

# 2SA1641

T-37-15



2044 PNP Epitaxial Planar Silicon Transistor

## High-Current Switching Applications

© 2926A

**Features**

- Adoption of FBET, MBIT processes.
- Low saturation voltage.
- Fast switching speed.
- Large current capacity.
- Small and slim package making it easy to make 2SA1641-used set smaller

**Absolute Maximum Ratings at Ta = 25°C**

			unit
Collector to Base Voltage	V <sub>CB0</sub>	-25	V
Collector to Emitter Voltage	V <sub>CEO</sub>	-20	V
Emitter to Base Voltage	V <sub>EBO</sub>	-5	V
Collector Current	I <sub>C</sub>	-8	A
Peak Collector Current	i <sub>cp</sub>	-12	A
Base Current	I <sub>B</sub>	-1.5	A
Collector Dissipation	P <sub>C</sub>	1	W
		15	W
Junction Temperature	T <sub>j</sub>	150	°C
Storage Temperature	T <sub>stg</sub>	-55 to +150	°C

Tc = 25°C

**Electrical Characteristics at Ta = 25°C**

			min	typ	max	unit
Collector Cutoff Current	I <sub>CB0</sub>	V <sub>CB</sub> = -20V, I <sub>E</sub> = 0			-1	μA
Emitter Cutoff Current	I <sub>EBO</sub>	V <sub>EB</sub> = -4V, I <sub>C</sub> = 0			-1	μA
DC Current Gain	h <sub>FE</sub> (1)	V <sub>CE</sub> = -2V, I <sub>C</sub> = -500mA	100*		400*	
	h <sub>FE</sub> (2)	V <sub>CE</sub> = -2V, I <sub>C</sub> = -6A	60			
Gain-Bandwidth Product	f <sub>T</sub>	V <sub>CE</sub> = -2V, I <sub>C</sub> = -500mA		200		MHz
C-E Saturation Voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> = -5A, I <sub>B</sub> = -250mA	-220	-400		mV
B-E Saturation Voltage	V <sub>BE(sat)</sub>	I <sub>C</sub> = -5A, I <sub>B</sub> = -250mA	-1	-1.3		V
Collector Output Capacitance	c <sub>ob</sub>	V <sub>CB</sub> = -10V, f = 1MHz		85		pF
C-B Breakdown Voltage	V <sub>(BR)CBO</sub>	I <sub>C</sub> = -10μA, I <sub>E</sub> = 0	-25			V
C-E Breakdown Voltage	V <sub>(BR)CEO</sub>	I <sub>C</sub> = -1mA, R <sub>BE</sub> = ∞	-20			V
E-B Breakdown Voltage	V <sub>(BR)EBO</sub>	I <sub>E</sub> = -10μA, I <sub>C</sub> = 0	-5			V

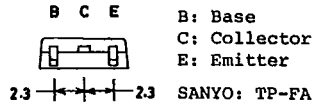
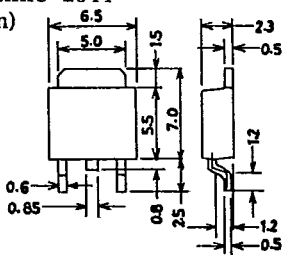


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\*: The 2SA1641 is classified by 500mA h<sub>FE</sub> as follows:

