NEC

0.2W X, Ku-BAND POWER GaAs MESFET

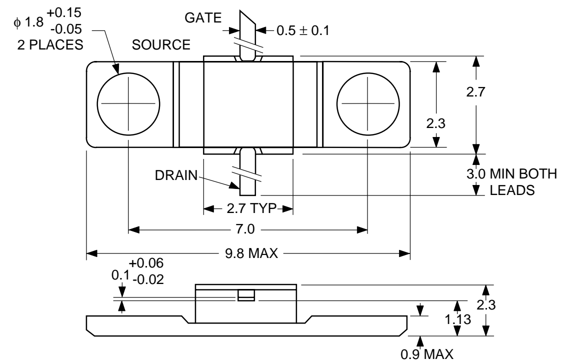
NE960R275

FEATURES

- **HIGH OUTPUT POWER:** 25.0 dBm TYP @ P_1 dB
- **HIGH LINEAR GAIN:** 9.0 dB TYP @ 14.5 GHz
- **HIGH EFFICIENCY:** 35% TYP @ 14.5 GHz
- **HIGH RELIABILITY**
- **CLASS A OPERATION**

OUTLINE DIMENSIONS (Units in mm)

PACKAGE OUTLINE 75



DESCRIPTION

The NE960R275 is a Power GaAs MESFET covering the 4 GHz to 18 GHz range and is designed for X and Ku Band amplifiers and oscillator applications.

The device incorporates WSi (tungsten silicide) gate and silicon dioxide glassivation. NEC's strigent quality assurance and test procedures assure the highest reliability and performance.

ELECTRICAL CHARACTERISTICS (T_A = 25°C)

	PART NUMBER PACKAGE OUTLINE			NE960R275 75			
	SYMBOLS	**CHARACTERISTICS**	**UNITS**	**MIN**	**TYP**	**MAX**	**TEST CONDITIONS**
Functional Characteristics	G_L	Linear Gain	dB	8.0	10.0		V_{DS} = 9 V I_{DSQ} = 90 mA f = 14.5 GHz, Rg = 1KΩ
	P_{1dB}	Output Power (1 dB)	dBm		25.0		
	P_{OUT}	Power Out at Fixed Input Power	dBm	22.0	24.0		P_{IN} = 15 dBm[1]
	η_{ADD}	Power Added Efficiency	%		35		P_{OUT} = P_{1dB}[1]
Electrical Characteristics	R_{TH}	Thermal Resistance	°C/W			60	Channel to Case
	I_{DSS}	Saturated Drain Current	A	0.09	0.2	0.35	V_{DS} = 1.5 V, V_{GS} = 0 V
	Vp	Pinch-off Voltage	V	-2.5	-1.8	-0.5	V_{DS} = 2.5 V, I_{DS} = 1 mA
	BV_{GD}	Gate to Drain Break Down Voltage	V	15			I_{GD} = 1 mA

Note:
1. V_{DS} = 9 V, I_{DSQ} = 90 mA, f = 14.5 GHz.

Downloaded from Elcodis.com electronic components distributor

ABSOLUTE MAXIMUM RATINGS[1] (T_A = 25 °C)

SYMBOLS	PARAMETERS	UNITS	RATINGS
V_{DS}	Drain to Source Voltage	V	15
V_{GS}	Gate to Source Voltage	V	-7
P_t	Total Power Dissipation	W	2.5
I_D	Drain Current	mA	350
I_{GF}	Gate Current (forward)	mA	2.5
I_{GR}	Gate Current (reverse)	mA	-2.5
T_{CH}	Channel Temperature	°C	175
T_{STG}	Storage Temperature	°C	-65 to +175

