

3SK181

2046

N-Channel Enhancement
MOS Silicon FET(Dual Gate)

T-31-25

High-Frequency General-Purpose Amp Applications

©2130A

Applications

- FM tuners and VHF tuners

Features

- Enhancement type
- Easy AGC (Cut off at $V_{G2S}=0V$)
- High power gain and low noise figure
- High forward transfer admittance

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

		unit
Drain to Source Voltage	V_{DS}	15 V
Gate 1 to Source Voltage	V_{G1S}	± 10 V
Gate 2 to Source Voltage	V_{G2S}	± 10 V
Drain Current	I_D	30 mA
Power Dissipation	P_D	200 mW
Channel Temperature	T_{ch}	125 $^\circ C$
Storage Temperature	T_{stg}	-55 to +125 $^\circ C$

Electrical Characteristics at $T_a=25^\circ C$

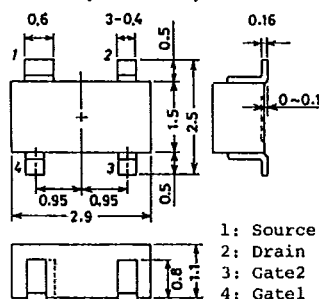
			min	typ	max	unit
Drain to Source Voltage	V_{DS}	$V_{G1S}=0V, V_{G2S}=0V$	15			V
		$I_{DS}=100\mu A$				
Gate 1 to Source Breakdown Voltage	$V_{(BR)G1SS}$	$I_{G1}=10\mu A, V_{DS}=0V$	± 10			V
		$V_{G2S}=0V$				
Gate 2 to Source Breakdown Voltage	$V_{(BR)G2SS}$	$I_{G2}=10\mu A, V_{DS}=0V$	± 10			V
		$V_{G1S}=0V$				
Gate 1 to Source Cutoff Voltage	$V_{G1S}(off)$	$V_{DS}=10V, V_{G2S}=6V$	0	0.7	1.3	V
		$I_D=100\mu A$				
Gate 2 to Source Cutoff Voltage	$V_{G2S}(off)$	$V_{DS}=10V, V_{G1S}=3V$	0.1	0.9	1.6	V
		$I_D=100\mu A$				
Gate 1 Cutoff Current	I_{G1SS}	$V_{G1S}=4V, V_{G2S}=V_{DS}=0V$			50	nA
Gate 2 Cutoff Current	I_{G2SS}	$V_{G2S}=8V, V_{G1S}=V_{DS}=0V$			50	nA
Drain Current	I_{DSX}	$V_{DS}=10V, V_{G1S}=1.5V$	2.5*		24*	mA
		$V_{G2S}=6V$				

Continued on next page.

*: The 3SK181 is classified by I_{DSX} as follows (unit: mA):

2.5	4	6.0	5.0	5	12.0	10.0	6	24.0
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(Note) Marking: EJ

