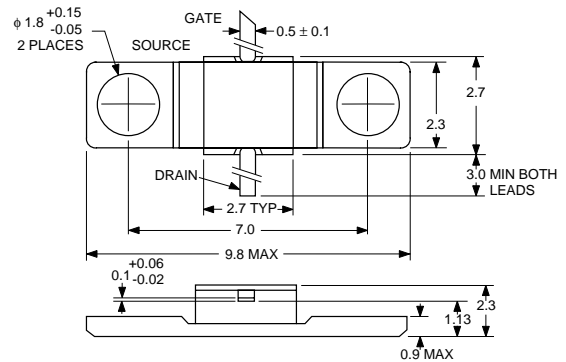


FEATURES

- **HIGH OUTPUT POWER:** 27.5 dBm TYP @ P₁ dB
- **HIGH LINEAR GAIN:** 9.0 dB TYP @ 14.5 GHz
- **HIGH EFFICIENCY:** 30% TYP @ 14.5 GHz
- **HIGH RELIABILITY**
- **CLASS A OPERATION**

OUTLINE DIMENSIONS (Units in mm)

PACKAGE OUTLINE 75



DESCRIPTION

The NE950R575 Power GaAs FET covers the 4 GHz to 18 GHz frequency range for commercial amplifiers and oscillator applications.

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

ELECTRICAL CHARACTERISTICS (T_A = 25°C)

PART NUMBER PACKAGE OUTLINE				NE950R575 75			TEST CONDITIONS
FUNCTIONAL CHARACTERISTICS	SYMBOLS	CHARACTERISTICS	UNITS	MIN	TYP	MAX	
Functional Characteristics	GL	Linear Gain	dB	8.0	9.0		V _{DS} = 9 V I _{DS} = 180 mA set f = 14.5 GHz, R _g = 1KΩ P _{IN} = 19 dBm ¹ P _{OUT} = P _{1dB} ¹
	P _{1dB}	Output Power (1 dB)	dBm		27.5		
	P _{OUT}	Power Out at Fixed Input Power	dBm	25.5	26.5		
	η _{ADD}	Power Added Efficiency	%		30		
Electrical Characteristics	R _{TH}	Thermal Resistance	°C/W			30	Channel-to-Case
	I _{DSS}	Saturated Drain Current	A	0.18	0.4	0.7	V _{DS} = 1.5 V, V _{GS} = 0 V
	V _p	Pinch-off Voltage	V	-2.5	-1.8	-0.5	V _{DS} = 2.5 V, I _{DS} = 2 mA
	BV _{GD}	Gate to Drain Break Down Voltage	V	15			I _{GD} = 2 mA

Note:

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

ABSOLUTE MAXIMUM RATINGS¹ (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	3.0
I _D	Drain Current	mA	600
I _{GF}	Gate Current (forward)	mA	5.0
I _{GR}	Gate Current (reverse)	mA	-5.0
T _{CH}	Channel Temperature	°C	175
T _{STG}	Storage Temperature	°C	-65 to +175

Note:

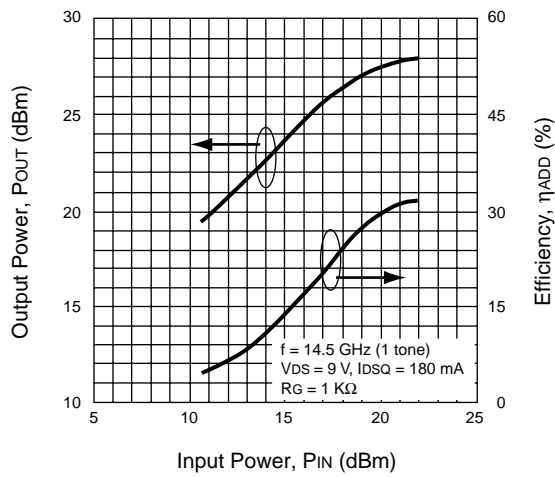
1. Operation in excess of any one of these parameters may result in permanent damage.

