

2SD1656



2039

NPN Triple Diffused Planar Silicon Transistor

T-33-11

Color TV Horizontal Deflection Output Applications

©1754B

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 $T_a=25^\circ C$

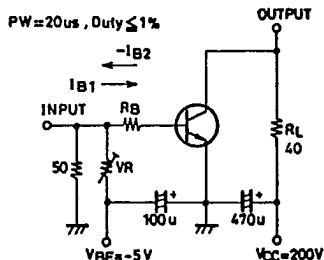
Parameter	Symbol	Value	Unit
Collector to Base Voltage	V_{CBO}	1500	V
Collector to Emitter Voltage	V_{CEO}	800	V
Emitter to Base Voltage	V_{EBO}	6	V
Collector Current	I_C	6	A
Peak Collector Current	i_{cp}	16	A
Collector Dissipation	P_C	60	W
Junction Temperature	T_j	150	$^\circ C$
Storage Temperature	T_{stg}	-55 to +150	$^\circ C$

$T_C=25^\circ C$

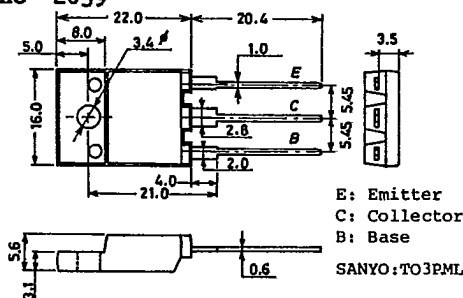
Electrical Characteristics at $T_a=25^\circ C$

Parameter	Symbol	Test Conditions	min	typ	max	unit
Collector Cutoff Current	I_{CBO}	$V_{CB}=800V, I_E=0$			10	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=5V, I_C=0$			1	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
Fall Time	t_f	$I_C=5A, I_{B1}=1A, I_{B2}=-2A$			0.4	μs

Switching Time Test Circuit

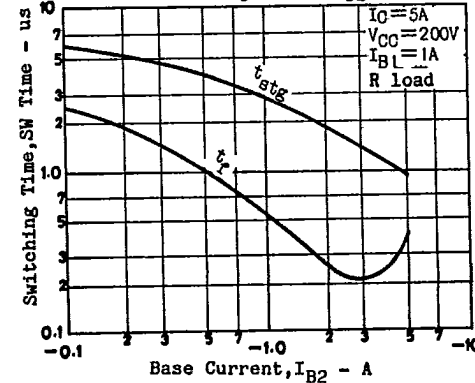
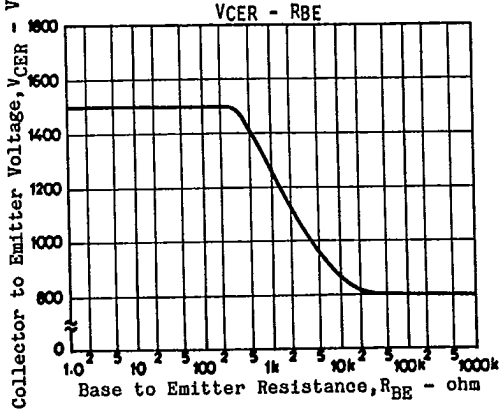
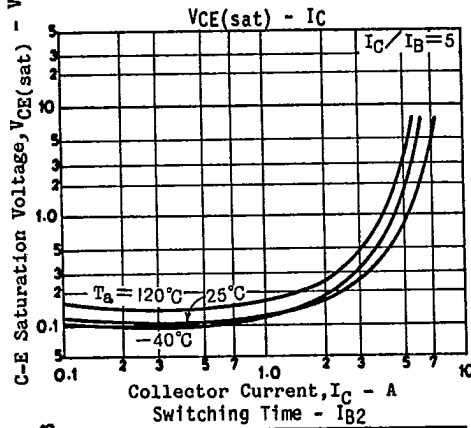
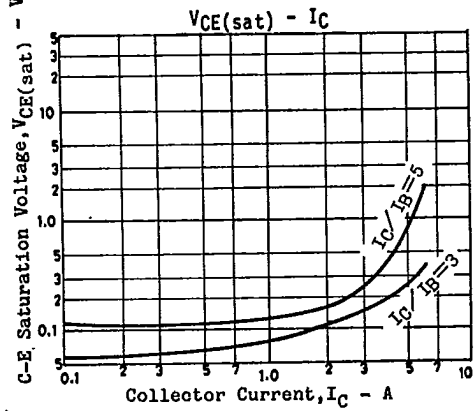
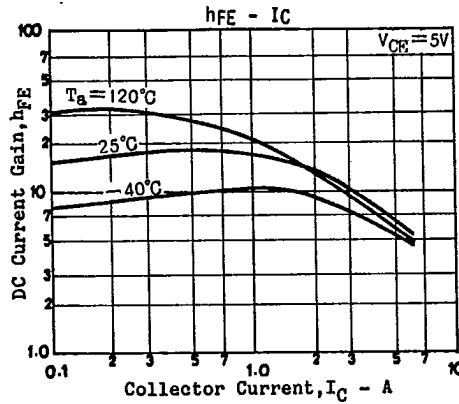
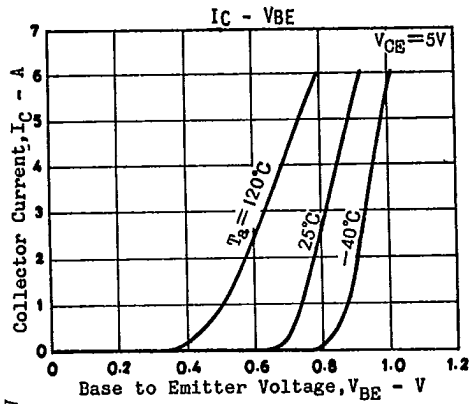
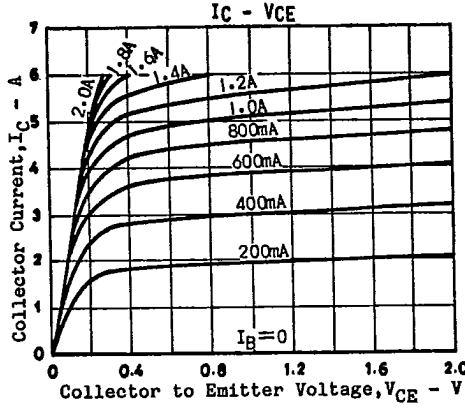
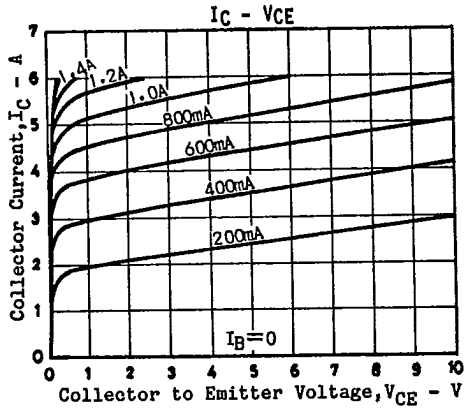