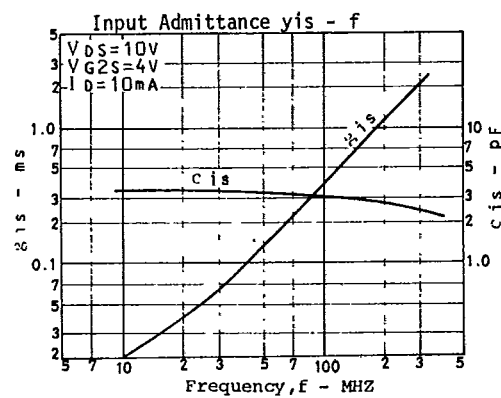
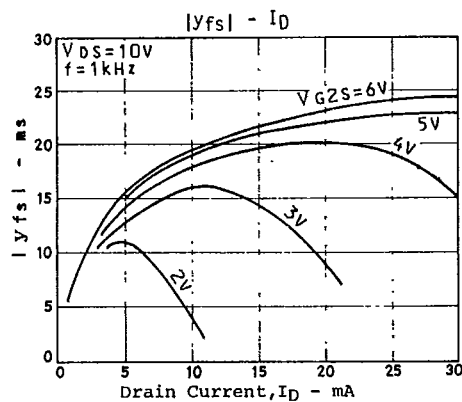
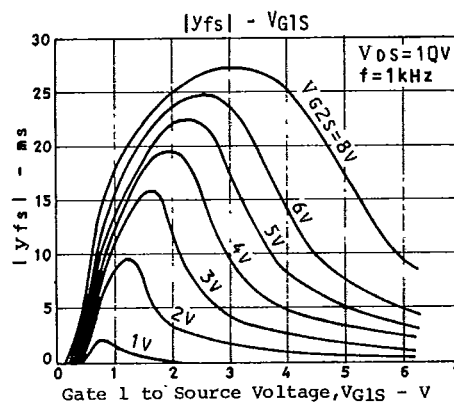
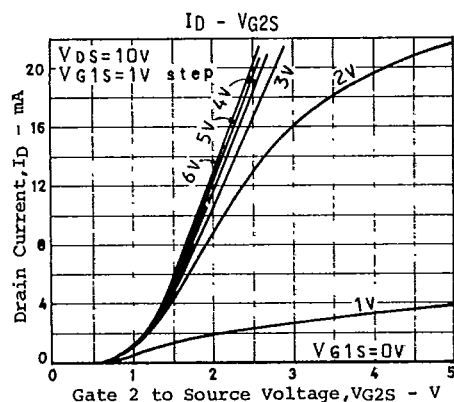
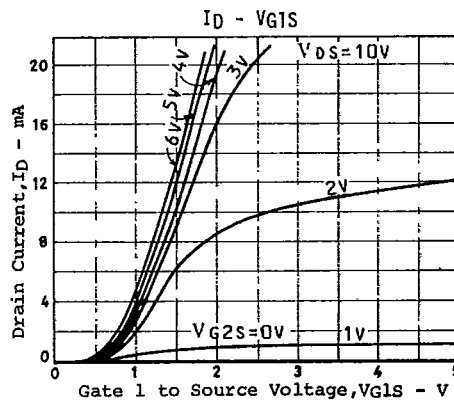
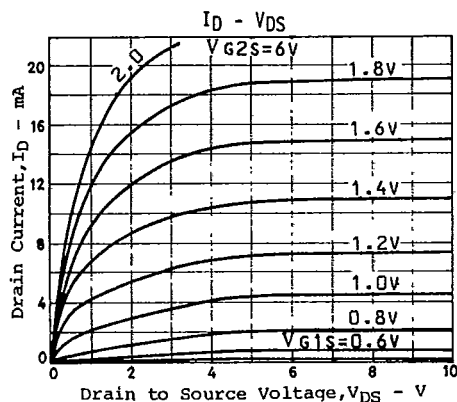
 I_{DSX} rank : 4, 5, 6Case Outline 2046
(unit:mm)