100	R	200	140	S	280	200	T	400
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**Case Outline 2044**  
(unit: mm)

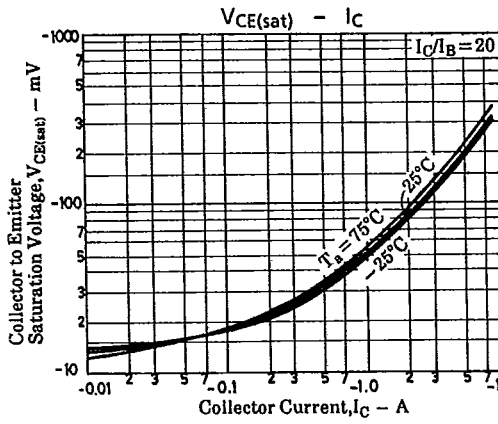
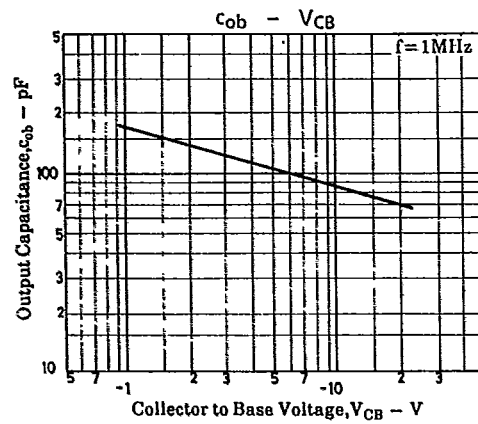
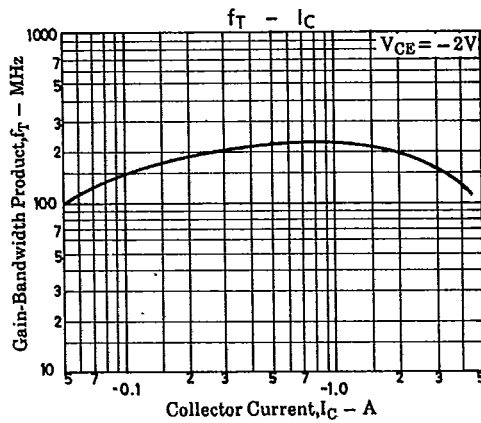
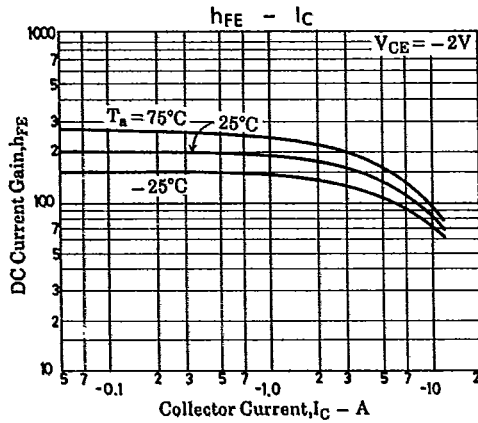
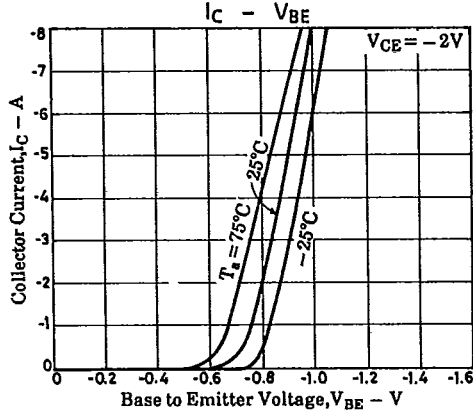
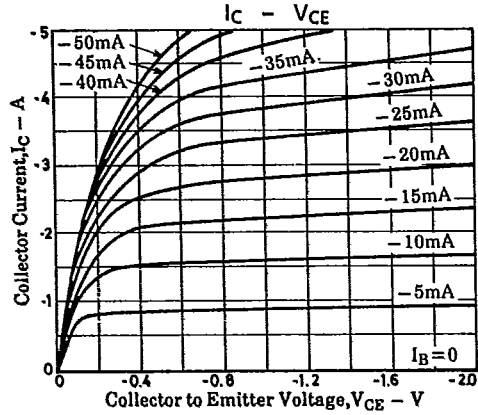
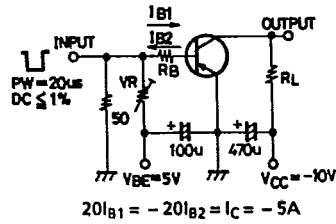


