

FEATURES

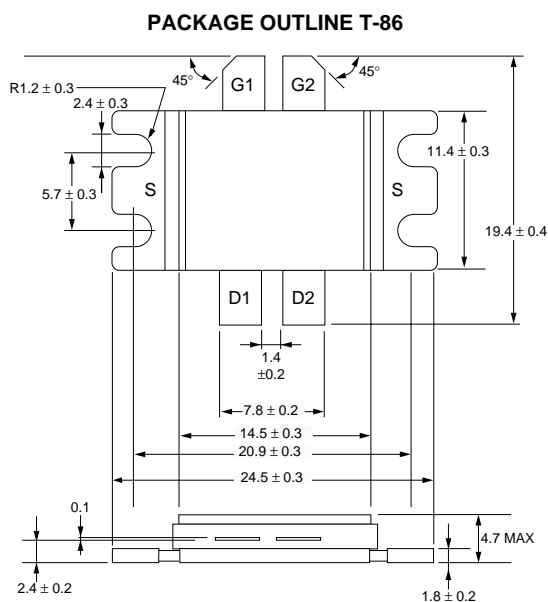
- **HIGH OUTPUT POWER:** 50 W TYP
- **HIGH POWER ADDED EFFICIENCY:** 38 % TYP
- **HIGH LINEAR GAIN:** 10 dB TYP

DESCRIPTION

The NES2427P-50 is a "twin" transistor device consisting of two GaAs MESFET chips which may be combined externally in either push-pull or balanced configuration. It is partially matched, and with external matching can operate within the 2.3-2.7 GHz band for WLL and MMDS applications. It is capable of delivering 50 watts of output power (CW) with high gain, high efficiency and excellent linearity. The device employs 0.9 μ m Tungsten Silicide gates, via holes, plated heat sink, silicon dioxide and nitrite passivation for superior performance, thermal characteristics, and reliability.

Reliability and performance uniformity are assured by NEC's stringent quality and control procedures.

OUTLINE DIMENSIONS (Units in mm)



G1, G2 : Gate
D1, D2 : Drain
S : Source

ELECTRICAL CHARACTERISTICS ($T_c = 25^\circ\text{C}$)

PART NUMBER PACKAGE OUTLINE				NES2427P-50 T-86			
	SYMBOLS	CHARACTERISTICS	UNITS	MIN	TYP	MAX	TEST CONDITIONS
Functional Characteristics	P _{OUT}	Output Power	dBm	46.0	47.0		$V_{DS} = 10\text{ V}$ $f = 2.7\text{ GHz}$ $I_{Dset} = 4.0\text{ A Total (RF off)}$ $P_{IN} = +39.5\text{ dBm}$ $R_G = 20\ \Omega$ Note 2
	GL ¹	Linear Gain	dB	9.0	10.0		
	η_{ADD}	Power Added Efficiency	%		38		
	I _D	Drain Current	A		12.5	16.0	
Electrical DC Characteristics	I _{DSS}	Saturated Drain Current	A		30		$V_{DS} = 2.5\text{ V}; V_{GS} = 0\text{ V}$
	V _P	Pinch-off Voltage	V	-4.0	-2.6		$V_{DS} = 2.5\text{ V}; I_{DS} = 130\text{ mA}$
	R _{TH}	Thermal Resistance	$^\circ\text{C/W}$		1.0	1.5	Channel to Case

Note:

1. $P_{IN} = +20\text{ dBm}$ for Linear Gain.
2. $I_{Dset} = 2.0\text{ A}$ Each Drain.

ABSOLUTE MAXIMUM RATINGS¹ ($T_A = 25^\circ\text{C}$)

SYMBOLS	PARAMETERS	UNITS	RATINGS
V_{DS}	Drain to Source Voltage	V	15
V_{GS}	Gate to Source Voltage	V	-7
V_{GD}	Gate to Drain Voltage	V	-18
I_D	Drain Current	A	30
I_G	Gate Current	mA	200
P_T	Total Power Dissipation	W	110
T_{CH}	Channel Temperature	$^\circ\text{C}$	175
T_{STG}	Storage Temperature	$^\circ\text{C}$	-65 to +175

Notes:

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

RECOMMENDED OPERATING LIMITS

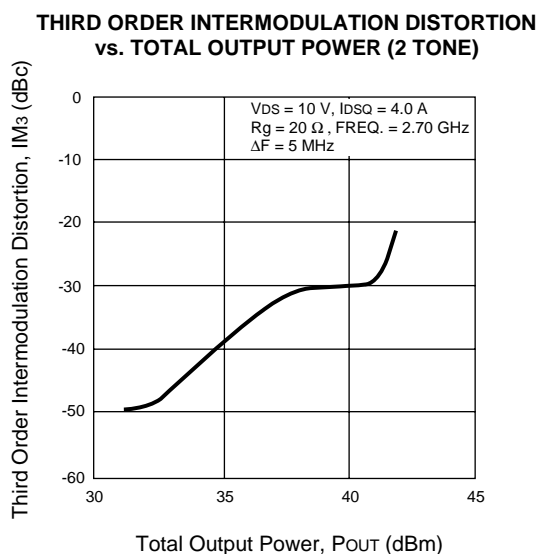
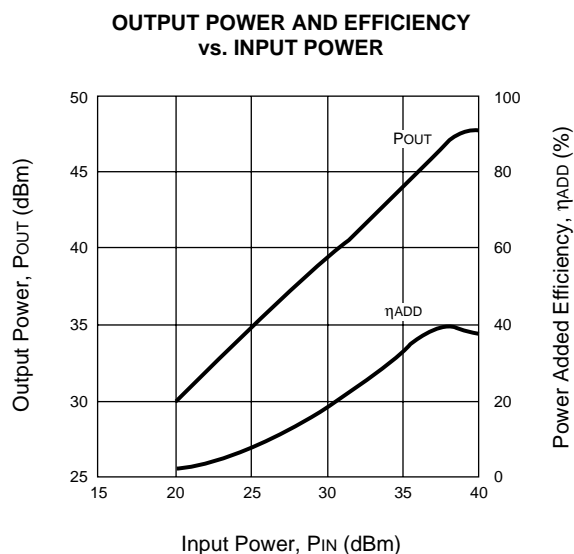
SYMBOLS	PARAMETERS	UNITS	MIN	TYP	MAX
V_{DS}	Drain to Source Voltage	V			10
GCOMP	Gain Compression	dB			3
T_{CH}	Channel Temperature	$^\circ\text{C}$			+150
I_{Dset}	Set Drain Current ¹	A			7
R_G	Gate Resistance ²	Ω			20

Notes:

- $V_{DS} = 10\text{ V}$, RF OFF
- R_G is the series resistance between the gate supply and the FET gate.

ORDERING INFORMATION

PART NUMBER	PACKAGE
NES2427P-50	T-86

TYPICAL PERFORMANCE CURVES ($T_A = 25^\circ\text{C}$)**RECOMMENDED MOUNTING CONDITIONS**

- Fix to a heatsink or mount surface with screws at at the four holes of the flange.
- Recommended torque strength of the screws is 3 kgF typical using M2.3 type screws.
- Recommended flatness of the mount surface is less than $\pm 10\ \mu\text{m}$.

RECOMMENDED SOLDERING CONDITIONS

This product should be soldered in the following recommended condition.

Soldering Method	Soldering Conditions
Pin heating	Duration: 5 sec./pin max.