

2SC3774

T-31-17

2018A

NPN Epitaxial Planar Silicon Transistor

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

©1947B

Applications

- UHF low-noise amplifiers, wide-band amplifiers

Features

- Small noise figure: $NF=2.2\text{dB typ}(f=0.9\text{GHz})$.
- High power gain: $MAG=14\text{dB typ}(f=0.9\text{GHz})$.
- High outoff frequency: $f_T=5.0\text{GHz typ}$.

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

			unit
Collector to Base Voltage	V_{CB0}	20	V
Collector to Emitter Voltage	V_{CE0}	12	V
Emitter to Base Voltage	V_{EB0}	3	V
Collector Current	I_C	70	mA
Base Current	I_B	20	mA
Collector Dissipation	P_C	250	mW
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

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

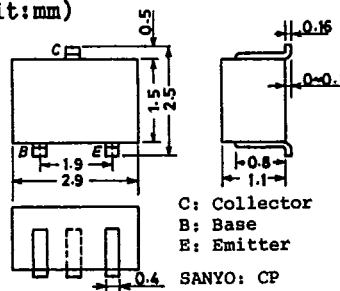
			min	typ	max	unit
Collector Cutoff Current	I_{CB0}	$V_{CB}=12\text{V}, I_E=0$			1.0	μA
Emitter Cutoff Current	I_{EB0}	$V_{EB}=2\text{V}, I_C=0$			10	μA
DC Current Gain	h_{FE}	$V_{CE}=10\text{V}, I_C=20\text{mA}$	40*		200*	
Gain-Bandwidth Product	f_T	$V_{CE}=10\text{V}, I_C=20\text{mA}$		5.0		GHz
Output Capacitance	c_{ob}	$V_{CB}=10\text{V}, f=1\text{MHz}$		0.75	1.0	pF
Reverse Transfer Capacitance	c_{re}	$V_{CB}=10\text{V}, f=1\text{MHz}$		0.5		pF
Forward Transfer Gain	$ S_{21e} ^2$	$V_{CE}=10\text{V}, I_C=20\text{mA}, f=0.9\text{GHz}$	8	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	$V_{CE}=10\text{V}, I_C=5\text{mA}, f=0.9\text{GHz}$	2.2	4.5		dB

See specified Test Circuit.

*: The 2SC3774 is classified by 20mA h_{FE} as follows:

40	2	80	60	3	120	100	4	200
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(Note) Marking : NY
 h_{FE} rank : 2,3,4

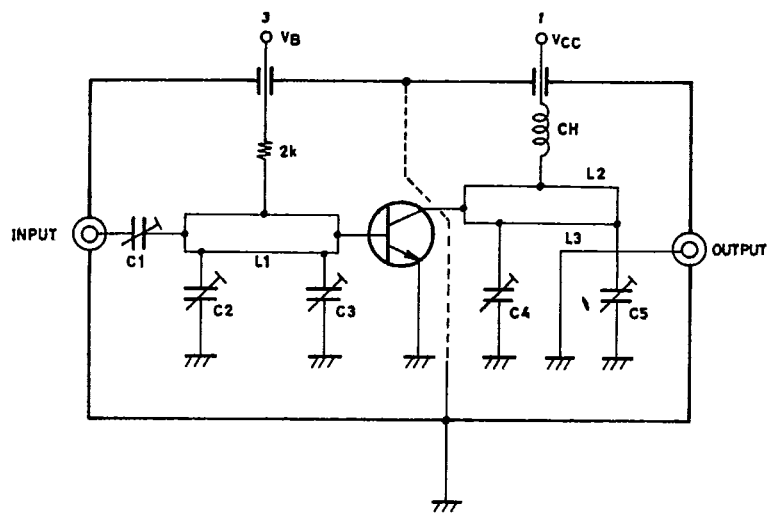
Case Outline 2018A
(unit:mm)

