2SC4523

T-35-17

2044

NPN Epitaxial Planar Silicon Transistor

High-Speed Switching Applications

Ⓔ3142

Features

- Adoption of FBET, MBIT processes
- Large current capacity
- Low collector-to-emitter saturation voltage
- Fast switching speed

Absolute Maximum Ratings at Ta=25°C

				unit
Collector to Base Voltage	V_{CBO}		60	V
Collector to Emitter Voltage	V_{CEO}		45	V
Emitter to Base Voltage	V_{EBO}		5	V
Collector Current	I_C		8	A
Peak Collector Current	i_{cp}		12	A
Collector Dissipation	P_C		1	W
		Tc=25°C	15	W
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		−55 to +150	°C

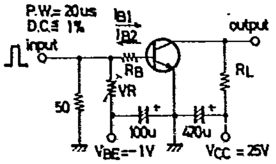
Electrical Characteristics at Ta=25°C

			min	typ	max	unit
Collector Cutoff Current	I_{CBO}	$V_{CB}=45V, I_E=0$			1	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=3V, I_C=0$			1	μA
DC Current Gain	$h_{FE}(1)$	$V_{CE}=2V, I_C=500mA$	100※		400※	
	$h_{FE}(2)$	$V_{CE}=2V, I_C=8A$	40			
Gain-Bandwidth Product	f_T	$V_{CE}=2V, I_C=500mA$		250		MHz
Output Capacitance	c_{ob}	$V_{CB}=10V, f=1MHz$		65		pF
C-E Saturation Voltage	$V_{CE(sat)}$	$I_C=4A, I_B=200mA$		0.25	0.7	V
B-E Saturation Voltage	$V_{BE(sat)}$	$I_C=4A, I_B=200mA$		0.95	1.3	V
C-B Breakdown Voltage	$V_{(BR)CBO}$	$I_C=100\mu A, I_E=0$	60			V
C-E Breakdown Voltage	$V_{(BR)CEO}$	$I_C=1mA, R_{BE}=\infty$	45			V
E-B Breakdown Voltage	$V_{(BR)EBO}$	$I_E=100\mu A, I_C=0$	5			V
Turn-ON Time	t_{on}	See specified Test Circuit.		50	100	ns
Storage Time	t_{stg}	〃		150	270	ns
Turn-OFF Time	t_{off}	〃		180	350	ns

※ : The 2SC4523 is classified by 500mA h_{FE} as follows :

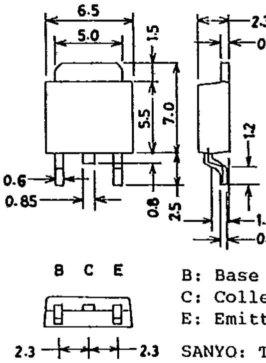
100 R 200	140 S 280	200 T 400

Switching Time Test Circuit



$20I_{B1} = -20I_{B2} = I_C = 4A$

Case Outline 2044
(unit : mm)



