

# 2SD1398



2022

NPN Triple Diffused Planar Silicon Transistor

T-33-13

## Color TV Horizontal Deflection Output Applications (with Damper Diode)

©1224C

### Features

- High breakdown voltage and high reliability.
- High switching speed.
- Capable of being mounted in a variety of methods because of plastic molded package of one-point fixing type.

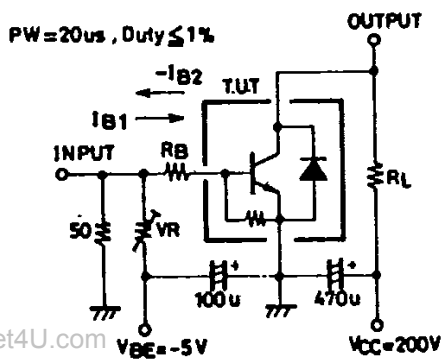
### Absolute Maximum Ratings at $T_a=25^\circ\text{C}$

			unit
Collector to Base Voltage	$V_{CB0}$	1500	V
Collector to Emitter Voltage	$V_{CE0}$	800	V
Emitter to Base Voltage	$V_{EBO}$	7	V
Collector Current	$I_C$	5	A
Peak Collector Current	$i_{cp}$	16	A
Collector Dissipation	$P_C$	$T_C=25^\circ\text{C}$ 120	W
Junction Temperature	$T_j$	150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$

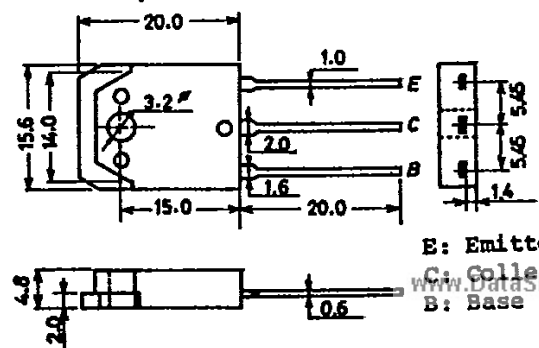
### Electrical Characteristics at $T_a=25^\circ\text{C}$

			min	typ	max	unit
Collector Cutoff Current	$I_{CBO}$	$V_{CB}=800\text{V}, I_E=0$			10	$\mu\text{A}$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=4\text{V}, I_C=0$	40		130	mA
DC Current Gain	$h_{FE}$	$V_{CE}=5\text{V}, I_C=1\text{A}$	8			
Gain Bandwidth Product	$f_T$	$V_{CE}=10\text{V}, I_C=1\text{A}$		3		mHz
Collector to Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=4\text{A}, I_B=0.8\text{A}$			5	V
Base to Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=4\text{A}, I_B=0.8\text{A}$			1.5	V
Collector to Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=5\text{mA}, I_E=0$	1500			V
Collector to Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=100\text{mA}, R_{BE}=\infty$	800			V
Emitter to Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=200\text{mA}, I_C=0$	7			V
Diode Forward Voltage	$V_F$	$I_{EC}=5\text{A}$			2	V
Fall Time	$t_f$	$I_C=4\text{A}, I_{B1}=0.8\text{A}, I_{B2}=-1.6\text{A}, V_{CC}=200\text{V}, R_L=50\text{ohm}$			0.4	$\mu\text{s}$

