

**SONY**

**2SK121**

**Silicon N-Channel Junction FET**

T-29-25

**Description**

The 2SK121 is a junction type FET which has the feature of obtaining high voltage high gm and low noise which covers from the Audio band to the VHF band.

**Application**

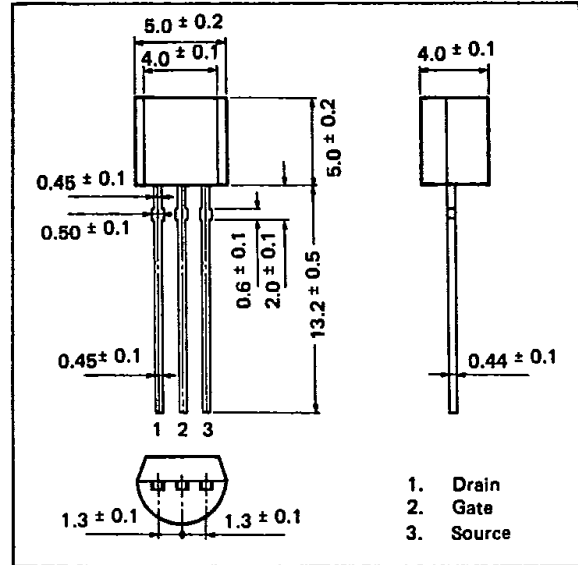
For low frequency, low noise amplifier and high-frequency amplifier.

**Structure**

N-channel Silicon junction FET

Package Outline

Unit mm



**Absolute Maximum Ratings (Ta=25°C)**

• Drain-to-Gate Voltage	V <sub>DG0</sub>	30	V
• Source-to-Gate Voltage	V <sub>SG0</sub>	30	V
• Drain current	I <sub>D</sub>	20	mA
• Gate current	I <sub>G</sub>	5	mA
• Allowable power dissipation	P <sub>D</sub>	300	mW
• Junction temperature	T <sub>j</sub>	100	°C
• Storage temperature	T <sub>stg</sub>	-50 to +120	°C

2SK121

SONY

T-29-25

Electrical Characteristics

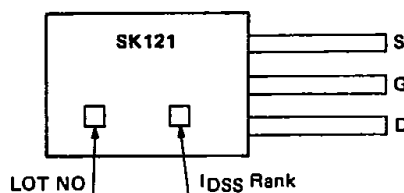
(Ta=25°C)

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Gate to Source Voltage	V <sub>GSS</sub>	I <sub>G</sub> =10μA, V <sub>DS</sub> =0V	-30			V
Gate Cutoff Current	I <sub>GSS</sub>	V <sub>GS</sub> =-15V, V <sub>DS</sub> =0V			-1.0	nA
Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =10V, V <sub>GS</sub> =0V	0.9		14.3	mA
Gate to Source Cutoff Voltage	V <sub>GS(OFF)</sub>	V <sub>DS</sub> =10V, I <sub>D</sub> =30μA	-0.18		-1.49	V
Forward Transfer Admittance	Y <sub>fs</sub>	V <sub>DS</sub> =10V, V <sub>GS</sub> =0V, f=1kHz	6.3			mS
Junction to Ambient Thermal Resistance	θ <sub>JA</sub>				250	°C/W

Mark

(Standard subdivision)

Rank	I <sub>DSS</sub> (V <sub>DS</sub> =10V, V <sub>GS</sub> =0V)
2	2.7 to 5.5 mA
3	4.5 to 7.7 mA
4	6.3 to 9.9 mA
5	8.1 to 12.1 mA



Circuit Design Reference Material

(Ta=25°C)

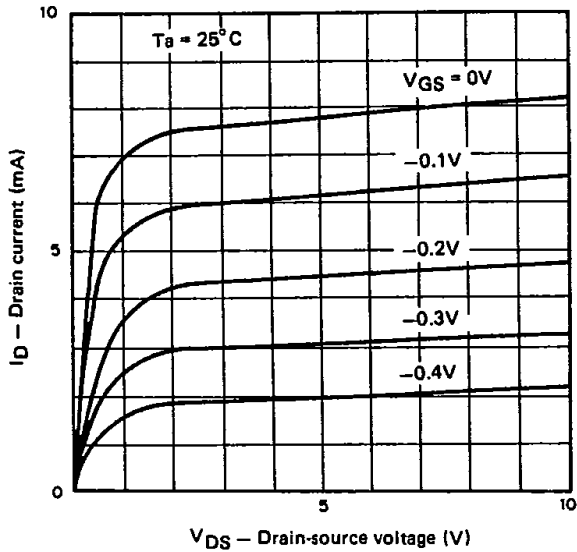
Item	Symbol	Condition	Typ.	Unit
Input Admittance Y <sub>11S</sub>	r <sub>ip</sub>	f=100MHz	1.2	kΩ
	C <sub>ip</sub>	V <sub>DS</sub> =10V, V <sub>GS</sub> =0V	13	pF
Output Admittance Y <sub>22S</sub>	r <sub>op</sub>	f=100MHz		kΩ
	C <sub>op</sub>	V <sub>DS</sub> =10V, V <sub>GS</sub> =0V	2.7	pF
Reverse Transfer Capacitance	C <sub>rss</sub>	f=1MHz, V <sub>DS</sub> =10V, V <sub>GS</sub> =0V	2.4	pF
Short Circuit Equivalent Input Noise Voltage	e <sub>n</sub>	V <sub>GS</sub> =0V, f=1kHz V <sub>DS</sub> =10V, R <sub>g</sub> =10kΩ	13	nV/√Hz

