

**3SK180**

## High-Frequency General-Purpose Amplifier Applications

### Applications

- FM tuners and VHF tuners.

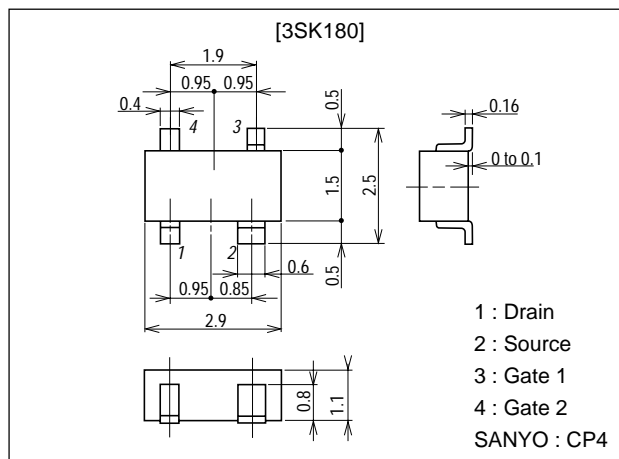
### Features

- High power gain and low noise figure.
- High forward transfer admittance.

### Package Dimensions

unit:mm

2046A



### Specifications

#### Absolute Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	$V_{DS}$		15	V
Gate1-to-Source Voltage	$V_{G1S}$		$\pm 7$	V
Gate2-to-Source Voltage	$V_{G2S}$		$\pm 7$	V
Drain Current	$I_D$		30	mA
Allowable Power Dissipation	$P_D$		200	mW
Channel Temperature	$T_{ch}$		125	°C
Storage Temperature	$T_{stg}$		-55 to +125	°C

#### Electrical Characteristics at Ta = 25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Voltage	$V_{DS}$	$V_{G1S} = -4V, V_{G2S} = 0V, I_{DS} = 100\mu A$	15			V
Gate1-to-Source Breakdown Voltage	$V_{(BR)G1SS}$	$I_{G1} = 10\mu A, V_{DS} = 0, V_{G2S} = 0V$	$\pm 7$			V
Gate2-to-Source Breakdown Voltage	$V_{(BR)G2SS}$	$I_{G2} = 10\mu A, V_{DS} = 0, V_{G1S} = 0V$	$\pm 7$			V
Gate1-to-Source Cutoff Voltage	$V_{G1S(off)}$	$V_{DS} = 10V, V_{G2S} = 4V, I_D = 100\mu A$			-3	V
Gate2-to-Source Cutoff Voltage	$V_{G2S(off)}$	$V_{DS} = 10V, V_{G1S} = 0V, I_D = 100\mu A$			-2.5	V
Gate1-to-Source Leakage Current	$I_{G1SS}$	$V_{G1S} = \pm 5V, V_{G2S} = V_{DS} = 0V$			$\pm 50$	nA
Gate2-to-Source Leakage Current	$I_{G2SS}$	$V_{G2S} = \pm 5V, V_{G1S} = V_{DS} = 0V$			$\pm 50$	nA
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 10V, V_{G1S} = 0, V_{G2S} = 4V$	2.5*		24*	mA

\* : The 3SK180 is classified by  $I_{DSS}$  as follows : (unit : mA)

