

2SD1649

2039

NPN Triple Diffused Planar
Silicon Transistor

T-33-11

Color TV Horizontal Deflection Output Applications(with Damper Diode)

©1755B

Applications

- High-voltage, power switching

Features

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

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

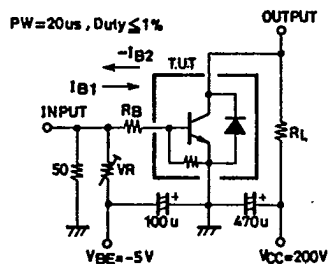
			unit
Collector to Base Voltage	V_{CBO}	1500	V
Collector to Emitter Voltage	V_{CEO}	800	V
Emitter to Base Voltage	V_{EBO}	6	V
Collector Current	I_C	2.5	A
Peak Collector Current	i_{cp}	10	A
Collector Dissipation	P_C	50	W
Junction Temperature	T_J	150	$^\circ C$
Storage Temperature	T_{stg}	-55 to +150	$^\circ C$

 $T_C=25^\circ C$

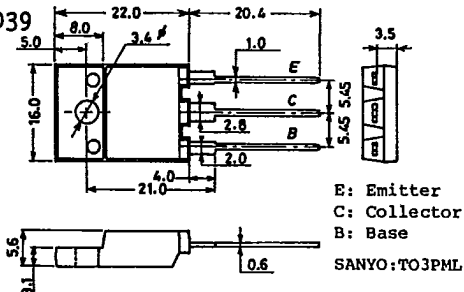
Electrical Characteristics at $T_a=25^\circ C$

		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} $V_{CE}=5V, I_C=0.5A$	8			
Gain Bandwidth Product	f_T $V_{CE}=10V, I_C=0.5A$		3		MHz
Collector to Emitter Saturation Voltage	$V_{CE(sat)}$ $I_C=2A, I_B=0.6A$			8	V
Base to Emitter Saturation Voltage	$V_{BE(sat)}$ $I_C=2A, I_B=0.6A$			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 $I_{EC}=2.5A$			2	V
Fall Time	t_f $I_C=2A, I_{B1}=0.6A, I_{B2}=-1.2A, V_{CC}=200V, R_L=100\Omega$			0.4	μs

Switching Time Test Circuit



Case Outline 2039 (unit:mm)