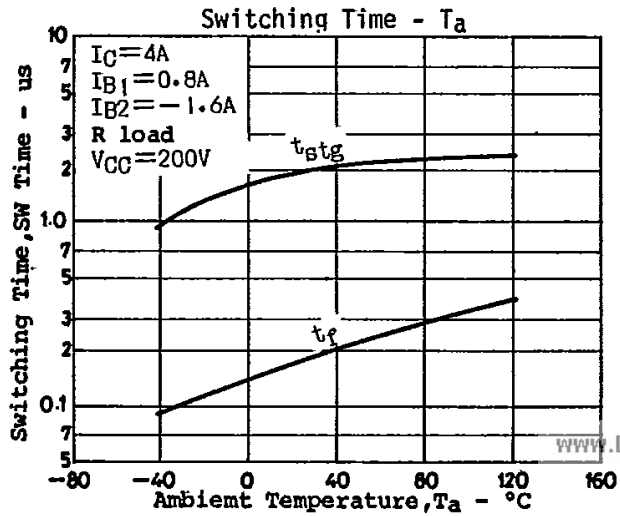
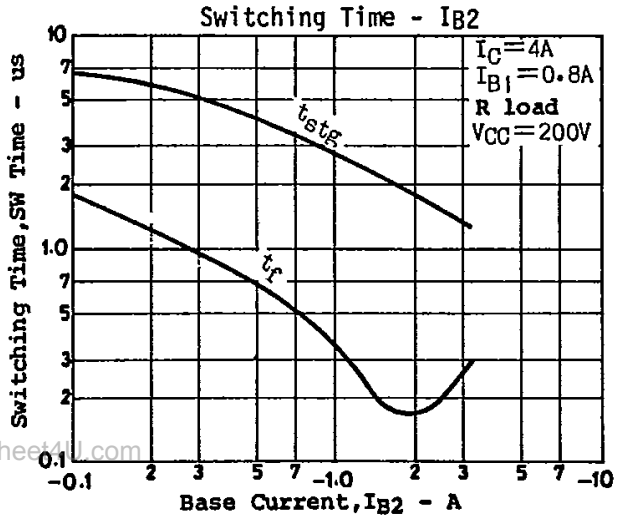
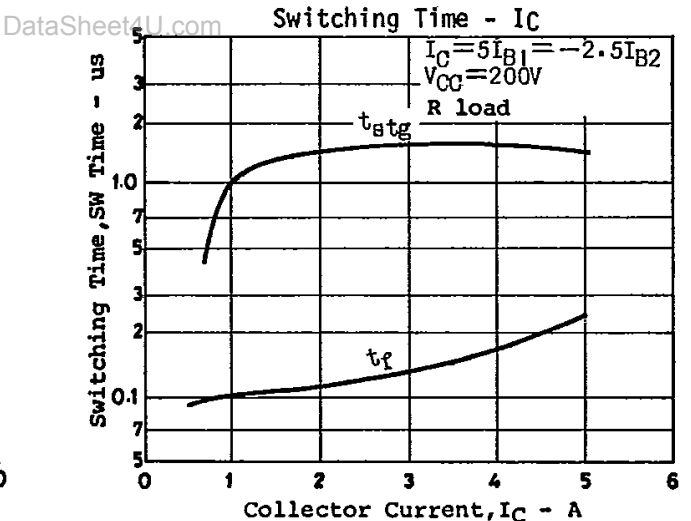
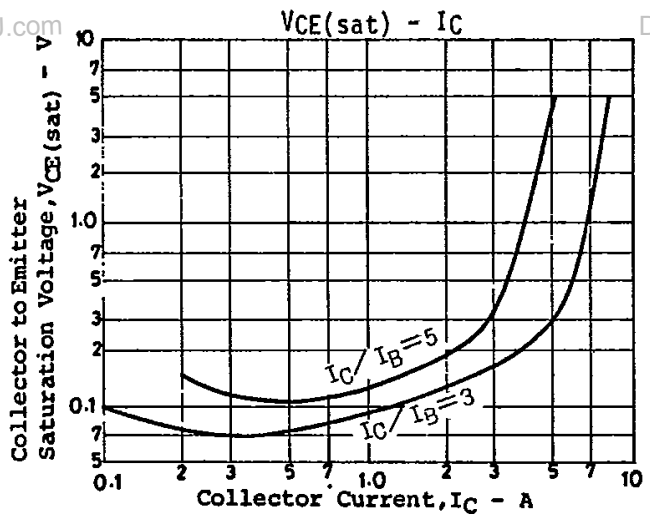
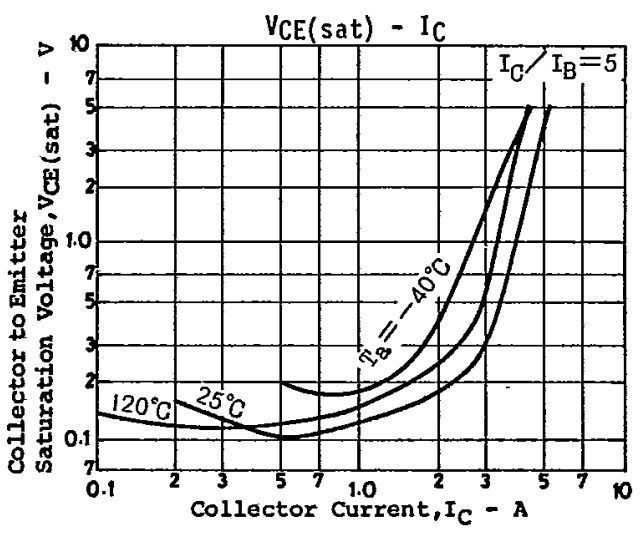
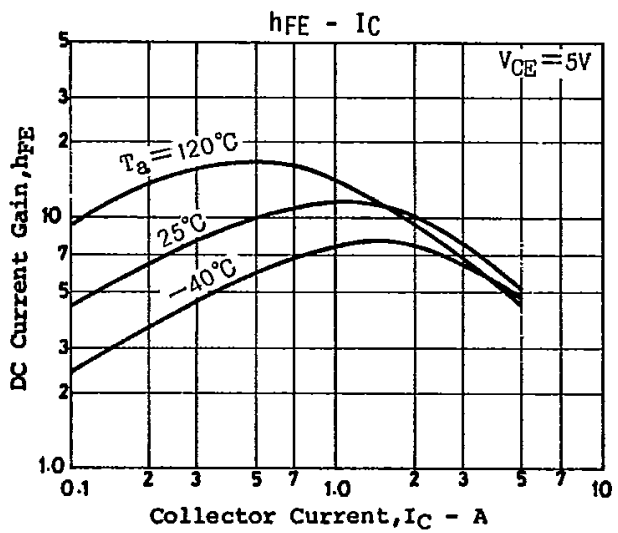
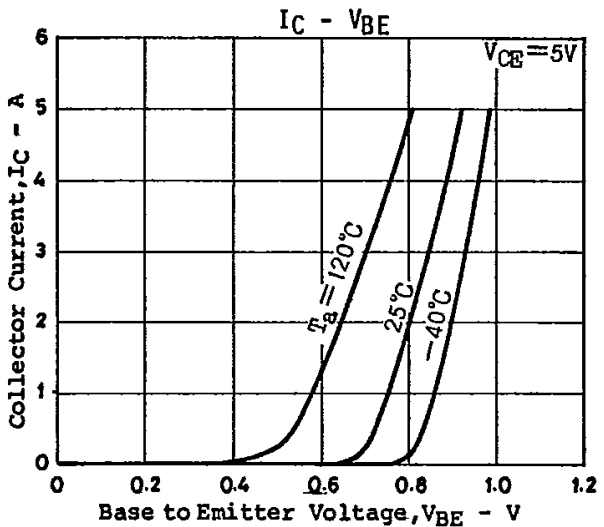
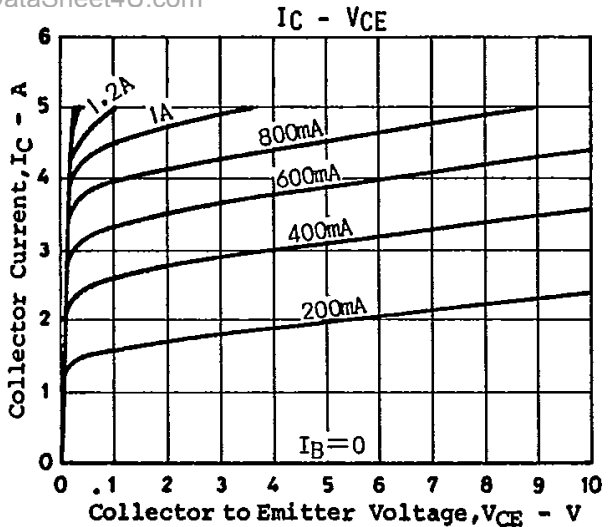
### Switching Time Test Circuit

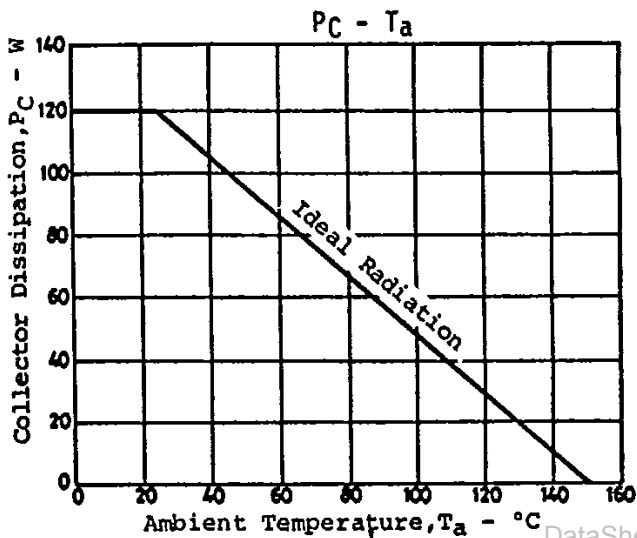
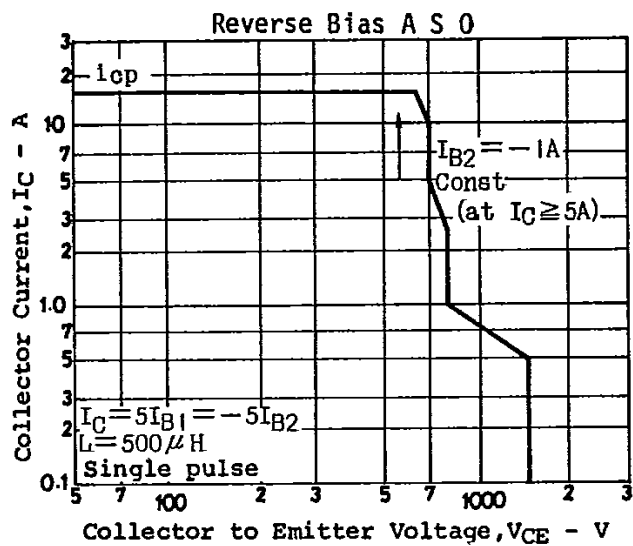
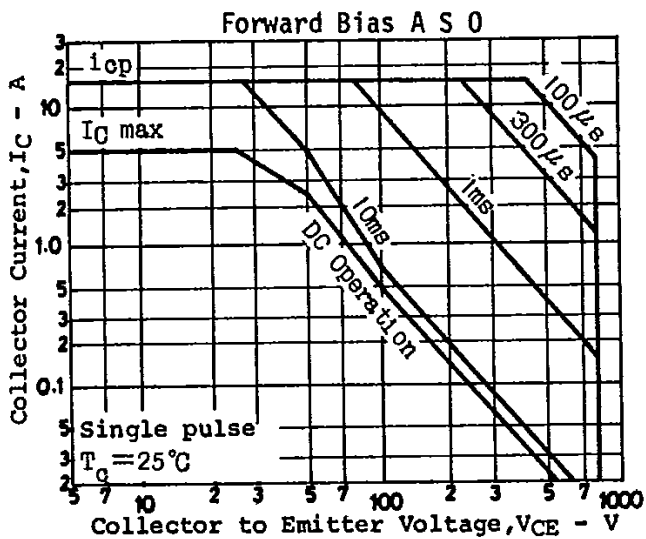


