SANYO

No.1334C

2SA1319/2SC3332

PNP/NPN Epitaxial Planar Silicon Transistors

High-Voltage Switching Applications

Features

- High breakdown voltage.
- Excellent h_{FE} linearity.
- Wide ASO and highly resistant to breakdown.
- Adoption of MBIT process.

( ): 2SA1319

Absolute Maximum Ratings/T_a = 25°C

			unit
Collector to Base Voltage	V_{CBO}	(–)180	V
Collector to Emitter Voltage	V_{CEO}	(–)160	V
Emitter to Base Voltage	V_{EBO}	(–)6	V
Collector Current	I_C	(–)0.7	A
Collector Current(Pulse)	I_{CP}	(–)1.5	A
Collector Dissipation	P_C	700	mW
Junction Temperature	T_j	150	°C
Storage Temperature	T_{stg}	–55 to +150	°C

Electrical Characteristics/T_a=25°C

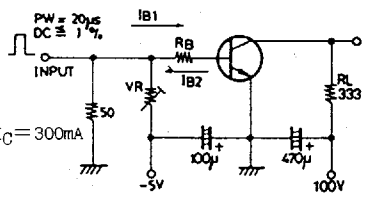
			min	typ	max	unit
Collector Cutoff Current	I_{CBO}	V_{CB}=(–)120V, I_E=0			(–)0.1	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}=(–)4V, I_C=0			(–)0.1	μA
DC Current Gain	$h_{FE(1)}$	V_{CE}=(–)5V, I_C=(–)100mA	100*		400*	
	$h_{FE(2)}$	V_{CE}=(–)5V, I_C=(–)10mA	80			
Gain-bandwidth product	f_T	V_{CE}=(–)10V, I_C=(–)50mA		120		MHz
Common Base Output Capacitance	c_{ob}	V_{CB}=(–)10V		(11)8		pF
Collector to Emitter Saturation Voltage	$V_{CE(sat)}$	I_C=(–)250mA, I_B=(–)25mA		0.12	0.4	V
				(0.20)	(0.5)	V
Base to Emitter Saturation Voltage	$V_{BE(sat)}$	I_C=(–)250mA, I_B=(–)25mA		(–)0.85	(–)1.2	V
Collector to Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=(–)10μA, I_E=0	(–)180			V
Collector to Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=(–)1mA, R_{BE}=∞	(–)160			V
Emitter to Base Breakdown Voltage	$V_{(BR)EBO}$	I_E=(–)10μA, I_C=0	(–)6			V
Turn-on Time	t_{on}	At specified test circuit		(60)50		ns
Storage Time	t_{stg}	"		(900)1000		ns
Fall Time	t_f	"		(60)60		ns

*: The 2SA1319/2SC3332 are classified by 100mA h_{FE} as follows:

100	R	200	140	S	280	200	T	400

Switching Time Test Circuit

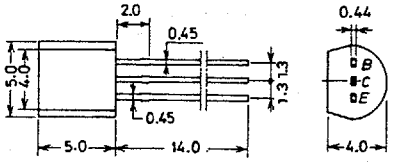
(For PNP, the polarity is reversed.)



$20I_{B1} = -20I_{B2} = I_C = 300mA$

Unit(Resistance : Ω , Capacitance : F)

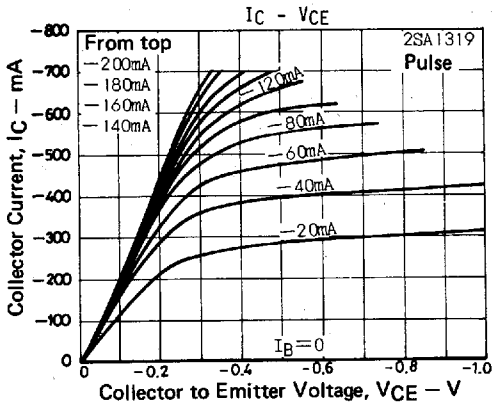
Case Outline 2003A
(unit: mm)