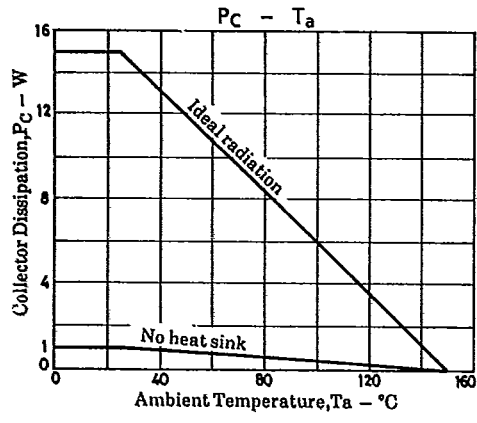
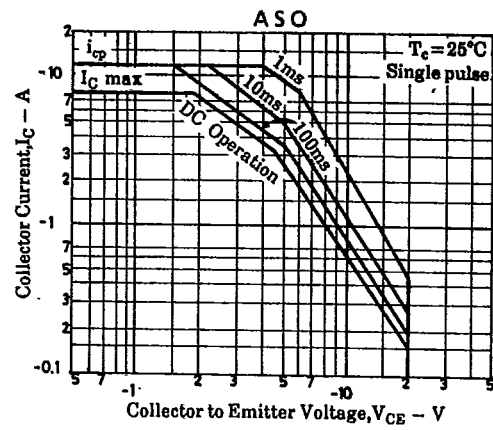
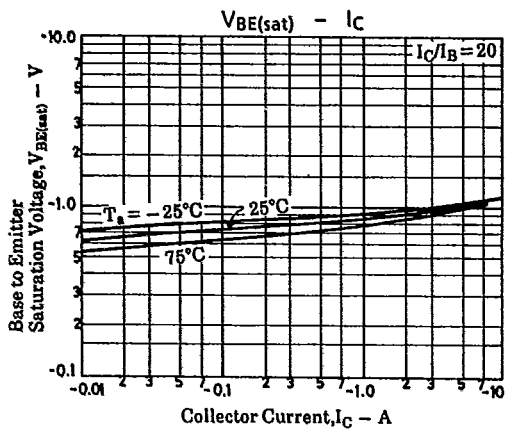
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		min	typ	max	unit
Turn-on Time	$t_{on}$		30	300	ns
Storage Time	$t_{stg}$		200	800	ns
Fall Time	$t_f$		15	150	ns

See specified Test Circuit.