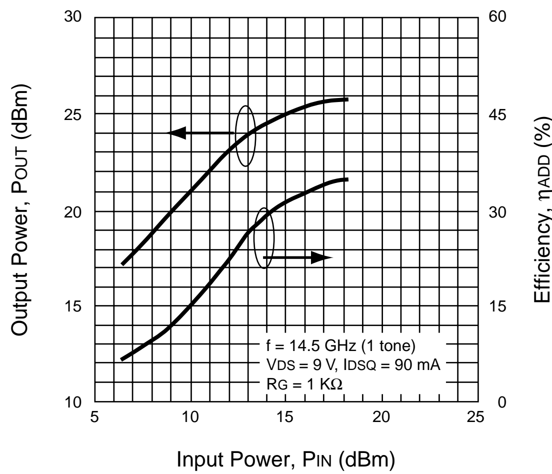
Note:
1. Operation in excess of any one of these parameters may result in permanent damage.

RECOMMENDED OPERATING LIMITS

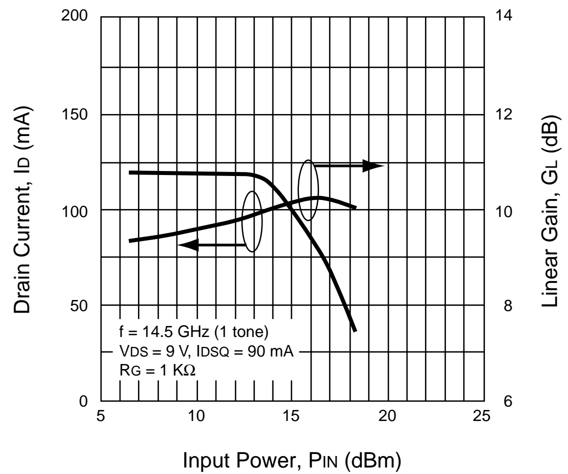
SYMBOLS	PARAMETERS	UNITS	MIN	TYP	MAX
V_{DS}	Drain to Source Voltage	V		9	9
T_{CH}	Channel Temperature	°C			130
G_{COMP}	Gain Compression	dBcomp			3

TYPICAL PERFORMANCE CURVES (T_A = 25°C)

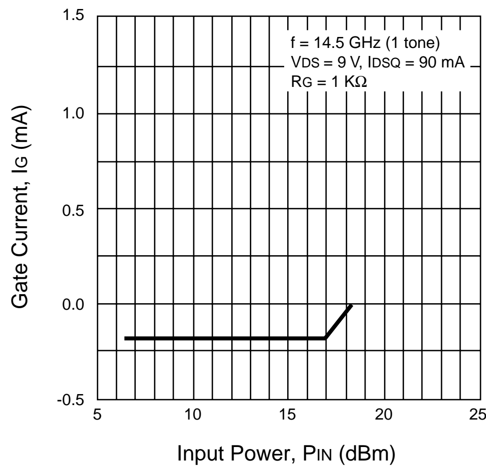
OUTPUT POWER AND EFFICIENCY vs. INPUT POWER



DRAIN CURRENT AND LINEAR GAIN vs. INPUT POWER



GATE CURRENT vs. INPUT POWER



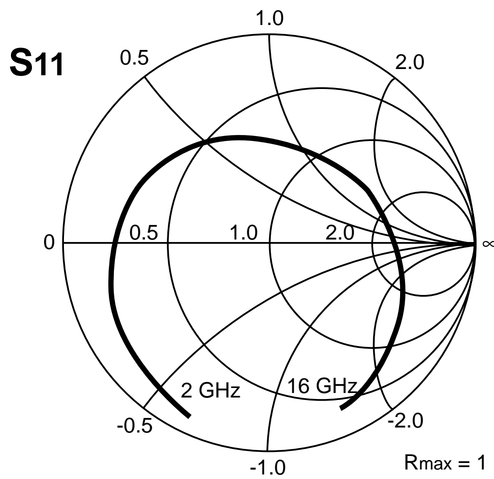
Downloaded from Elcodis.com electronic components distributor

