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2SC4520

2038

NPN Epitaxial Planar Silicon Transistor

High-Speed Switching Applications

©3139

Features

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

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		1.5	A
Peak Collector Current	i_{cp}		3	A
Collector Dissipation	P_C	Mounted on ceramic board (250mm²×0.8mm)	1.3	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=100mA	100※		400※	
	$h_{FE}(2)$	V_{CE}=2V,I_C=1.5A	40			
Gain-Bandwidth Product	f_T	V_{CE}=2V,I_C=100mA		300		MHz
Output Capacitance	c_{ob}	V_{CB}=10V,f=1MHz		13		pF
C-E Saturation Voltage	$V_{CE(sat)}$	I_C=800mA,I_B=40mA		0.25	0.7	V
B-E Saturation Voltage	$V_{BE(sat)}$	I_C=800mA,I_B=40mA		0.9	1.3	V
C-B Breakdown Voltage	$V_{(BR)CBO}$	I_C=10μA,I_E=0	60			V
C-E Breakdown Voltage	$V_{(BR)CEO}$	I_C=1mA,R_{BE}=∞	45			V
E-B Breakdown Voltage	$V_{(BR)EBO}$	I_E=10μA,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

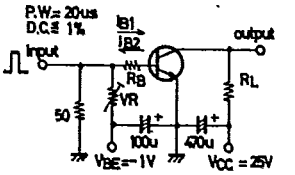
※ : The 2SC4520 is classified by 100mA h_{FE} as follows :

100 R 200	140 S 280	200 T 400

Marking : CK

h_{FE} rank : R,S,T

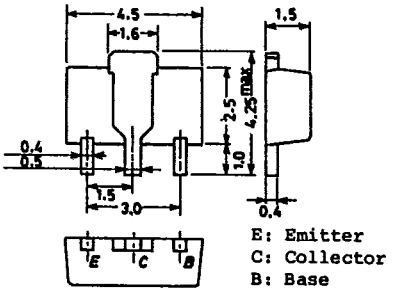
Switching Time Test Circuit



$20I_{B1} = -20I_{B2} = I_C = 800mA$

Case Outline 2038

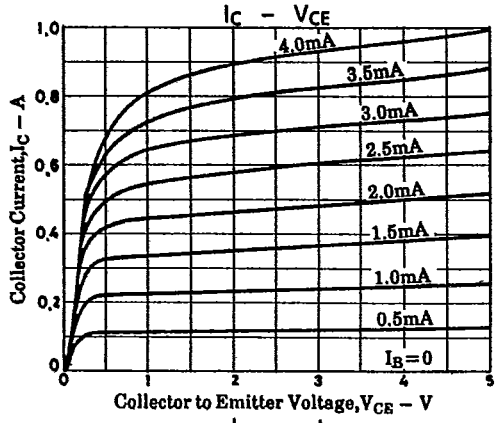
(unit : mm)