Case Outline 2039 (unit:mm)



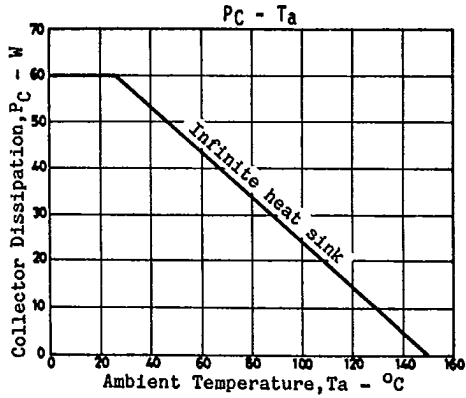
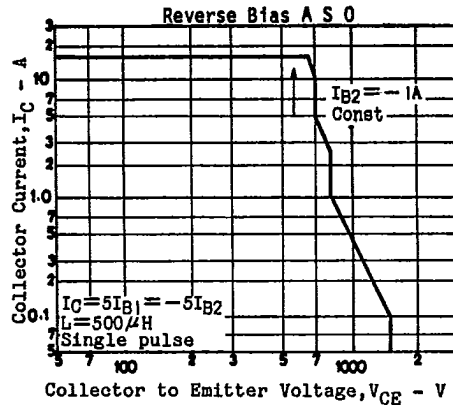
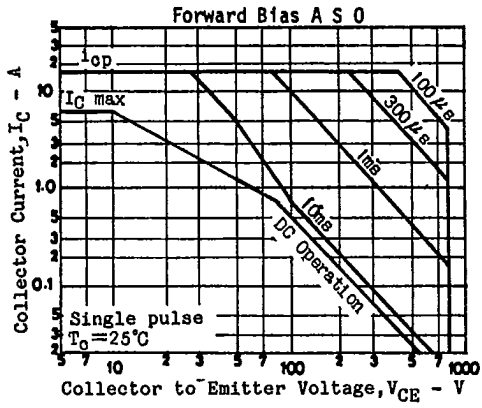
5277KI/D244KI, TS No. 1754-1/3

1491



2SD1656

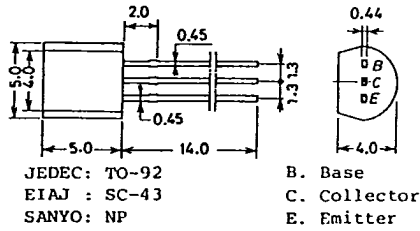
T-33-11



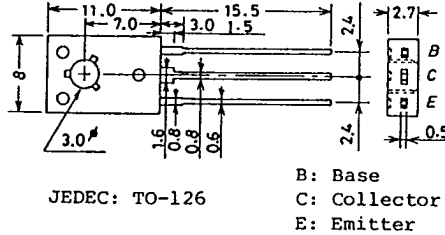
CASE OUTLINES AND ATTACHMENTS

- 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.