### Case Outline 2022 (unit:mm)

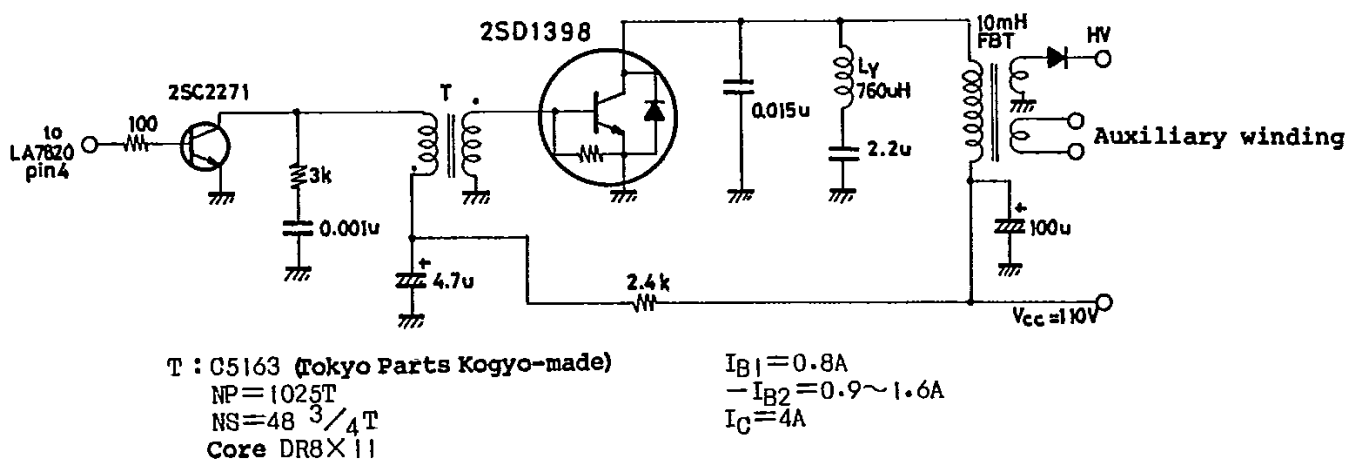


E: Emitter  
C: Collector  
B: Base





## Sample Application Circuit

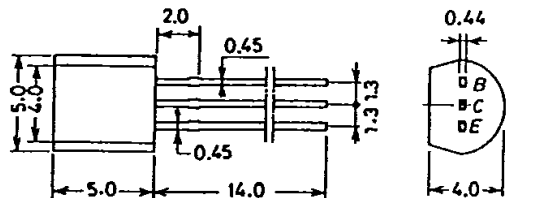


# CASE OUTLINES AND ATTACHMENTS

- 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

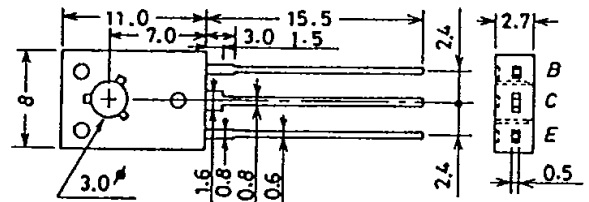


JEDEC: TO-92  
EIAJ : SC-43  
SANYO: NP

B. Base  
C. Collector  
E. Emitter

Case Outline—[2009A]

unit:mm

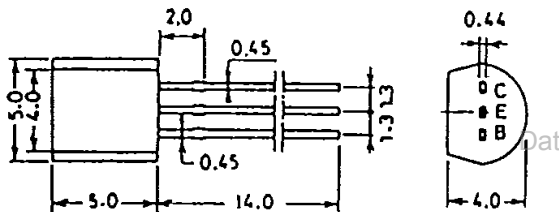


JEDEC: TO-126

B: Base  
C: Collector  
E: Emitter

Case Outline—[2004A]

unit:mm

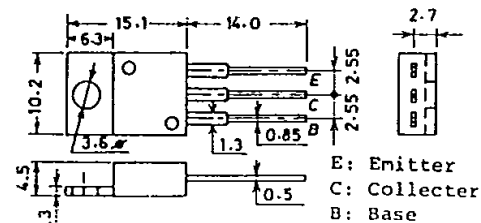


JEDEC: TO-92  
EIAJ : SC-43  
SANYO: NP

C. Collector  
E. Emitter  
B. Base

Case Outline—[2010A]

unit:mm

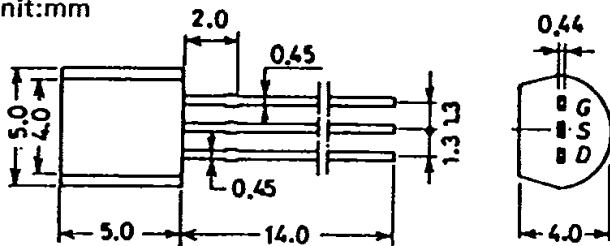


JEDEC: TO-220AB  
EIAJ: SC-46

E: Emitter  
C: Collector  
B: Base

Case Outline—[2005A]

unit:mm

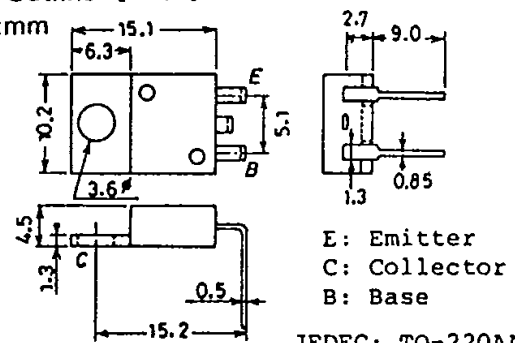


JEDEC: TO-92  
EIAJ : SC-43  
SANYO: NP

G: Gate  
S: Source  
D: Drain

Case Outline—[2012]

unit:mm

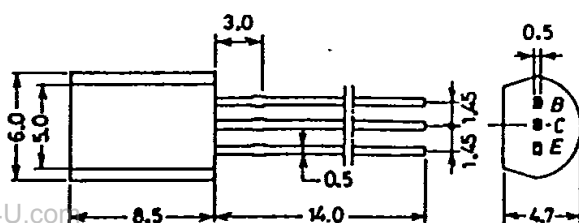


JEDEC: TO-220AA  
EIAJ : SC-45

E: Emitter  
C: Collector  
B: Base

Case Outline—[2006A]

unit:mm

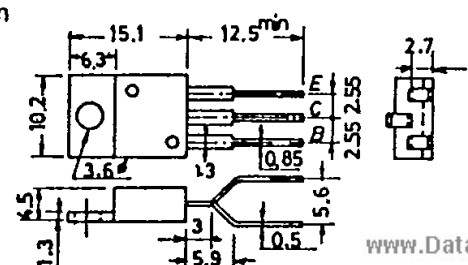


EIAJ: SC-51  
SANYO:MP

B: Base  
C: Collector  
E: Emitter

Case Outline—[2013]

unit:mm

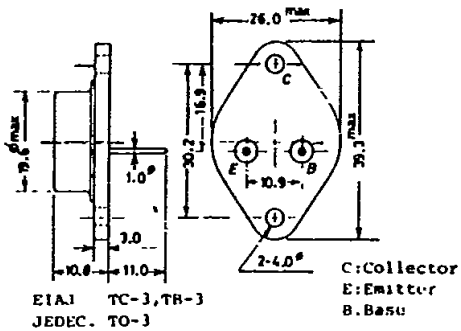


JEDEC TO-220

B: Base  
C: Collector  
E: Emitter

Case Outline-[2017]