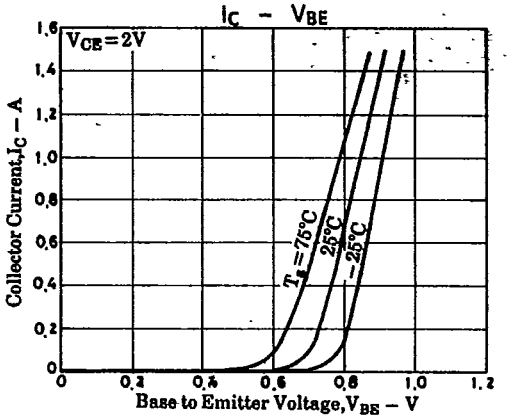
E: Emitter
C: Collector
B: Base

SANYO: PCP

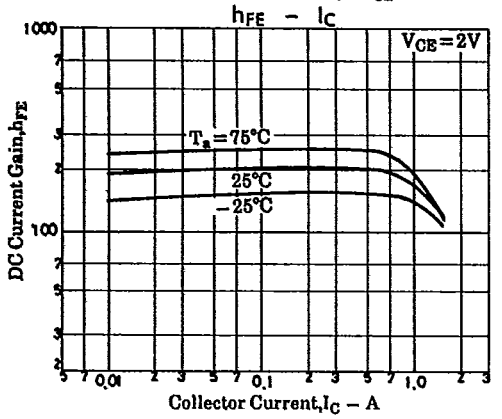
I_C – V_{CE}



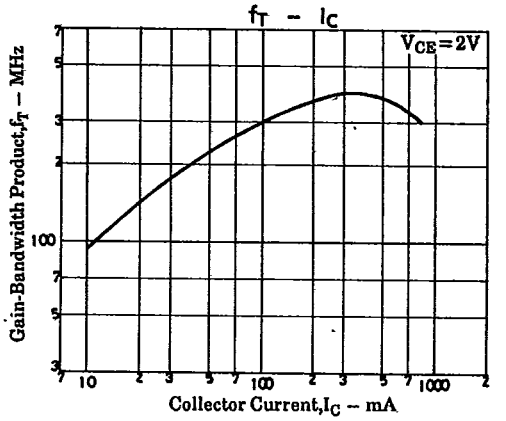
I_C – V_{BE}



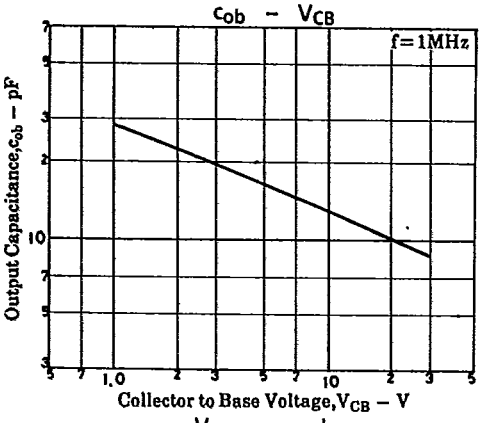
h_{FE} – I_C



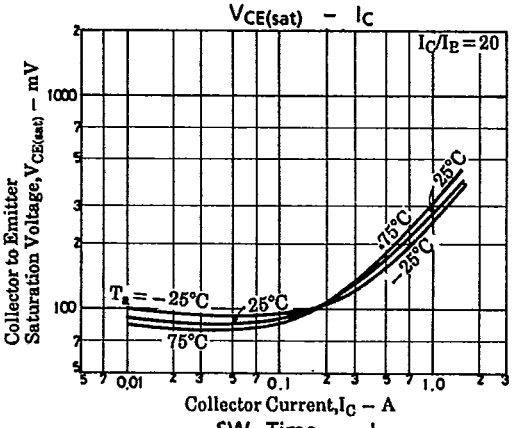
f_T – I_C



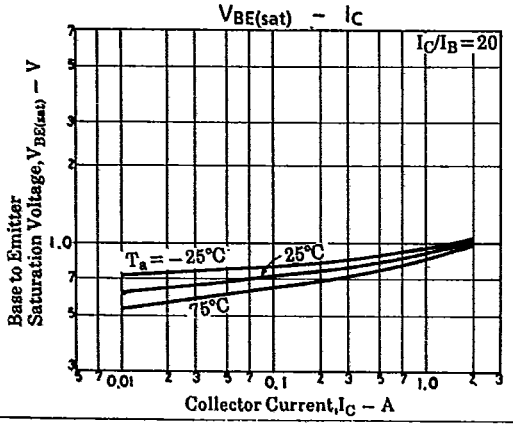
C_{ob} – V_{CB}



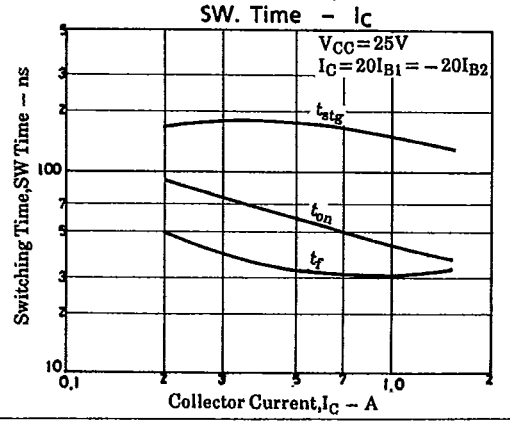
$V_{CE(sat)}$ – I_C



$V_{BE(sat)}$ – I_C



SW. Time – I_C



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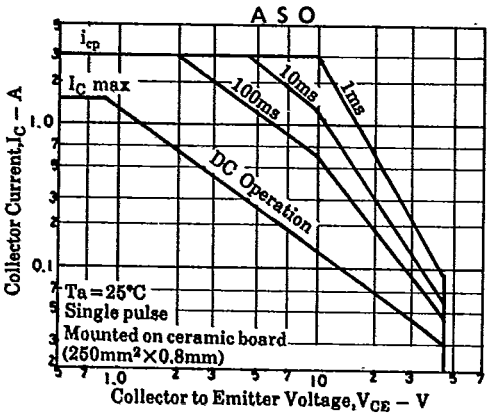

