

# 2SC3142

T-31-15



2018A NPN Epitaxial Planar Silicon Transistor

## High-Frequency General-Purpose Amp Applications

©1066A

### Features

- FBET series.
- Compact package enabling compactness of sets.
- High  $f_T$  and small  $c_{re}$ . ( $f_T=750\text{MHz typ}$ ,  $c_{re}=0.6 \text{ typ}$ )

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

			unit
Collector to Base Voltage	$V_{CBO}$	25	V
Collector to Emitter Voltage	$V_{CEO}$	20	V
Emitter to Base Voltage	$V_{EBO}$	3	V
Collector Current	$I_C$	30	mA
Collector Dissipation	$P_C$	150	mW
Junction Temperature	$T_j$	125	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-40 to +125	$^\circ\text{C}$

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

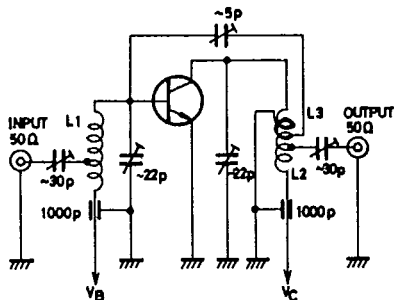
			min	typ	max	unit
Collector Cutoff Current	$I_{CBO}$	$V_{CB}=10\text{V}, I_E=0$			0.1	$\mu\text{A}$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=3\text{V}, I_C=0$			0.1	$\mu\text{A}$
DC Current Gain	$h_{FE}$	$V_{CE}=6\text{V}, I_C=1\text{mA}$	40*		180*	
Gain-Bandwidth Product	$f_T$	$V_{CE}=6\text{V}, I_C=4\text{mA}$	450	750		MHz
Feedback Capacitance	$c_{re}$	$V_{CB}=6\text{V}, f=1\text{MHz}$		0.6	0.9	pF
B to C Time Constant	$r_{bb}'C_c$	$V_{CB}=6\text{V}, I_C=1\text{mA}, f=31.9\text{MHz}$			19	ps
Noise Figure	NF	$V_{CE}=6\text{V}, I_C=1\text{mA}, f=100\text{MHz}$		2.2		dB
Power Gain	PG	$V_{CE}=6\text{V}, I_C=1\text{mA}, f=100\text{MHz}$		28		dB

\* The 2SC3142 is classified as follows according to  $h_{FE}$  at 1mA:

40	2	80	60	3	120	90	4	180
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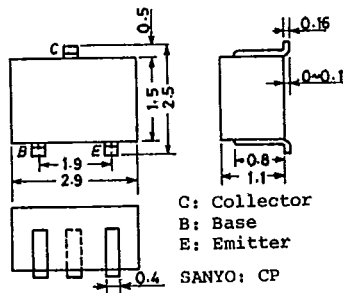
(Note) Marking : J  
 $h_{FE}$  rank: 2,3,4