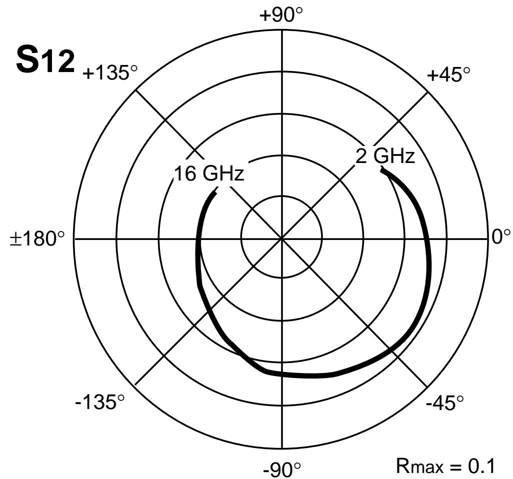
TYPICAL SCATTERING PARAMETERS (T_A = 25°C)

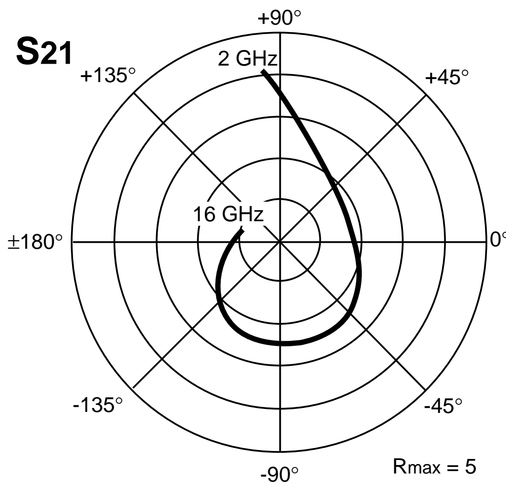
NE960R275
V_{DS} = 9.0 V, I_{DSQ} = 90 mA

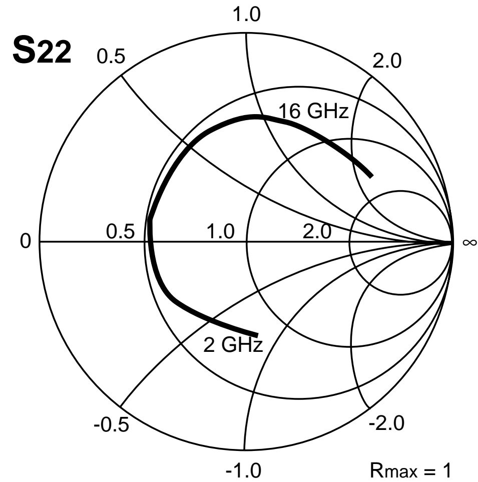
FREQUENCY	S11		S21		S12		S22	
GHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
2.0	0.89	-113	3.99	98	0.057	34	0.42	-79
3.0	0.86	-129	2.88	80	0.058	15	0.46	-85
4.0	0.85	-138	2.29	65	0.057	10	0.43	-94
5.0	0.84	-140	1.99	51	0.057	7	0.41	-110
6.0	0.81	-144	1.78	39	0.059	5	0.44	-125
7.0	0.83	-152	1.77	27	0.060	3	0.49	-135
8.0	0.81	-163	1.82	15	0.062	3	0.53	-141
9.0	0.75	-176	1.89	0	0.062	1	0.52	-150
10.0	0.71	166	2.12	-19	0.064	0	0.47	-167
11.0	0.62	140	2.42	-44	0.072	-17	0.45	164
12.0	0.48	86	2.50	-78	0.074	-46	0.50	129
13.0	0.54	20	2.32	-113	0.065	-88	0.56	94
14.0	0.69	-20	1.77	-144	0.049	-132	0.57	68
15.0	0.80	-45	1.30	-166	0.040	-176	0.61	44
16.0	0.81	-66	1.03	167	0.039	149	0.67	27

START 2 GHz, STOP 16 GHz, STEP 1 GHz









Downloaded from Elcodis.com electronic components distributor