2SC4404

T-31-15

2059

NPN Epitaxial Planar Silicon Transistor

UHF Local OSC, Wide-Band Amp Applications

Applications
- UHF OSC, wide-band amplifiers

Features
- High cutoff frequency : f_T=5.0GHz typ
- High power gain : MAG=14dB typ (f=0.9GHz)
- Small noise figure : NF=2.2dB typ (f=0.9GHz)
- Very small-sized package permitting 2SC4404-applied sets to be made smaller and slimmer

Absolute Maximum Ratings at Ta=25°C

			unit
Collector to Base Voltage	V_{CBO}	20	V
Collector to Emitter Voltage	V_{CEO}	12	V
Emitter to Base Voltage	V_{EBO}	3	V
Collector Current	I_C	70	mA
Collector Dissipation	P_C	150	mW
Junction Temperature	Tj	150	°C
Storage Temperature	Tstg	−55 to +150	°C

Electrical Characteristics at Ta=25°C

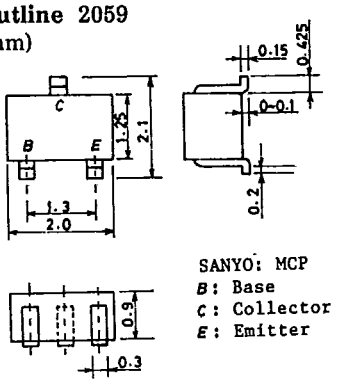
			min	typ	max	unit
Collector Cutoff Current	I_{CBO}	V_{CB}=12V,I_E=0			1.0	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}=2V,I_C=0			10	μA
DC Current Gain	h_{FE}	V_{CE}=10V,I_C=20mA	※40		※200	
Gain-Bandwidth Product	f_T	V_{CE}=10V,I_C=20mA		5.0		GHz
Output Capacitance	c_{ob}	V_{CB}=10V,f=1MHz		0.75	1.1	pF
Reverse Transfer Capacitance	c_{re}	V_{CB}=10V,f=1MHz		0.5		pF
Forward Transfer Gain	$\|S21e\|^2$	V_{CE}=10V,I_C=20mA,f=0.9GHz		14		dB
Maximum Available Power Gain	MAG	V_{CE}=10V,I_C=20mA,f=0.9GHz		14		dB
Noise Figure	NF	V_{CE}=10V,I_C=5mA,f=0.9GHz See specified Test Circuit.		2.2		dB

※ The 2SC4404 is classified by 20mA h_{FE} as follows:

40 2 80	60 3 120	100 4 200

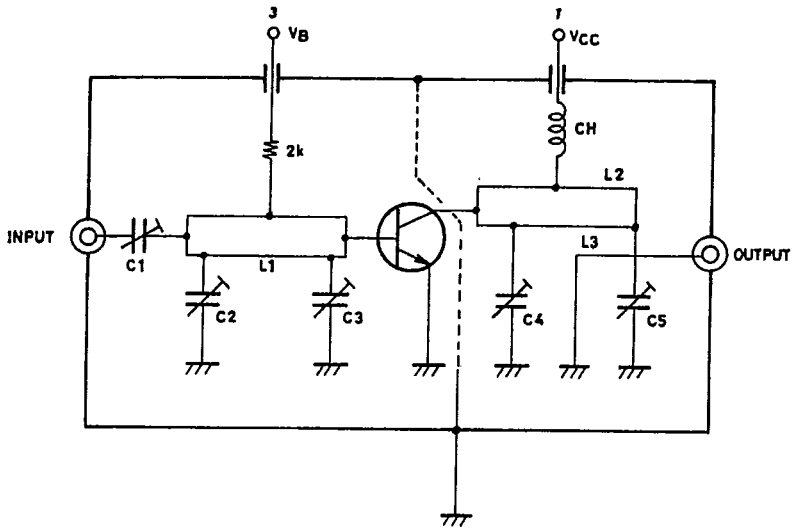
(Note) Marking : NY
h_{FE} rank : 2,3,4
●For CP package version, use the 2SC3774.