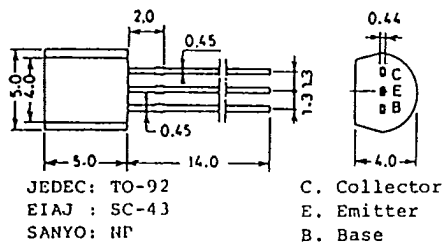
Case Outline-[2003A]
unit:mm



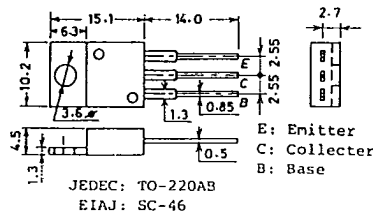
Case Outline-[2009A]
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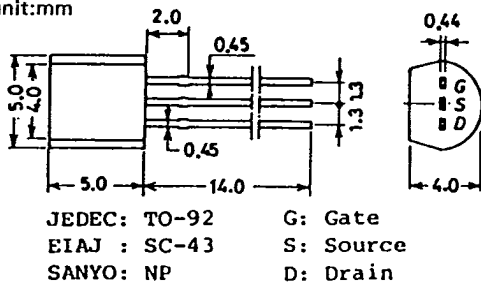
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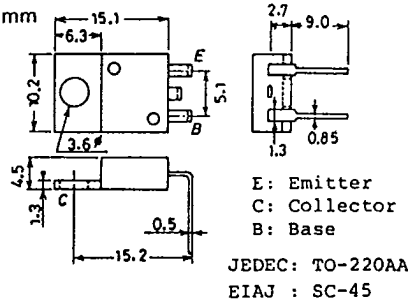
Case Outline-[2010A]
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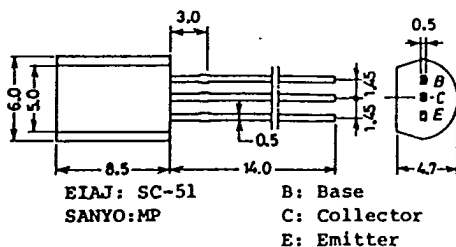
Case Outline-[2005A]
unit:mm