Marking : DJ

 $I_{DSS}$  rank : 4, 5, 6

2.5	4	6.0	5.0	5	12.0	10.0	6	24.0
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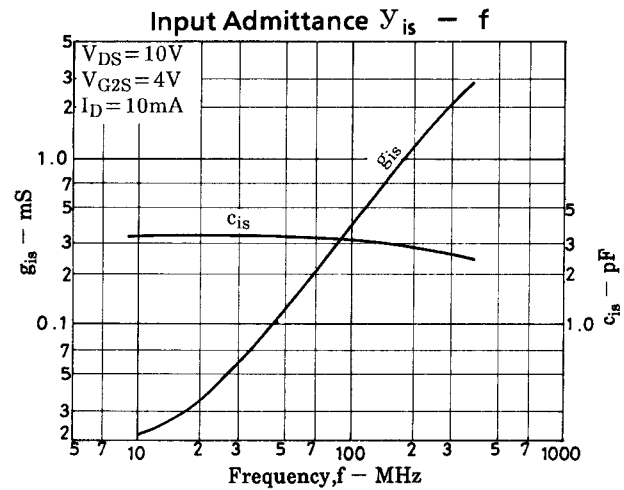
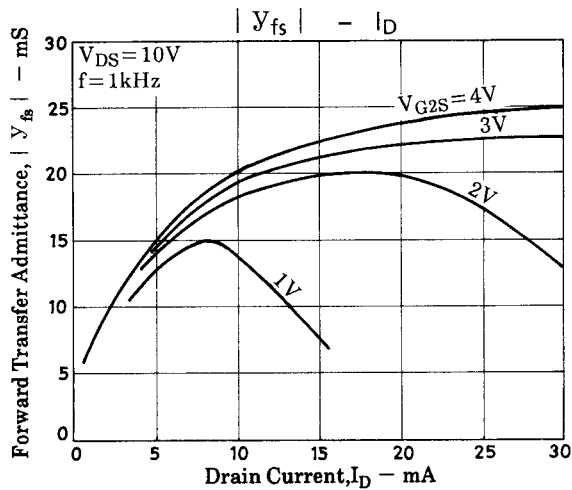
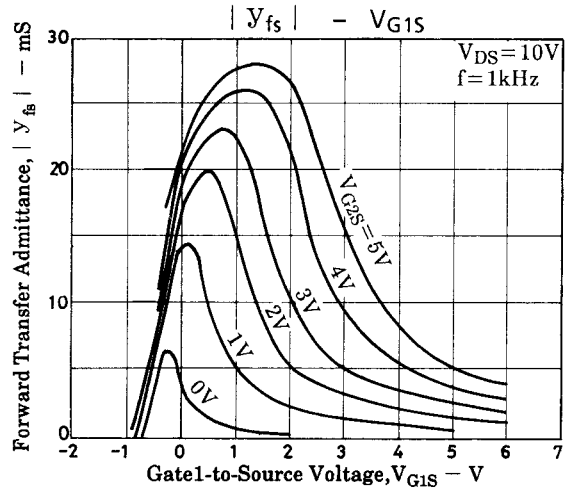
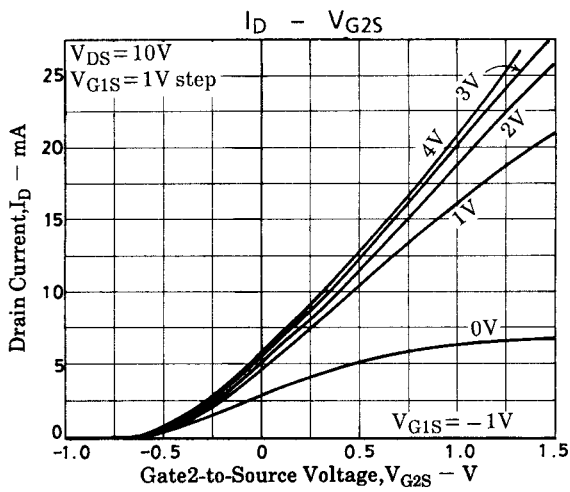
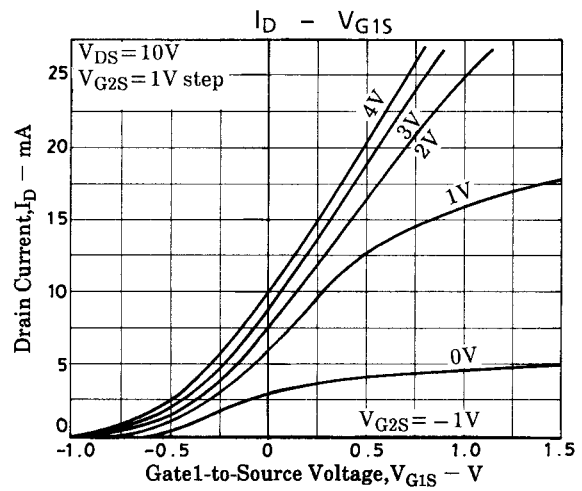
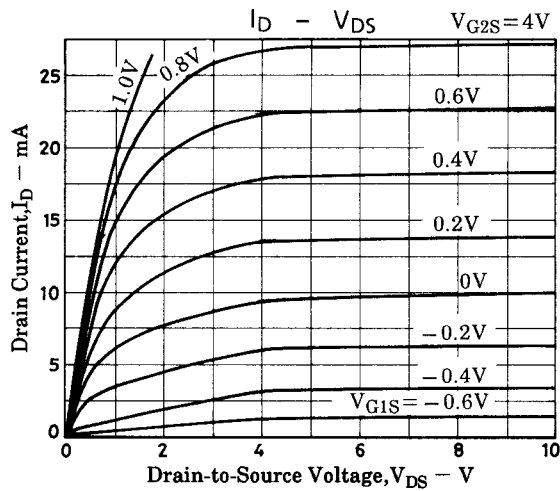