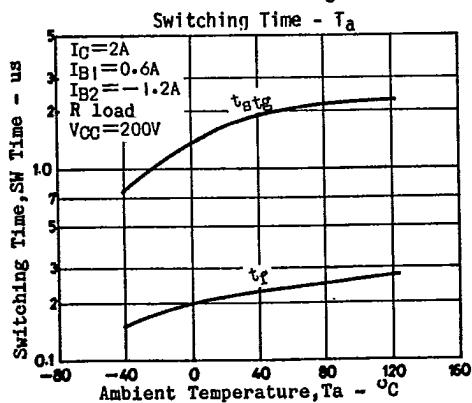
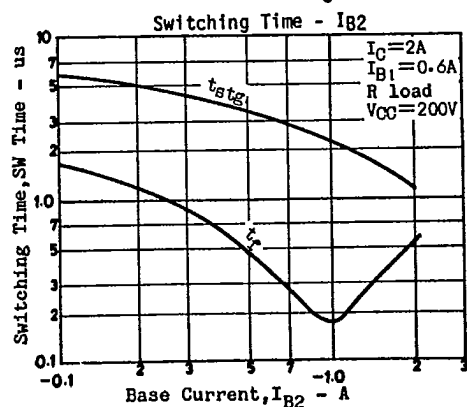
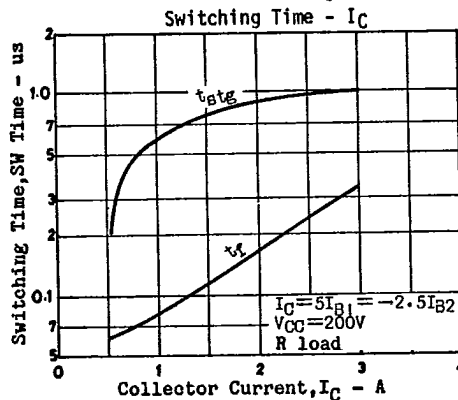
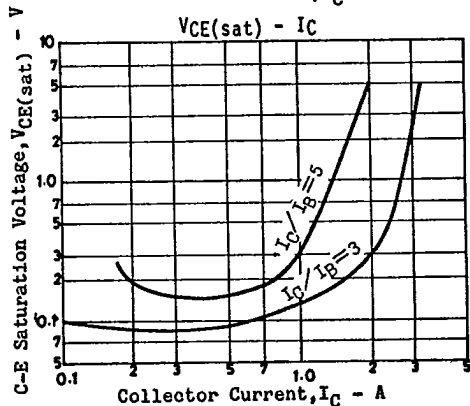
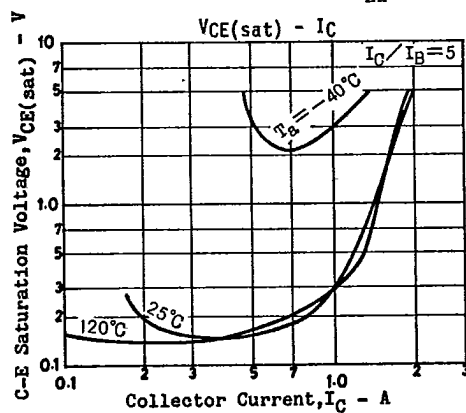
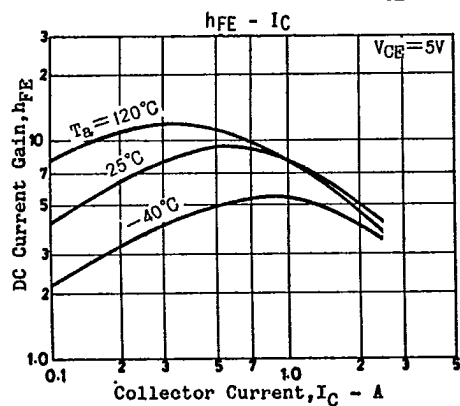
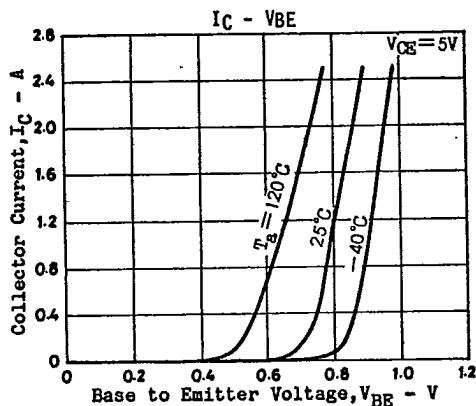
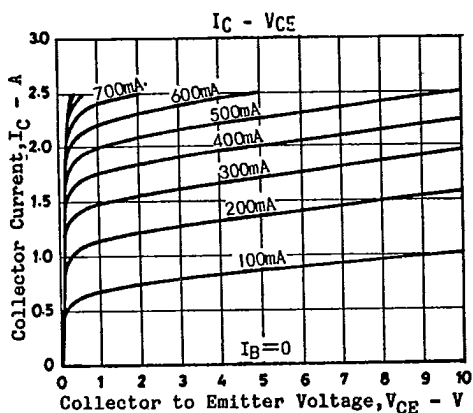