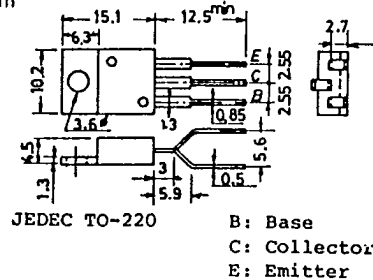
Case Outline-[2012]
unit:mm

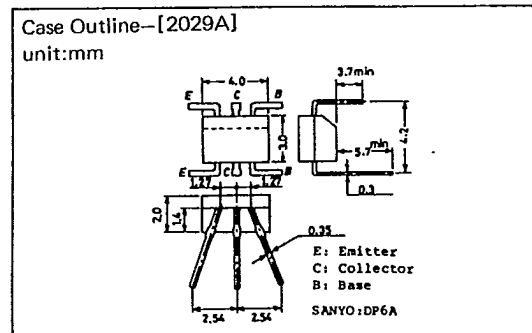
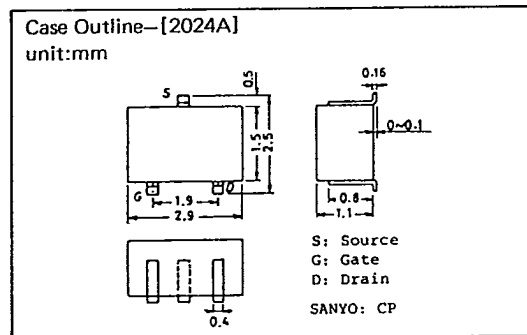
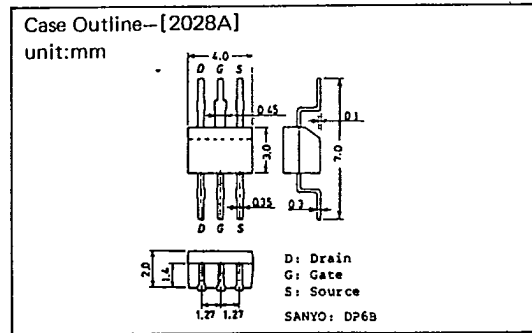
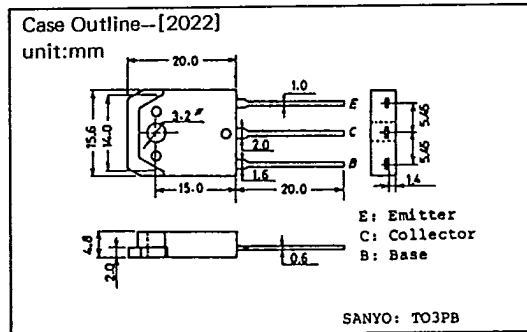
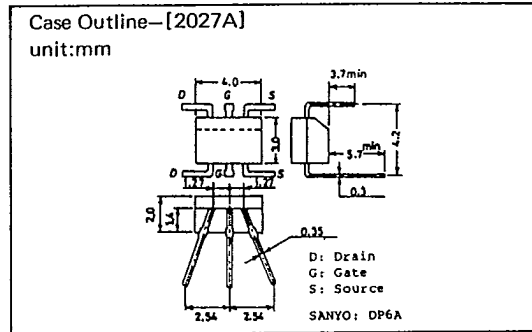
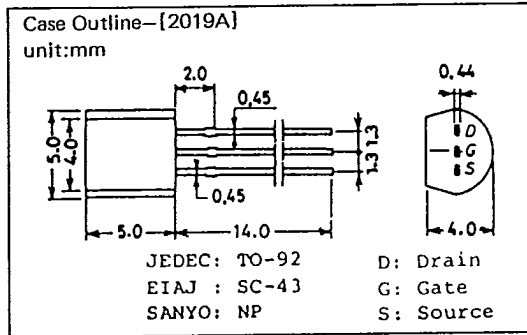
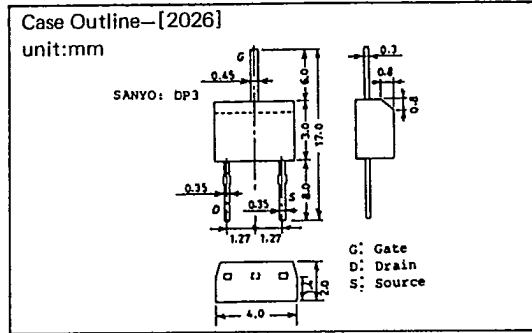
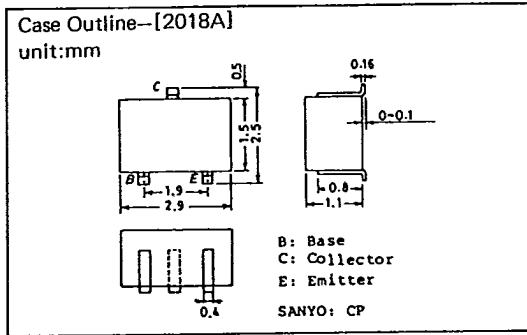
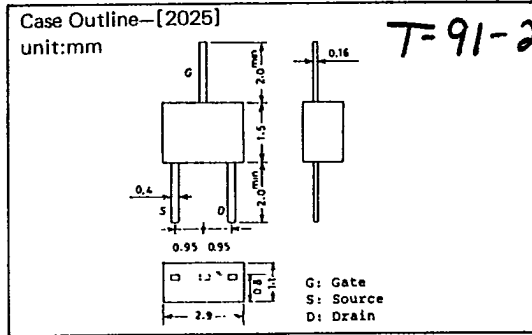
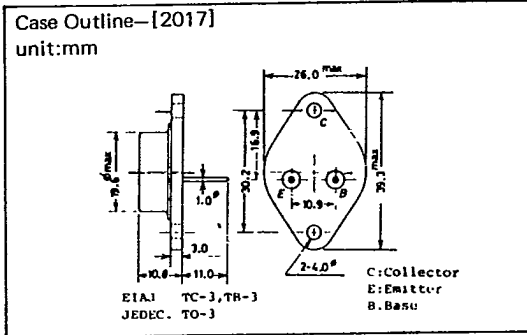