Case Outline 2059
(unit : mm)



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

NF Test Circuit



	900MHz
C1	~5pF
C2	~10pF
C3	~10pF
C4	~10pF
C5	~10pF
L1	W≒1.5mm, l≒25mm strip line
L2	W≒4mm, l≒25mm strip line
L3	0.5φ, l≒40mm
CH	2t+bead core

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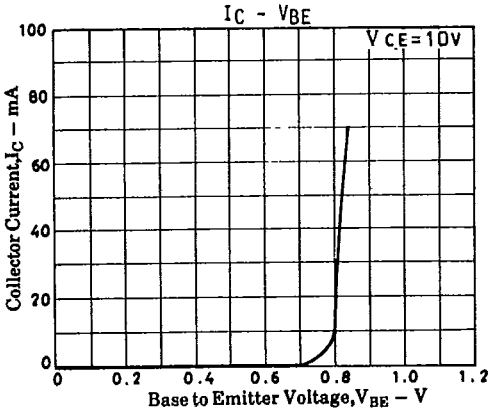
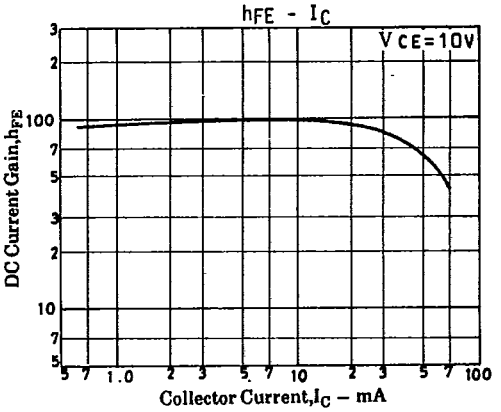
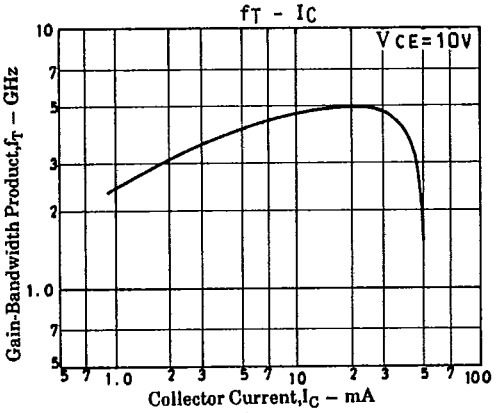
I_C - V_{BE}