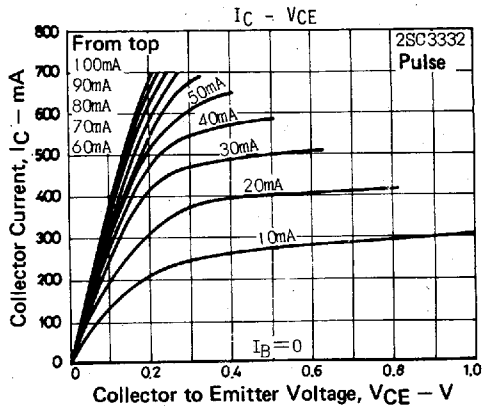


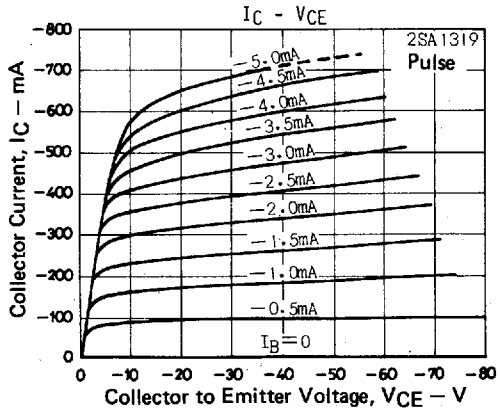
JEDEC: TO-92
EIAJ : SC-43
SANYO: NP

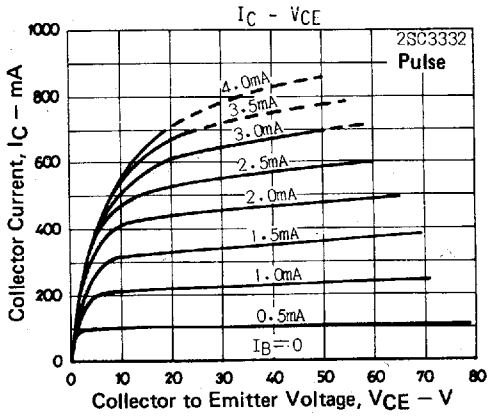
B. Base
C. Collector
E. Emitter

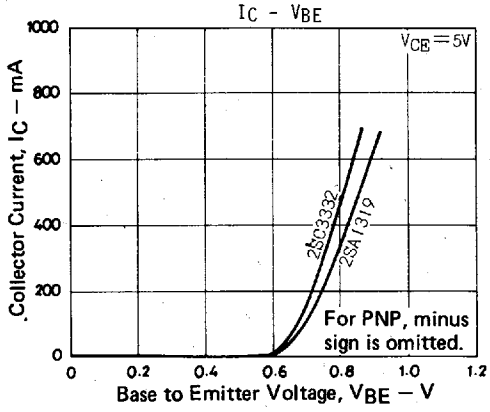
Specifications and information herein are subject to change without notice.