Case Outline-[2006A]
unit:mm

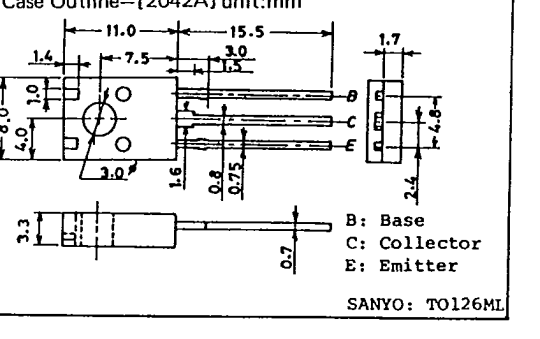
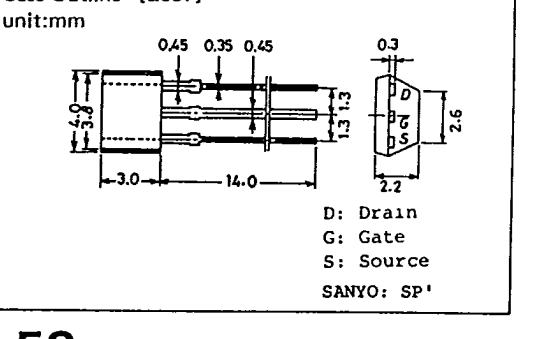
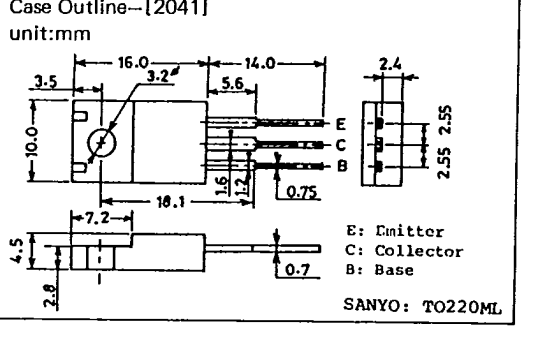
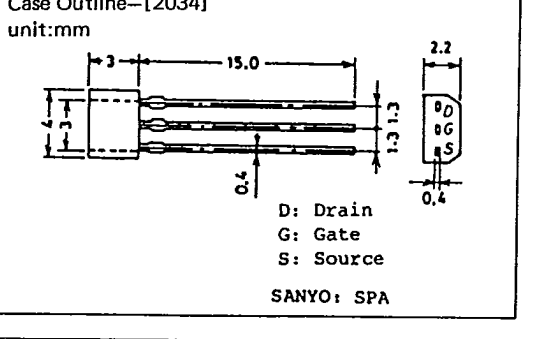
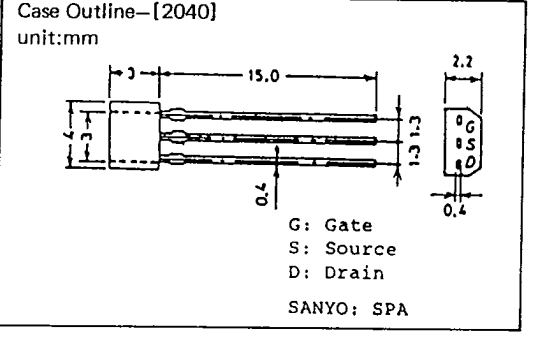
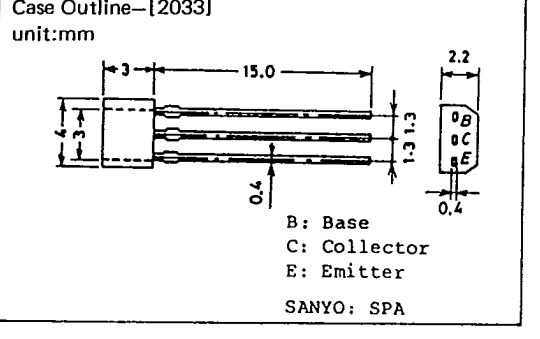
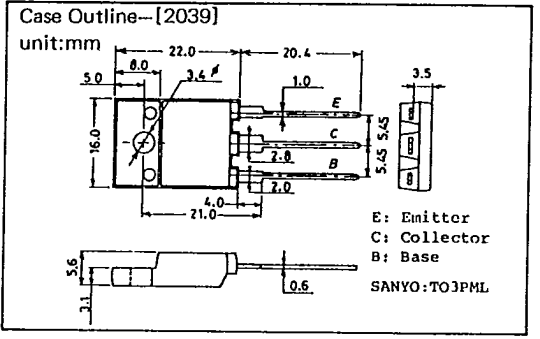
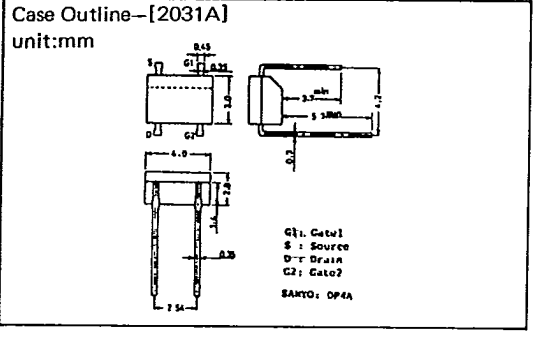
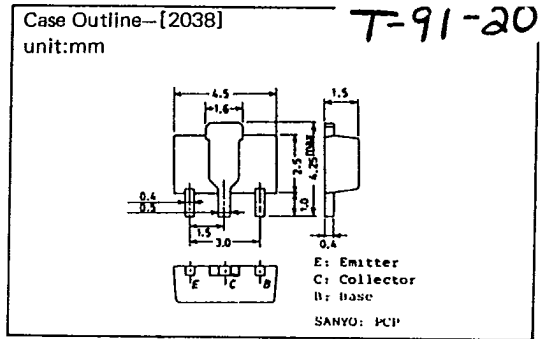
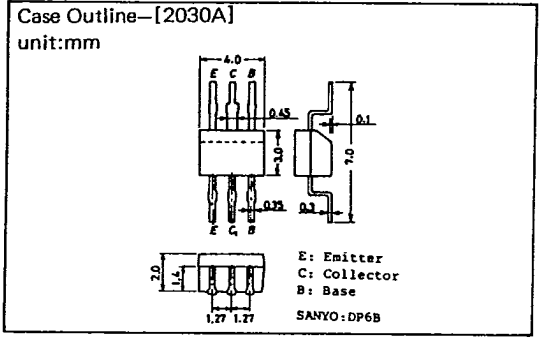