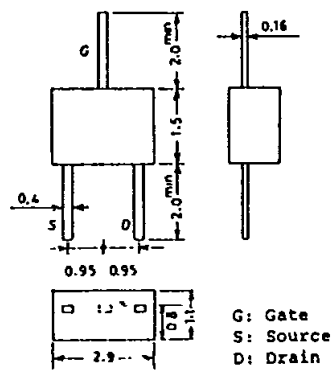
unit:mm



T=91-20

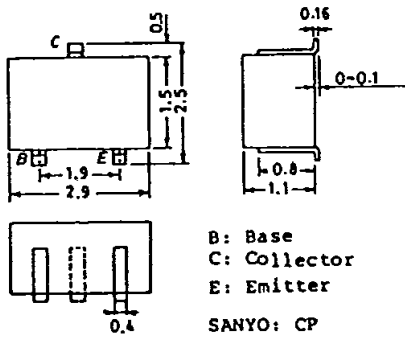
Case Outline-[2025]

unit:mm



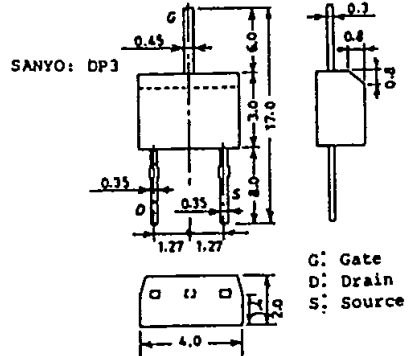
Case Outline-[2018A]

unit:mm



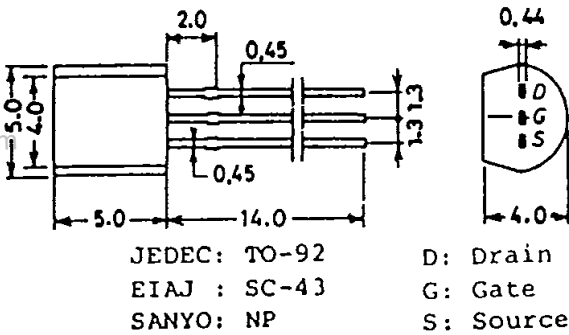
Case Outline-[2026]

unit:mm



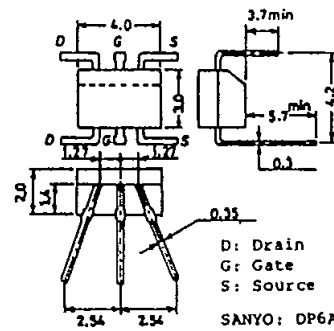
Case Outline-[2019A]

unit:mm



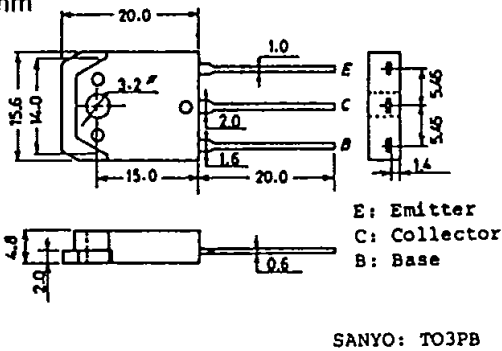
Case Outline-[2027A]

unit:mm



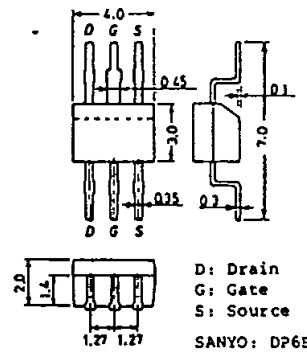
Case Outline-[2022]

unit:mm



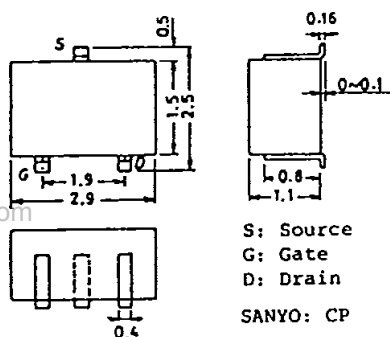
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unit:mm



