

2SC4405

T-31-15

2059

NPN Epitaxial Planar Silicon Transistor

**UHF Low-Noise Wide-Band
Amp Applications**

©2758

Applications

- UHF, low-noise amplifiers, wide-band amplifiers

Features

- High cutoff frequency : $f_T = 5.0\text{GHz typ}$
- High power gain : $MAG = 14\text{dB typ}$ ($f = 0.9\text{GHz}$)
- Small noise figure : $NF = 1.5\text{dB typ}$ ($f = 0.9\text{GHz}$)
- Very small-sized package permitting 2SC4405-applied sets to be made smaller and slimmer

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

		unit
Collector to Base Voltage	V_{CB0}	20 V
Collector to Emitter Voltage	V_{CEO}	12 V
Emitter to Base Voltage	V_{EBO}	3 V
Collector Current	I_C	100 mA
Collector Dissipation	P_C	150 mW
Junction Temperature	T_j	150 $^\circ\text{C}$
Storage Temperature	T_{stg}	-55 to +150 $^\circ\text{C}$

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

			min	typ	max	unit
Collector Cutoff Current	I_{CBO}	$V_{CB} = 12\text{V}, I_E = 0$			1.0	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = 2\text{V}, I_C = 0$			10	μA
DC Current Gain	h_{FE}	$V_{CE} = 10\text{V}, I_C = 20\text{mA}$	$\times 40$		$\times 200$	
Gain-Bandwidth Product	f_T	$V_{CE} = 10\text{V}, I_C = 20\text{mA}$		5.0		GHz
Output Capacitance	c_{ob}	$V_{CB} = 10\text{V}, f = 1\text{MHz}$		0.9	1.5	pF
Reverse Transfer Capacitance	c_{re}	$V_{CB} = 10\text{V}, f = 1\text{MHz}$		0.6		pF
Forward Transfer Gain	$ S_{21} ^2$	$V_{CE} = 10\text{V}, I_C = 20\text{mA}, f = 0.9\text{GHz}$	8.5	10		dB
Maximum Available Power Gain	MAG	$V_{CE} = 10\text{V}, I_C = 20\text{mA}, f = 0.9\text{GHz}$		14		dB
Noise Figure	NF	$V_{CE} = 10\text{V}, I_C = 5\text{mA}, f = 0.9\text{GHz}$		1.5		dB

See specified Test Circuit.

* The 2SC4405 is classified by 20mA h_{FE} as follows:

40	2	80	60	3	120	100	4	200
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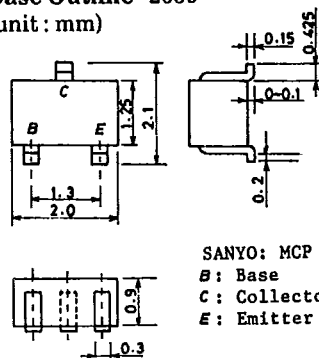
(Note) Marking: OY

 h_{FE} rank: 2,3,4

• For CP package version, use the 2SC3775.

Case Outline 2059

(unit: mm)