Case Outline-[2013]
unit:mm

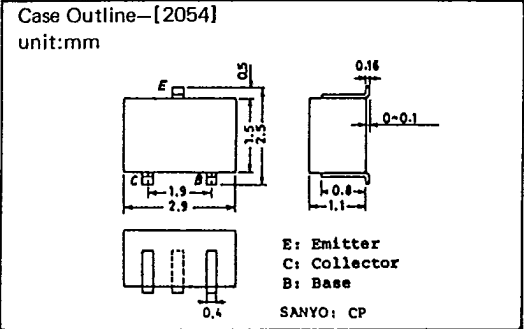
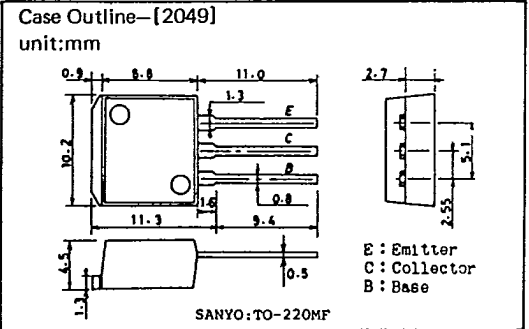
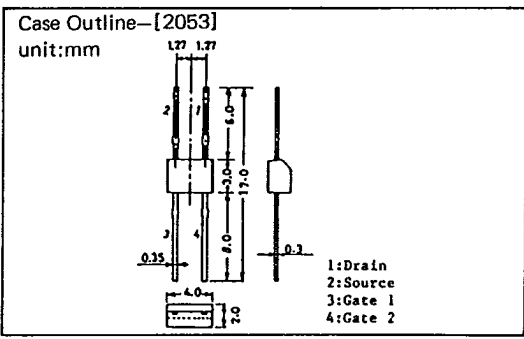
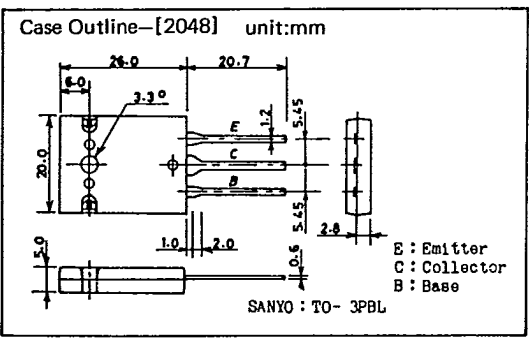
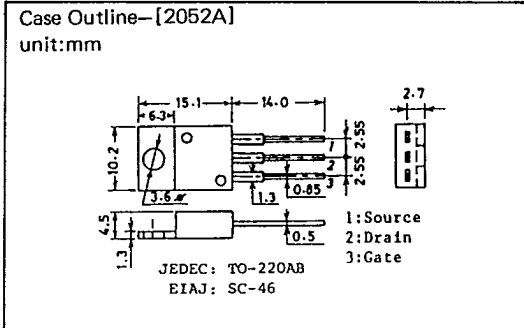
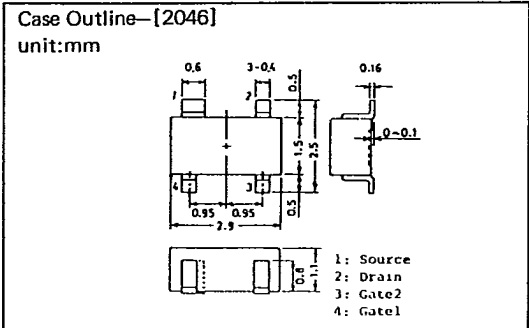
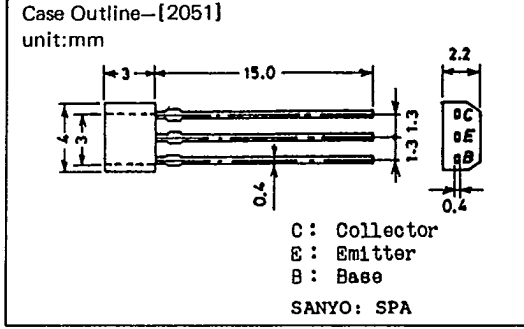
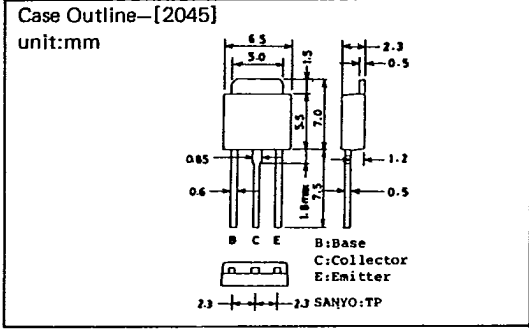
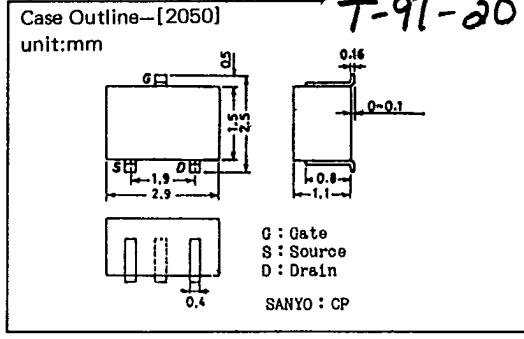
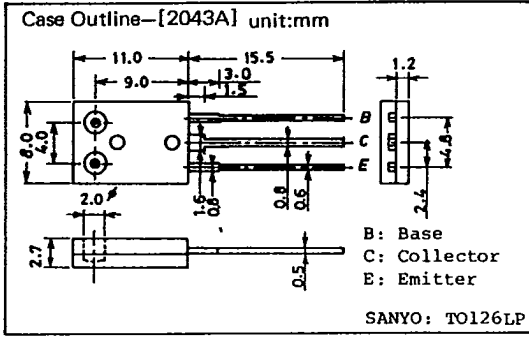