B: Base
C: Collector
E: Emitter

SANYO: TP-FA

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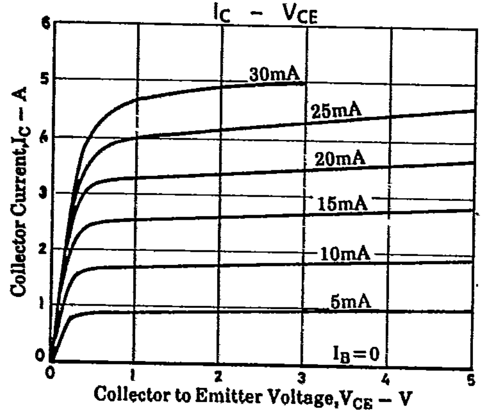
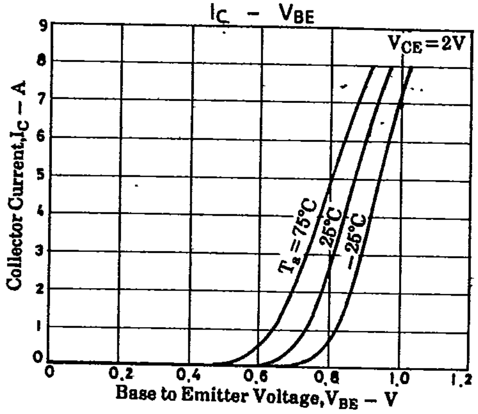
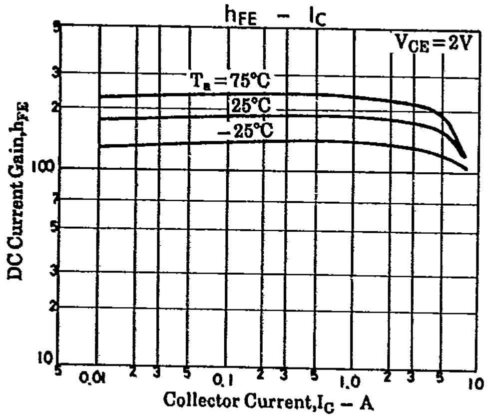
I_C - V_{CE}