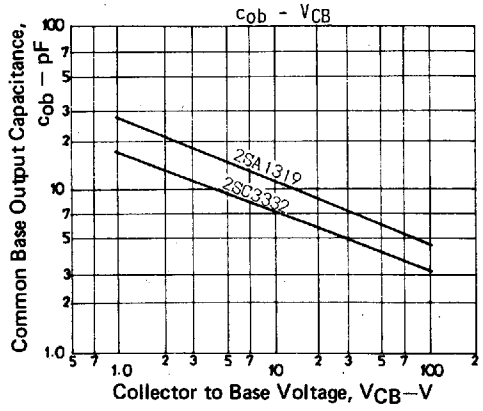


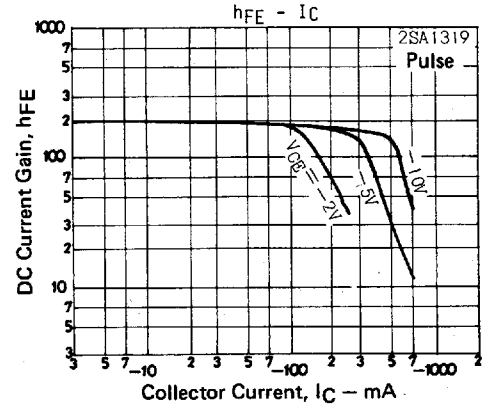


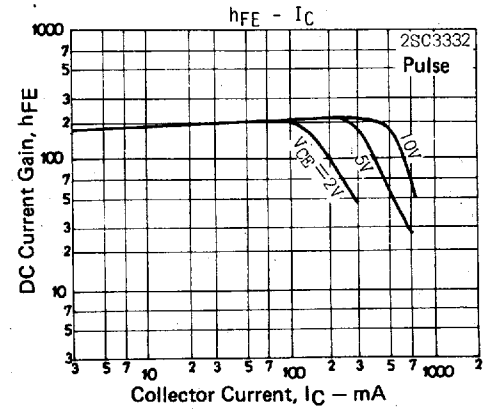


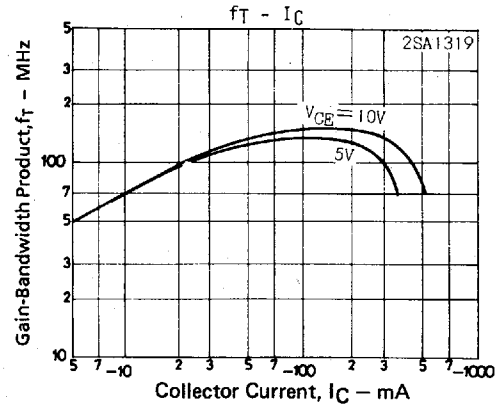


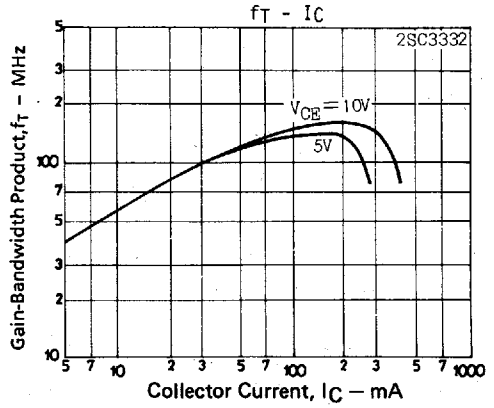


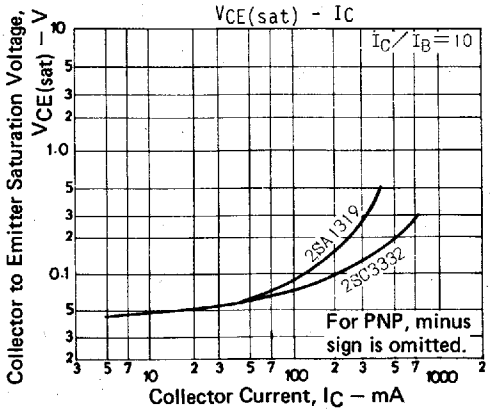


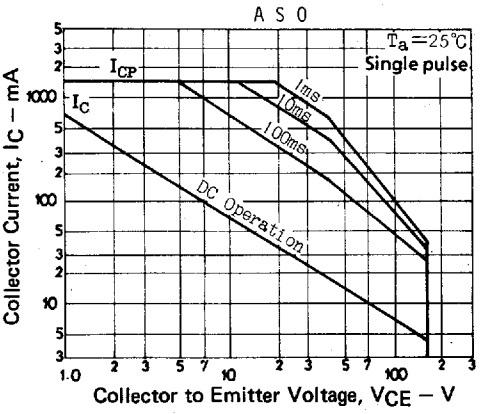


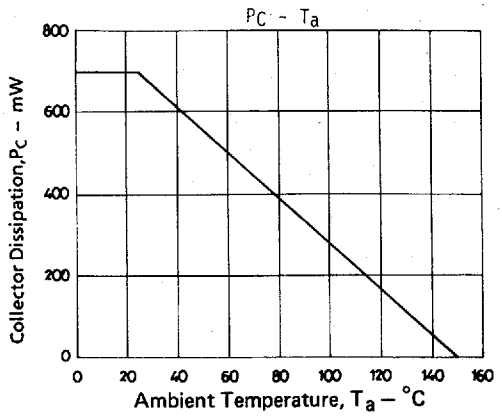



fT - IC
2SA1319
VCE=10V
5V
Gain-Bandwidth Product, fT – MHz
Collector Current, IC – mA


fT - IC
2SC3332
VCE=10V
5V
Gain-Bandwidth Product, fT – MHz
Collector Current, IC – mA


VCE(sat) - IC
IC / IB=10
2SA1319
2SC3332
For PNP, minus sign is omitted.
Collector to Emitter Saturation Voltage, VCE(sat) – V
Collector Current, IC – mA

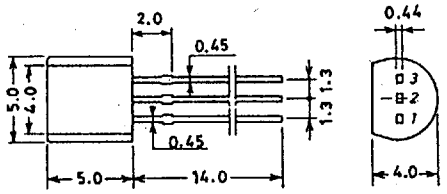

A S O
Ta=25°C
Single pulse
ICP
IC
1ms
10ms
100ms
DC Operation
Collector Current, IC – mA
Collector to Emitter Voltage, VCE – V


PC - Ta
Collector Dissipation, PC – mW
Ambient Temperature, Ta – °C

CASE OUTLINES OF LEAD FORMED SMALL SIGNAL TRANSISTORS

- All of Sanyo lead formed small signal 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.