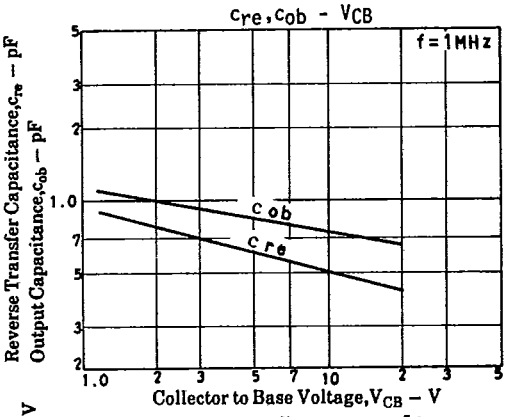
h_{FE} - I_C



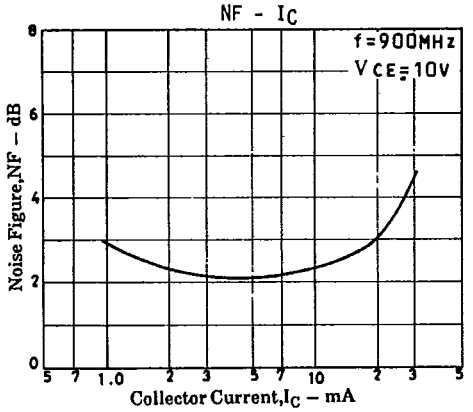
f_T - I_C



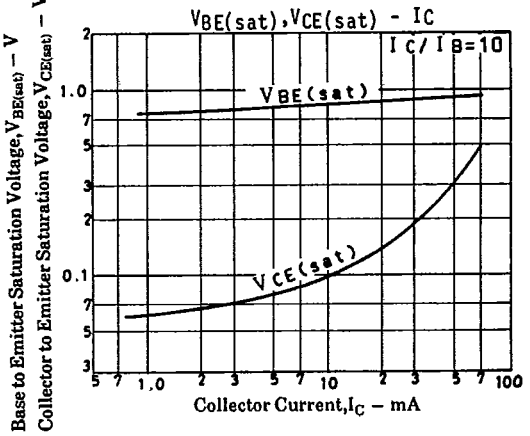
C_{re}, C_{ob} - V_{CB}



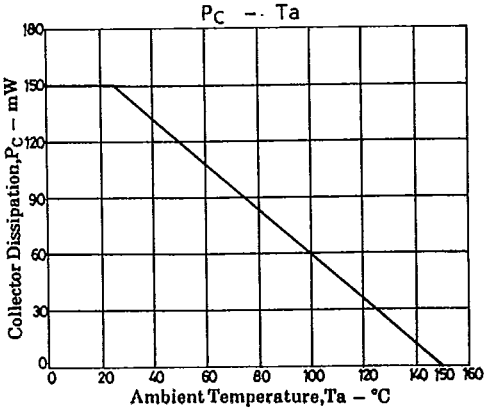
NF - I_C



$V_{BE(sat)}$, $V_{CE(sat)}$ - I_C



P_C - Ta



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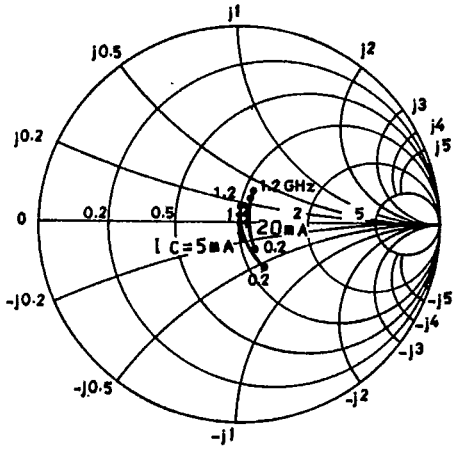
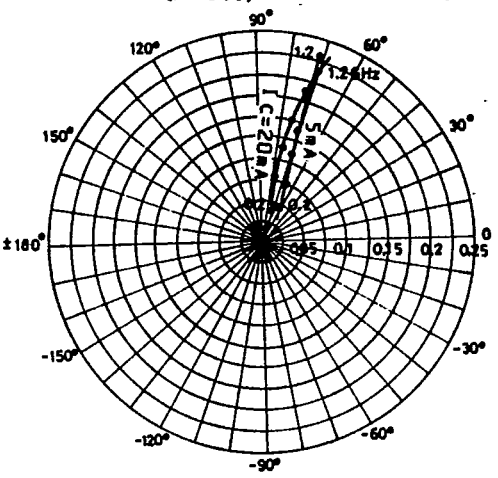
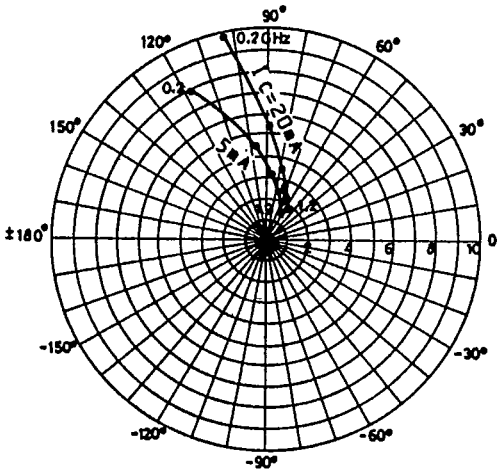
S11e : VCE=10V
f=200MHz step