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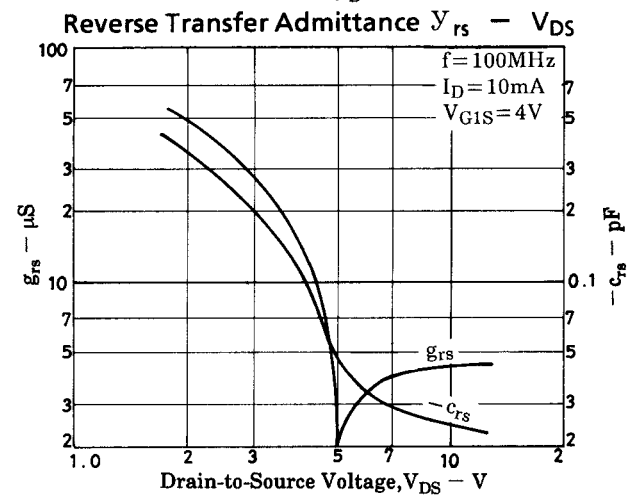
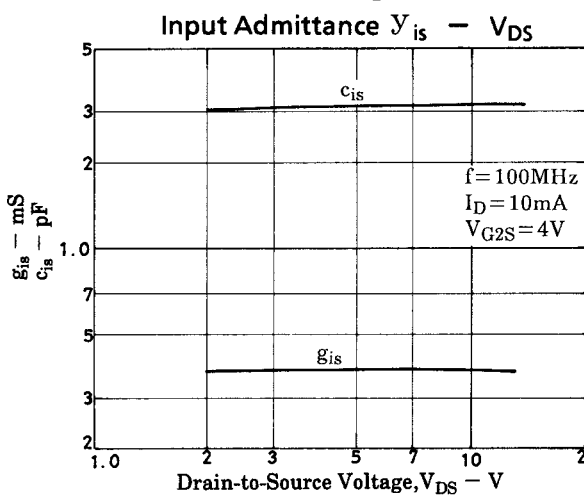
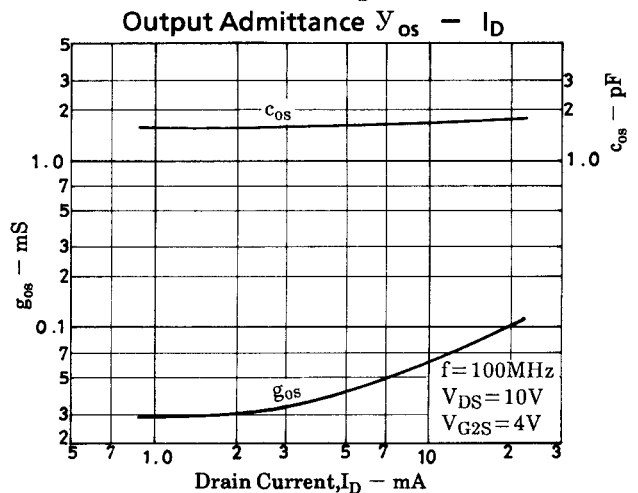
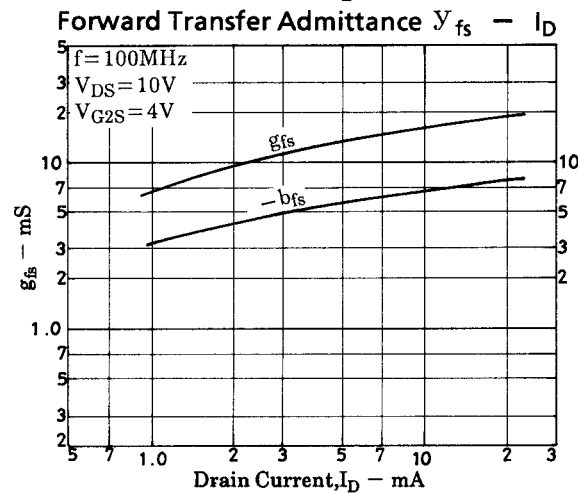
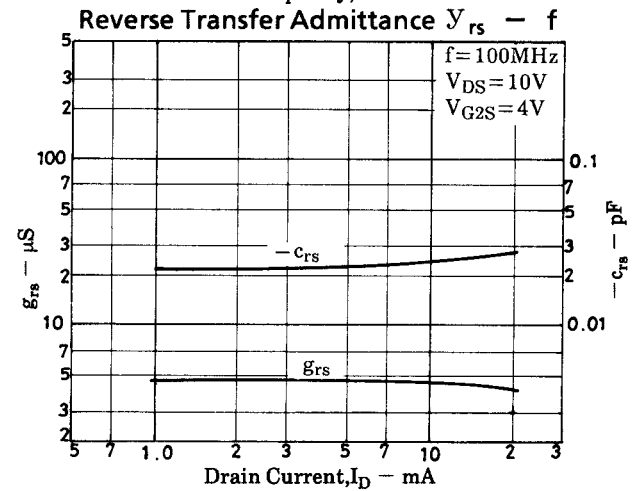
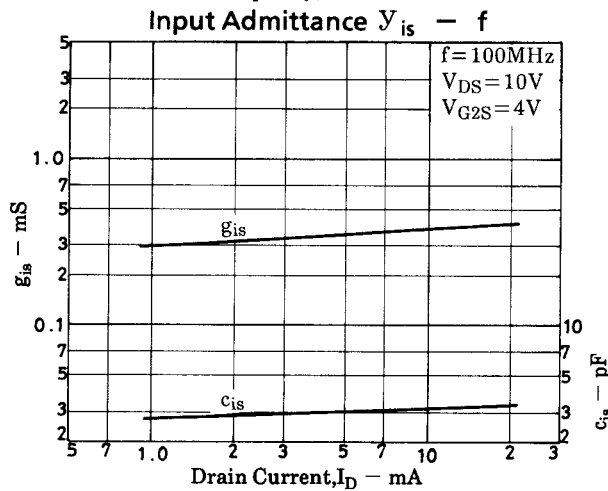
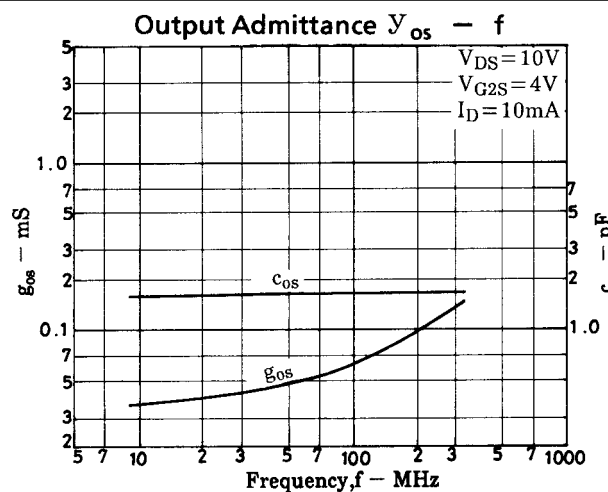
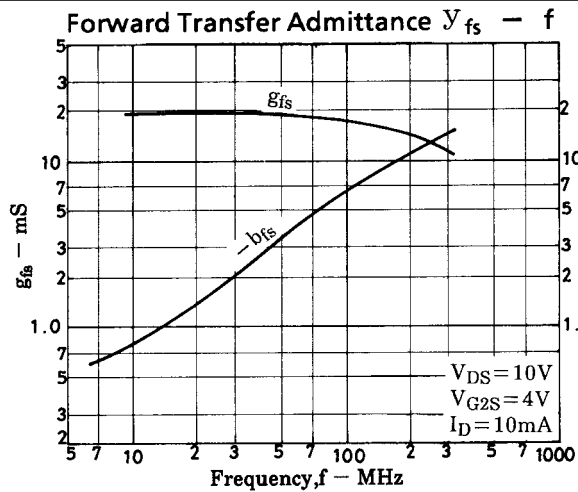
