

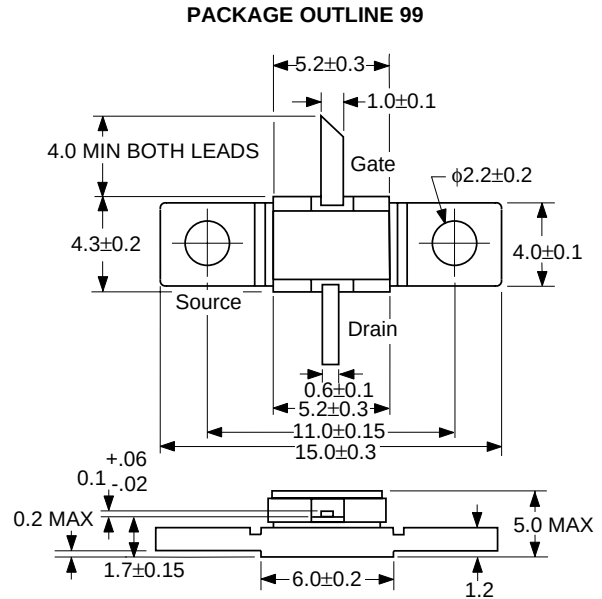
FEATURES

- 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
GCOMP	Gain Compression	dB			3.0
R_G	Gate Resistance	K Ω			1

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

PART NUMBER PACKAGE OUTLINE				NE850R599A 99			TEST CONDITIONS
	SYMBOLS	CHARACTERISTICS	UNITS	MIN	TYP	MAX	
Functional Characteristics	P_{OUT}	Power Out at Fixed Input Power	dBm	25.5	26.5		$P_{IN} = 18.5 \text{ dBm}^1$ $V_{DS} = 10 \text{ V}; I_{DSQ} = 100 \text{ mA}$ $f = 7.2 \text{ GHz}; R_G = 1 \text{ K}\Omega$
	η_{ADD}	Power Added Efficiency	%		38		
	I_{DS}	Drain Source Current	A		140		
	I_{GS}	Gate to Source Current	mA	-1.6		1.6	
	GL	Linear Gain	dB		9.5		$P_{IN} = 7 \text{ dBm}^2$
Electrical Characteristics	I_{DSS}	Saturated Drain Current	mA	220		430	$V_{DS} = 2.5 \text{ V}; V_{GS} = 0 \text{ V}$
	V_P	Pinch-off Voltage	V	-3.0		-1.0	$V_{DS} = 2.5 \text{ V}; I_{DS} = 2 \text{ mA}$
	g_m	Transconductance	mS		150		$V_{DS} = 2.5 \text{ V}; I_{DS} = I_{DSS}$
	R_{TH}	Thermal Resistance (channel to case)	°C/W			60	

ABSOLUTE MAXIMUM RATINGS¹

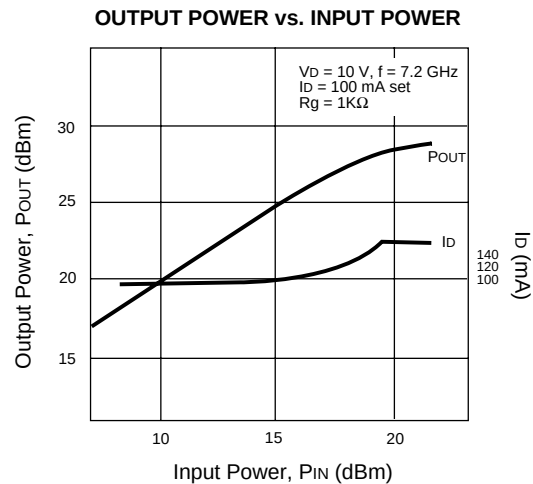
(Tc= 25 °C unless otherwise noted)

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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CEL CALIFORNIA EASTERN LABORATORIES • Headquarters • 4590 Patrick Henry Drive • Santa Clara, CA 95054-1817 • (408) 988-3500 • Telex 34-6393 • FAX (408) 988-0279
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