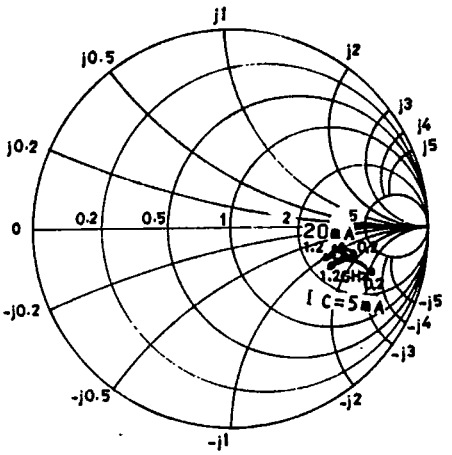
S12e : VCE=10V
f=200MHz step



S21e : VCE=10V
f=200MHz step



S22e : VCE=10V
f=200MHz step



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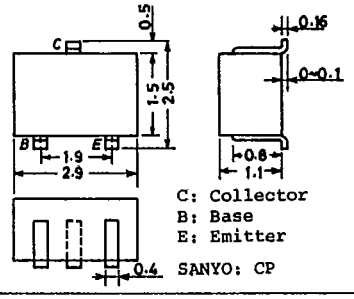
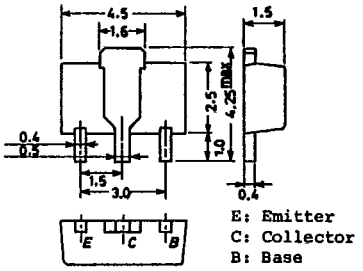
CASE OUTLINES OF SURFACE MOUNT TRANSISTORS

- 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.

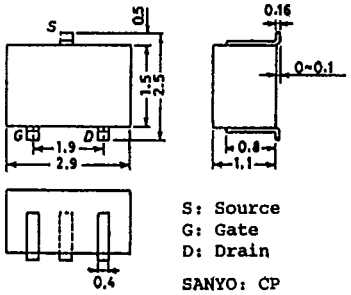
Case Outline—[2018A] unit: mm



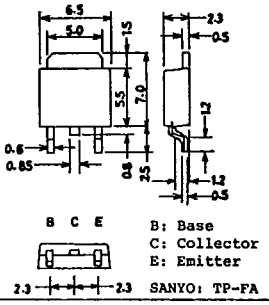
Case Outline—[2038] unit: mm



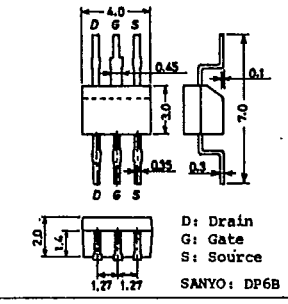
Case Outline—[2024A] unit: mm



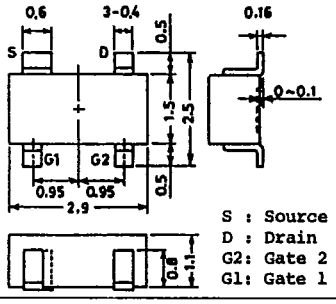
Case Outline—[2044] unit: mm



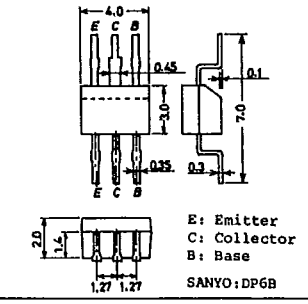
Case Outline—[2028A] unit: mm



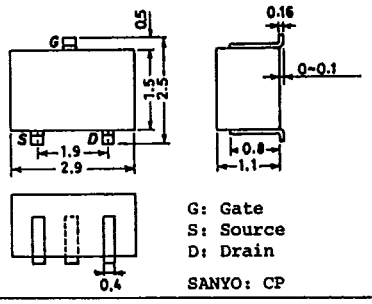
Case Outline—[2046] unit: mm



Case Outline—[2030A] unit: mm



Case Outline—[2050] unit: mm



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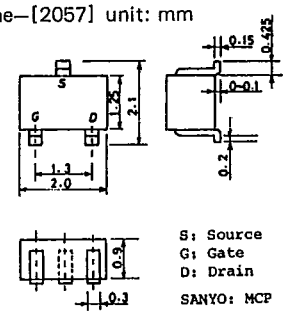
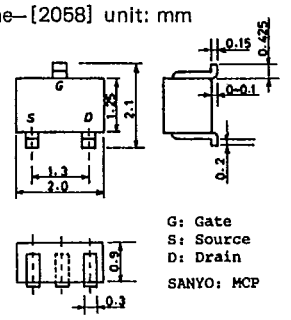
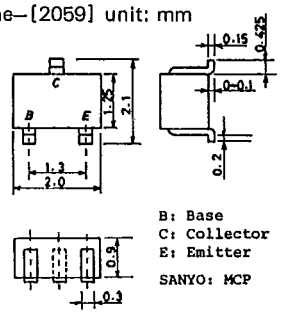
Case Outline—[2057] unit: mm