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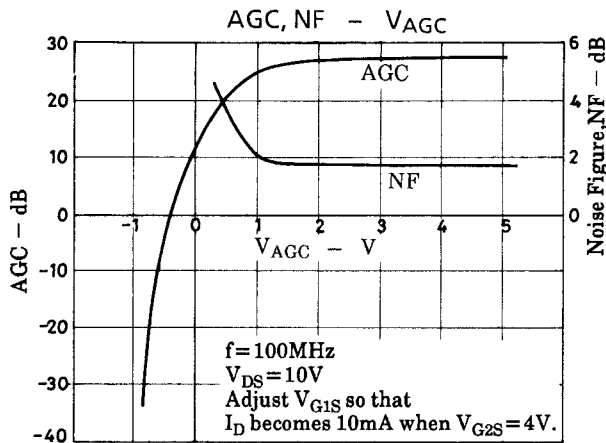
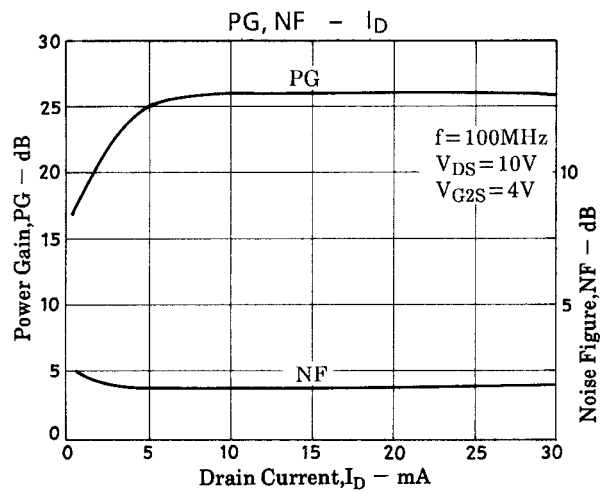
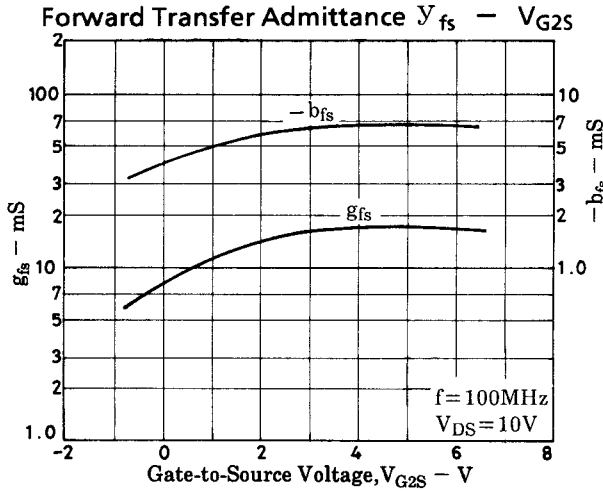
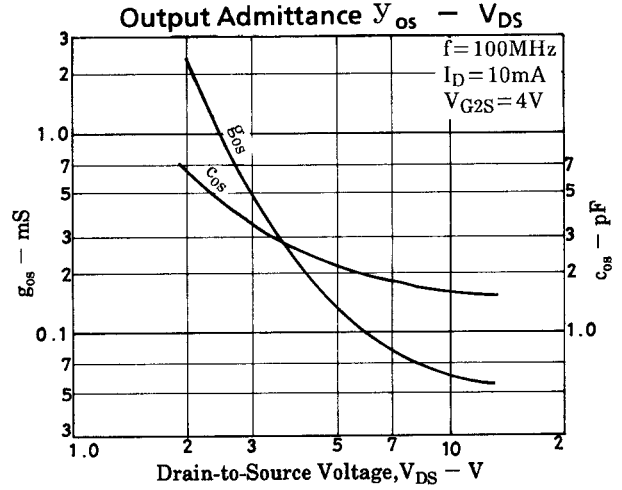
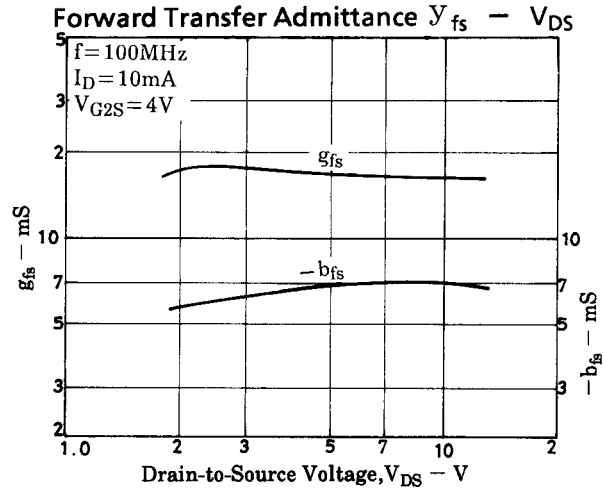
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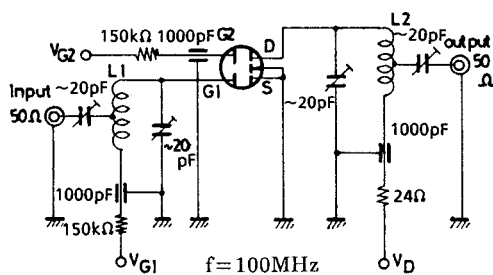
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Forward Transfer Admittance	$ y_{fs} $	$f=1\text{kHz}, I_D=10\text{mA}, V_{DS}=10\text{V}, V_{G2S}=4\text{V}$		20		mS
Input Capacitance	$C_{iss}$	$V_{DS}=10\text{V}, f=1\text{MHz}, V_{G1S}=0\text{V}, V_{G2S}=4\text{V}$		3.0		pF
Reverse Transfer Capacitance	$C_{rss}$	$V_{DS}=10\text{V}, f=1\text{MHz}, V_{G1S}=0\text{V}, V_{G2S}=4\text{V}$		0.02	0.05	pF
Power Gain	PG	$V_{DS}=10\text{V}, I_D=10\text{mA}$	22	28		dB
Noise Figure	NF	$f=100\text{MHz}, V_{G2S}=4\text{V}$		1.8	3.0	dB







### PG, NF Specified Test Circuit



L1: 1mm $\phi$  plated wire 10mm $\phi$  4T, tap: 1T from gate side

L2: 1mm $\phi$  plated wire 10mm $\phi$  6T, tap: 1T from drain side

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