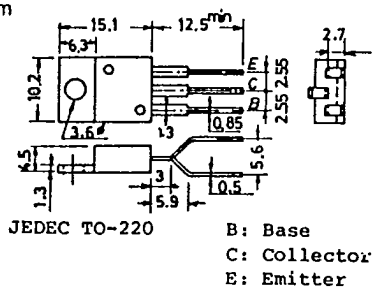
Case Outline—[2006A]

unit:mm



Case Outline—[2013]

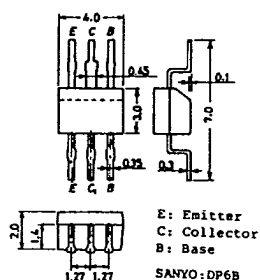
unit:mm



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

SANYO:DP6A

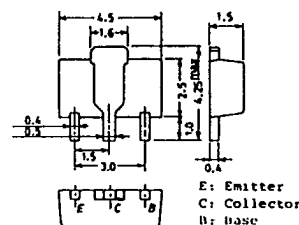
unit:mm



E: Emitter
C: Collector
B: Base

SANYO:DP6B

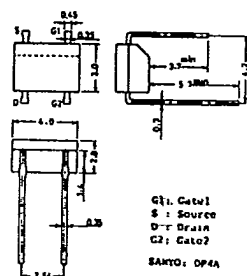
unit:mm



E: Emitter
C: Collector
B: Base

SANYO: PCP

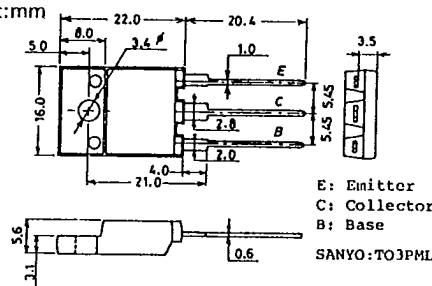
unit:mm



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

SANTO: OP4A

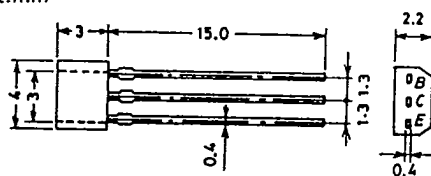
unit:mm



E: Emitter
C: Collector
B: Base

SANYO:TO3PML

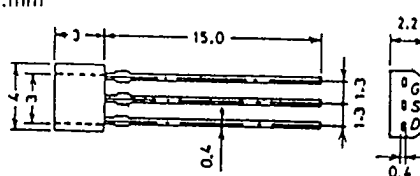
unit:mm



B: Base
C: Collector
E: Emitter

SANYO: SPA

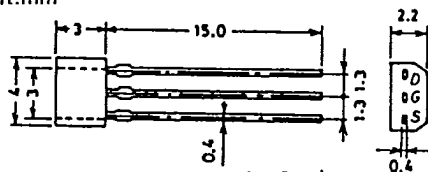
unit:mm



G: Gate
S: Source
D: Drain

SANYO: SPA

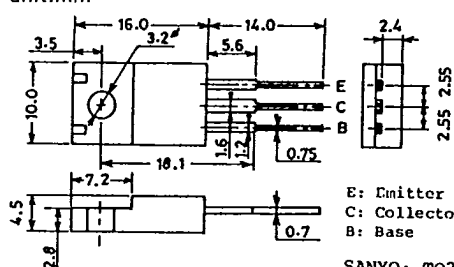
unit:mm



D: Drain
G: Gate
S: Source

SANYO: SPA

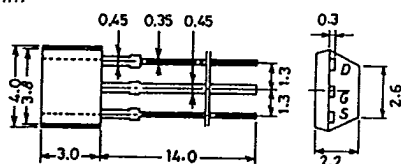
unit:mm



E: Emitter
C: Collector
B: Base

SANYO: TO220ML

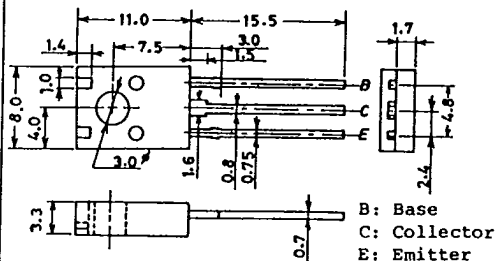
unit:mm



D: Drain
G: Gate
S: Source

SANYO: SP'