RECOMMENDED OPERATING LIMITS

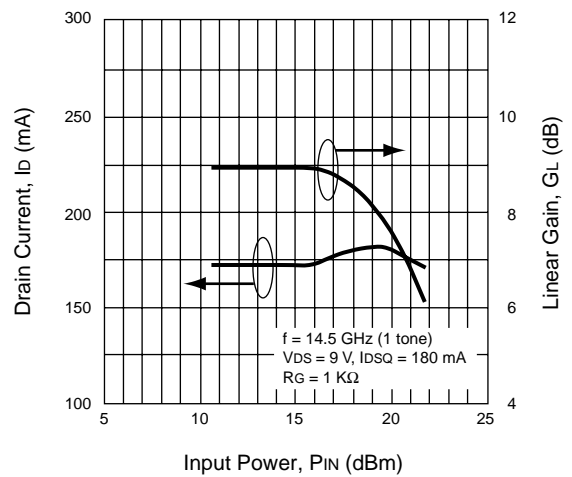
SYMBOLS	PARAMETERS	UNITS	MIN	TYP	MAX
V _{DS}	Drain to Source Voltage	V		9	9
T _{CH}	Channel Temperature	°C			130
G _{COMP}	Input Power	dBcomp			3

TYPICAL PERFORMANCE CURVES (T_A = 25°C)

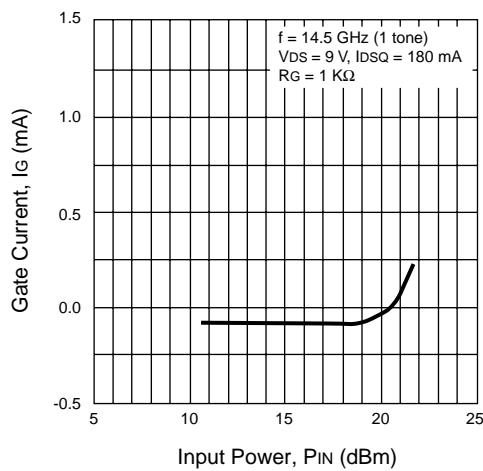
OUTPUT POWER AND EFFICIENCY vs. INPUT POWER



DRAIN CURRENT AND LINEAR GAIN vs. INPUT POWER



GATE CURRENT vs. INPUT POWER



TYPICAL SCATTERING PARAMETERS (TA = 25°C)

NE960R575

V_{DS} = 9 V, I_{DSQ} = 180 mA

FREQUENCY GHz	S ₁₁		S ₂₁		S ₁₂		S ₂₂	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
2.0	0.87	-140	4.36	85	0.042	23	0.23	-131
3.0	0.84	-154	2.98	68	0.040	19	0.25	-143
4.0	0.84	-160	2.36	54	0.040	22	0.30	-149
5.0	0.82	-163	2.08	42	0.043	32	0.32	-154
6.0	0.81	-167	1.99	33	0.047	34	0.34	-160
7.0	0.79	-175	1.96	18	0.055	35	0.36	-168
8.0	0.73	171	2.02	1	0.066	30	0.36	178
9.0	0.69	147	2.20	-20	0.076	18	0.37	159
10.0	0.62	109	2.30	-51	0.083	-4	0.38	136
11.0	0.63	47	2.22	-88	0.063	-41	0.45	95
12.0	0.76	0	1.62	-124	0.032	-82	0.57	65
13.0	0.79	-21	1.30	-144	0.017	-141	0.61	49
14.0	0.87	-45	0.90	-172	0.022	128	0.66	27
15.0	0.87	-53	0.60	166	0.034	101	0.73	11
16.0	0.83	-60	0.43	150	0.037	82	0.75	-2

Caution S-Parameters include bond wires.

START 2 GHz, STOP 16 GHz, STEP 1 GHz