### NF, PG Test Circuit



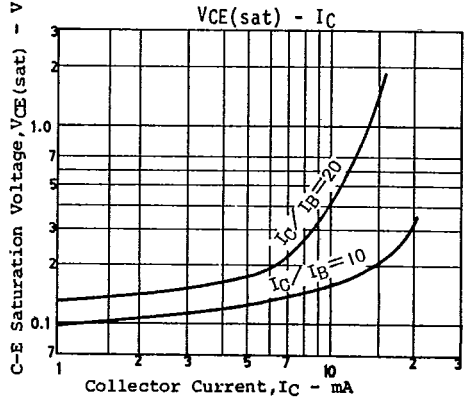
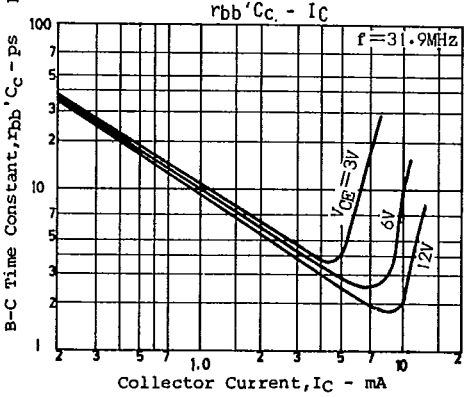
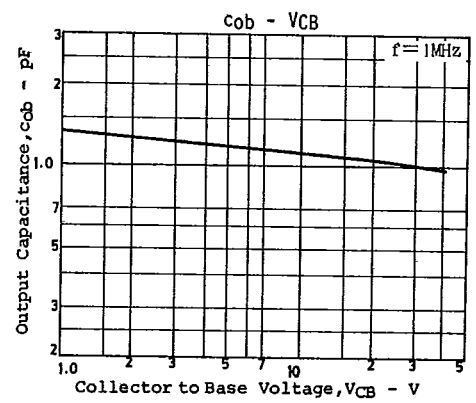
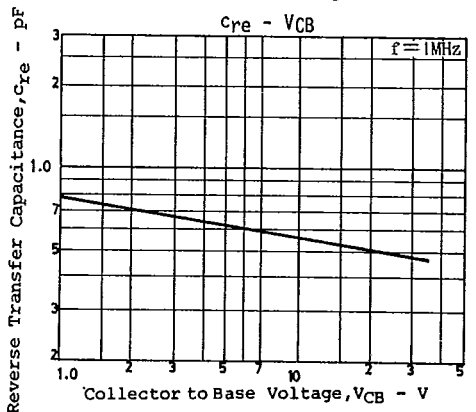
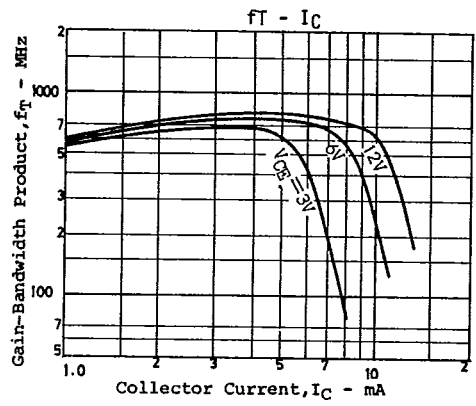
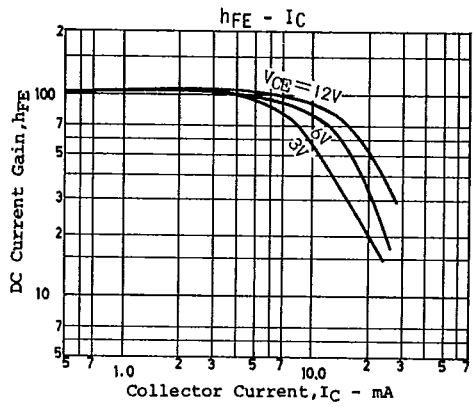
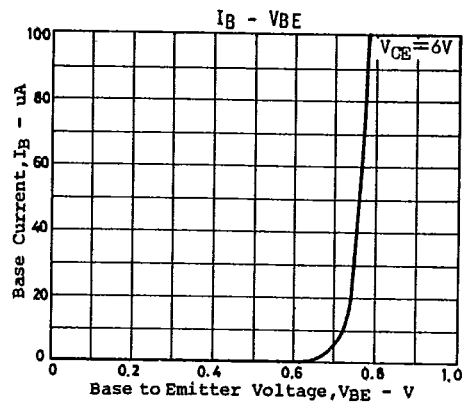
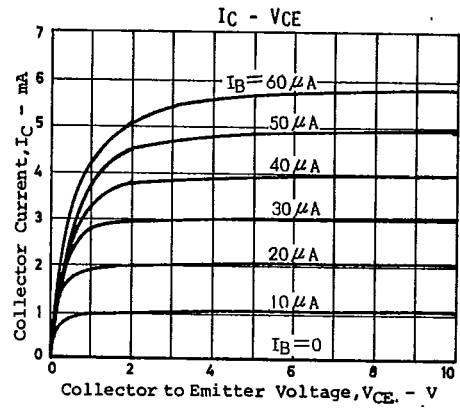
- L1 : 1mm $\phi$  plated wire 10mm $\phi$  5T, pitch 15mm, tap : 2T from base.
- L2 : 1mm $\phi$  plated wire 10mm $\phi$  7T, pitch 10mm, tap : 2T from  $V_C$ .
- L3 : 1mm $\phi$  enameled wire 10mm $\phi$  3T, pitch 10mm.