Switching Time Test Circuit

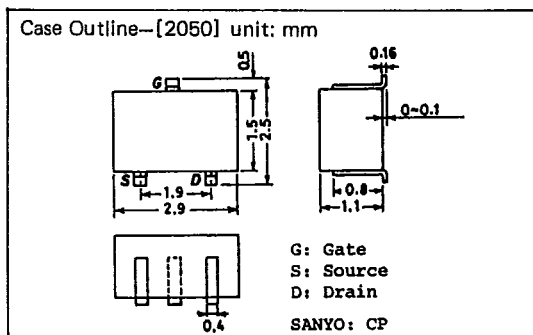
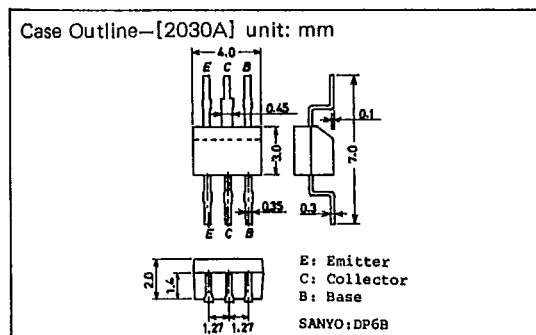
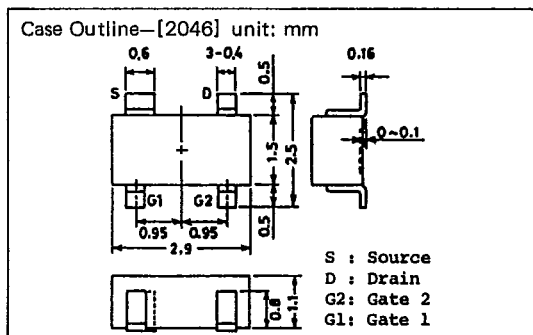
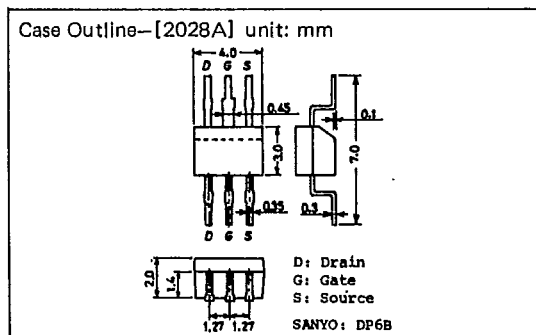
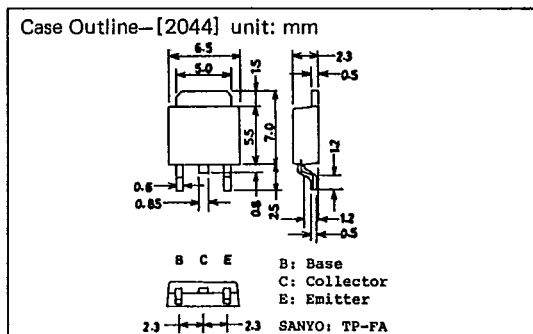
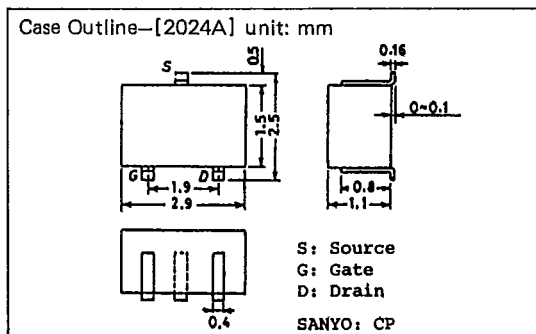
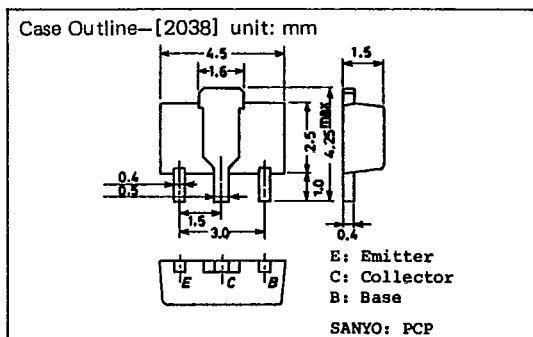
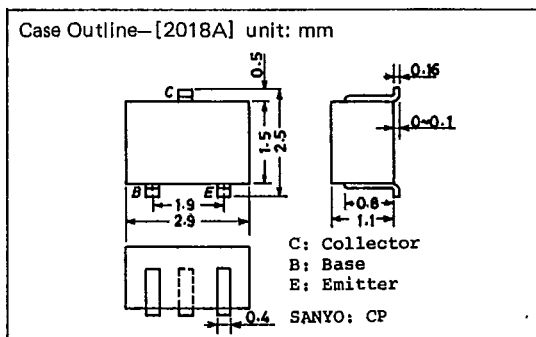




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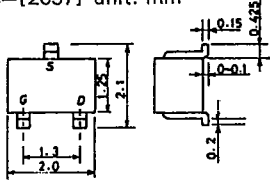
# CASE OUTLINES OF SURFACE MOUNT TRANSISTORS

- 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.