5318M0/5137KI/0185KI, TS No.1947-1/4

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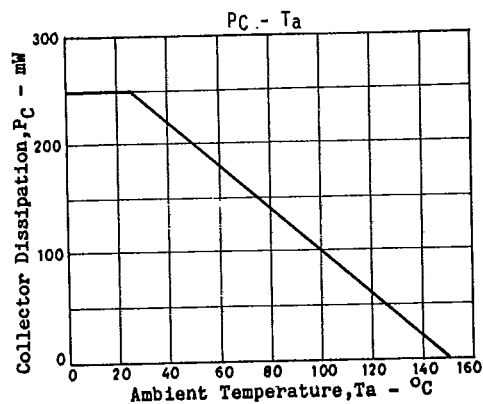
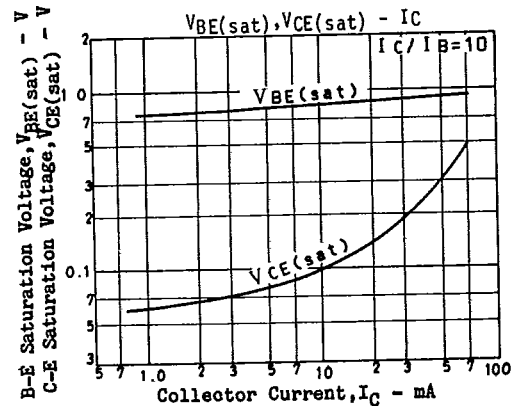
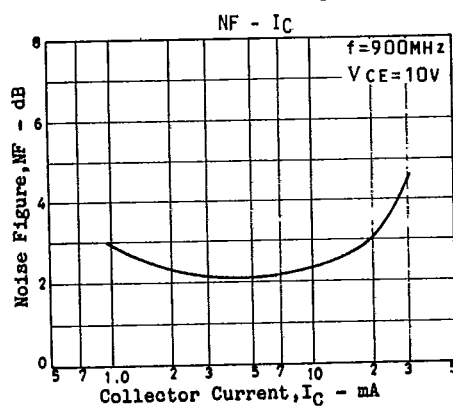
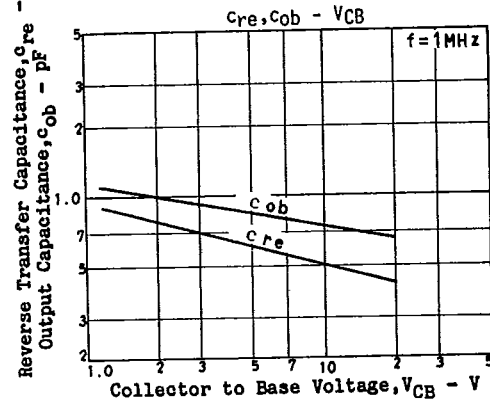
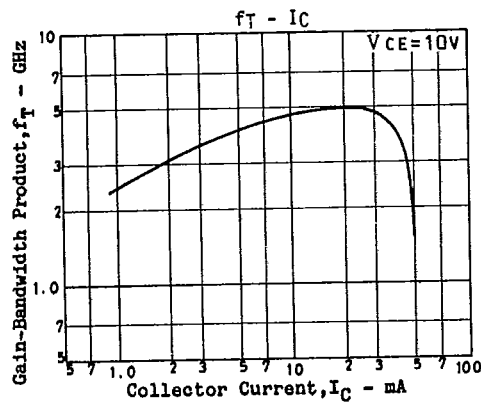
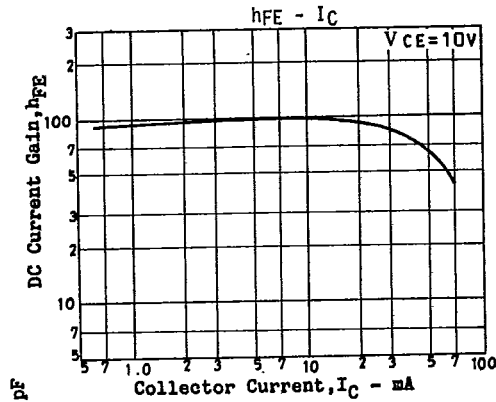
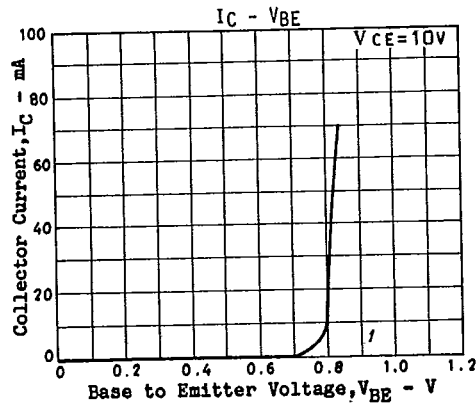
NF Test Circuit