2SK121

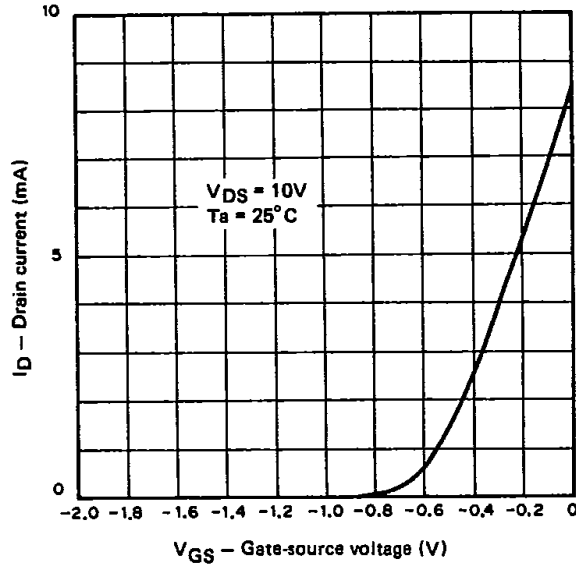
SONY®

T-29-25

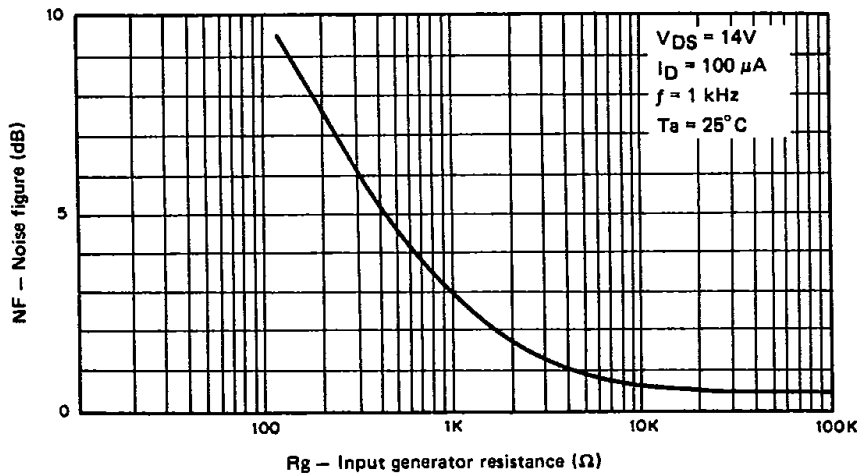
**Drain Current vs. Drain-Source Voltage**



