



# NEC's 2.4 GHz Si LD MOS POWER AMPLIFIER

## UPD5702TU

### FEATURES

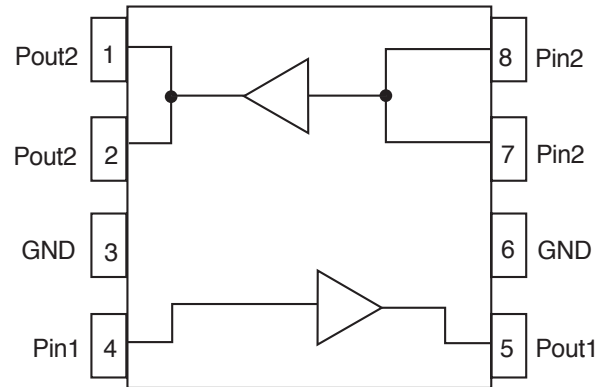
- **MEDIUM OUTPUT POWER:**  
P<sub>OUT</sub> = +21 dBm TYP @ P<sub>IN</sub> = -2 dBm, f = 2.45 GHz
- **ON CHIP OUTPUT POWER CONTROL FUNCTION**
- **SINGLE SUPPLY VOLTAGE:**  
V<sub>DS</sub> = 3.0 V TYP
- **PACKAGED IN 8 PIN L2MM (2.0 X 2.2 X 0.5mm)  
SUITABLE FOR HIGH-DENSITY SURFACE MOUNT**

### DESCRIPTION

NEC's UPD5702TU is a silicon LD MOS IC designed for use as a power amplifier up to 2.4 GHz application. This IC consists of two stage amplifiers. The device is packaged in a low cost, surface mount 8 pin L2MM (Leadless Mini Mold) plastic package. Ideally suited for high density surface mount designs.

NEC's stringent quality assurance and test procedures ensure the highest reliability and performance.

### INTERNAL BLOCK DIAGRAM



### APPLICATIONS

- 1.9 GHz Application Ex. PHS etc.
- 2.4 GHz application Ex. Bluetooth, Wireless LAN, etc.
- General purpose medium power AGC amplifier

### ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25°C, V<sub>DS</sub> = 3.0 V, f = 1.9 GHz, unless otherwise specified)

PART NUMBER			UPD5702TU□		
SYMBOLS	PARAMETERS AND CONDITIONS	UNITS	MIN	TYP	MAX
I <sub>DS</sub>	Circuit Current, P <sub>IN</sub> = -5 dBm, P <sub>OUT</sub> = +20.5 dBm	mA		150	
V <sub>GS</sub>	Gate Bias Voltage, P <sub>IN</sub> = -5 dBm, P <sub>OUT</sub> = +20.5 dBm	V		2.0	
P <sub>OUT</sub>	Output Power, P <sub>IN</sub> = -5 dBm	dBm	20.5		
PAE	Power Added Efficiency, P <sub>IN</sub> = -5 dBm, P <sub>OUT</sub> = +20.5 dBm	%		27	
P <sub>adj1</sub>	Adjacent Channel Power 1, P <sub>IN</sub> = -5 dBm, P <sub>OUT</sub> = +20.5 dBm	dBc		-61	
P <sub>adj2</sub>	Adjacent Channel Power 2, P <sub>IN</sub> = -5 dBm, P <sub>OUT</sub> = +20.5 dBm	dBc		-76	
IRL	Input Return Loss, P <sub>IN</sub> = -20 dBm	dB		10	
ORL	Output Return Loss, P <sub>IN</sub> = -20 dBm	dB		10	
ISOL	Isolation, P <sub>IN</sub> = -20 dBm	dB		45	
OBW	Occupied Bandwidth, P <sub>IN</sub> = -5 dBm, P <sub>OUT</sub> = +20.5 dBm	dB		TBD	

### ABSOLUTE MAXIMUM RATINGS<sup>1</sup>

(T<sub>A</sub> = 25°C unless otherwise specified)

SYMBOLS	PARAMETERS	UNITS	RATINGS
V <sub>DS</sub>	Supply Voltage 1	V	6.0
V <sub>GS</sub>	Supply Voltage 2	V	6.0
P <sub>D</sub>	Power Dissipation <sup>2</sup>	W	0.866
T <sub>A</sub>	Operating Ambient Temp.	°C	-40 to +85
T <sub>STG</sub>	Storage Temp. Range	°C	-65 to +150
P <sub>IN(MAX)</sub>	Maximum Input Level	dBm	+10
T <sub>j</sub>	Junction Temperature	°C	+150

Notes:

1. Operation in excess of any one of these conditions may result in permanent damage.
2. T<sub>A</sub> = 25°C, mounted on 330 x 21 mm epoxy glass PWB.