	900MHz
C1	~5 pF
C2	~10 pF
C3	~10 pF
C4	~10 pF
C5	~10 pF
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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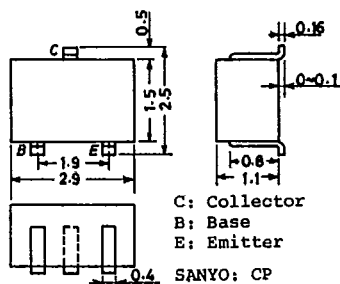


T-91-20

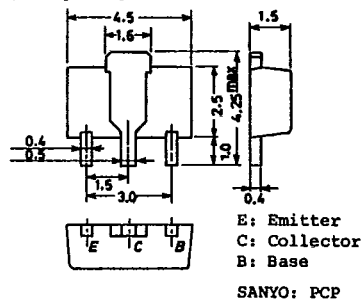
CASE OUTLINES OF SURFACE MOUNT TRANSISTORS

- 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.

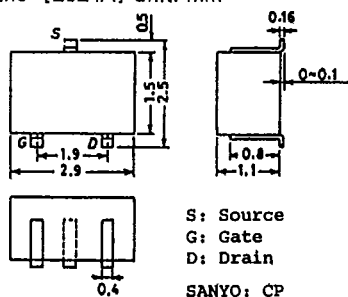
Case Outline—[2018A] unit: mm



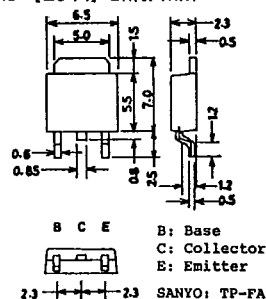
Case Outline—[2038] unit: mm



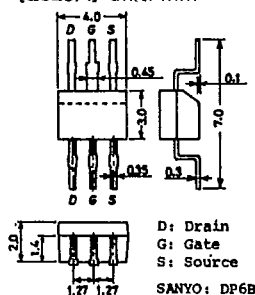
Case Outline—[2024A] unit: mm



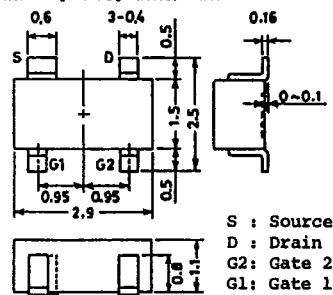
Case Outline—[2044] unit: mm



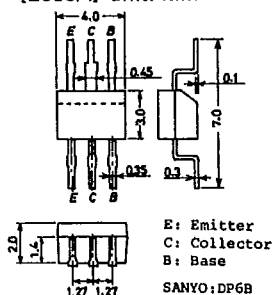
Case Outline—[2028A] unit: mm



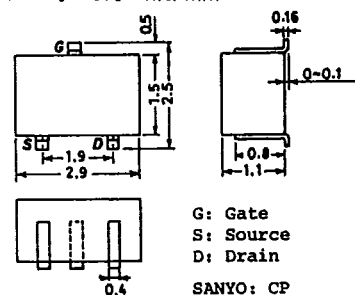
Case Outline—[2046] unit: mm



Case Outline—[2030A] unit: mm

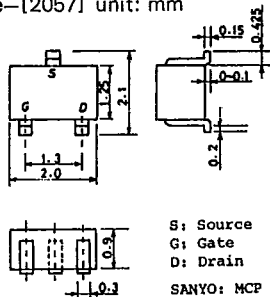


Case Outline—[2050] unit: mm

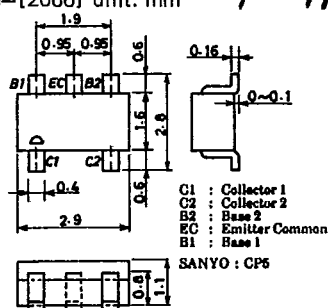


T-91-20

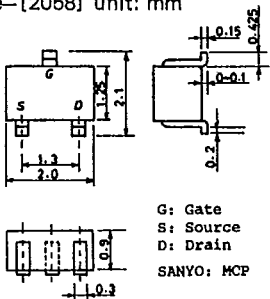