5277KI/D244KI, TS No. 1755-1/3

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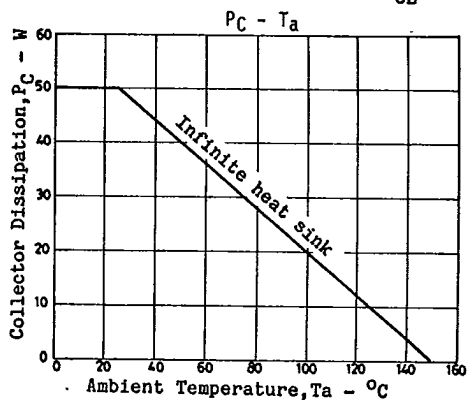
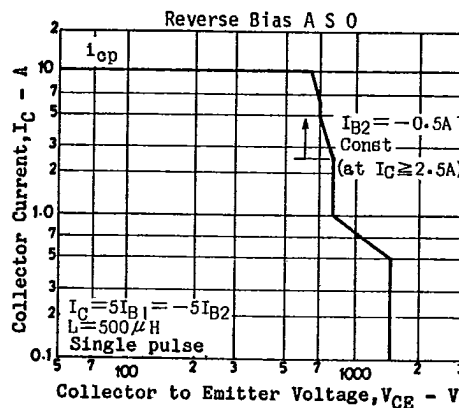
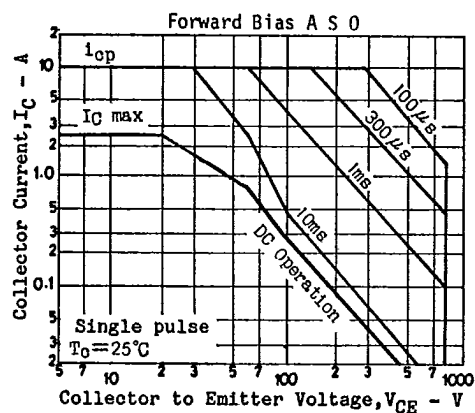
2SD1649

T-33-11

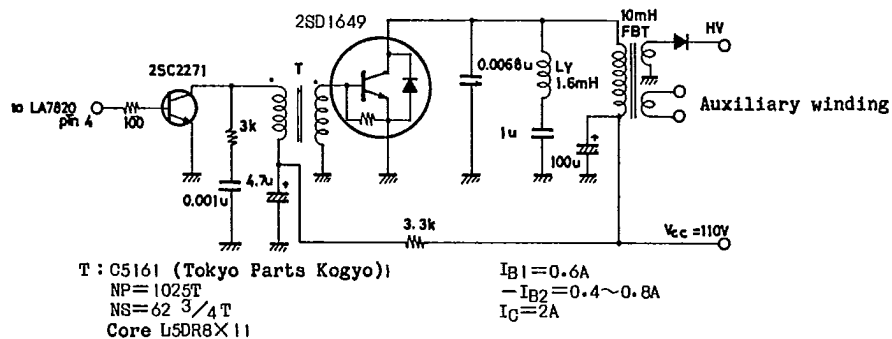


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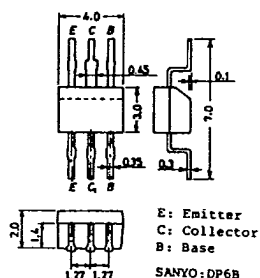
Sample Application Circuit



T-91-20

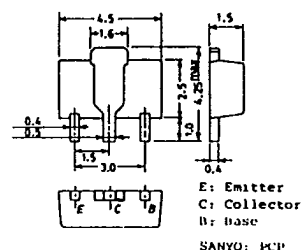
Case Outline—[2030A]

unit:mm



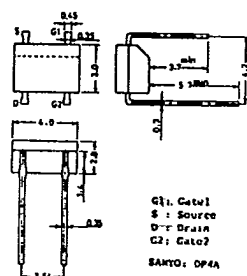
Case Outline—[2038]

unit:mm



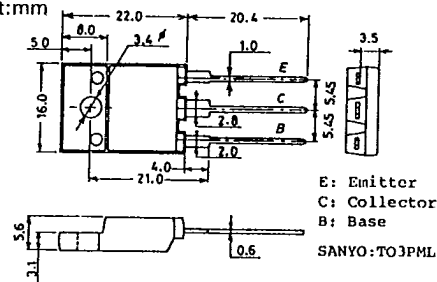
Case Outline—[2031A]