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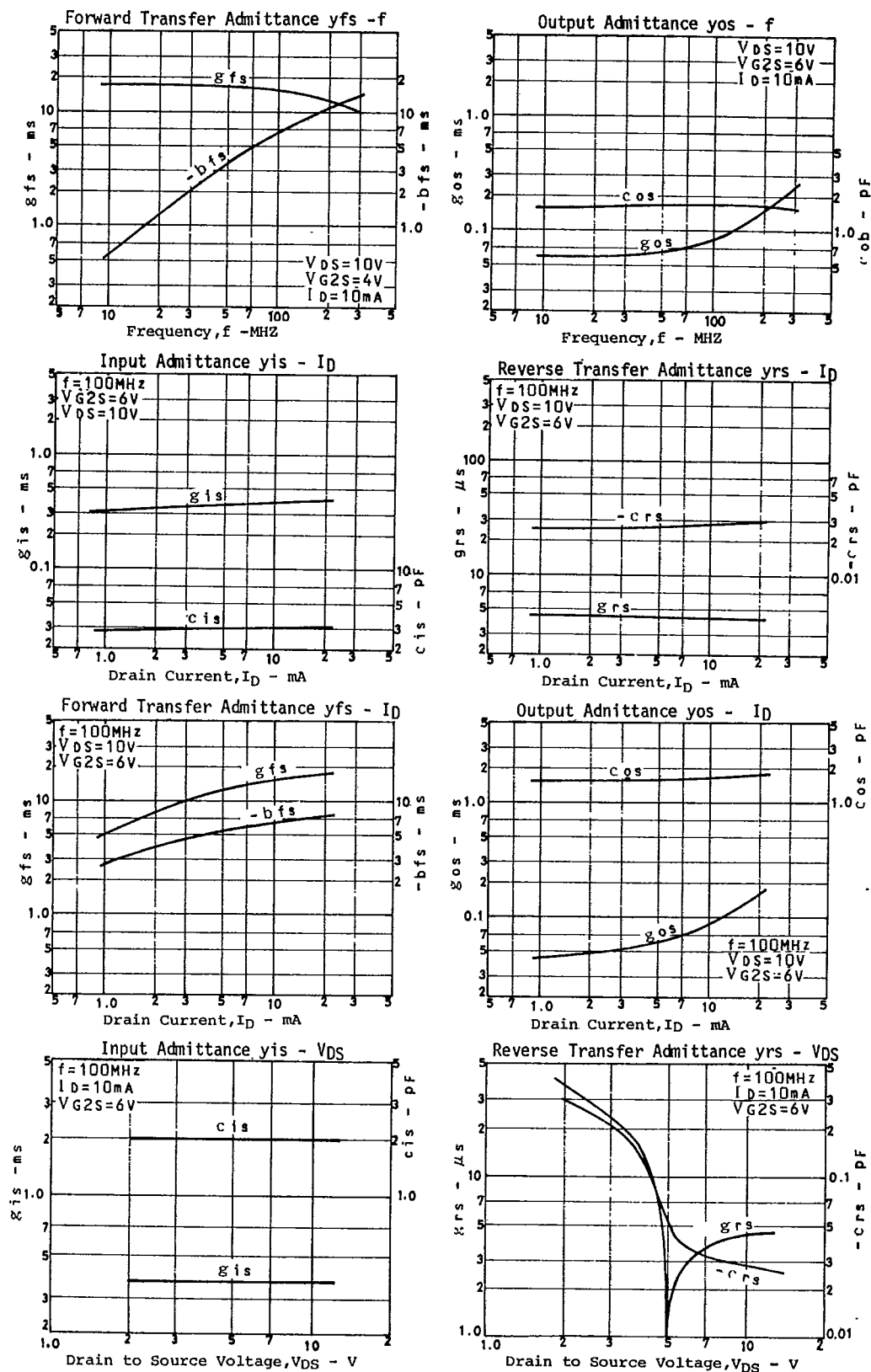
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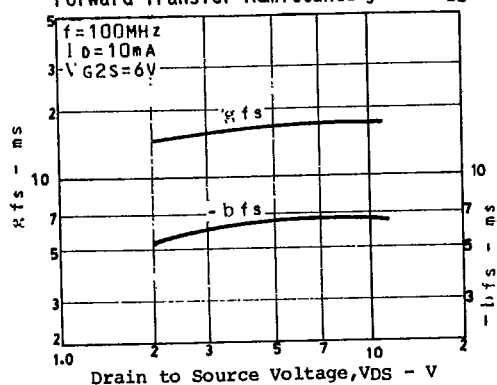
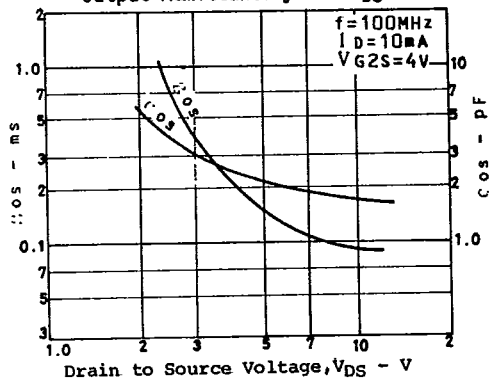
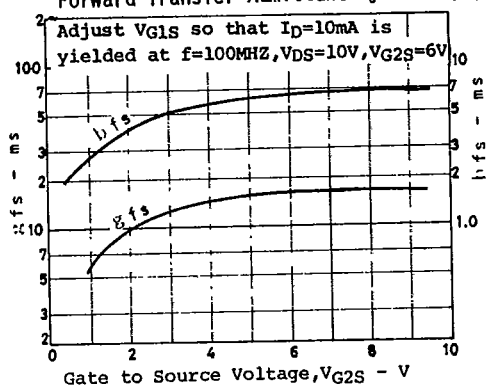
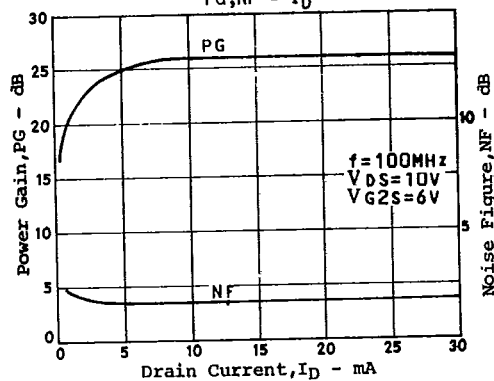
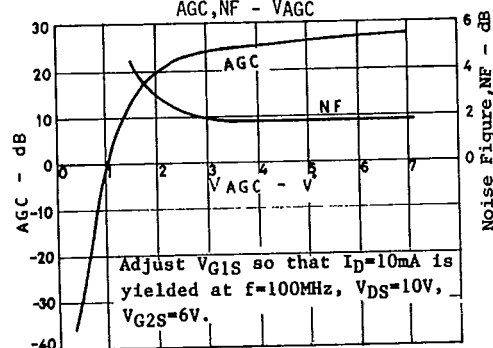
Forward Transfer Admittance	$ y_{fs} $	$f=1\text{kHz}, I_D=10\text{mA}$ $V_{DS}=10\text{V}, V_{G2S}=6\text{V}$	min	typ	max	unit
				18		ms
Input Capacitance	C_{iss}	$V_{DS}=10\text{V}, f=1\text{MHz}$		3.0		pF
Reverse Transfer Capacitance	C_{rss}	$V_{G1S}=0\text{V}, V_{G2S}=6\text{V}$		0.02	0.05	pF
Power Gain	PG	$V_{DS}=10\text{V}, I_D=10\text{mA}$	22	28		dB
Noise Figure	NF	$f=100\text{MHz}, V_{G2S}=6\text{V}$		1.8	3.0	dB