### Case Outline 2018A (unit:mm)



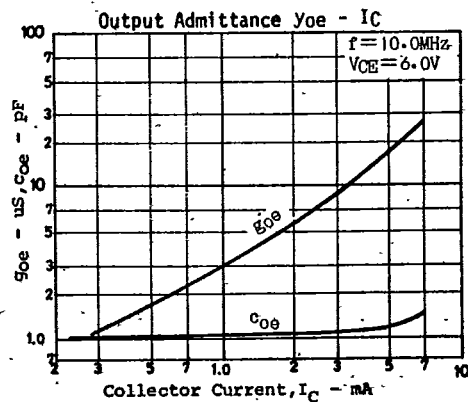
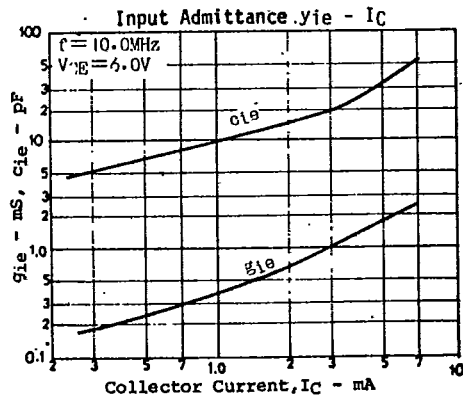
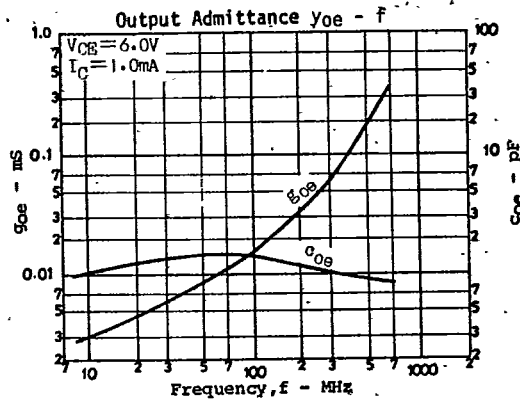
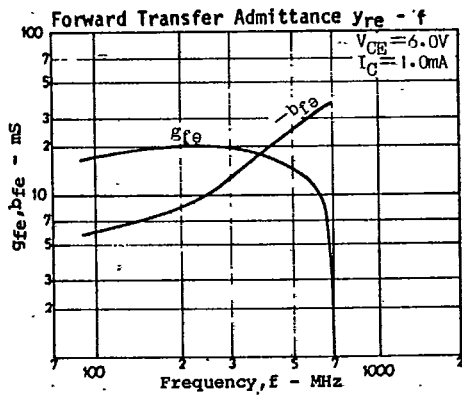
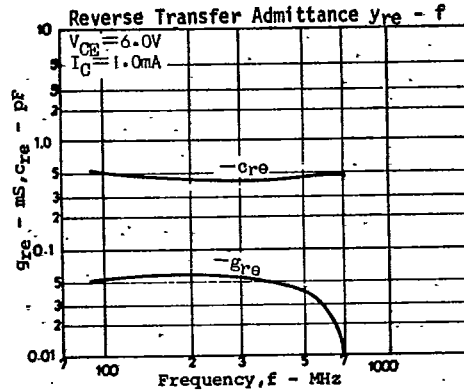
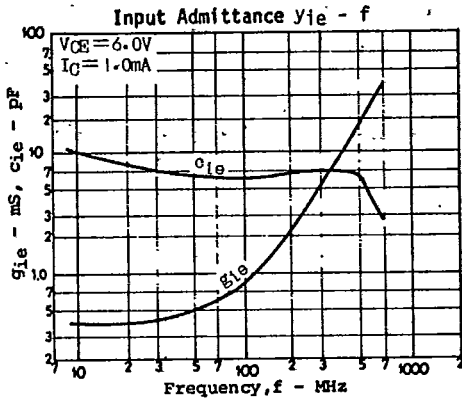
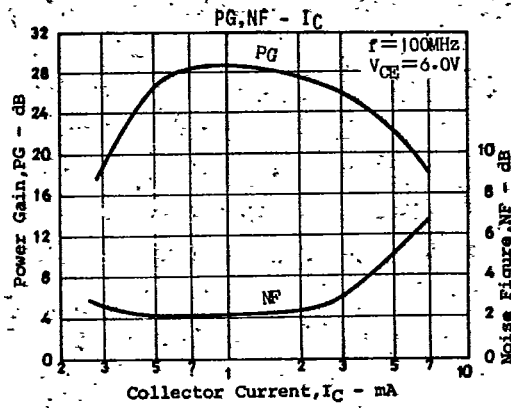