unit:mm



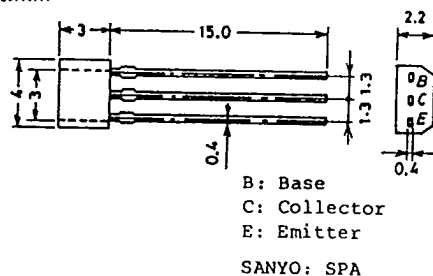
Case Outline—[2039]

unit:mm



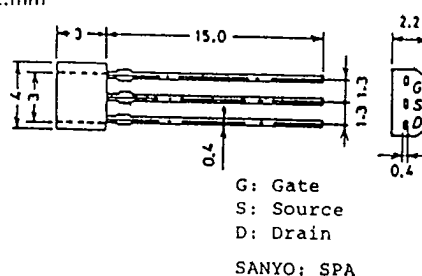
Case Outline—[2033]

unit:mm



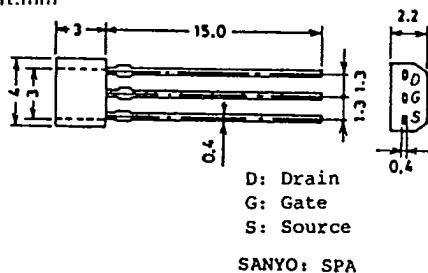
Case Outline—[2040]

unit:mm



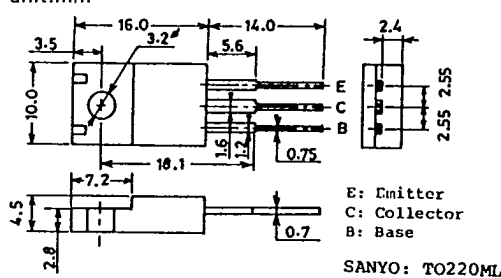
Case Outline—[2034]

unit:mm



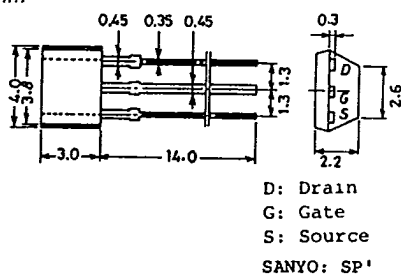
Case Outline—[2041]

unit:mm

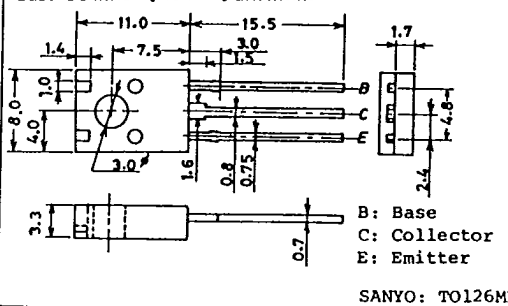


Case Outline—[2037]

