

FEATURES

- **HIGH OUTPUT POWER:** 34 dBm TYP
- **HIGH LINEAR GAIN:** 8.5 dB TYP
- **HIGH EFFICIENCY:** 30% TYP
- **INDUSTRY STANDARD PACKAGE**
- **INTERNALLY MATCHED FOR OPTIMUM PERFORMANCE IN 10.7 TO 11.7 GHz BAND**

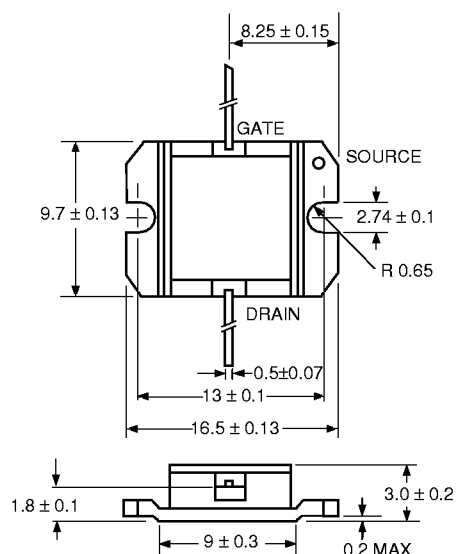
DESCRIPTION

The NEZ1011-2E is a power GaAs FET which provides high gain, high efficiency and high output power in X-band. The internal input and output matching enables guaranteed performance to be achieved with only a 50 Ω external circuit. The device incorporates a Wsi (tungsten silicide) gate structure for high reliability, SiO₂ glassivation for surface stability, and a plated heat sink for reduced thermal resistance.

The NEZ1011-2E transistors are manufactured to NEC's stringent quality assurance standards to ensure highest reliability and consistent superior performance.

OUTLINE DIMENSIONS (Units in mm)

PACKAGE OUTLINE X-17



RECOMMENDED OPERATING LIMITS

SYMBOLS	PARAMETERS	UNITS	MIN	TYP	MAX
V _{DS}	Drain to Source Voltage	V	9	9	9
T _{CH}	Channel Temperature	°C			130
G _{COMP}	Gain Compression	dB _{COMP}			3
R _g	Gate Resistance	Ω	200	1000	1000

ELECTRICAL CHARACTERISTICS (T_C = 25°C)

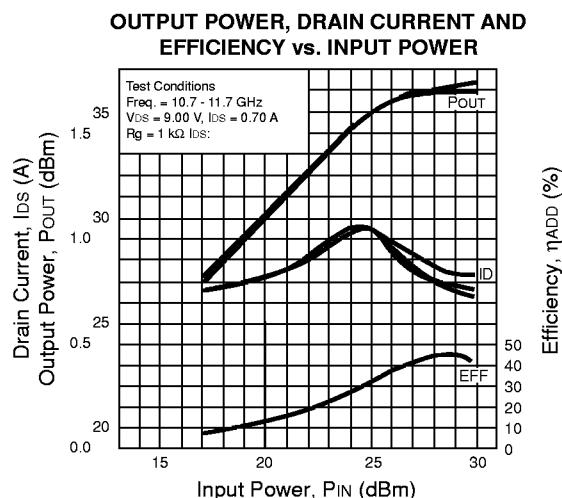
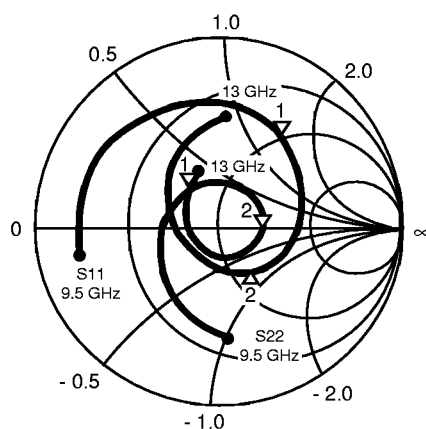
PART NUMBER			NEZ1011-2E			TEST CONDITIONS
SYMBOLS	CHARACTERISTICS	UNITS	MIN	TYP	MAX	
P _{1dB}	Output Power at 1 dB compression	dBm	33.0	34.0		f = 10.7, 11.2, 11.7 GHz V _{DS} = 9 V, I _{DSQ} = 0.7 A R _g = 1 K Ω
G _L	Linear Gain	dB	8.0	8.5		
η_{ADD}	Power Added Efficiency	%		30		
I _{DS}	Drain Current	A		0.8	1.0	
IM ₃	Third Order Intermodulation Distortion	dBc		-40		P _{OUT} = 27.5 dBm (Two Tones)
I _{DSS}	Saturated Drain Current	A	0.7	1.6	2.5	V _{DS} = 1.5 V, V _{GS} = 0 V
V _P	Pinch-off Voltage	V	-2.5	-1.3	-0.5	V _{DS} = 2.5 V, I _{DS} = 10 mA
BV _{GD}	Gate to Drain Breakdown Voltage	V		15		I _{GD} = 10 mA
R _{TH}	Thermal Resistance	°C/W		5.5	7.0	Channel to Case