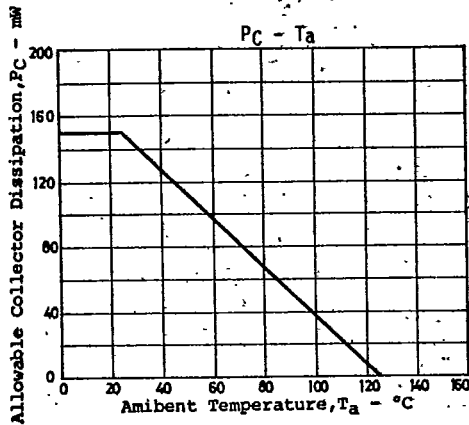
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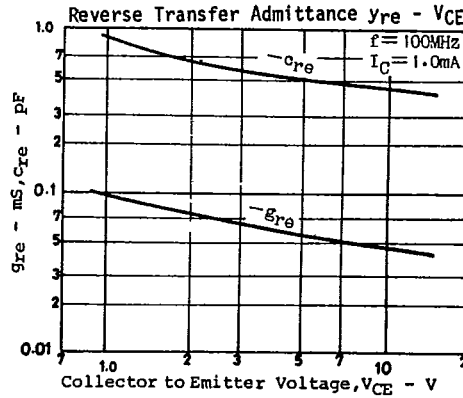
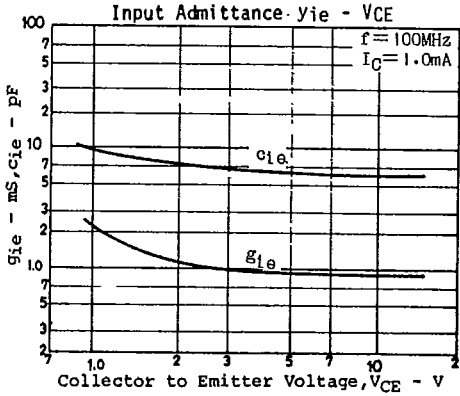
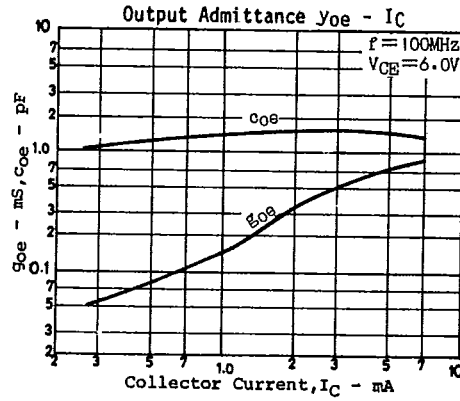
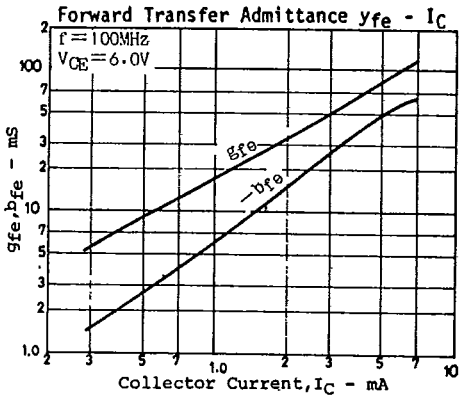
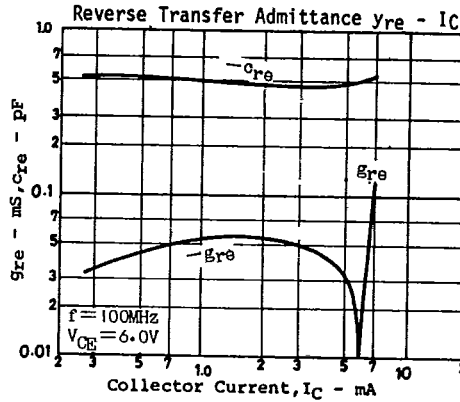