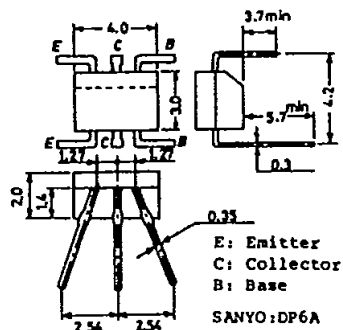
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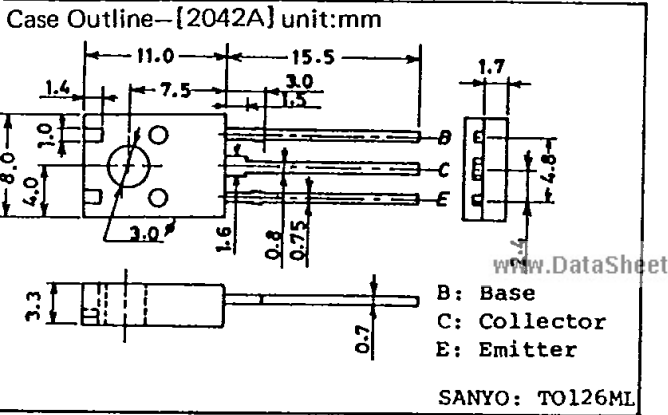
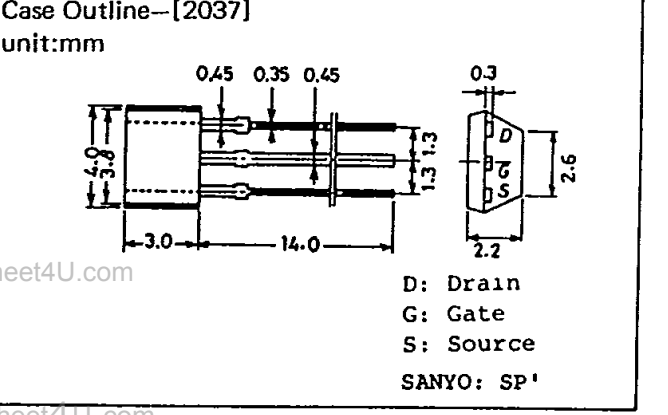
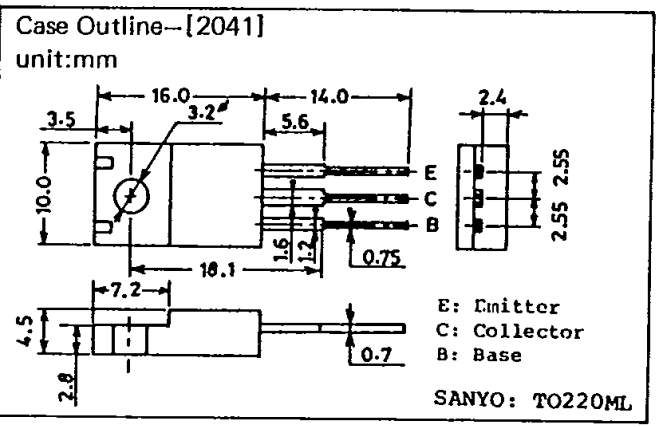
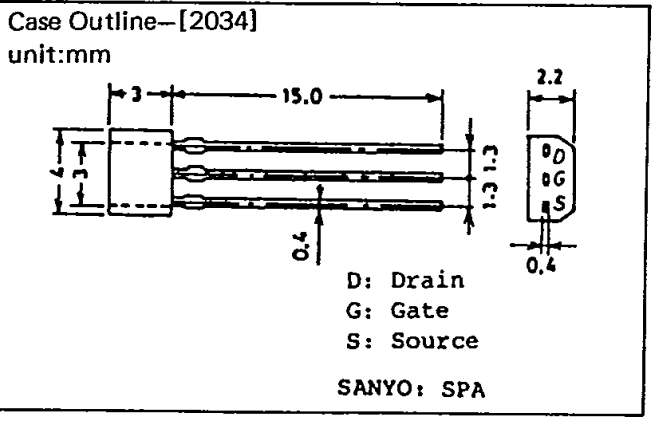
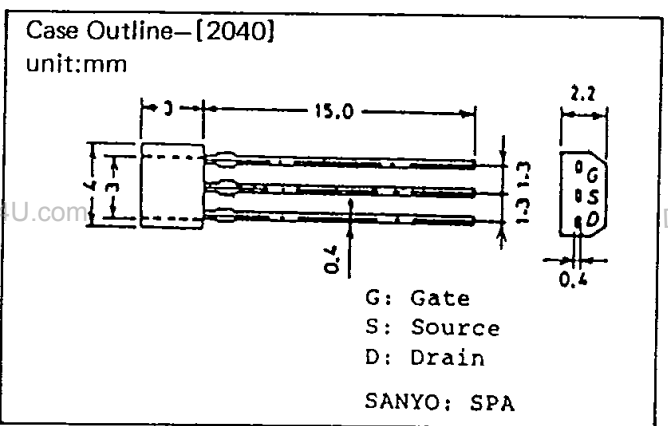
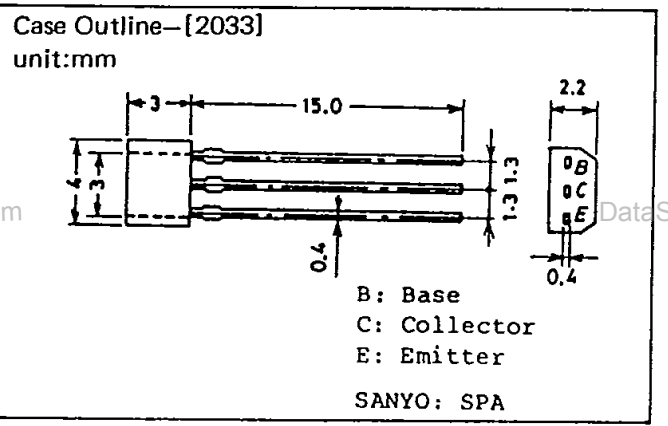
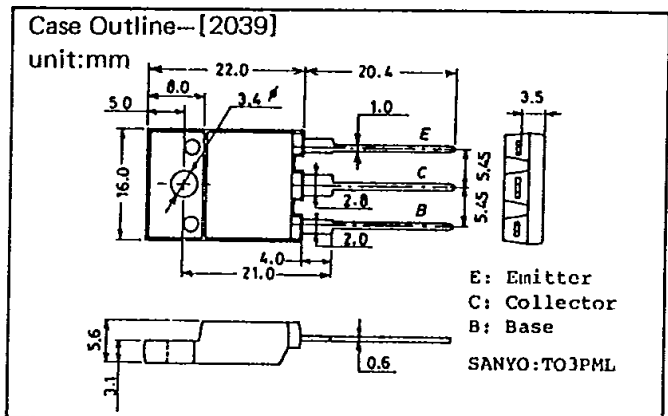
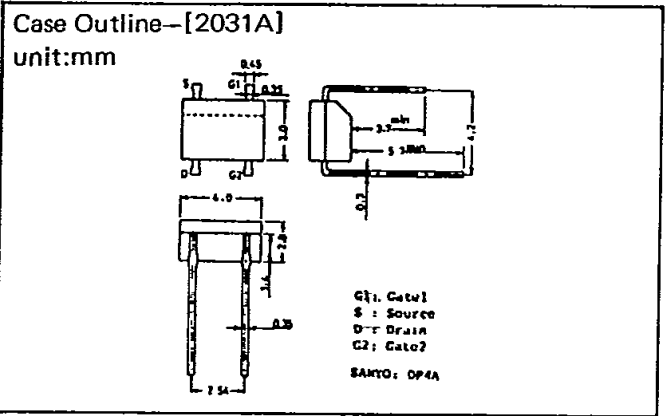
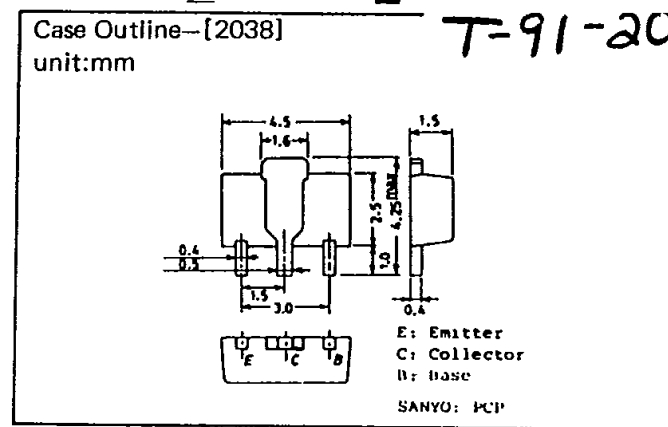
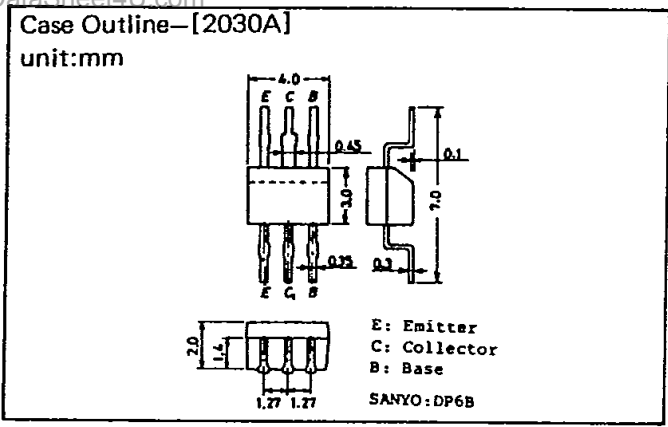
unit:mm