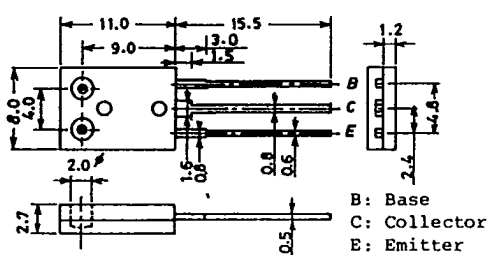
11-0



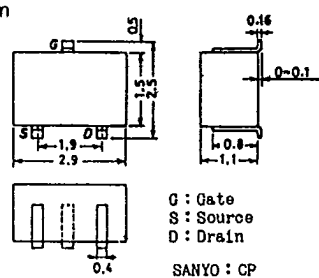
B: Base
C: Collector
E: Emitter

SANYO: TO126ML

Case Outline—[2043A] unit:mm

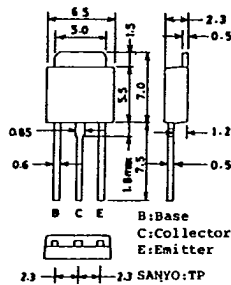


SANYO: TO126LP

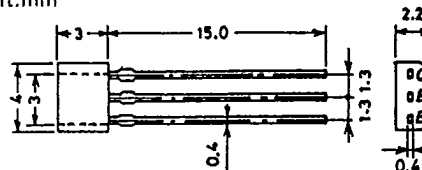
Case Outline—[2050]
unit:mm

SANYO: CP

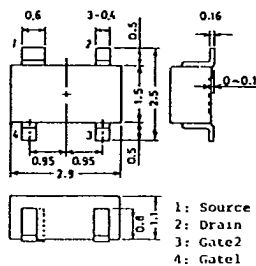
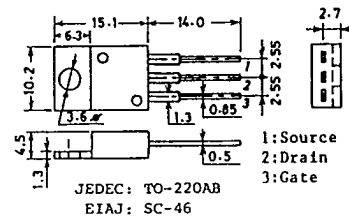
T-91-20

Case Outline—[2045]
unit:mm

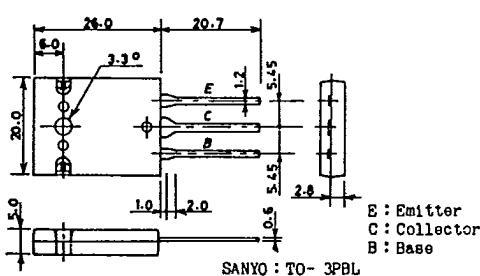
SANYO: TP

Case Outline—[2051]
unit:mm

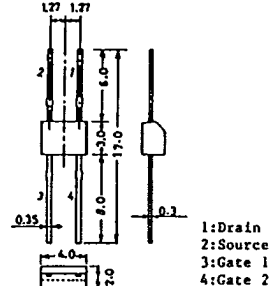
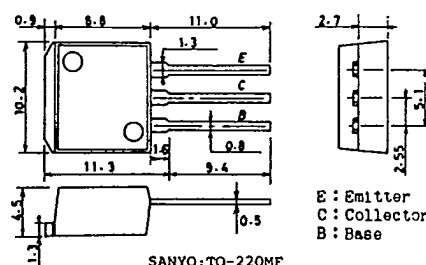
SANYO: SPA

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

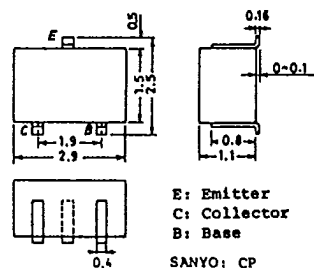
Case Outline—[2048] unit:mm



SANYO: TO-3PBL

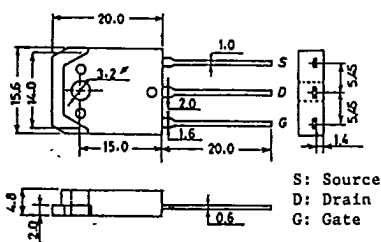
Case Outline—[2053]
unit:mmCase Outline—[2049]
unit:mm