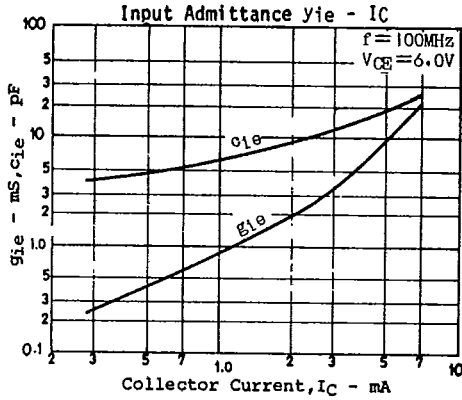
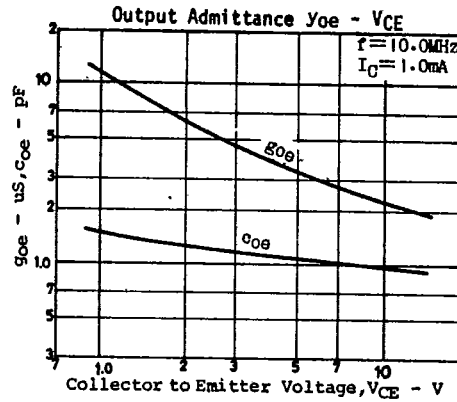
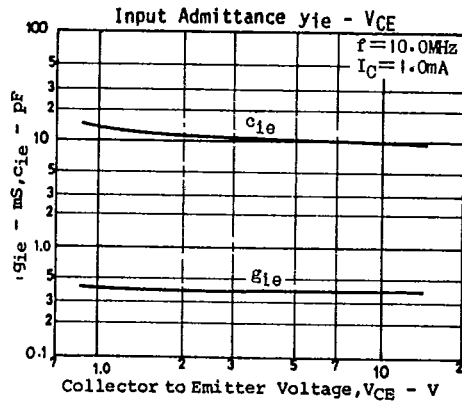
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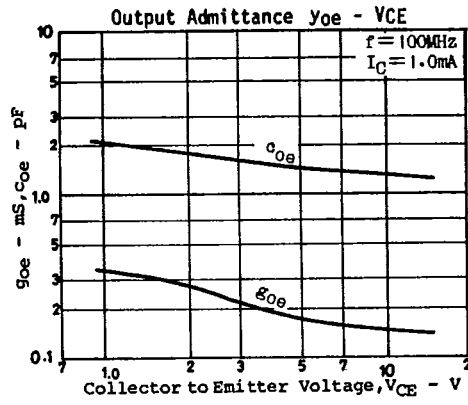
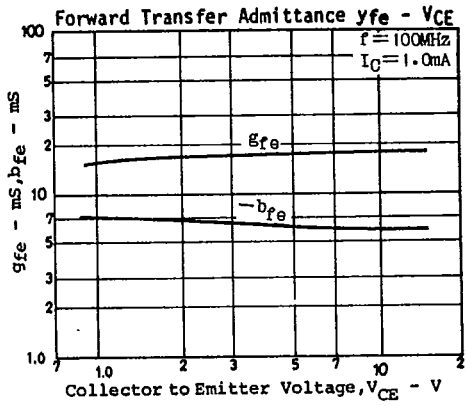
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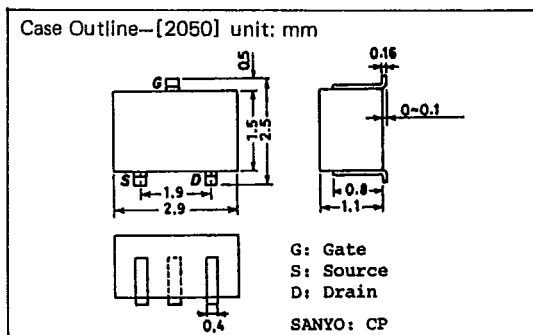