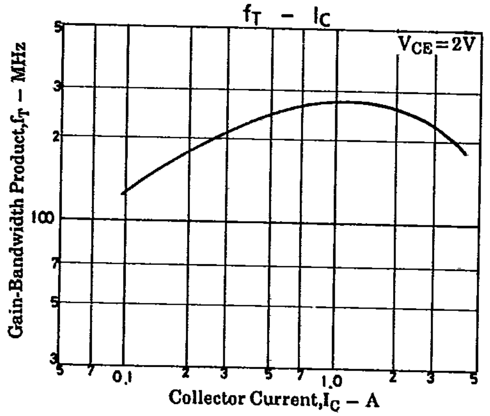
I_C - V_{BE}



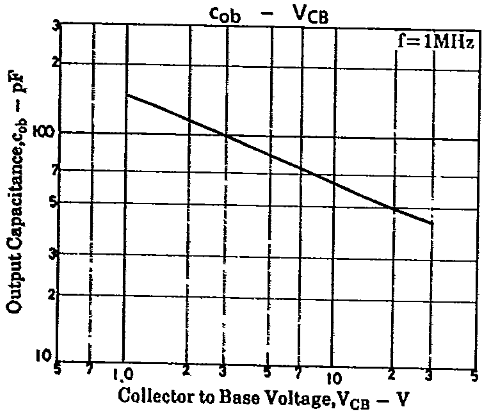
h_{FE} - I_C



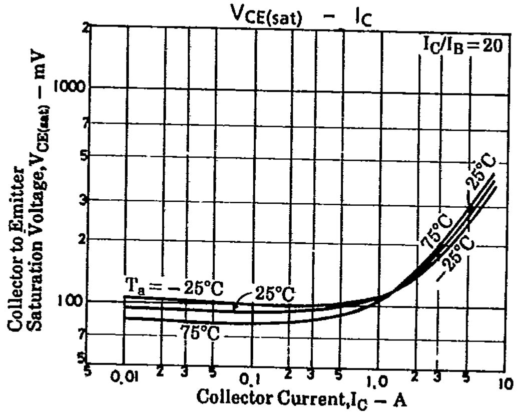
f_T - I_C



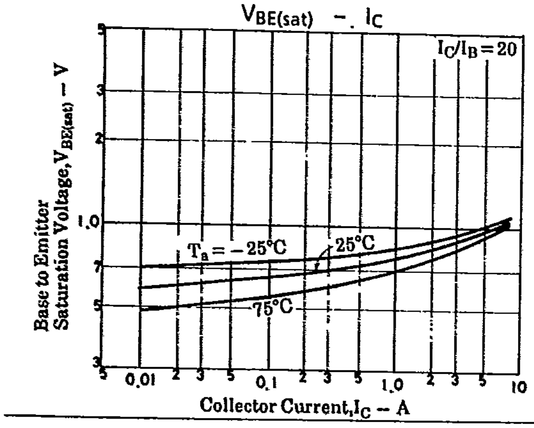
c_{ob} - V_{CB}



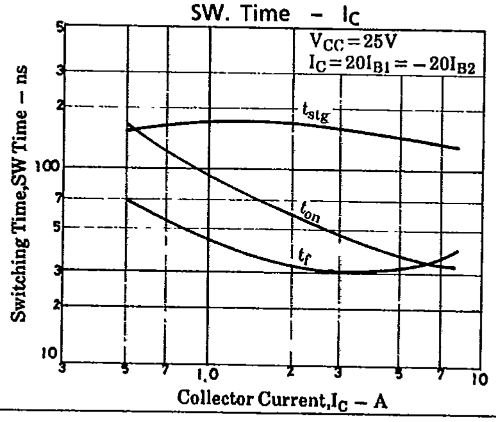
$V_{CE(sat)}$ - I_C



$V_{BE(sat)}$ - I_C



SW. Time - I_C



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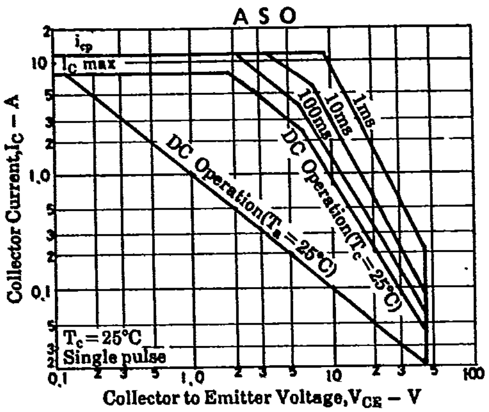
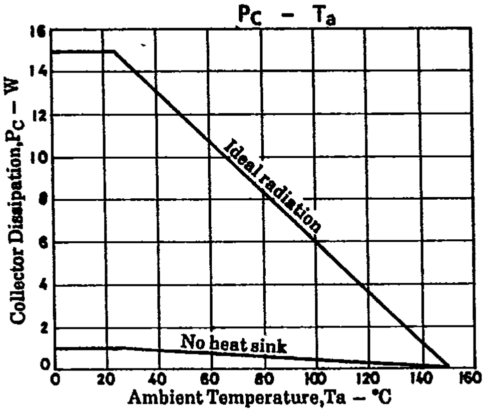

A S O
i_{cp}
I_C max
1ms
10ms
100ms
DC Operation(T_c=25°C)
DC Operation(T_a=25°C)
T_c=25°C
Single pulse
Collector Current,I_C – A
Collector to Emitter Voltage,V_{CE} – V
2
10
5
3
2
1.0
5
3
2
0.1
5
3
2
0.1
2
3
5
1.0
2
3
5
10
2
3
5
100


P_C – T_a
Ideal radiation
No heat sink
Collector Dissipation,P_C – W
Ambient Temperature,Ta – °C
16
14
12
10
8
6
4
2
0
0
20
40
60
80
100
120
140
160

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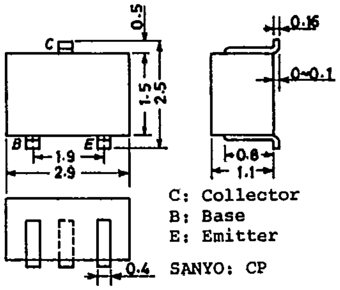
CASE OUTLINES OF SURFACE MOUNT TRANSISTORS

- ●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.

