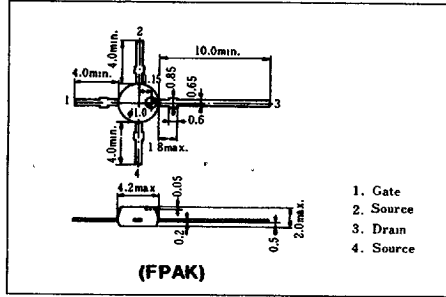


GaAs N-channel MES FET
SHF CONVERTER RF AMPLIFIER

F31-25

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■ OUTLINE DRAWING

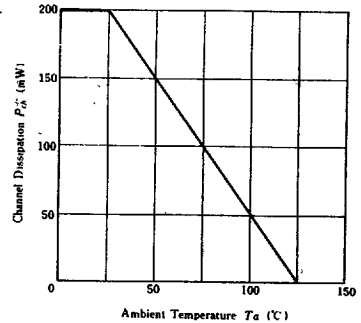


■ ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

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

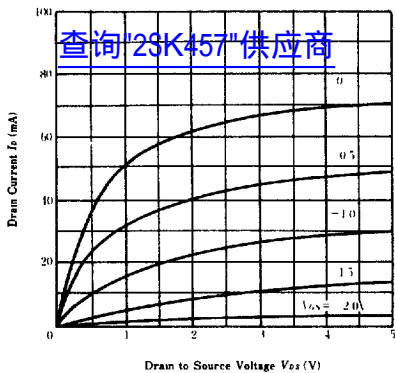


■ ELECTRICAL CHARACTERISTICS (Ta = 25°C)

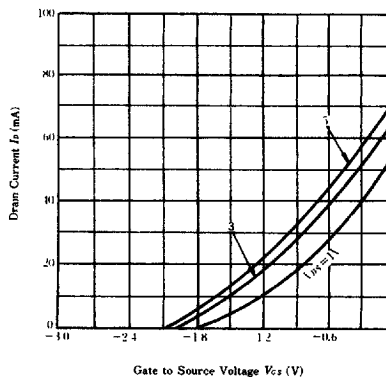
Item	Symbol	Test Condition	min.	typ.	max.	Unit
Drain to Source Leakage Current	I_{DSX}	$V_{DS} = 6V, V_{GS} = -4V$	-	-	50	μA
Gate to Source Leakage Current	I_{GSS}	$V_{GS} = -6V, V_{DS} = 0$	-	-	10	μA
Drain Current	I_{DSS}	$V_{DS} = 5V, V_{GS} = 0$	20	-	100	mA
Gate to Source Cutoff Voltage	$V_{GS(off)}$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



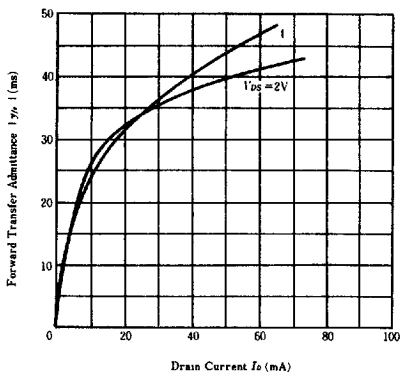
TYPICAL OUTPUT CHARACTERISTICS



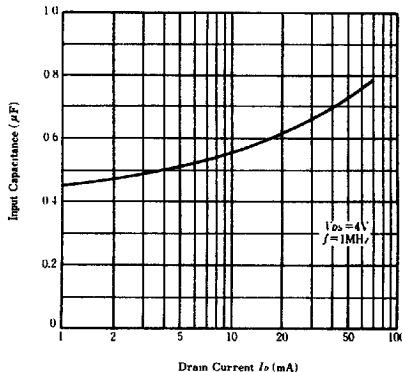
TYPICAL TRANSFER CHARACTERISTICS



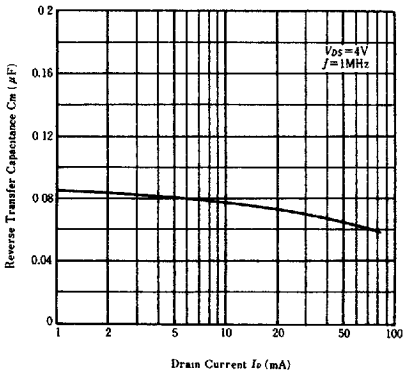
FORWARD TRANSFER ADMITTANCE VS. DRAIN CURRENT



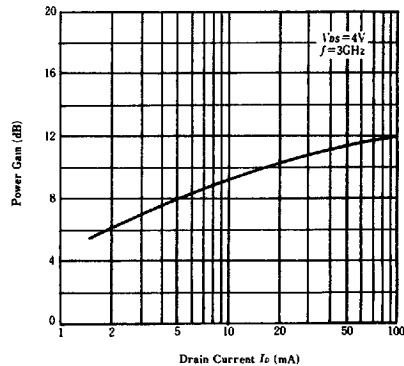
INPUT CAPACITANCE VS. DRAIN CURRENT



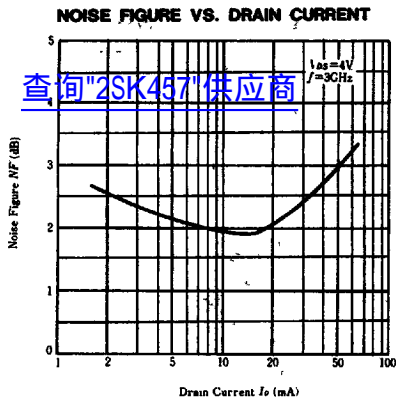
REVERSE TRANSFER CAPACITANCE VS. DRAIN CURRENT



POWER GAIN VS. DRAIN CURRENT



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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

