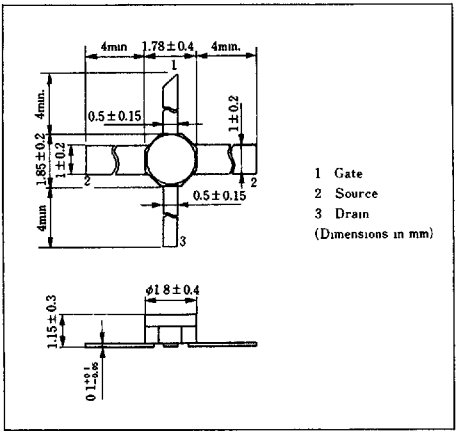
2SK780

GaAs N-channel MES FET
SHF Converter RF Amplifier

■ OUTLINE DRAWING

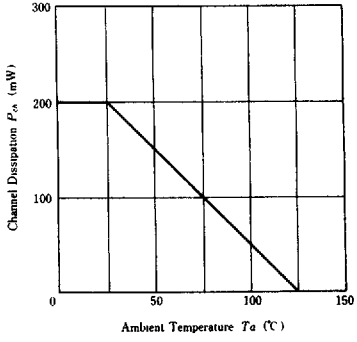


■ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to Source Voltage	V_{DS}	5	V
Gate to Source Voltage	V_{GS}	−6	V
Drain Current	I_D	120	mA
Channel Dissipation	Pch	200	mW
Channel Temperature	Tch	125	°C
Storage Temperature	$Tstg$	−55 to +125	°C

The absolute maximum ratings are limiting values, to be applied individually, beyond which the device may be permanently damaged. Functional operation under any of these conditions is not guaranteed. Exposing a circuit to its absolute maximum rating for extended periods of time may affect the device's reliability.

MAXIMUM CHANNEL DISSIPATION CURVE



■ELECTRICAL CHARACTERISTICS (Ta = 25°C)

Item	Symbol	Test Condition	min.	typ.	max.	Unit
Gate to Source Leakage Current	I_{GSS}	V_{GS} = −3V, V_{DS} = 0	–	–	−10	μA
Drain Current	I_{DSS}	V_{DS} = 3V, V_{GS} = 0	20	–	120	mA
Gate to Source Cutoff Voltage	$V_{GS(off)}$	V_{DS} = 3V, I_D = 100 μA	−0.5	–	−3.5	V
Forward Transfer Admittance	$\|y_{fs}\|$	V_{DS} = 3V, I_D = 10 mA, f = 1 kHz	20	40	–	mS
Minimum Noise Figure	NF	V_{DS} = 3V, I_D = 10 mA f = 12 GHz, (at NF MIN)	–	1.8	2.1	dB
Associated Gain	Ga		8	10	–	dB

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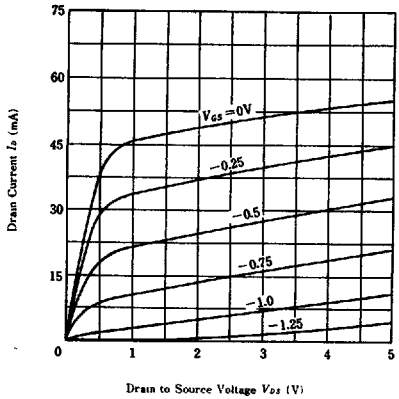
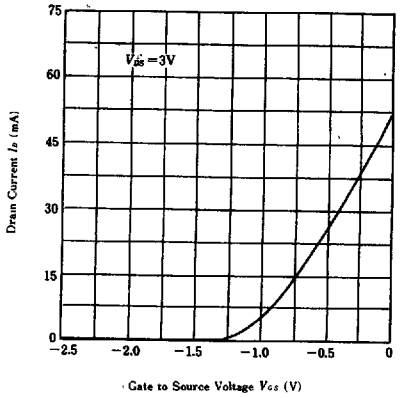
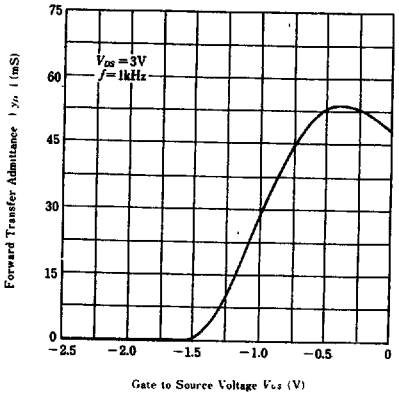
TYPICAL OUTPUT CHARACTERISTICS



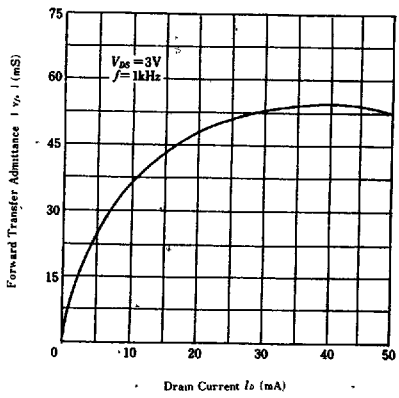
DRAIN CURRENT VS. GATE TO SOURCE VOLTAGE



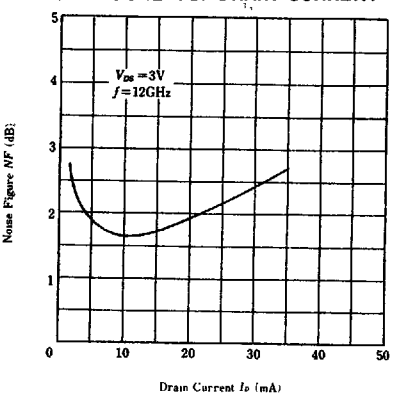
FORWARD TRANSFER ADMITTANCE VS. GATE TO SOURCE VOLTAGE



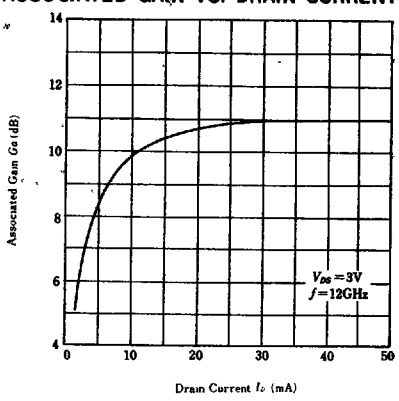
FORWARD TRANSFER ADMITTANCE VS. DRAIN CURRENT



NOISE FIGURE VS. DRAIN CURRENT



ASSOCIATED GAIN VS. DRAIN CURRENT



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■S PARAMETER(T_a=25℃, V_{DS}=3V, I_D=10mA, Z_o=50Ω)

f(GHz)	S_{11}		S_{21}		S_{12}		S_{22}	
	MAG.	ANG.	MAG.	ANG.	MAG.	ANG.	MAG.	ANG.
2	0.950	−31.3	3.125	149.7	0.042	71.9	0.716	−16.7
4	0.838	−69.8	2.998	118.4	0.075	50.4	0.621	−35.6
6	0.742	−111.4	2.744	87.1	0.079	34.4	0.522	−61.8
8	0.708	−146.1	2.170	58.0	0.072	24.0	0.491	−92.4
10	0.722	−168.9	1.698	36.0	0.056	26.2	0.543	−116.6
12	0.690	175.1	1.248	14.3	0.048	30.8	0.577	−145.1

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