SANYO: MCP

B: Base

C: Collector

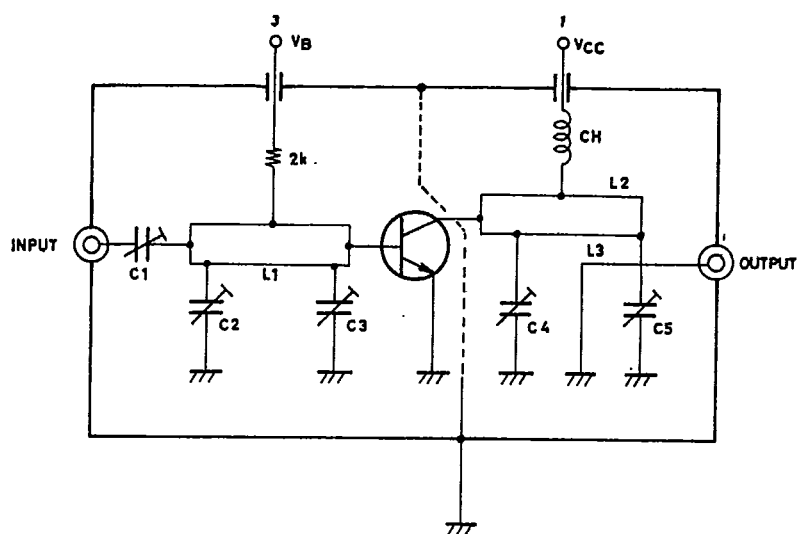
E: Emitter

4298TA, TS No.2758-1/4

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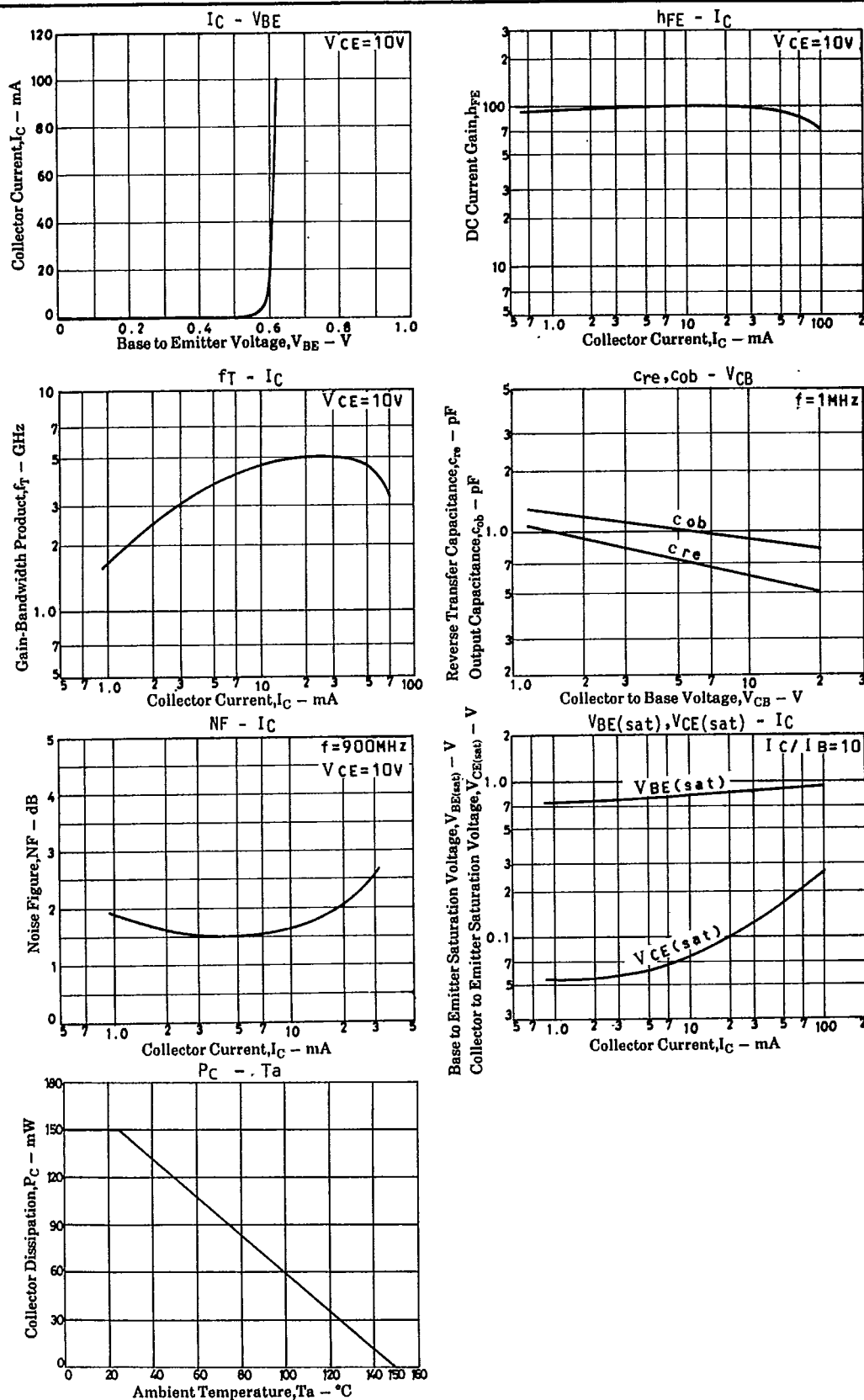
NF Test Circuit