ABSOLUTE MAXIMUM RATINGS¹(T_A = 25 °C unless otherwise noted)

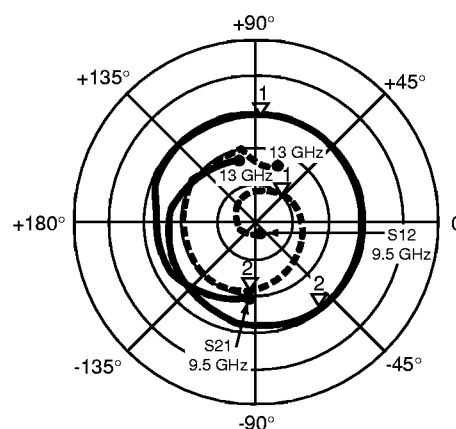
SYMBOLS	PARAMETERS	UNITS	RATINGS
V _{DS}	Drain to Source Voltage	V	15
V _{GS}	Gate to Source Voltage	V	-7
I _{DS}	Drain Current	A	I _{DSS}
I _{GF}	Gate Forward Current	mA	20
I _{GR}	Gate Reverse Current	mA	-20
P _T	Total Power Dissipation	W	15
T _{CH}	Channel Temperature	°C	175
T _{STG}	Storage Temperature	°C	-65 to +175

Note:

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

TYPICAL PERFORMANCE CURVES**TYPICAL SCATTERING PARAMETERS (T_A = 25°C)**

MARKER
1. 10.7 GHz
2. 11.7 GHz

**NEZ1011-2E****V_{DS} = 9 V, I_{DS} = 0.7 mA****FREQUENCY**

GHz	S ₁₁		S ₂₁		S ₁₂		S ₂₂	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
10.1	0.722	124.57	2.790	176.39	0.028	167.51	0.432	-133.64
10.3	0.686	100.66	2.927	146.20	0.035	121.47	0.344	-157.68
10.5	0.645	77.77	2.970	116.34	0.044	87.09	0.260	171.48
10.7	0.598	56.41	2.945	86.55	0.054	54.07	0.208	131.67
10.9	0.554	36.03	2.917	57.26	0.062	21.29	0.202	89.24
11.1	0.507	16.58	2.920	29.09	0.070	-7.46	0.222	54.19
11.3	0.456	-3.27	2.889	0.45	0.075	-35.75	0.248	26.63
11.5	0.394	-24.21	2.901	-29.33	0.084	-63.86	0.264	3.06
11.7	0.318	-49.67	2.890	-56.90	0.096	-92.36	0.262	-19.61
11.9	0.240	-84.43	2.857	-89.72	0.100	-123.74	0.246	-43.30
12.1	0.200	-138.67	2.824	-120.67	0.097	-155.00	0.214	-71.33
12.3	0.252	166.90	2.617	-153.42	0.098	175.89	0.174	-107.65

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