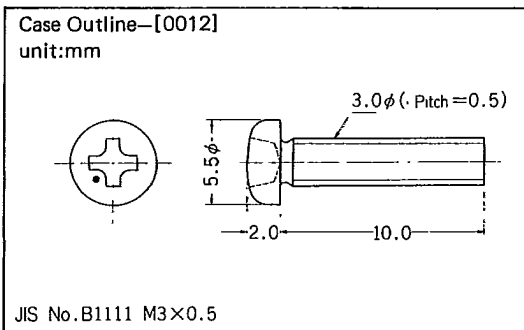
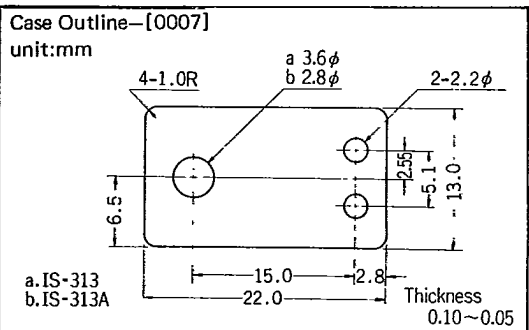
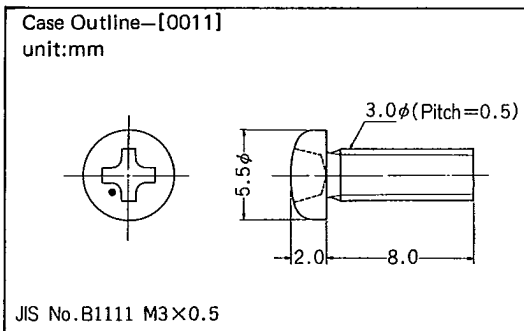
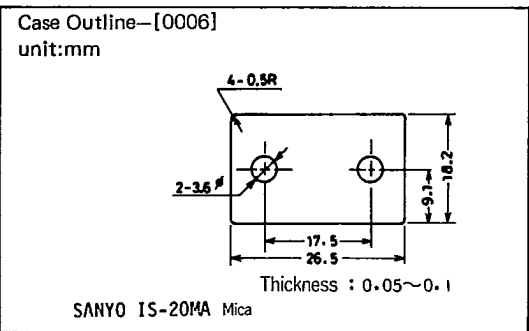
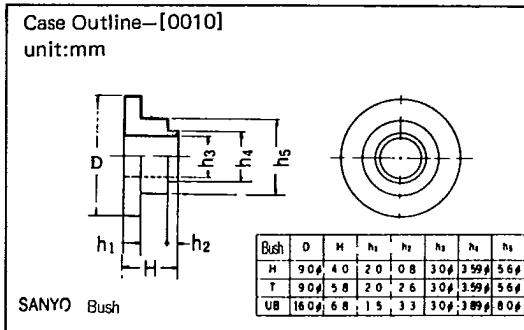
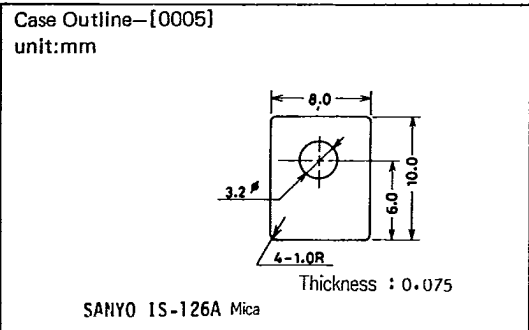
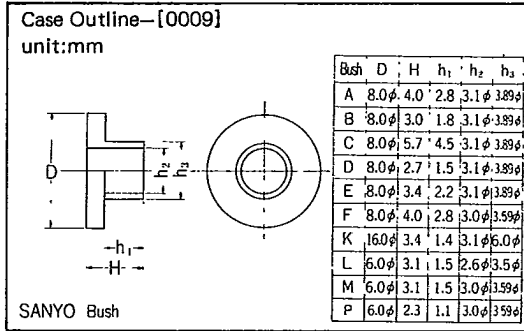
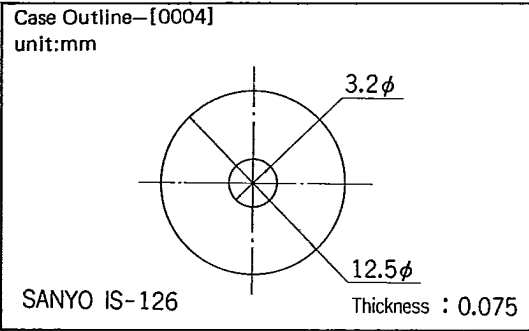
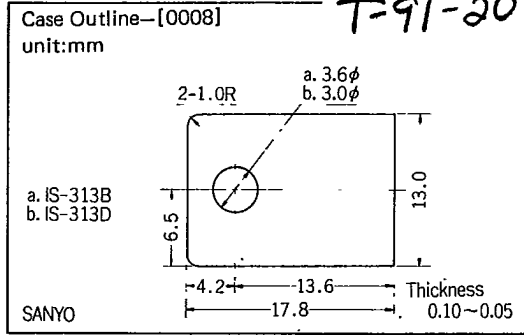
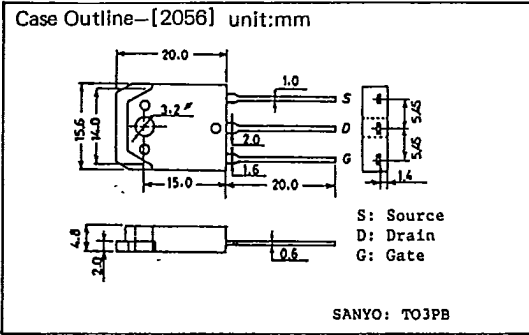