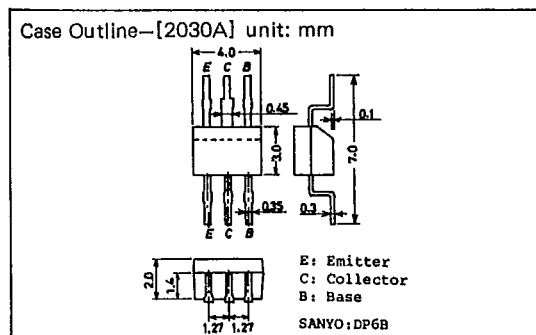
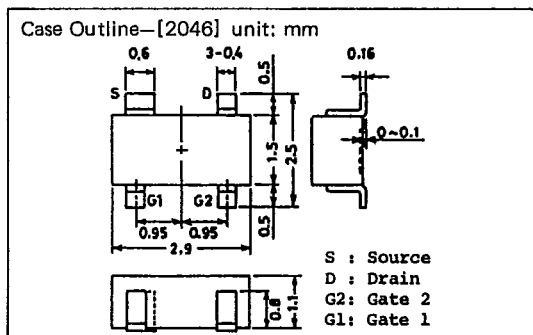
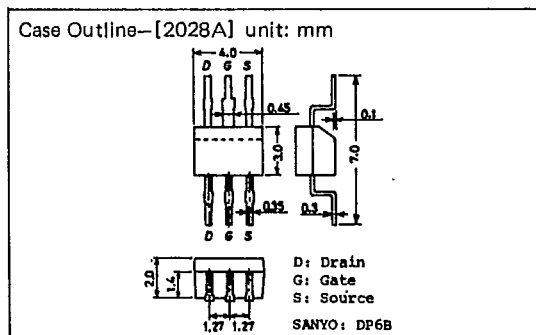
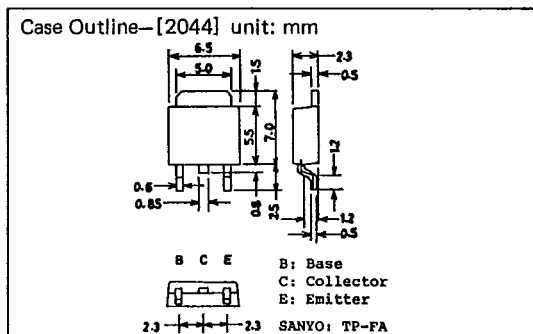
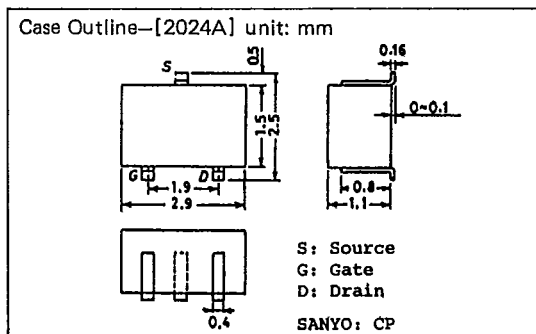
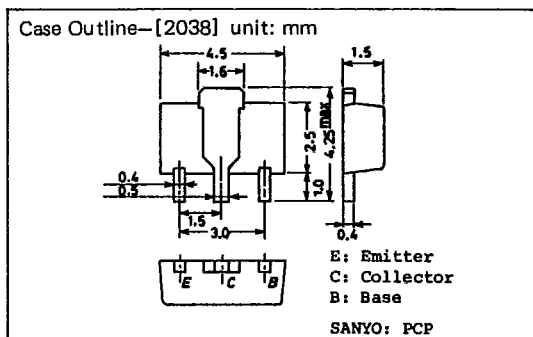
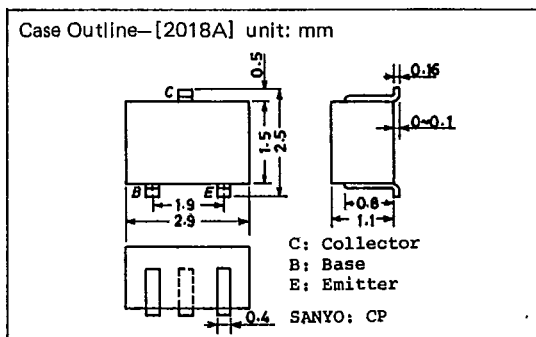
T-31-15