**Drain Current vs. Gate-Source Voltage**



**Noise Figure vs. Input Generator Resistance**

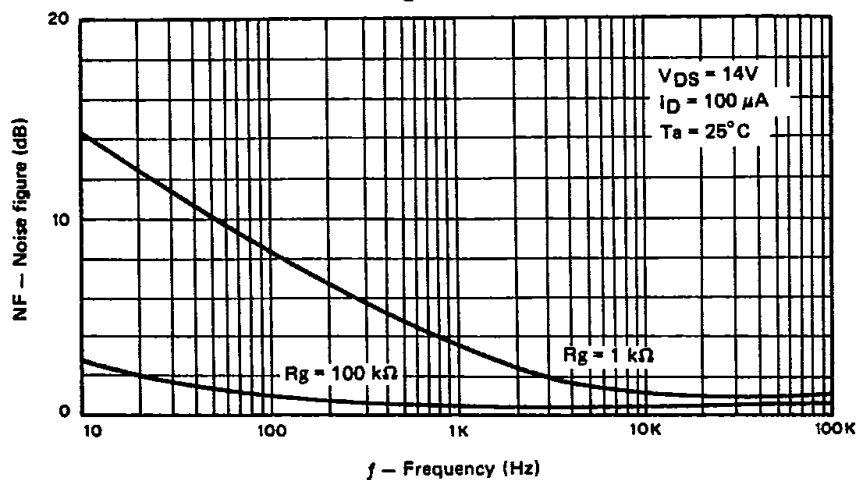


28K121

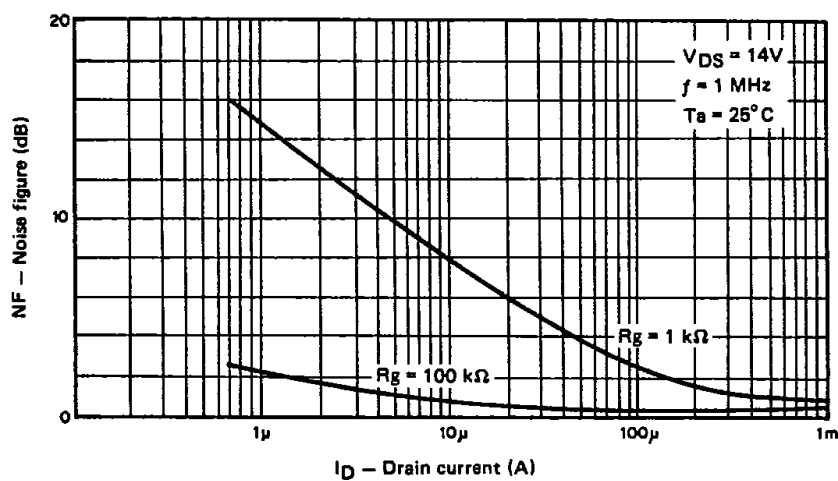
SONY®

T-29-25

Noise Figure vs. Frequency



Noise Figure vs. Drain Current

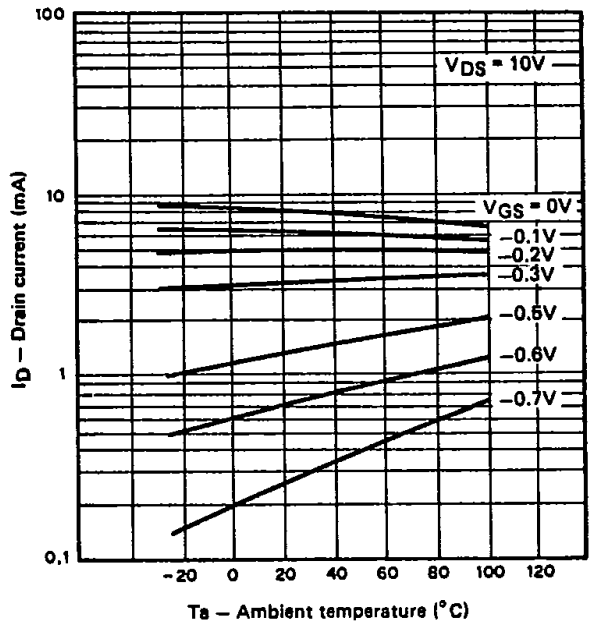


2SK121

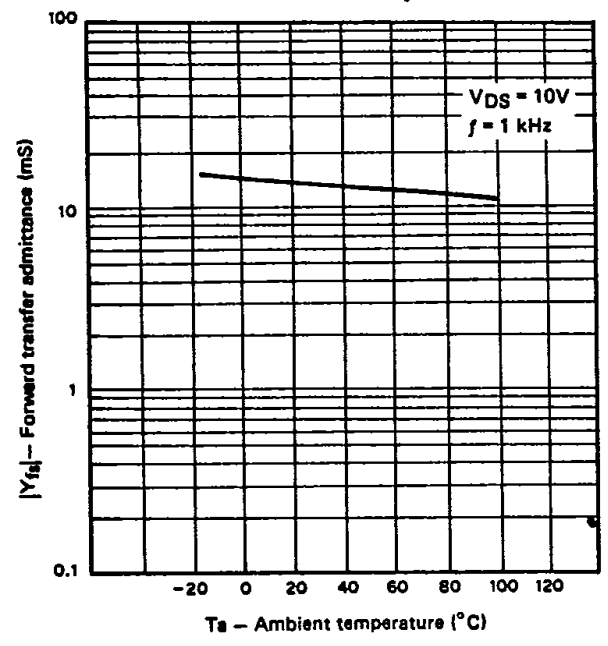
SONY®

J-29-25

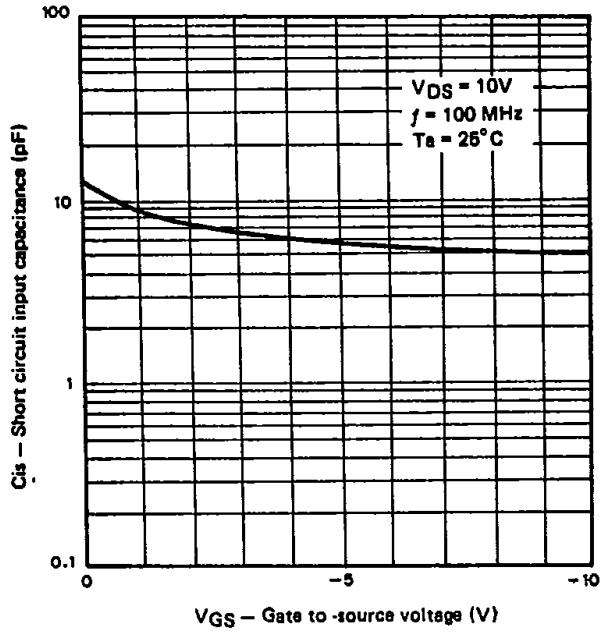
Drain Current vs. Temperature



Forward Transfer Admittance vs. Ambient Temperature



Short Circuit Input Capacitance vs. Gate-Source Voltage



Reverse Transfer Capacitance vs. Drain-Source Voltage

