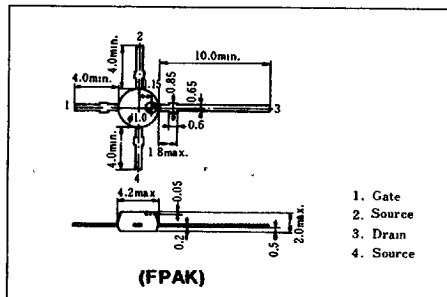


GaAs N-channel MES FET
SHF CONVERTER RF AMPLIFIER

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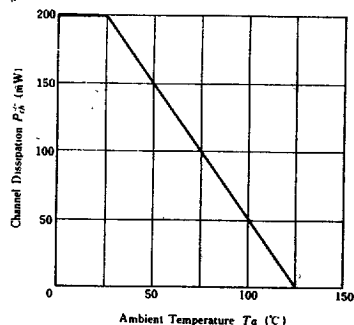
■ OUTLINE DRAWING

■ ABSOLUTE MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

Item	Symbol	Ratings	Unit
Drain to Source Voltage	V_{DS}	5	V
Gate to Source Voltage	V_{GS}	+0.5 -6.0	V
Drain Current	I_D	100	mA
Channel Dissipation	P_{ch}	200	mW
Channel Temperature	T_{ch}	125	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 to +125	$^\circ\text{C}$

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.

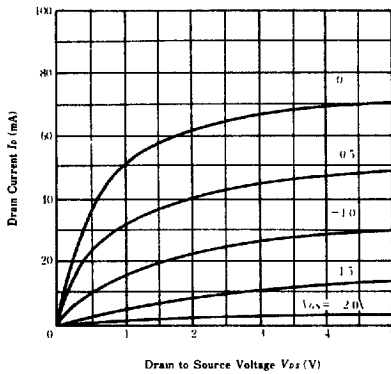
MAXIMUM CHANNEL DISSIPATION CURVE

■ ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

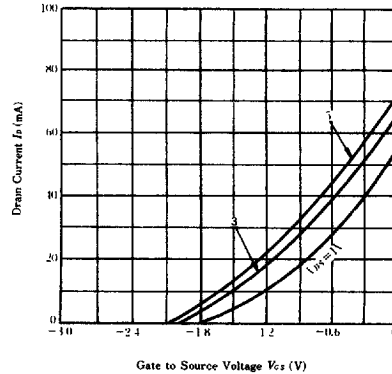
Item	Symbol	Test Condition	min.	typ.	max.	Unit
Drain to Source Leakage Current	I_{DSX}	$V_{DS} = 6\text{V}, V_{GS} = -4\text{V}$	—	—	50	μA
Gate to Source Leakage Current	I_{GSS}	$V_{GS} = -6\text{V}, V_{DS} = 0$	—	—	10	μA
Drain Current	I_{DSS}	$V_{DS} = 5\text{V}, V_{GS} = 0$	20	—	100	mA
Gate to Source Cutoff Voltage	$V_{GS(off)}$	$V_{DS} = 5\text{V}, I_D = 100 \mu\text{A}$	—	—	-5	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS} = 5\text{V}, I_D = 20 \text{ mA}, f = 1 \text{ kHz}$	15	35	—	mS
Power Gain	PG	$V_{DS} = 4\text{V}, I_D = 20 \text{ mA}, f = 3 \text{ GHz}$	—	2.1	—	dB
Minimum Noise Figure	NF	$V_{DS} = 4\text{V}, I_D = 20 \text{ mA}, f = 3 \text{ GHz}$	—	10	—	dB