T-91-20

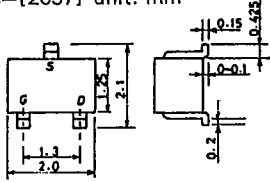
# CASE OUTLINES OF SURFACE MOUNT TRANSISTORS

- All of Sanyo surface mount 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.



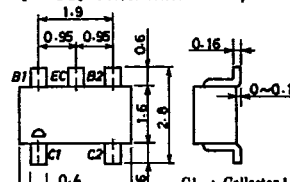
T-91-20

Case Outline—[2057] unit: mm



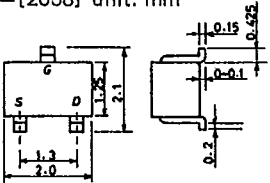
S: Source  
G: Gate  
D: Drain  
SANYO: MCP

Case Outline—[2066] unit: mm



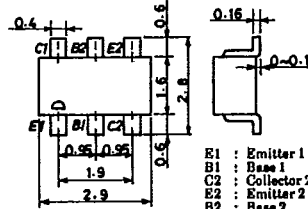
C1 : Collector 1  
C2 : Collector 2  
B2 : Base 2  
EC : Emitter Common  
B1 : Base 1  
SANYO : CP6

Case Outline—[2058] unit: mm



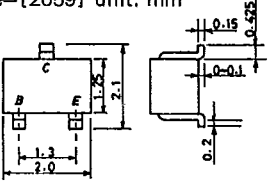
G: Gate  
S: Source  
D: Drain  
SANYO: MCP

Case Outline—[2067] unit: mm



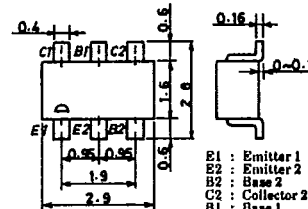
E1 : Emitter 1  
B1 : Base 1  
C2 : Collector 2  
E2 : Emitter 2  
B2 : Base 2  
C1 : Collector 1  
SANYO : CP6

Case Outline—[2059] unit: mm



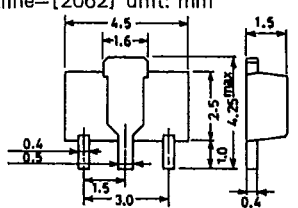
B: Base  
C: Collector  
E: Emitter  
SANYO: MCP

Case Outline—[2068] unit: mm



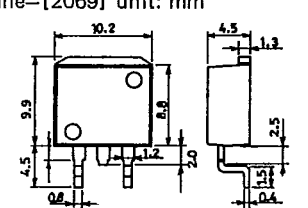
E1 : Emitter 1  
E2 : Emitter 2  
B2 : Base 2  
C2 : Collector 2  
B1 : Base 1  
C1 : Collector 1  
SANYO : CP6

Case Outline—[2062] unit: mm



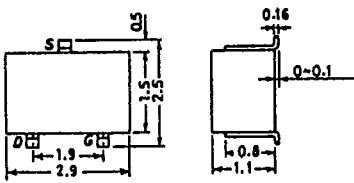
S: Source  
D: Drain  
G: Gate  
SANYO: PCP

Case Outline—[2069] unit: mm



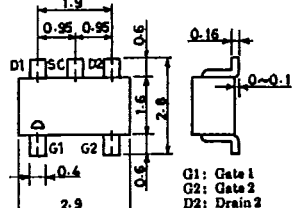
B: Base  
C: Collector  
E: Emitter  
SANYO: SMP

Case Outline—[2065] unit: mm



S: Source  
D: Drain  
G: Gate  
SANYO: CP

Case Outline—[2070] unit: mm



G1 : Gate 1  
G2 : Gate 2  
D2 : Drain 2  
SC : Source Common  
D1 : Drain 1  
SANYO : CP6

T-9120