Case Outline—[2057] unit: mm



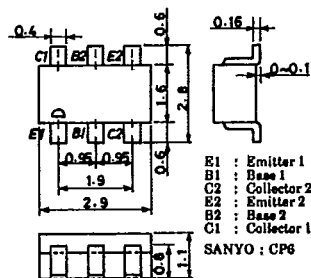
Case Outline—[2066] unit: mm



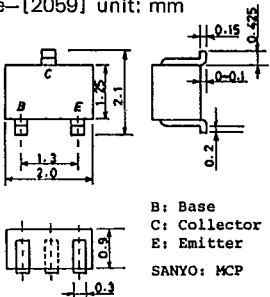
Case Outline—[2058] unit: mm



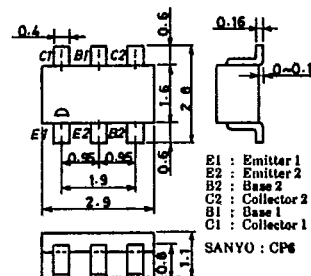
Case Outline—[2067] unit: mm



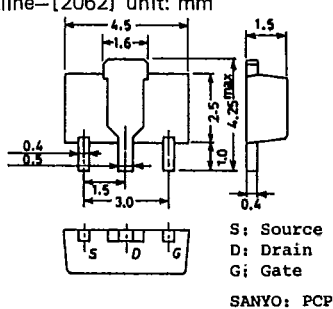
Case Outline—[2059] unit: mm



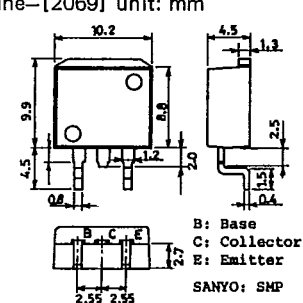
Case Outline—[2068] unit: mm



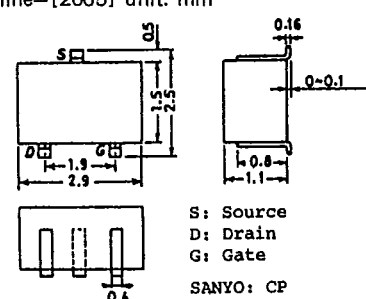
Case Outline—[2062] unit: mm



Case Outline—[2069] unit: mm



Case Outline—[2065] unit: mm



Case Outline—[2070] unit: mm

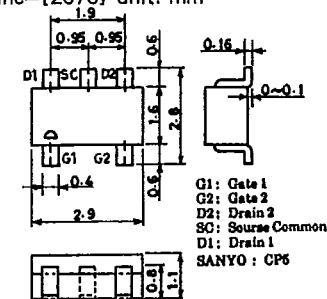


Figure 1: Schematic diagram of a four-way valve. The top view shows a central square body with four ports: Gate (G) at the top, Drain (D) at the bottom, Source (S) on the right, and an unlabeled port on the left. Dimensions include a 0.5 unit wide top port, 4.0 unit wide side ports, and 1.78 unit wide internal passages. The side view shows a 1.08 unit high body and 4.0 unit wide base.