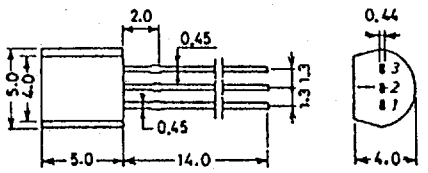
Case Outline 2003A/2003B (unit : mm)



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

1 : Emitter
2 : Collector
3 : Base

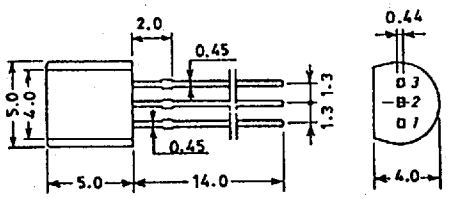
Case Outline 2019A/2019B (unit : mm)



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

1 : Source
2 : Gate
3 : Drain

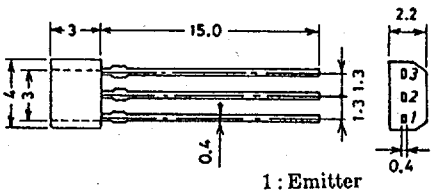
Case Outline 2004A (unit : mm)



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

1 : Base
2 : Emitter
3 : Collector

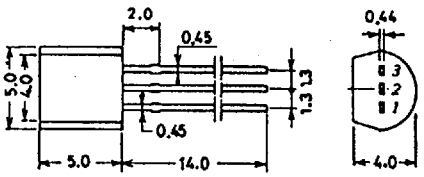
Case Outline 2033 (unit : mm)



1 : Emitter
2 : Collector
3 : Base

SANYO : SPA

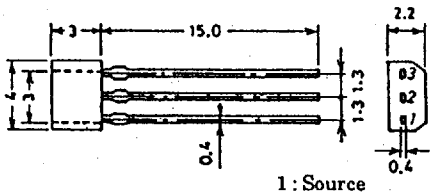
Case Outline 2005A (unit : mm)



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

1 : Drain
2 : Source
3 : Gate

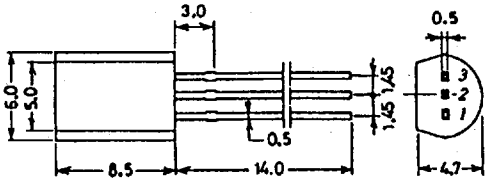
Case Outline 2034/2034A (unit : mm)



1 : Source
2 : Gate
3 : Drain

SANYO : SPA

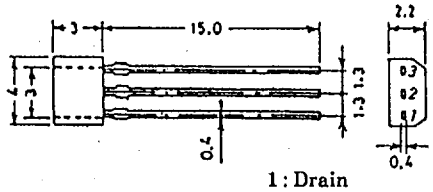
Case Outline 2006A (unit : mm)



EIAJ : SC-51
SANYO : MP

1 : Emitter
2 : Collector
3 : Base

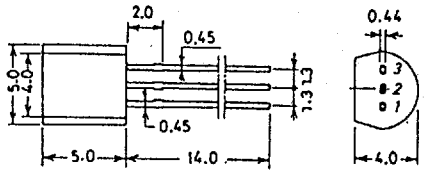
Case Outline 2040 (unit : mm)



1 : Drain
2 : Source
3 : Gate

SANYO : SPA

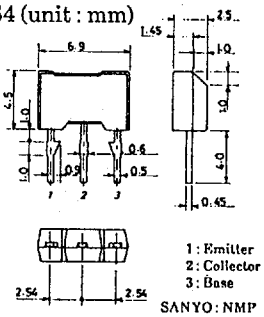
Case Outline 2061 (unit : mm)



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

1 : Emitter
2 : Base
3 : Collector

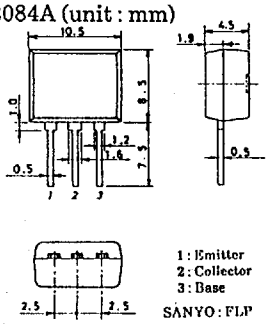
Case Outline 2064 (unit : mm)



1 : Emitter
2 : Collector
3 : Base

SANYO : NMP

Case Outline 2084A (unit : mm)



1 : Emitter
2 : Collector
3 : Base

SANYO : FLP