

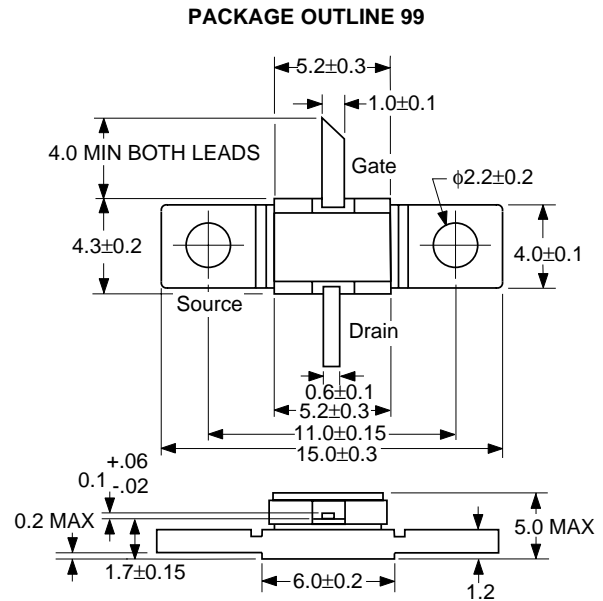
FEATURES

- HIGH OUTPUT POWER: 0.5 W
- HIGH LINEAR GAIN: 9.5 dB
- HIGH EFFICIENCY (PAE): 38%
- SUPERIOR INTERMODULATION DISTORTION
- INDUSTRY STANDARD PACKAGING

DESCRIPTION

The NE850R599A is a medium power GaAs MESFET designed for up to a 1/2W output stage or as a driver for higher power devices. The device has no internal matching and can be used at frequencies from UHF to 8.5 GHz. Equivalent performance in a chip package can be obtained by using only 1 cell of the NE8500100 chip. The chips used in this series offer superior reliability and consistent performance for which NEC microwave semiconductors are known.

OUTLINE DIMENSIONS (Units in mm)



RECOMMENDED OPERATING LIMITS

SYMBOLS	PARAMETERS	UNITS	MIN	TYP	MAX
V _{DS}	Drain to Source Voltage	V	9		10
T _{CH}	Channel Temperature	°C			130
G _{COMP}	Gain Compression	dB			3.0
R _G	Gate Resistance	KΩ			1

ELECTRICAL CHARACTERISTICS (T_c = 25°C)

PART NUMBER PACKAGE OUTLINE				NE850R599A 99			TEST CONDITIONS
Functional Characteristics	SYMBOLS	CHARACTERISTICS	UNITS	MIN	TYP	MAX	
	P _{OUT}	Power Out at Fixed Input Power	dBm	25.5	26.5		P _{IN} = 18.5 dBm ¹ V _{DS} = 10 V; I _{DSQ} = 100 mA f = 7.2 GHz; R _G = 1 KΩ
	η _{ADD}	Power Added Efficiency	%		38		
	I _{DS}	Drain Source Current	A		140		
	I _{GS}	Gate to Source Current	mA	-1.6		1.6	P _{IN} = 7 dBm ²
GL	Linear Gain	dB		9.5			
Electrical Characteristics	I _{DSS}	Saturated Drain Current	mA	220		430	V _{DS} = 2.5 V; V _{GS} = 0 V
	V _P	Pinch-off Voltage	V	-3.0		-1.0	V _{DS} = 2.5 V; I _{DS} = 2 mA
	g _m	Transconductance	mS		150		V _{DS} = 2.5 V; I _{DS} = I _{DSS}
	R _{TH}	Thermal Resistance (channel to case)	°C/W			60	

ABSOLUTE MAXIMUM RATINGS¹

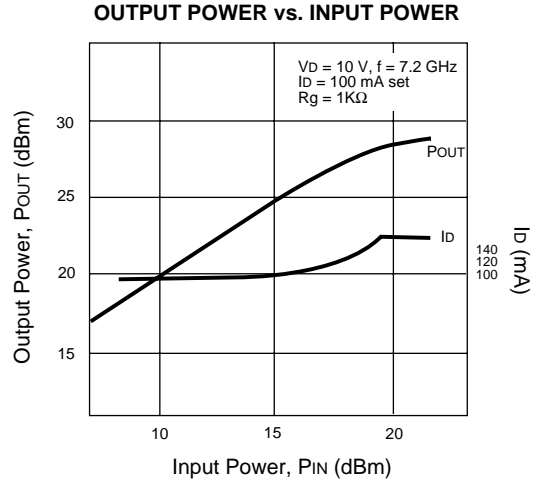
(T_C= 25 °C unless otherwise noted)

SYMBOLS	PARAMETERS	UNITS	RATINGS
V _{DSX}	Drain to Source Voltage	V	15
V _{GDX}	Gate to Drain Voltage	V	-18
V _{GSX}	Gate to Source Voltage	V	-12
I _{DS}	Drain Current	mA	I _{DSS}
I _{GS}	Gate Current	mA	3.0
P _T	Total Power Dissipation	W	3.0
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.

TYPICAL PERFORMANCE CURVES (T_A = 25 °C)



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