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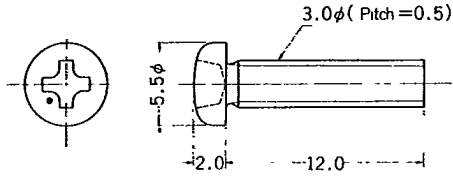


T-91-20



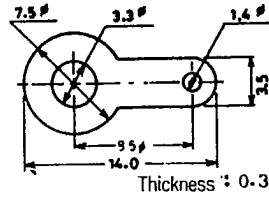


Case Outline-[0013]
unit:mm



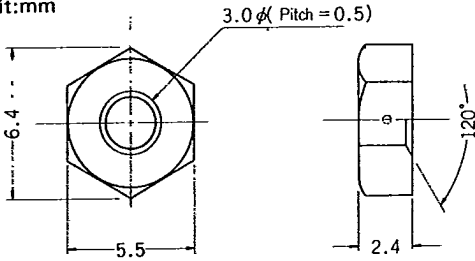
JIS No. B1111 M3×0.5

Case Outline-[0018]
unit:mm



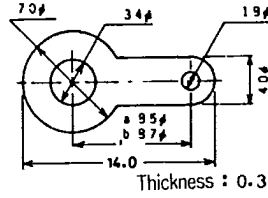
SANYO Lug 1.4

Case Outline-[0014]
unit:mm



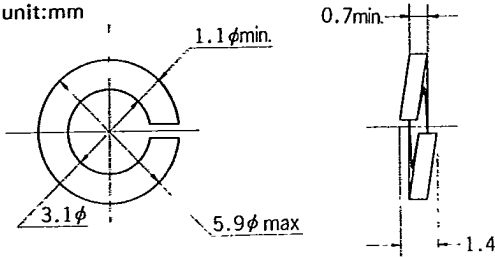
JIS No. B1181 M3×0.5

Case Outline-[0019]
unit:mm



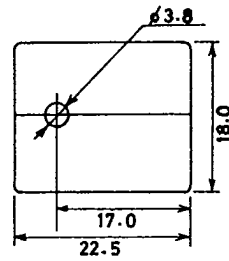
SANYO Lug 1.8φ

Case Outline-[0015]
unit:mm



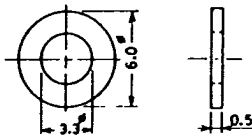
JIS No. B 1251 Spring washer (M3)

Case Outline-[0020]
unit:mm



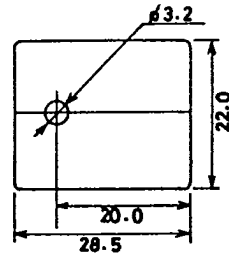
SANYO IS-3MP Mica

Case Outline-[0016]
unit:mm



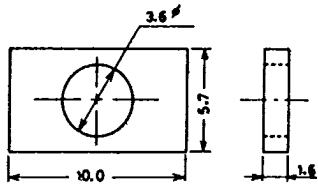
JIS No. B1252 Flat washer

Case Outline-[0021]
unit:mm



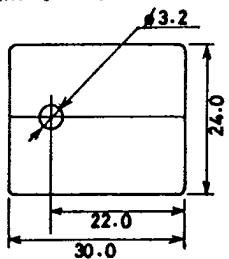
SANYO IS-MPC Mica

Case Outline-[0017]
unit:mm



JIS No. G3141 Rectangular washer

Case Outline-[0022]
unit:mm



SANYO IS-3PBL Mica