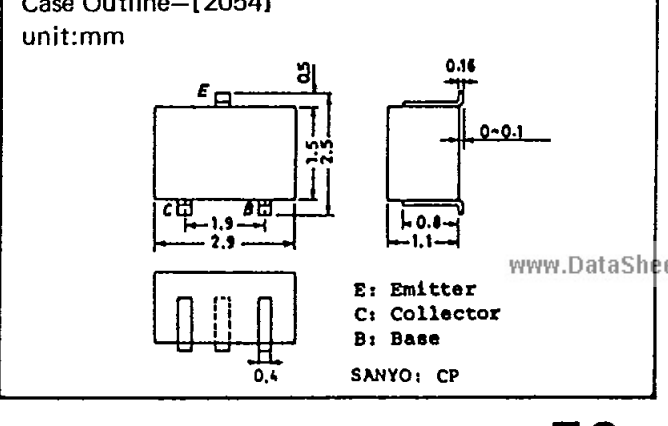
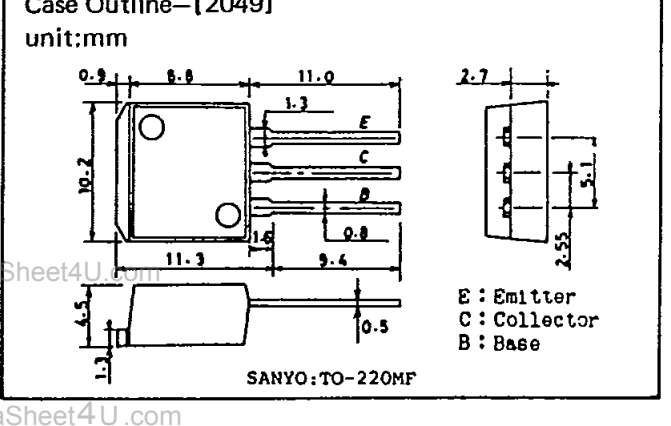
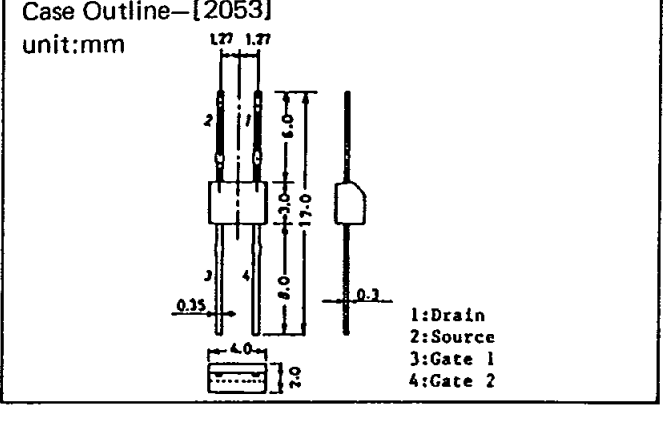
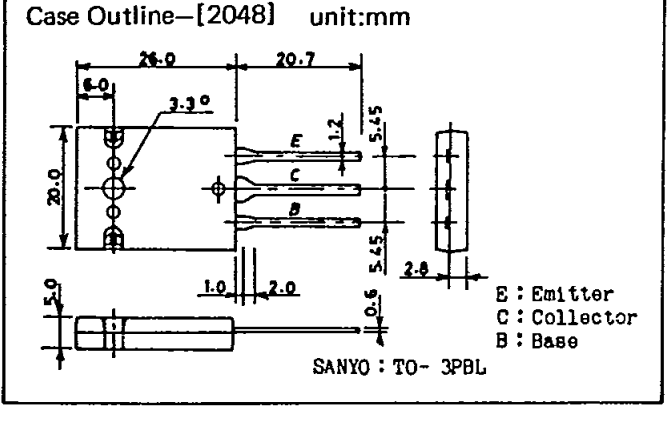
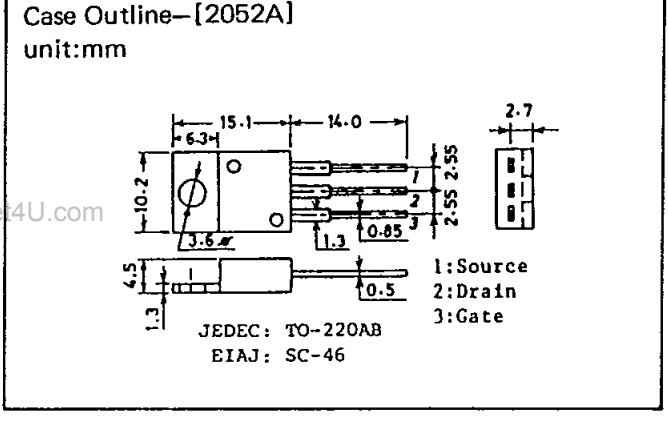
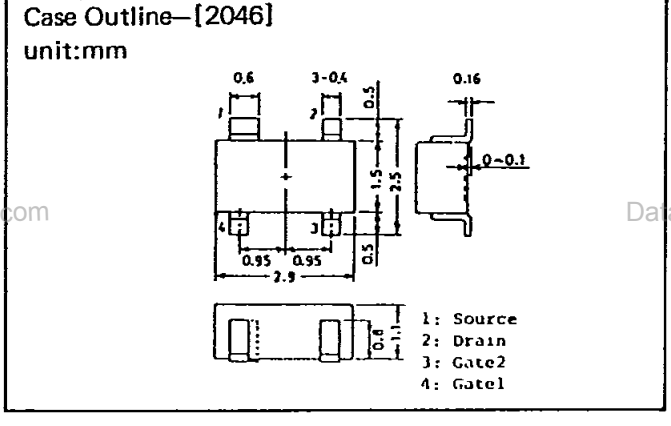
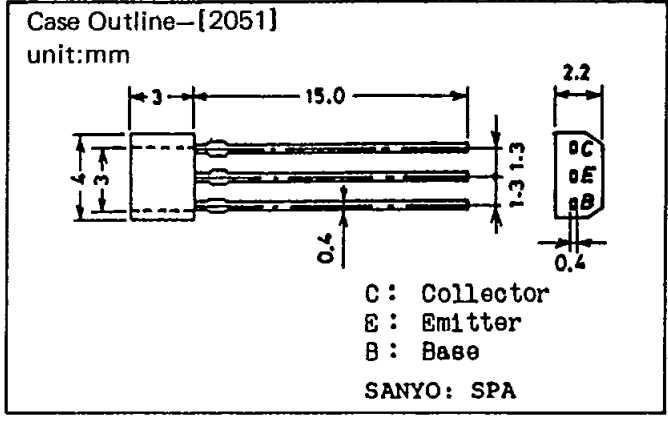
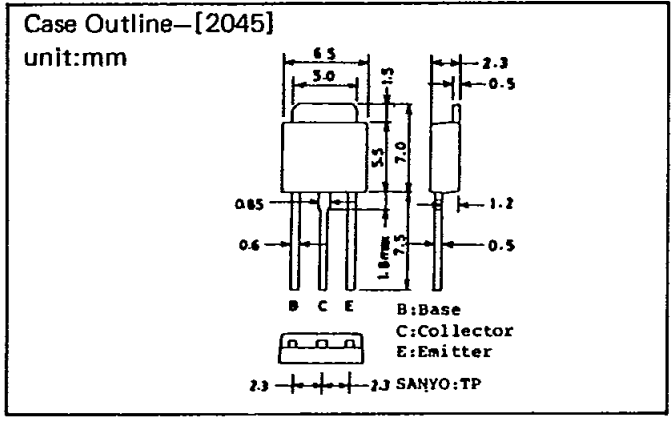
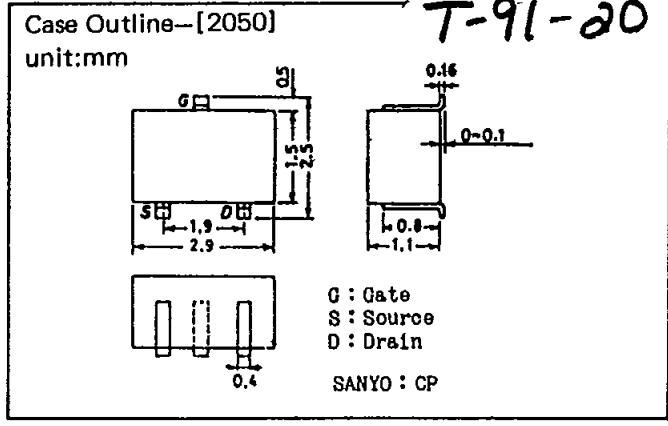
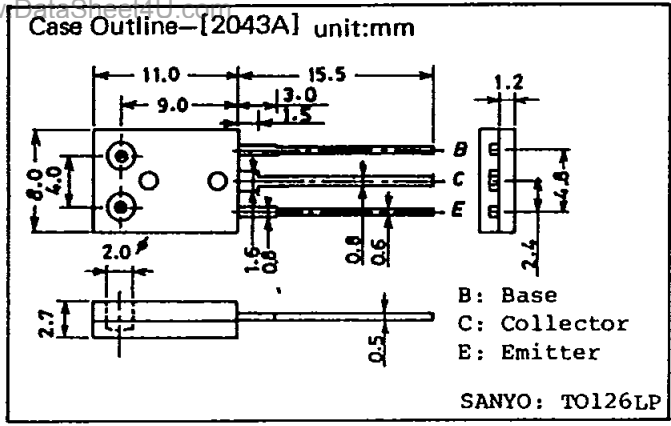