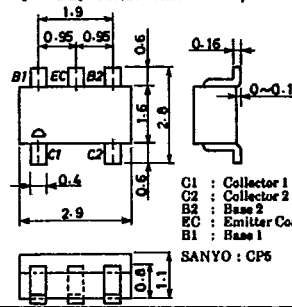
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Case Outline—[2057] unit: mm



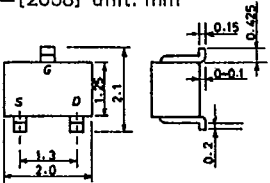
S: Source  
G: Gate  
D: Drain  
SANYO: MCP

Case Outline—[2066] unit: mm



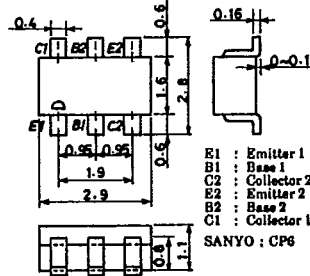
C1 : Collector 1  
C2 : Collector 2  
B2 : Base 2  
EC : Emitter Common  
B1 : Base 1  
SANYO : CP6

Case Outline—[2058] unit: mm



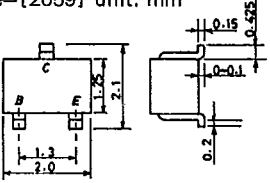
G: Gate  
S: Source  
D: Drain  
SANYO: MCP

Case Outline—[2067] unit: mm



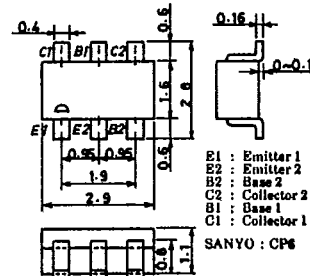
E1 : Emitter 1  
B1 : Base 1  
C2 : Collector 2  
E2 : Emitter 2  
B2 : Base 2  
C1 : Collector 1  
SANYO : CP6

Case Outline—[2059] unit: mm



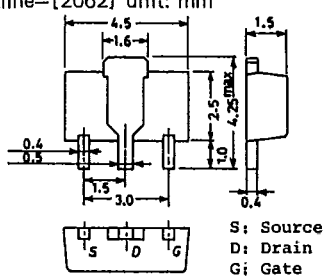
B: Base  
C: Collector  
E: Emitter  
SANYO: MCP

Case Outline—[2068] unit: mm



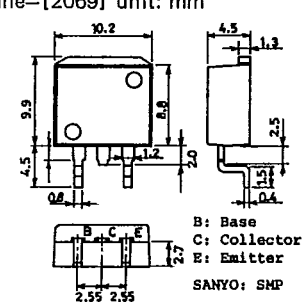
B1 : Emitter 1  
E2 : Emitter 2  
B2 : Base 2  
C2 : Collector 2  
B1 : Base 1  
C1 : Collector 1  
SANYO : CP6

Case Outline—[2062] unit: mm



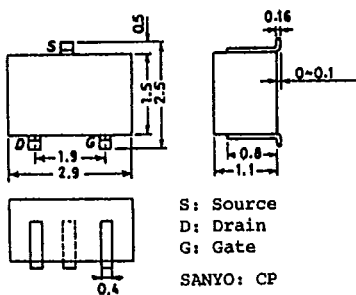
S: Source  
D: Drain  
G: Gate  
SANYO: PCP

Case Outline—[2069] unit: mm



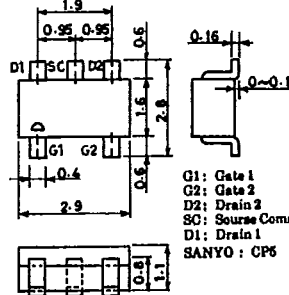
B: Base  
C: Collector  
E: Emitter  
SANYO: SMP

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