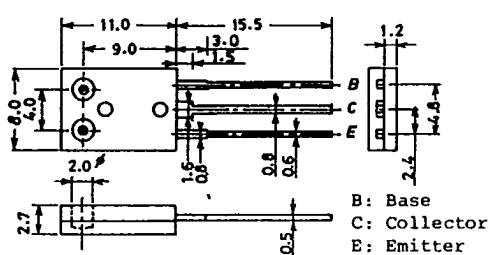
unit:mm



Case Outline—[2042A] unit:mm

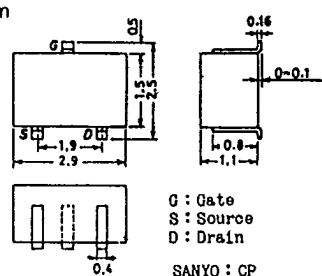


Case Outline—[2043A] unit:mm



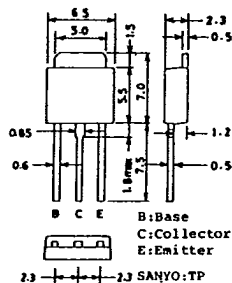
SANYO: TO126LP

Case Outline—[2050] unit:mm



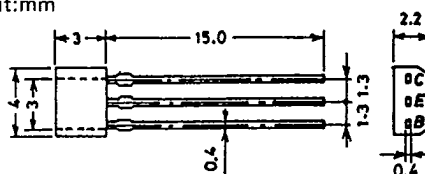
SANYO: CP

Case Outline—[2045] unit:mm



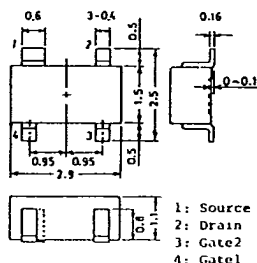
SANYO: TP

Case Outline—[2051] unit:mm

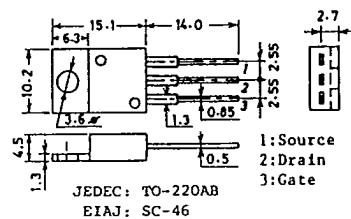


SANYO: SPA

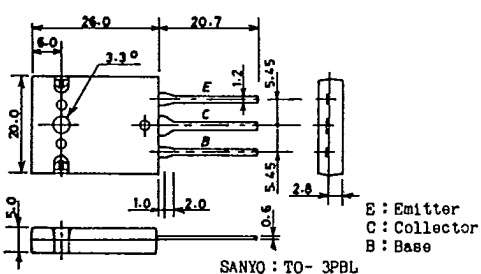
Case Outline—[2046] unit:mm



Case Outline—[2052A] unit:mm

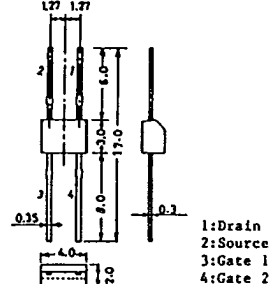
JEDEC: TO-220AB
EIAJ: SC-46

Case Outline—[2048] unit:mm

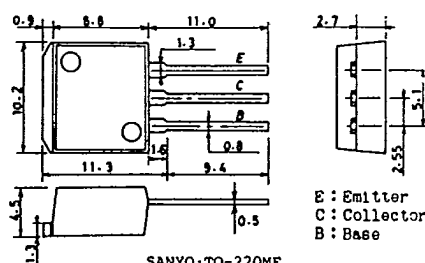


SANYO: TO-3PBL

Case Outline—[2053] unit:mm

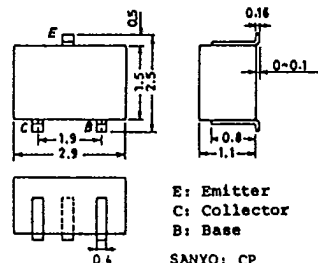


Case Outline—[2049] unit:mm



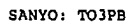
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Case Outline—[2054] unit:mm

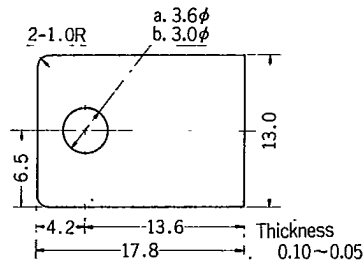


SANYO: CP

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.

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 of height h_1 . On either side of this central step, there are two smaller steps of heights h_2 and h_3 respectively. The right view is an end view showing the circular profile of the shaft with concentric circles representing the different diameters.

Bus	D	H	h_1	h_2	h_3
A	8.0	4.0	2.8	3.1	3.8
B	8.0	3.0	1.8	3.1	3.8
C	8.0	5.7	4.5	3.1	3.8
D	8.0	2.7	1.5	3.1	3.8
E	8.0	3.4	2.2	3.1	3.8
F	8.0	4.0	2.8	3.0	3.5
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