SANYO: TO-220MF

Case Outline—[2054]
unit:mm

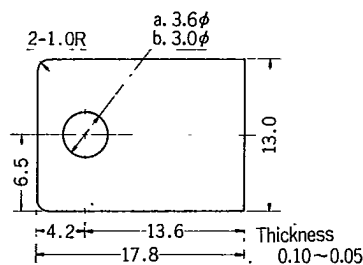
SANYO: CP

Case Outline—[2056] unit:mm

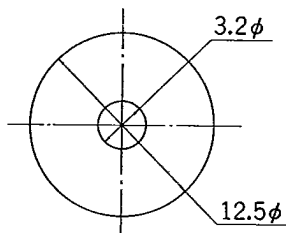


SANYO: TO3PB

Case Outline—[0008] unit:mm

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

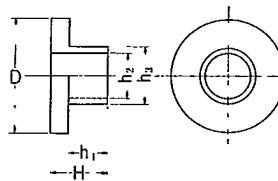
Case Outline—[0004] unit:mm



SANYO IS-126

Thickness : 0.075

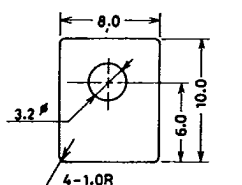
Case Outline—[0009] unit:mm



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

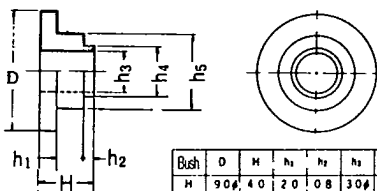
Case Outline—[0005] unit:mm



Thickness : 0.075

SANYO IS-126A Mica

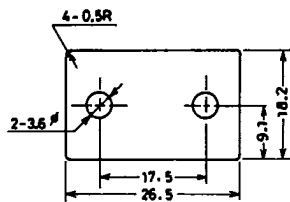
Case Outline—[0010] unit:mm



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

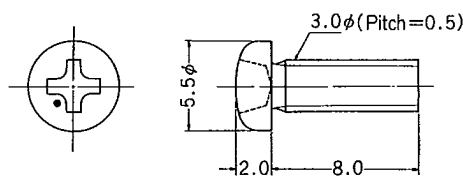
Case Outline—[0006] unit:mm



Thickness : 0.05~0.1

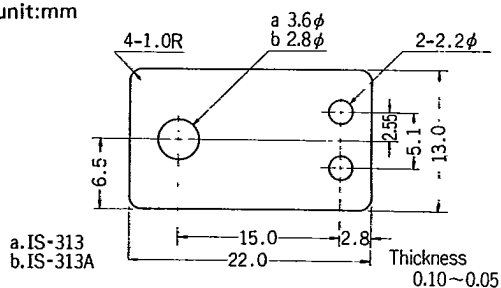
SANYO IS-20MA Mica

Case Outline—[0011] unit:mm

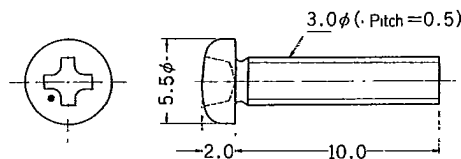


JIS No.B1111 M3×0.5

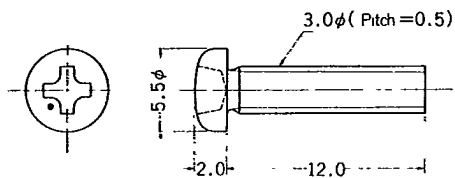
Case Outline—[0007] unit:mm



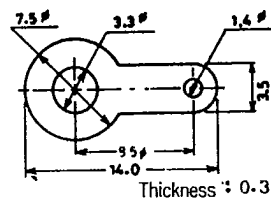
Case Outline—[0012] unit:mm



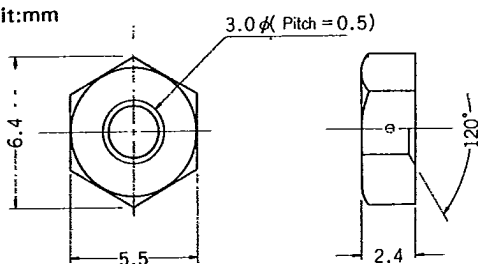
JIS No.B1111 M3×0.5

Case Outline—[0013]
unit:mm

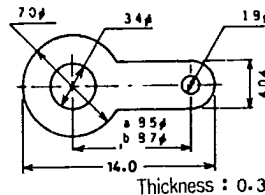
JIS No. B1111 M3×0.5

Case Outline—[0018]
unit:mm

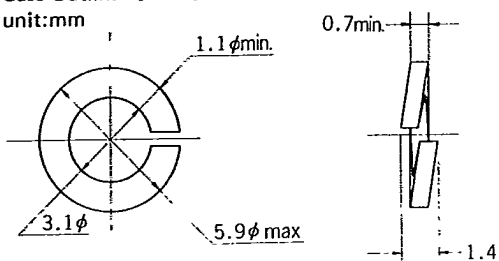
SANYO Lug 1.4

Case Outline—[0014]
unit:mm

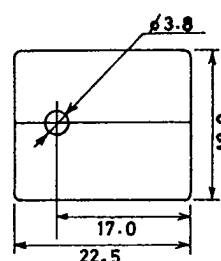
JIS No. B1181 M3×0.5

Case Outline—[0019]
unit:mm

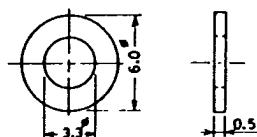
SANYO Lug 1.8φ

Case Outline—[0015]
unit:mm

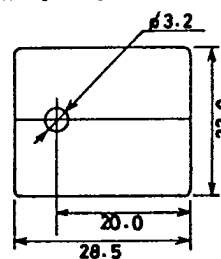
JIS No. B 1251 Spring washer (M3)

Case Outline—[0020]
unit:mm

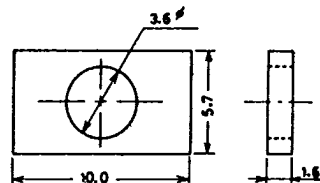
SANYO IS-3MP Mica

Case Outline—[0016]
unit:mm

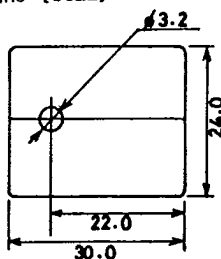
JIS No. B1252 Flat washer

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