	900MHz
C 1	~5 p F
C 2	~10 p F
C 3	~10 p F
C 4	~10 p F
C 5	~10 p F
L 1	W ≐ 1.5 mm, l ≐ 2.5 mm strip line
L 2	W ≐ 4 mm, l ≐ 2.5 mm strip line
L 3	0.5 φ, l ≐ 4.0 mm
CH	2t + bead core

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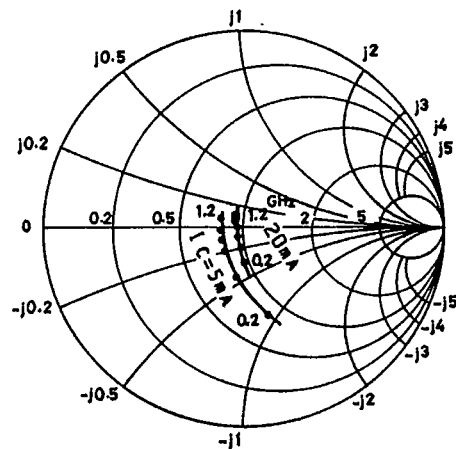


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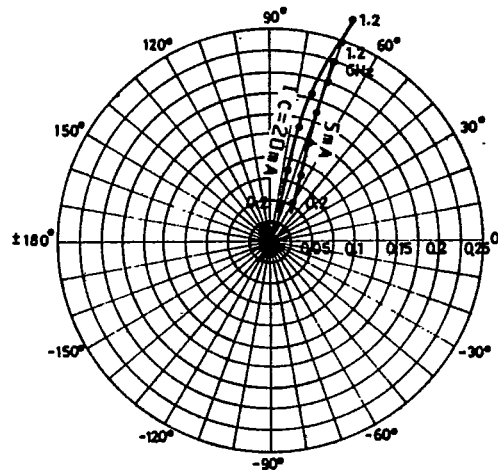
S11e : VCE=10V