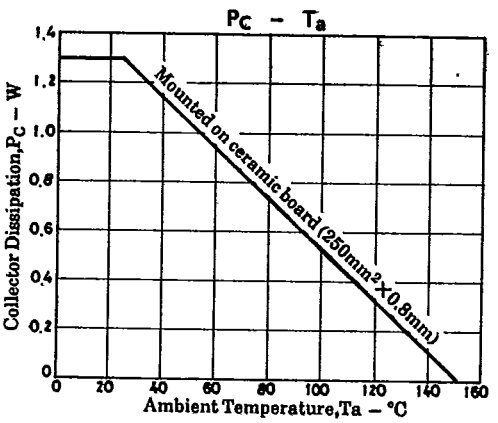

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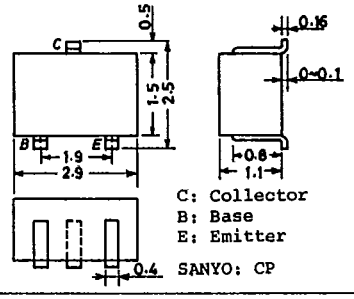
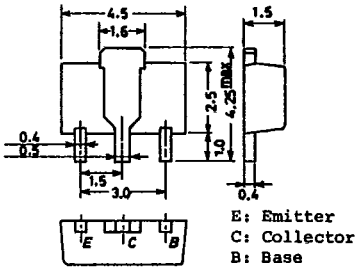
CASE OUTLINES OF SURFACE MOUNT TRANSISTORS

- 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.