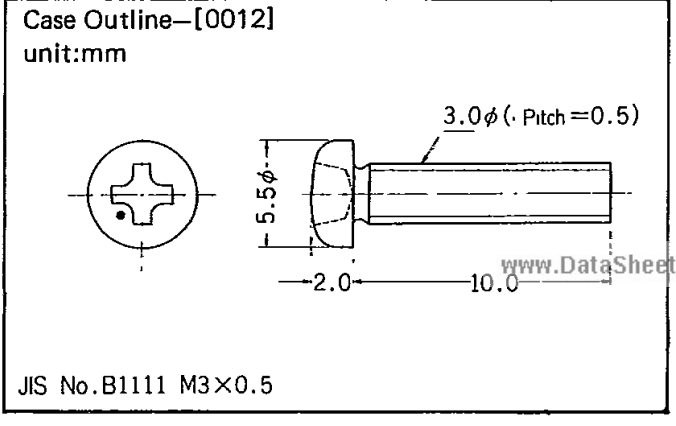
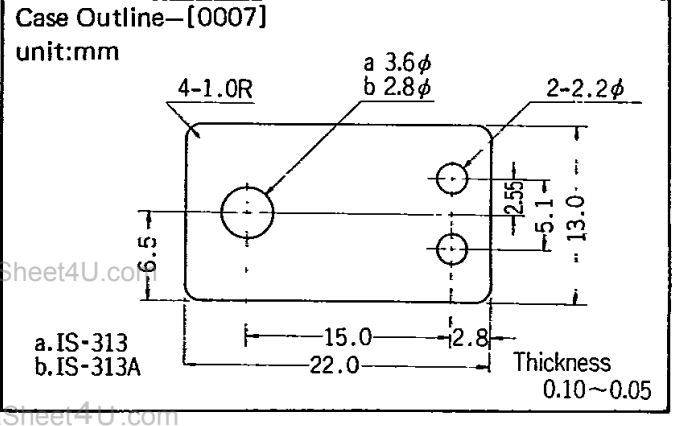
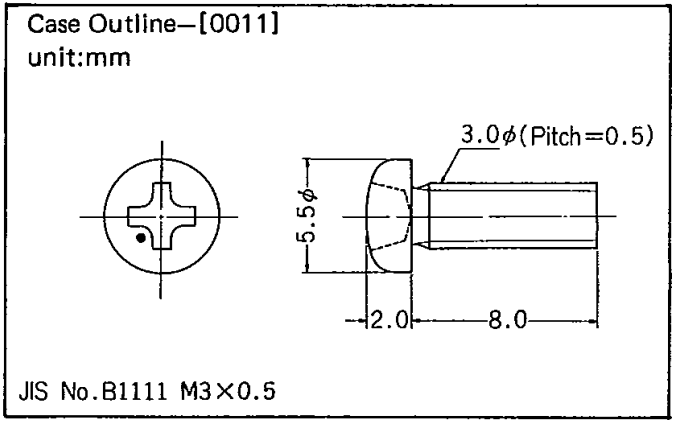
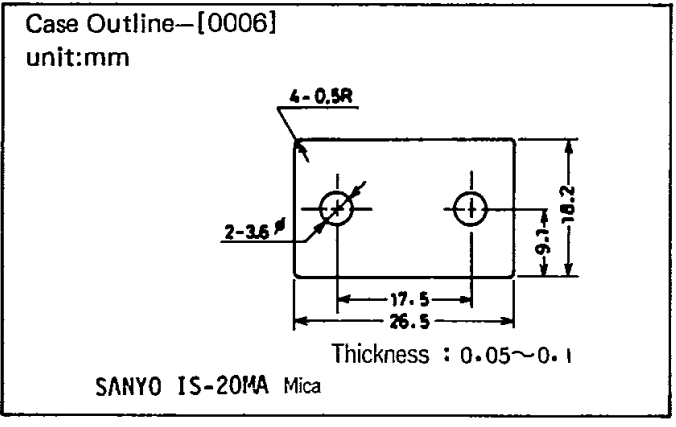
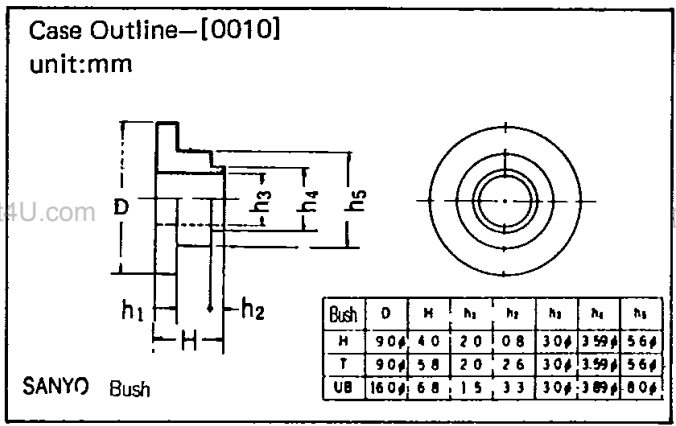
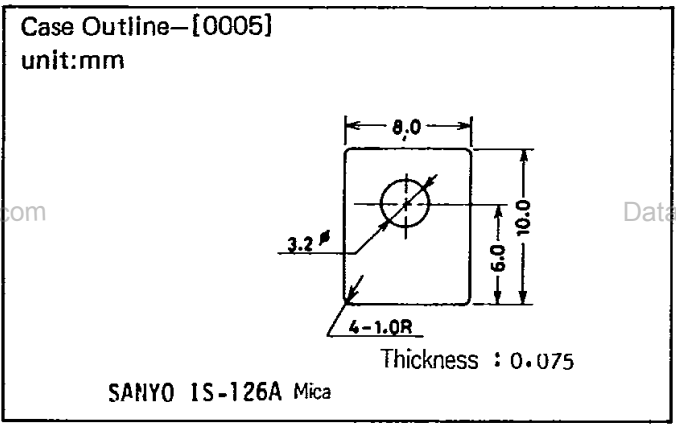
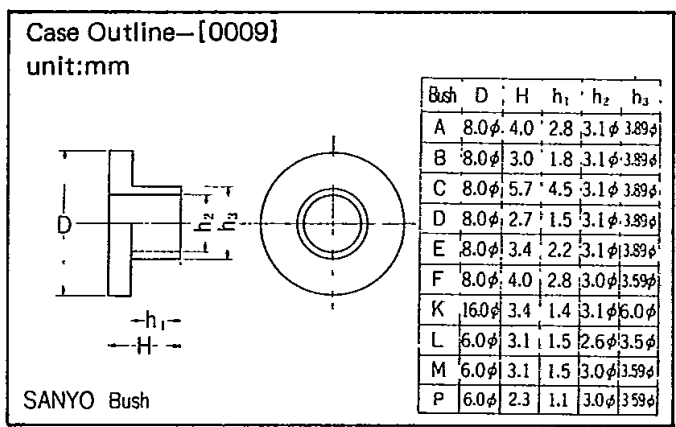
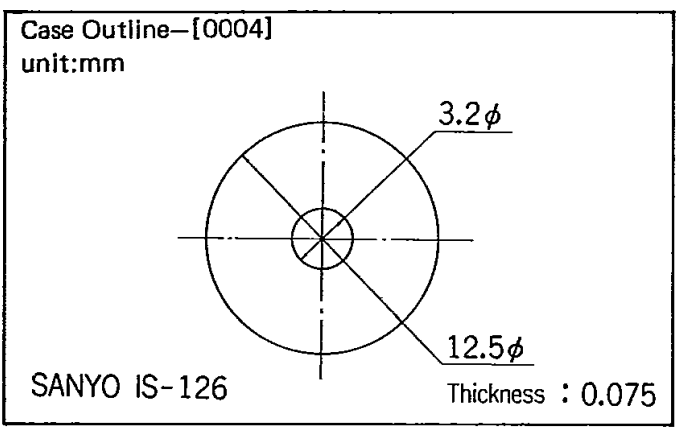
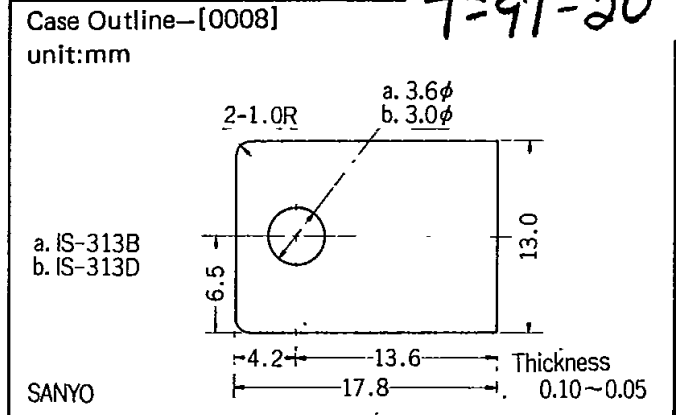
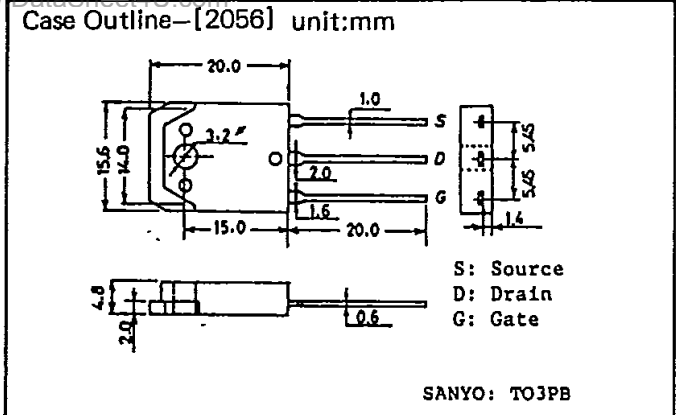
Case Outline-[2029A]

