To our customers,

Old Company Name in Catalogs and Other Documents

On April 1st, 2010, NEC Electronics Corporation merged with Renesas Technology Corporation, and Renesas Electronics Corporation took over all the business of both companies. Therefore, although the old company name remains in this document, it is a valid Renesas Electronics document. We appreciate your understanding.

Renesas Electronics website: http://www.renesas.com

April 1st, 2010
Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (http://www.renesas.com)

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RENESAS

GaAs MES FET

NEZ1011-2E

2 W X-BAND POWER GaAs FET
N-CHANNEL GaAs MES FET

DESCRIPTION

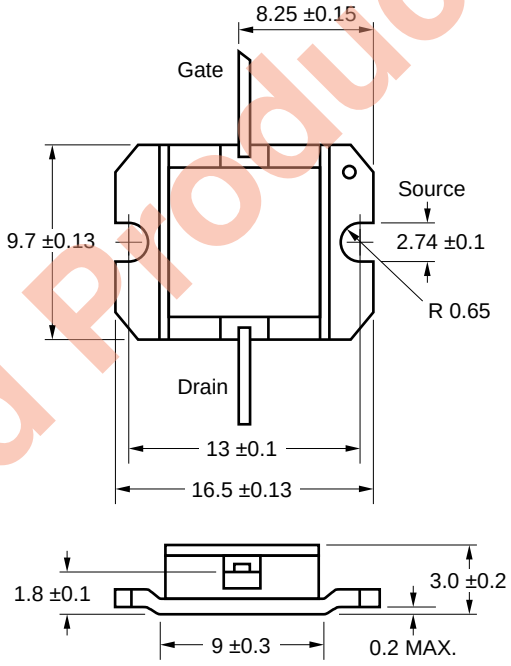
The NEZ1011-2E is power GaAs FET which provides high gain, high efficiency and high output power in X-band.

The internal input and output matching enables guaranteed performance to be achieved with only a 50 Ω external circuit.

FEATURES

- Class A operation
- High output power: 34.5 dBm (typ)
- High gain: 8.5 dB (typ)
- High power added efficiency: 35 % (typ)
- Internally matched
- High reliability

PACKAGE DIMENSIONS (UNIT: mm)



ABSOLUTE MAXIMUM RATINGS (T_A = 25 ˚C)

Drain to Source Voltage	V_{DS}	15	V
Gate to Source Voltage	V_{GS}	–7	V
Drain Current	I_{DS}	3.0	A
Gate Forward Current	I_{GF}	20	mA
Gate Reverse Current	I_{GR}	–20	mA
Total Power Dissipation	P_T	15	W
Channel Temperature	T_{ch}	175	˚C
Storage Temperature	T_{stg}	–65 to +175	˚C

Caution Please handle this device at a static-free workstation, because this is an electrostatic sensitive device.

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RECOMMENDING OPERATION RANGE

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT
Drain to Source Voltage	V_{DS}	9	9	9	V
Channel Temperature	T_{ch}	–	–	130	˚C
Input Power	Gcomp	–	–	3	dBcomp

ELECTRICAL CHARACTERISTICS (T_A = 25 ˚C)

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Saturated Drain Current	Idss	0.7	1.6	3.0	A	Vds = 1.5 V, Vgs = 0 V
Pinch-off Voltage	V_P	–3.0	–1.3	–0.5	V	Vds = 2.5 V, Ids = 10 mA
Gate To Drain Breakdown Voltage	BVGD	–	15	–	V	Igd = 10 mA
Thermal Resistance	Rth	–	5.5	7.0	˚C/W	Channel to Case

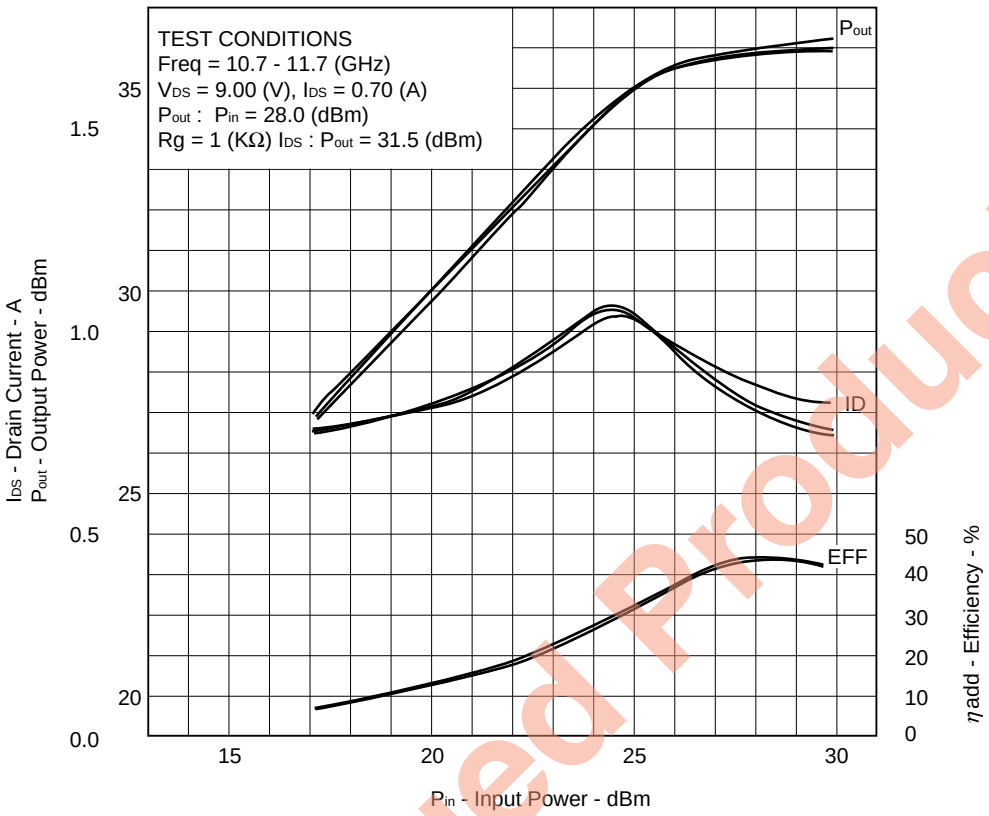
PERFORMANCE SPECIFICATIONS (T_A = 25 ˚C)

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Output Power*1	P_O	33.5	34.5	–	dBm	f = 10.7, 11.2, 11.7 GHz Vds = 9 V, Ids = 0.7 A Rg = 1 kΩ
Power added Efficiency*1	ηadd	–	35	–	%	
Liner Gain	G_L	8.0	8.5	–	dB	
Drain Current	I_{DS}	–	0.85	0.95	A	P_O = 31.5 dBm
3rd Order Intermodulation Distortion	IM_3	–	–40	–	dBc	P_O = 27.5 dBm (2tone)

***1:** Test input power: Pin = 28.0 dBm

TYPICAL CHARACTERISTICS (T_A = 25 °C)

OUTPUT POWER, DRAIN CURRENT AND EFFICIENCY vs. INPUT POWER



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