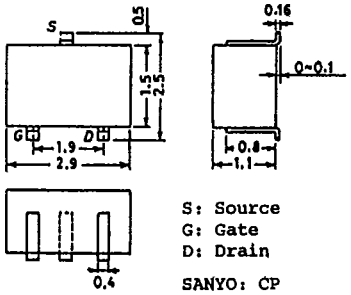
Case Outline—[2018A] unit: mm



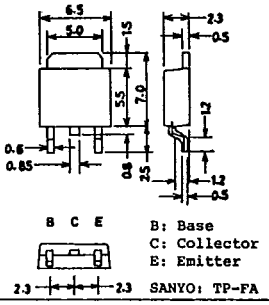
Case Outline—[2038] unit: mm



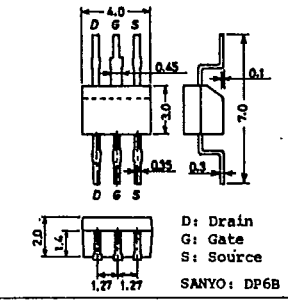
Case Outline—[2024A] unit: mm



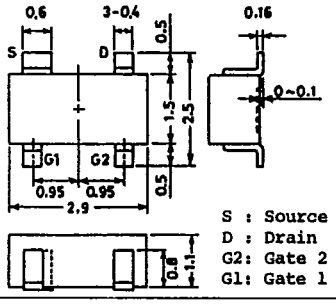
Case Outline—[2044] unit: mm



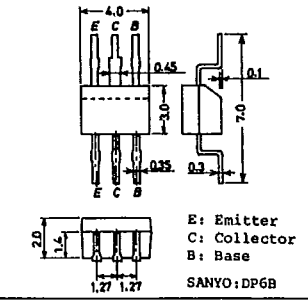
Case Outline—[2028A] unit: mm



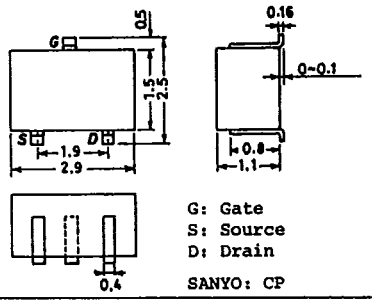
Case Outline—[2046] unit: mm



Case Outline—[2030A] unit: mm



Case Outline—[2050] unit: mm



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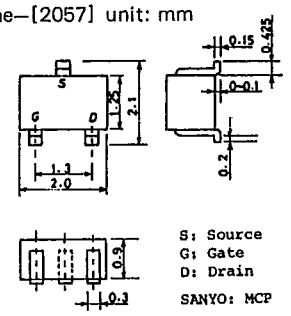
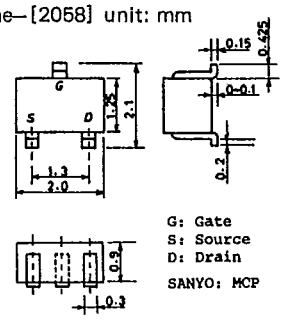
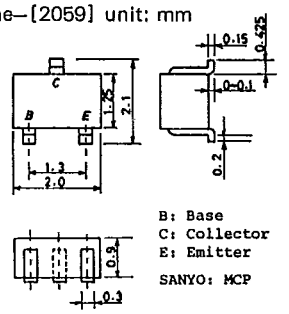
Case Outline—[2057] unit: mm



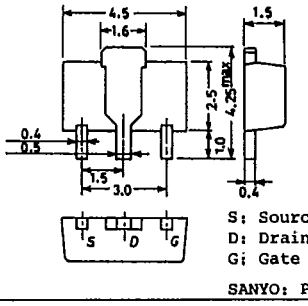
Case Outline—[2058] unit: mm



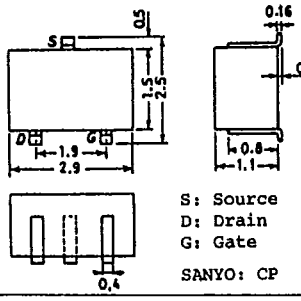
Case Outline—[2059] unit: mm



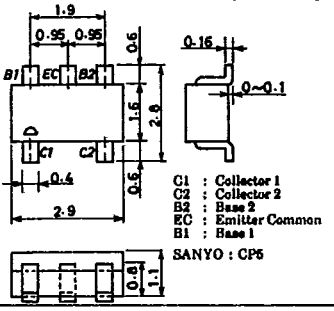
Case Outline—[2062] unit: mm



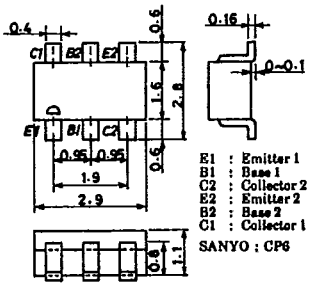
Case Outline—[2065] unit: mm



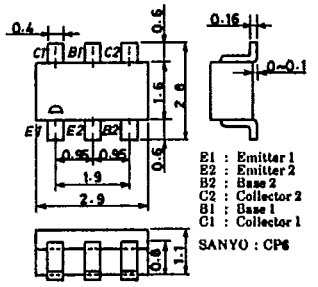
Case Outline—[2066] unit: mm



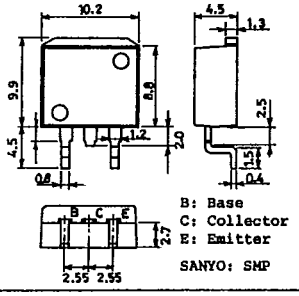
Case Outline—[2067] unit: mm



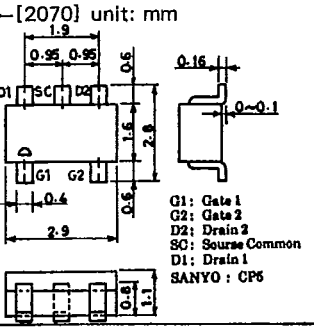
Case Outline—[2068] unit: mm



Case Outline—[2069] unit: mm



Case Outline—[2070] unit: mm



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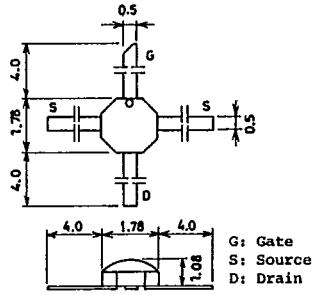
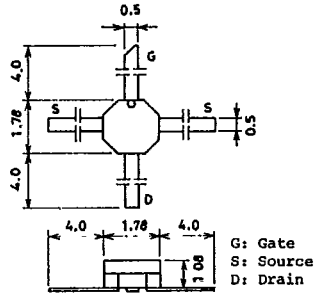
Case Outline—[2071] unit: mm



Case Outline—[2072] unit: mm



Case Outline—[2073] unit: mm