f=200MHz step



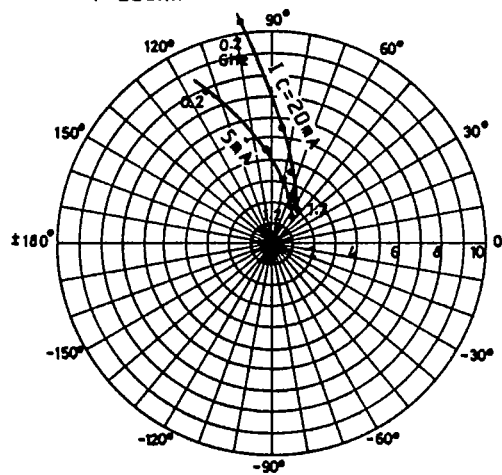
S12e : VCE=10V

f=200MHz step



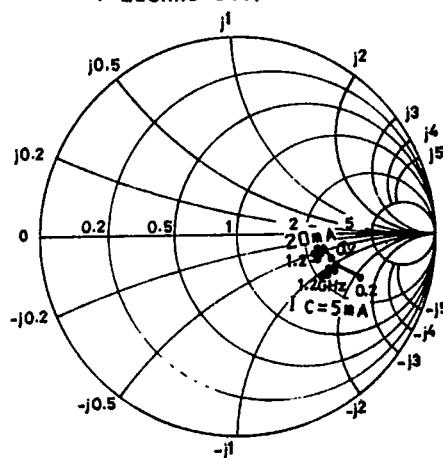
S21e : VCE=10V

f=200MHz step



S22e : VCE=10V

f=200MHz step

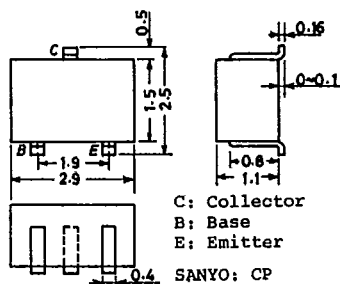


T-91-20

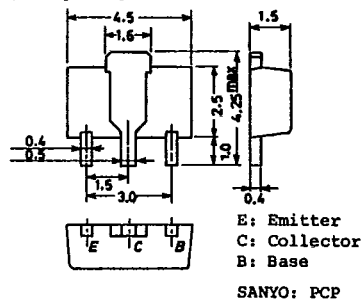
CASE OUTLINES OF SURFACE MOUNT TRANSISTORS

- 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.

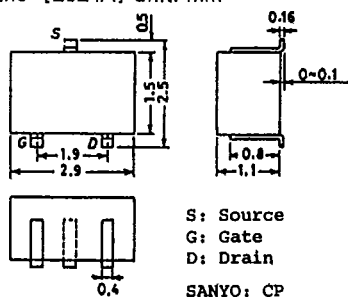
Case Outline—[2018A] unit: mm



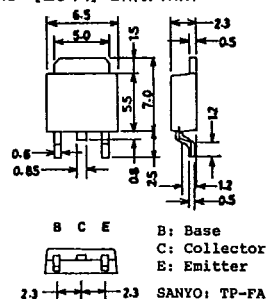
Case Outline—[2038] unit: mm



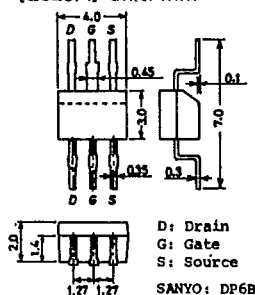
Case Outline—[2024A] unit: mm



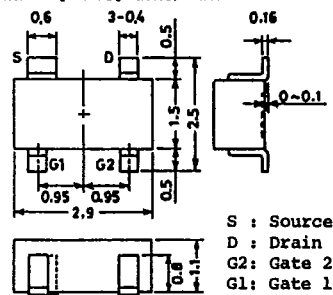
Case Outline—[2044] unit: mm



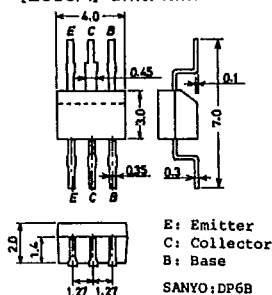
Case Outline—[2028A] unit: mm



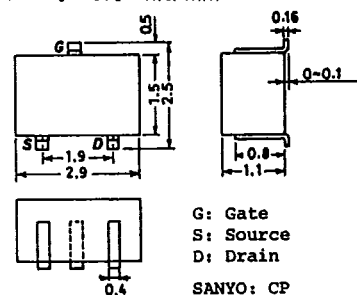
Case Outline—[2046] unit: mm



Case Outline—[2030A] unit: mm

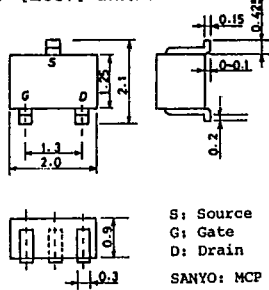


Case Outline—[2050] unit: mm

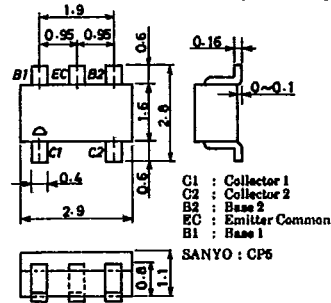


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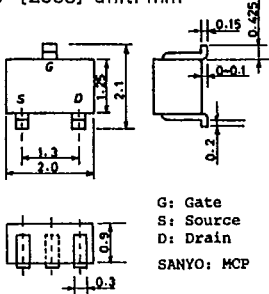
Case Outline—[2057] unit: mm