unit:mm









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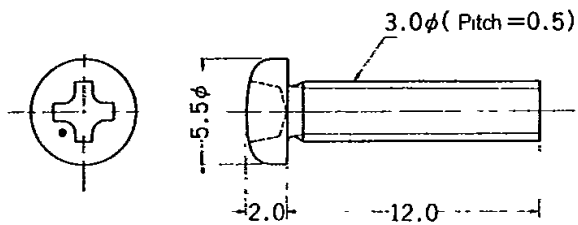
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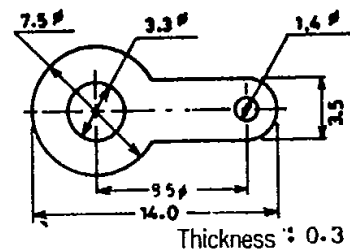
Case Outline-[0013]  
unit:mm



JIS No. B1111 M3×0.5

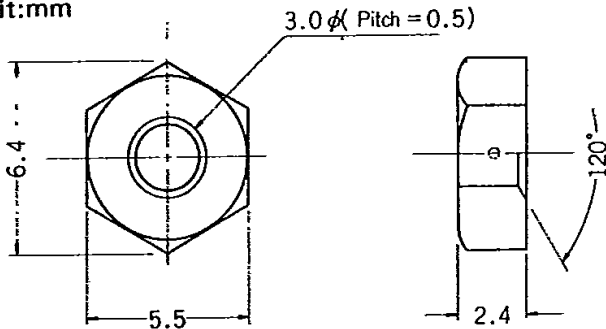
Case Outline-[0018]  
unit:mm

T=91-20



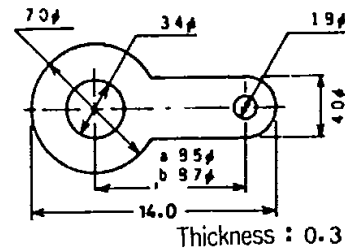
SANYO Lug 1.4

Case Outline-[0014]  
unit:mm



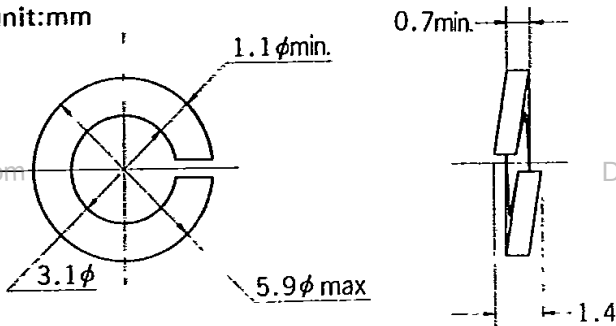
JIS No. B1181 M3×0.5

Case Outline-[0019]  
unit:mm



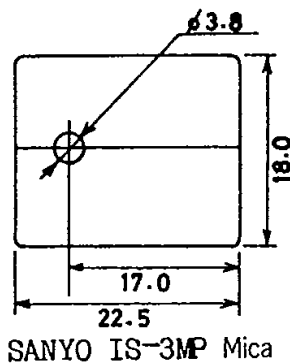
SANYO Lug 1.8φ

Case Outline-[0015]  
unit:mm



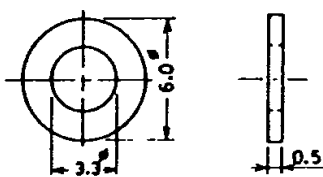
JIS No. B 1251 Spring washer (M3)

Case Outline-[0020]  
unit:mm



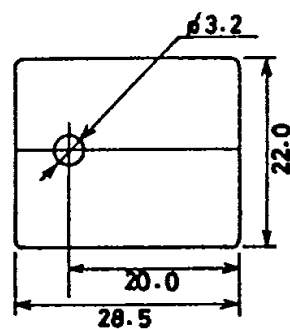
SANYO IS-3MP Mica

Case Outline-[0016]  
unit:mm



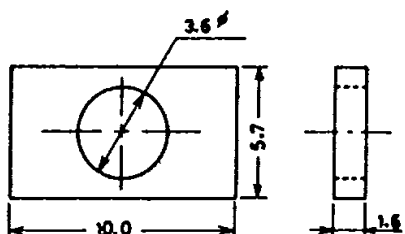
JIS No. B1252 Flat washer

Case Outline-[0021]  
unit:mm



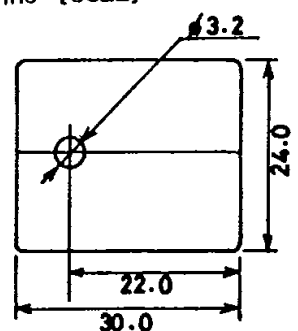
SANYO IS-MPC Mica

Case Outline-[0017]  
unit:mm



JIS No. G3141 Rectangular washer

Case Outline-[0022]  
unit:mm



SANYO IS-3PBL Mica