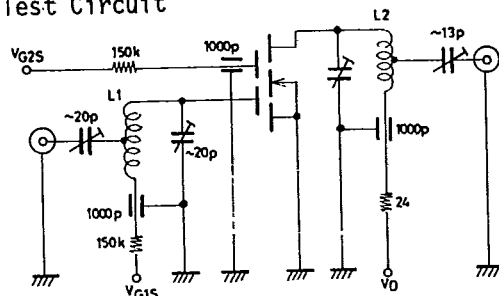
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Forward Transfer Admittance y_{fs} - V_{DS} Output Admittance y_{os} - V_{DS} Forward Transfer Admittance y_{fs} - V_{G2S}  $PG, NF - I_D$  $AGC, NF - V_{AGC}$ 

PG, NF Test Circuit



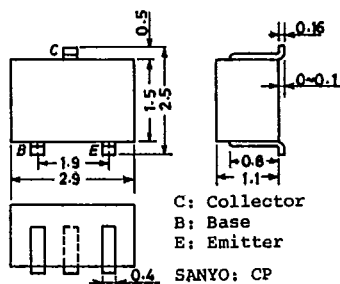
L1: 1mmφ plated wire 10mmφ 4T, tap: 1T from gate side.
L2: 1mmφ plated wire 10mmφ 6T, tap: 1T from drain side.

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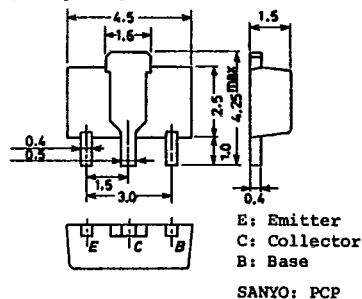
CASE OUTLINES OF SURFACE MOUNT TRANSISTORS

- 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.

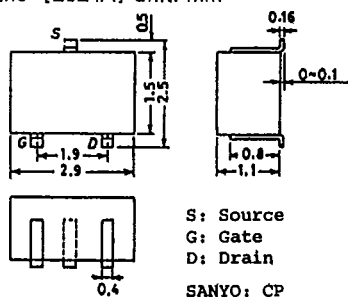
Case Outline—[2018A] unit: mm



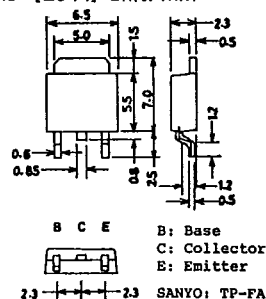
Case Outline—[2038] unit: mm



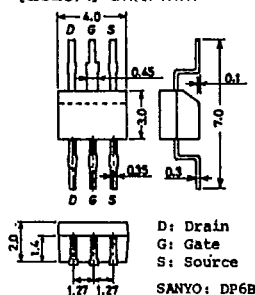
Case Outline—[2024A] unit: mm



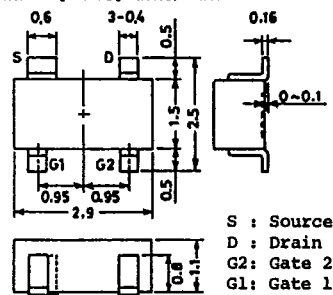
Case Outline—[2044] unit: mm



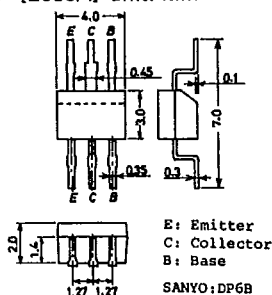
Case Outline—[2028A] unit: mm



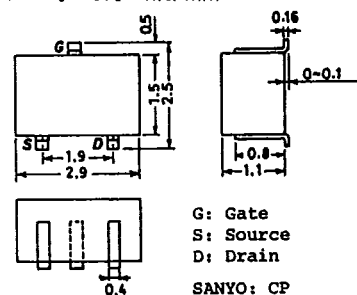
Case Outline—[2046] unit: mm



Case Outline—[2030A] unit: mm

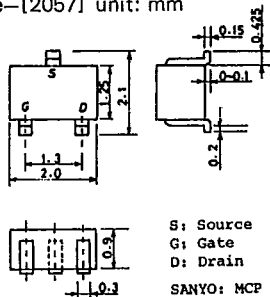


Case Outline—[2050] unit: mm

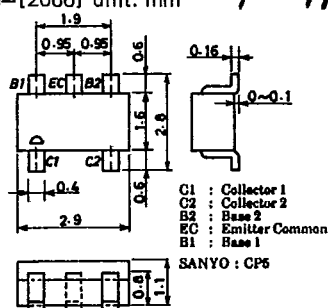


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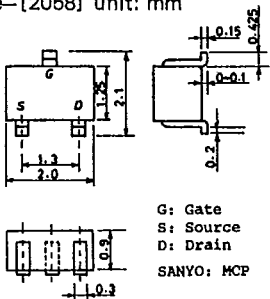
Case Outline—[2057] unit: mm