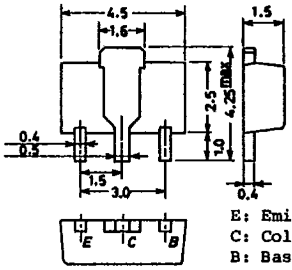
Case Outline—[2018A] unit: mm



C: Collector
B: Base
E: Emitter

SANYO: CP

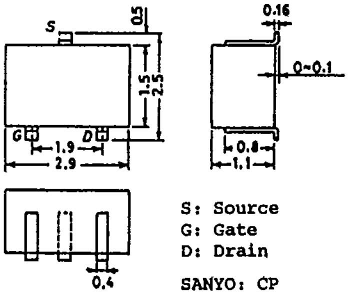
Case Outline—[2038] unit: mm



E: Emitter
C: Collector
B: Base

SANYO: PCP

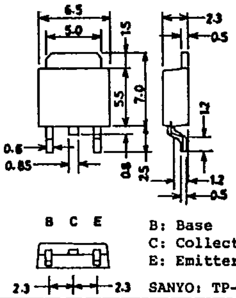
Case Outline—[2024A] unit: mm



S: Source
G: Gate
D: Drain

SANYO: CP

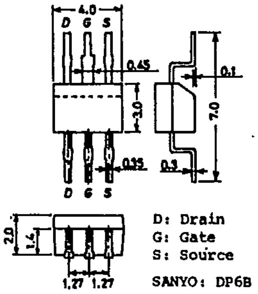
Case Outline—[2044] unit: mm



B: Base
C: Collector
E: Emitter

SANYO: TP-FA

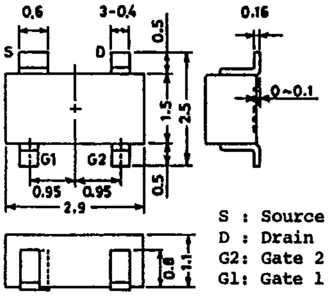
Case Outline—[2028A] unit: mm



D: Drain
G: Gate
S: Source

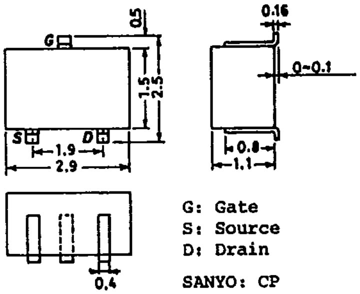
SANYO: DP6B

Case Outline—[2046] unit: mm



S : Source
D : Drain
G2: Gate 2
G1: Gate 1

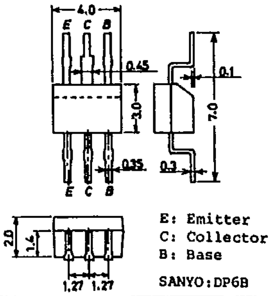
Case Outline—[2050] unit: mm



G: Gate
S: Source
D: Drain

SANYO: CP

Case Outline—[2030A] unit: mm



E: Emitter
C: Collector
B: Base

SANYO: DP6B

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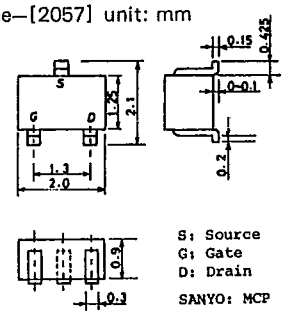
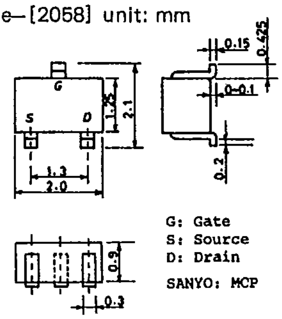
Case Outline–[2057] unit: mm