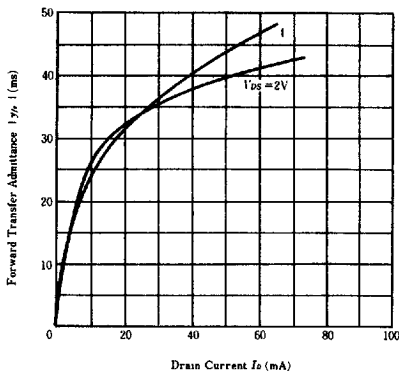
TYPICAL OUTPUT CHARACTERISTICS



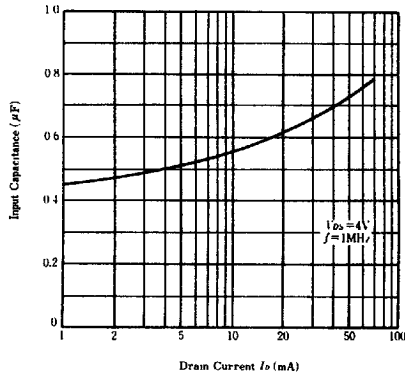
TYPICAL TRANSFER CHARACTERISTICS



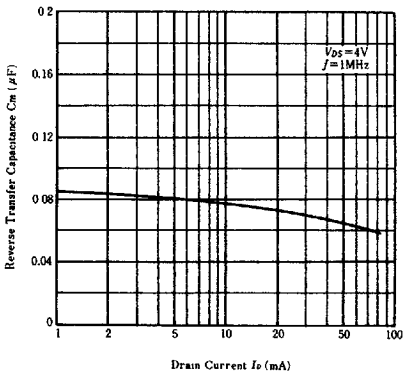
FORWARD TRANSFER ADMITTANCE VS. DRAIN CURRENT



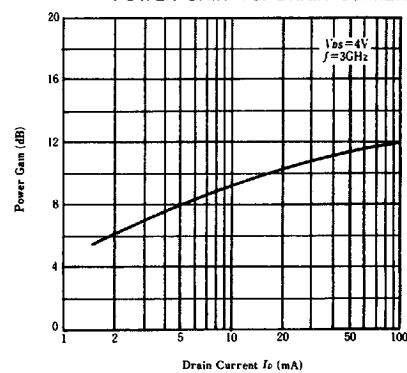
INPUT CAPACITANCE VS. DRAIN CURRENT



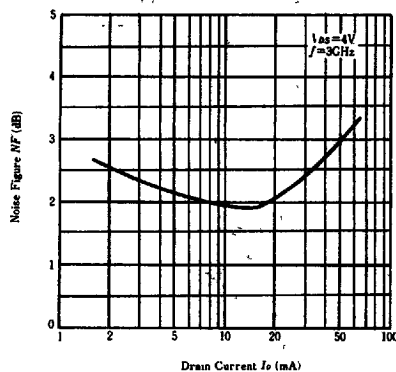
REVERSE TRANSFER CAPACITANCE VS. DRAIN CURRENT



POWER GAIN VS. DRAIN CURRENT



NOISE FIGURE VS. DRAIN CURRENT



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S PARAMETERS ($V_{DS} = 4V$, $I_D = 20mA$)

f	Return Loss		Transfer Loss		Transfer Loss		Return Loss	
	Input (S_{11})		Forward (S_{21})		Reverse (S_{12})		Output (S_{22})	
MHz	Ratio	Angle	Ratio	Angle	Ratio	Angle	Ratio	Angle
500	0.9656	-10.9	2.9479	165.8	0.0182	87.2	0.6394	-3.6
1,000	0.9097	-21.8	2.8546	151.8	0.0352	85.2	0.6118	-7.7
1,500	0.8503	-32.7	2.7889	139.5	0.0501	82.8	0.5879	-12.4
2,000	0.7782	-44.8	2.6831	128.0	0.0633	81.1	0.5682	-15.1
2,500	0.6904	-53.0	2.5648	115.2	0.0763	81.4	0.5562	-16.2
3,000	0.5994	-59.7	2.4482	103.2	0.0897	83.6	0.5441	-18.2
3,500	0.4919	-72.8	2.3873	91.8	0.1080	82.6	0.5105	-16.9
4,000	0.3836	-94.1	2.3424	82.0	0.1282	82.1	0.4410	-16.1