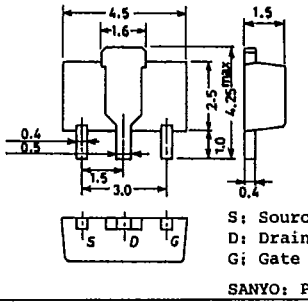
Case Outline—[2058] unit: mm



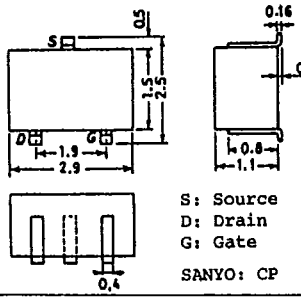
Case Outline—[2059] unit: mm



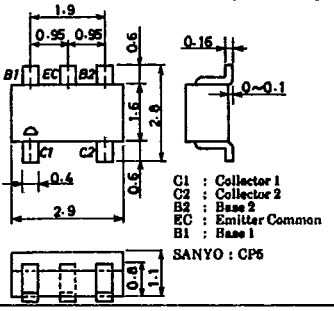
Case Outline—[2062] unit: mm



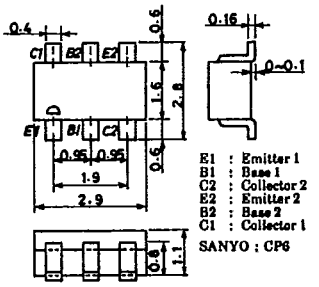
Case Outline—[2065] unit: mm



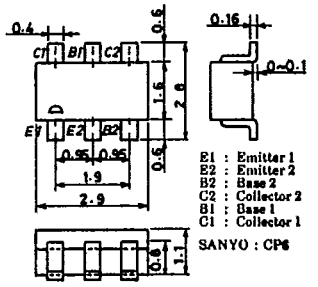
Case Outline—[2066] unit: mm



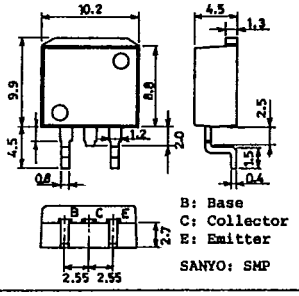
Case Outline—[2067] unit: mm



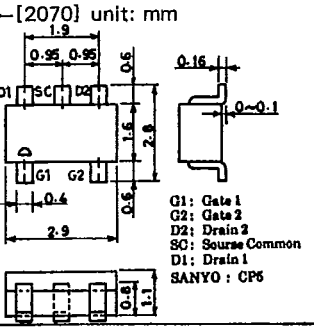
Case Outline—[2068] unit: mm



Case Outline—[2069] unit: mm



Case Outline—[2070] unit: mm



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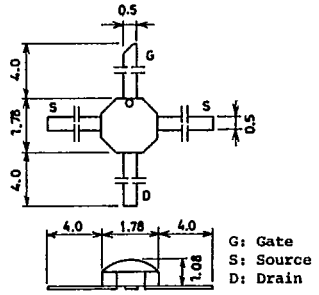
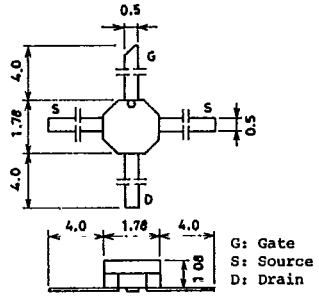
Case Outline—[2071] unit: mm



Case Outline—[2072] unit: mm



Case Outline—[2073] unit: mm