S: Source
G: Gate
D: Drain

SANYO: MCP

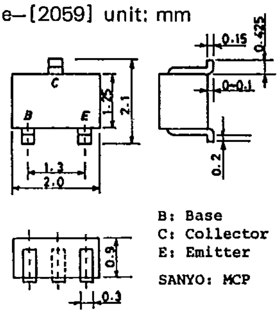
Case Outline–[2058] unit: mm



G: Gate
S: Source
D: Drain

SANYO: MCP

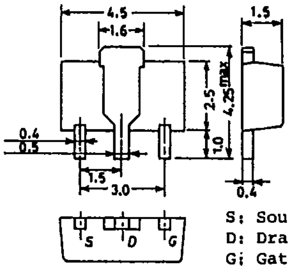
Case Outline–[2059] unit: mm



B: Base
C: Collector
E: Emitter

SANYO: MCP

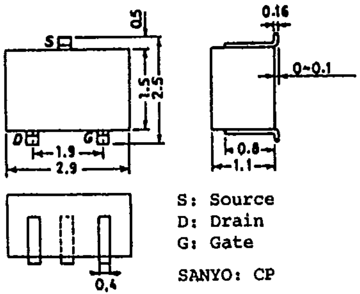
Case Outline–[2062] unit: mm



S: Source
D: Drain
G: Gate

SANYO: PCP

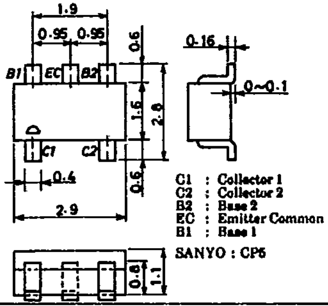
Case Outline–[2065] unit: mm



S: Source
D: Drain
G: Gate

SANYO: CP

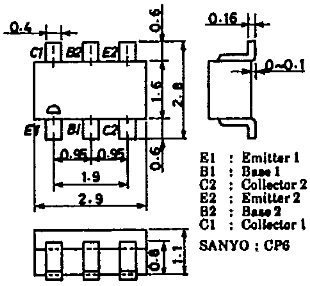
Case Outline–[2066] unit: mm



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

SANYO : CP6

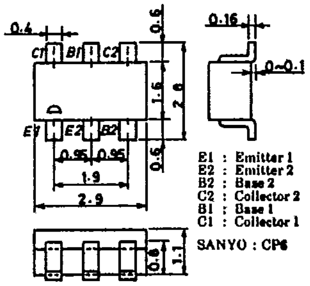
Case Outline–[2067] unit: mm



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

SANYO : CP6

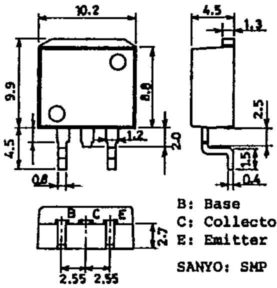
Case Outline–[2068] unit: mm



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

SANYO : CP6

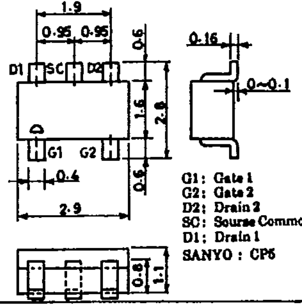
Case Outline–[2069] unit: mm



B: Base
C: Collector
E: Emitter

SANYO: SMP

Case Outline–[2070] unit: mm



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

SANYO : CP6

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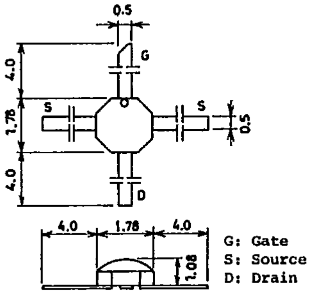
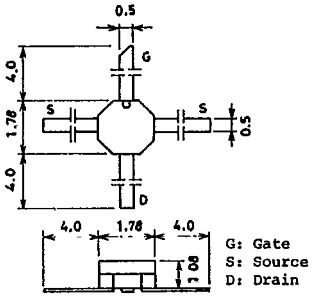
Case Outline–[2071] unit: mm



Case Outline–[2072] unit: mm



Case Outline–[2073] unit: mm