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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GaAs MES FET

NEZ1414-8E

8 W Ku-BAND POWER GaAs FET
N-CHANNEL GaAs MES FET

DESCRIPTION

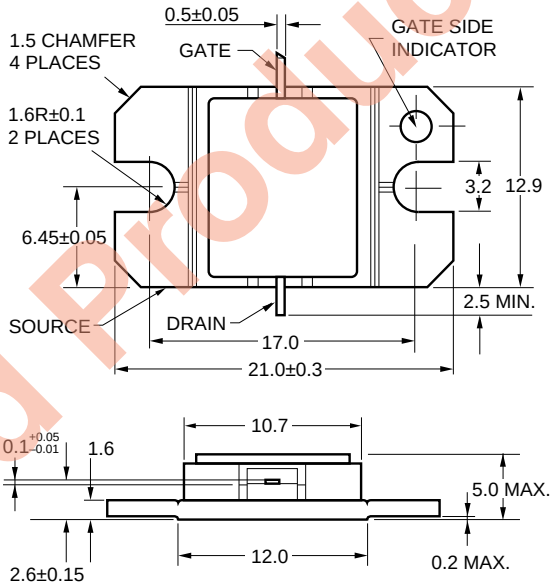
The NEZ1414-8E is power GaAs FET which provides high gain, high efficiency and high output power in Ku-band.

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

To reduce thermal resistance, the device has a PHS (Plated Heat Sink) structure.

The device incorporates WSi (tungsten silicide) gate for high reliability and SiO_2 glassivation for surface stability.

PACKAGE DIMENSIONS (UNIT: mm)



FEATURES

- Class A operation
- High output power: 39.5 dBm (min)
- High gain: 6.5 dB (typ)
- Internally matched
- High reliability

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}	10.0	A
Gate Forward Current	I_{GF}	80	mA
Gate Reverse Current	I_{GR}	−80	mA
Total Power Dissipation	$P_{T(*)}$	15	W
Channel Temperature	T_{ch}	175	°C
Storage Temperature	T_{stg}	−65 to +175	°C

* T_C = 25 °C

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

The information contained in this document is being issued in advance of the production cycle for the device. The parameters for the device may change before final production or NEC Corporation, at its own discretion, may withdraw the device prior to its production.

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RECOMMENDING OPERATION RANDGE

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	2.8	6.0	10.0	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 = 40 mA
Gate to Drain Breakdown Voltage	BVgd	15	18	–	V	Igd = 40 mA
Thermal Resistance	R_{th}	–	2.0	2.5	°C/W	Channel to Case

PERFORMANCE SPECIFICATIONS (T_A = 25 °C)

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Linear Gain	G_L *1	6.0	6.5	–	dB	f = 14.0 to 14.5 GHz, Vds = 9 V IDS = 2.8 A (RF OFF), Rg = 50 Ω
Output Power	P_O *2	39.5	–	–	dBm	
Drain Current	I_D *3	–	–	3.5	A	
Gate Current	I_G *2	–16.0	2.0	16.0	mA	
Power Added Efficiency	η add *2	–	25.0	–	%	

***1** Pin = 28.0 dBm ***2** Pin = 35.5 dBm ***3** Pout = 39.0 dBm

[MEMO]

M4 96.5