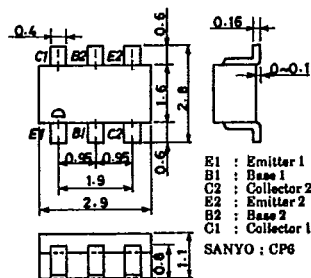
Case Outline—[2066] unit: mm



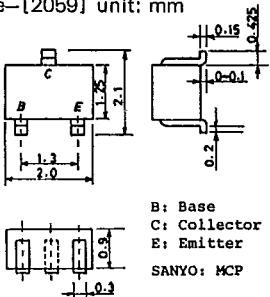
Case Outline—[2058] unit: mm



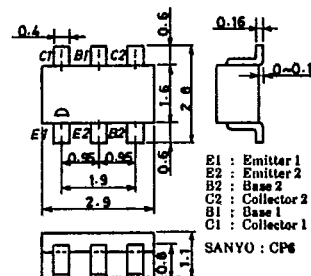
Case Outline—[2067] unit: mm



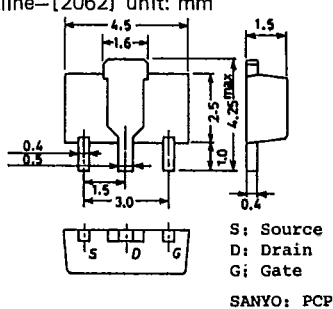
Case Outline—[2059] unit: mm



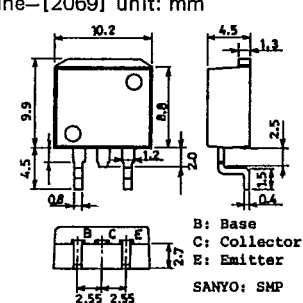
Case Outline—[2068] unit: mm



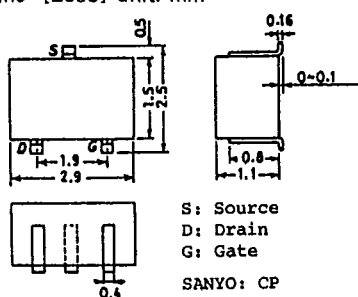
Case Outline—[2062] unit: mm



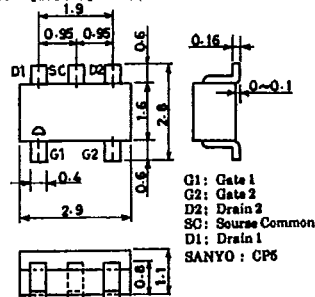
Case Outline—[2069] unit: mm



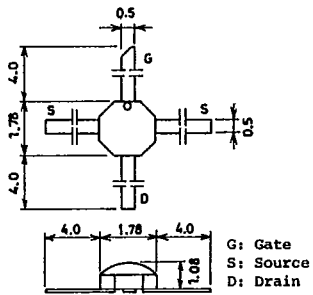
Case Outline—[2065] unit: mm



Case Outline—[2070] unit: mm

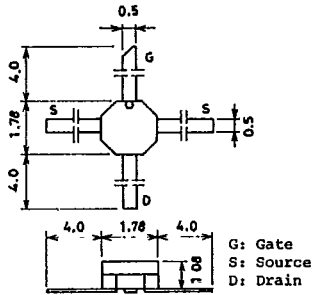


Case Outline-[2071] unit: mm



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Case Outline-[2072] unit: mm



Case Outline-[2073] unit: mm