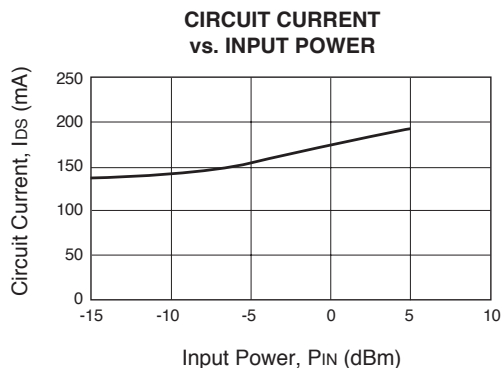
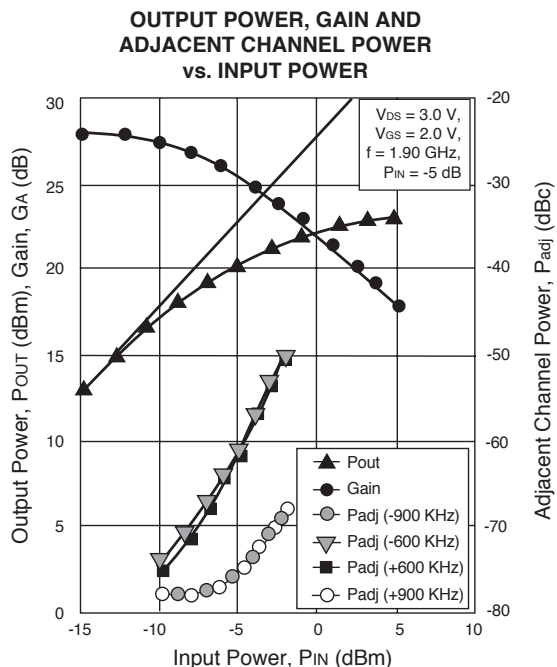
### RECOMMENDED OPERATING CONDITIONS

SYMBOLS	PARAMETERS	UNITS	MIN	TYP	MAX
V <sub>DS</sub>	Supply Voltage 1	V	2.7	3.0	3.6
V <sub>GS</sub>	Supply Voltage 2	V	0.0	0.2	-
P <sub>IN</sub>	Maximum Input Power	dBm	-	+5	-
I <sub>D</sub>	Drain Current	mA	-	165	-

### ORDERING INFORMATION

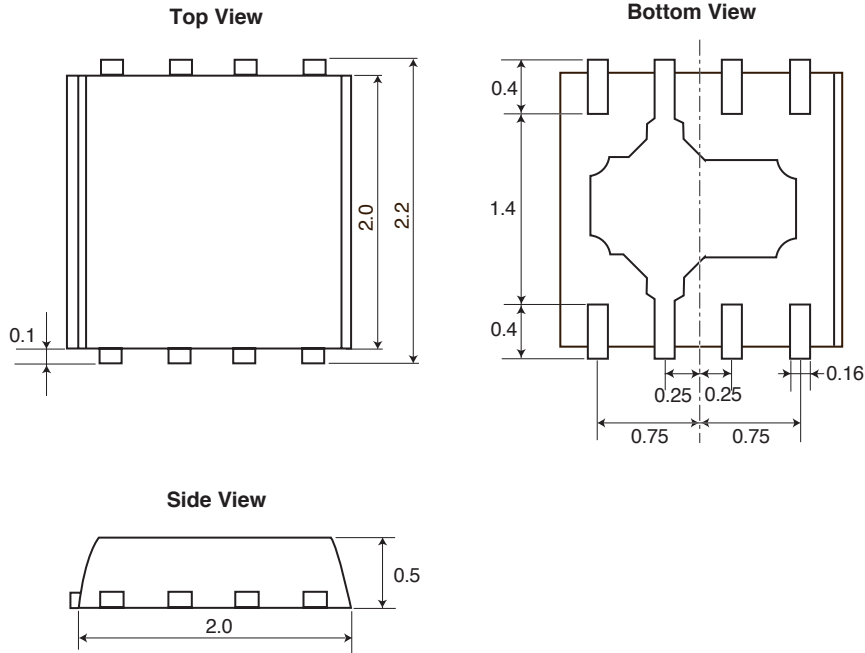
PART NUMBER	QUANTITY
UPD5702TU-E2-A	TBD

### TYPICAL PERFORMANCE CURVES (T<sub>A</sub> = 25°C, f = 1.9 GHz, V<sub>GS</sub> = 2.0 V unless otherwise specified)



**PACKAGE DIMENSIONS** (Units in mm)

**PACKAGE OUTLINE TU**



Life Support Applications

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02/04/2004

Subject: Compliance with EU Directives

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CEL Pb-free products have the same base part number with a suffix added. The suffix –A indicates that the device is Pb-free. The –AZ suffix is used to designate devices containing Pb which are exempted from the requirement of RoHS directive (\*). In all cases the devices have Pb-free terminals. All devices with these suffixes meet the requirements of the RoHS directive.

This status is based on CEL’s understanding of the EU Directives and knowledge of the materials that go into its products as of the date of disclosure of this information.

Restricted Substance per RoHS	Concentration Limit per RoHS (values are not yet fixed)	Concentration contained in CEL devices	
		-A	-AZ
Lead (Pb)	< 1000 PPM	Not Detected	(*)
Mercury	< 1000 PPM	Not Detected	
Cadmium	< 100 PPM	Not Detected	
Hexavalent Chromium	< 1000 PPM	Not Detected	
PBB	< 1000 PPM	Not Detected	
PBDE	< 1000 PPM	Not Detected	

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