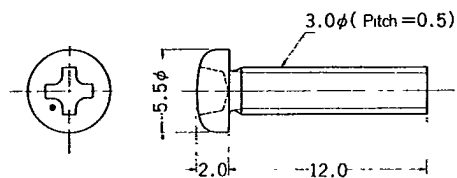
Technical drawing of a bush showing a side view and a top view. The side view includes dimensions: D (outer diameter), h_1 (total height), h_2 (height of the lower section), h_3 (height of the upper section), h_4 (height of the upper section's flange), and h_5 (height of the upper section's body). The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

Bush	D	H	h_1	h_2	h_3
H	9.0	4.0	2.0	0.8	3.0

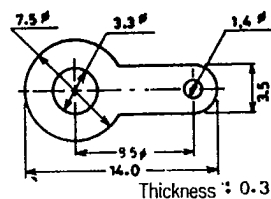
Bush	D	H	h_1	h_2	h_3	h_4	h_5
H	90	40	20	08	30	3.59	5.6
T	90	58	20	26	30	3.59	5.6
UB	160	68	15	33	30	3.89	8.0

Technical drawing of a rectangular plate with the following dimensions and features:

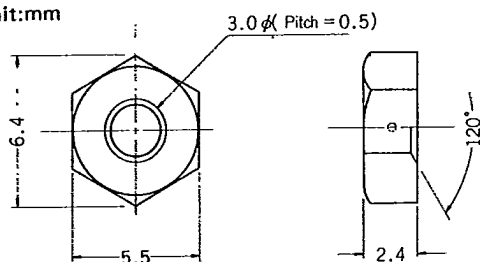
- Overall width: 22.0
- Overall height: 13.0
- Left side fillet: 4-1.0R
- Top-left corner fillet: a 3.6 ϕ , b 2.8 ϕ
- Right side fillet: 2-2.2 ϕ
- Top edge thickness: 2.55
- Bottom edge thickness: 5.1
- Internal hole diameter: 15.0
- Internal hole offset from right edge: 2.8
- Thickness: Indicated at the bottom right.

Case Outline—[0013]
unit:mm

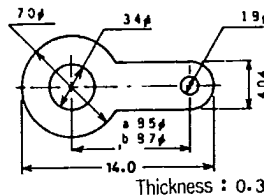
JIS No. B1111 M3×0.5

Case Outline—[0018]
unit:mm

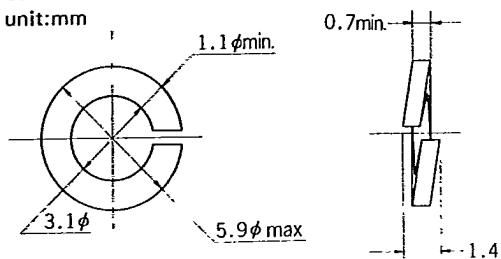
SANYO Lug 1.4

Case Outline—[0014]
unit:mm

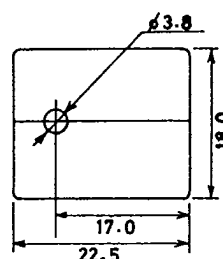
JIS No. B1181 M3×0.5

Case Outline—[0019]
unit:mm

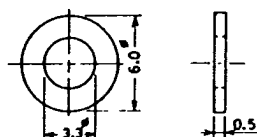
SANYO Lug 1.8φ

Case Outline—[0015]
unit:mm

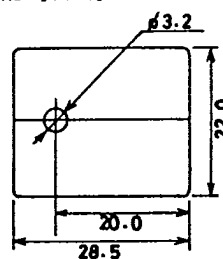
JIS No. B 1251 Spring washer (M3)

Case Outline—[0020]
unit:mm

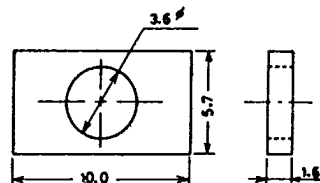
SANYO IS-3MP Mica

Case Outline—[0016]
unit:mm

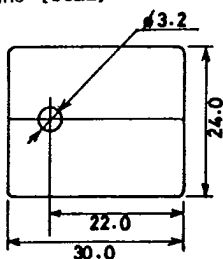
JIS No. B1252 Flat washer

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