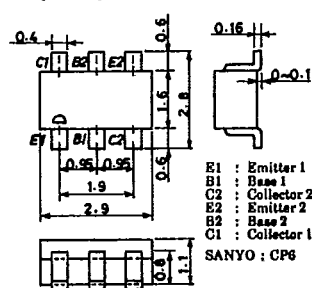
Case Outline—[2066] unit: mm



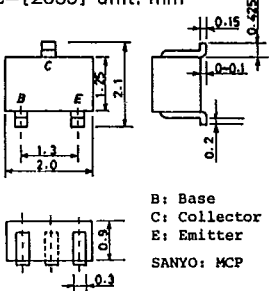
Case Outline—[2058] unit: mm



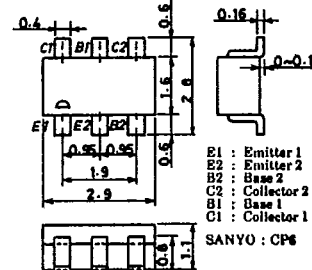
Case Outline—[2067] unit: mm



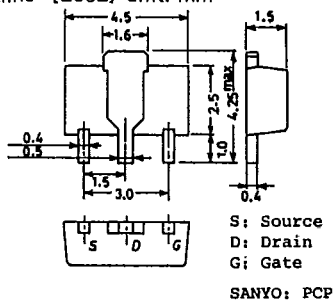
Case Outline—[2059] unit: mm



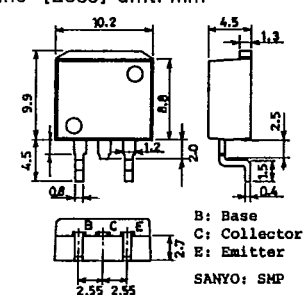
Case Outline—[2068] unit: mm



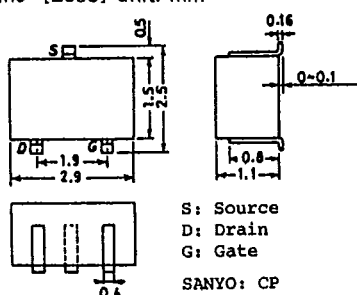
Case Outline—[2062] unit: mm



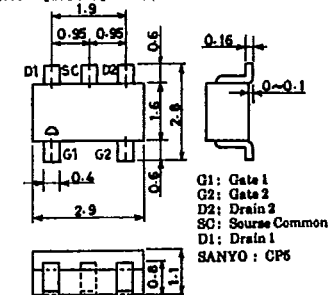
Case Outline—[2069] unit: mm



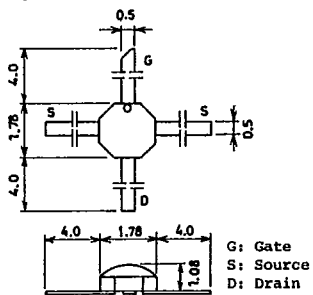
Case Outline—[2065] unit: mm



Case Outline—[2070] unit: mm

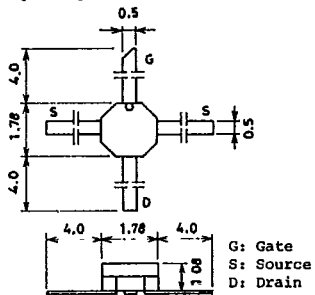


Case Outline-[2071] unit: mm



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Case Outline-[2072] unit: mm



Case Outline-[2073] unit: mm

