# YP161515T

***0.7-2.2GHz LDMOS 15W Power Amplifier***

*Product RoHS&Pb-Free*

## Description

Innotion's YP161515T is a 15 watt, unmatched LDMOS FETs, designed for Wide-band and Mobile radio and Beidou RDSS System applications. It can be used in Class AB/B and Class C for all typical modulation formats.

DFN 5*6-8L

### Typical Performance Over 1615MHz ($T_c$=25℃)

Table1. (Test in Innotion Fixture): VDD=12V, $I_{DQ}$=100mA, CW.

| Frequency (MHz) | Gain (dB) | $P_{sat}$(W) | Eff@ Psat(%) |
|---|---|---|---|
| 1615 | 15 | 15 | 60 |

Capable of Handling 10:1 VSWR @ 12Vdc, 1615MHz, 15Watts CW Output Power for Enhanced Ruggedness applications.

## Features

- High Efficiency and Linear Gain Operation
- Integrated ESD Protection, Class2 (HBM)
- Excellent Thermal Stability and Excellent Ruggedness
- Plastic Package for General Use

## Table2. Maximum Ratings

| Rating | Symbol | Value | Unit |
|---|---|---|---|
| Drain-Source Voltage | $V_{DSS}$ | +40 | Vdc |
| Gate-Source Voltage | $V_{GS}$ | -10 to +10 | Vdc |
| Operating Voltage | $V_{DD}$ | +12 | Vdc |
| Storage Temperature Range | $T_{stg}$ | -65 to +150 | ℃ |
| Case Operating Temperature | $T_C$ | +150 | ℃ |
| Operating Junction Temperature | $T_J$ | +225 | ℃ |

## Table3. Electrical Characteristics

| Characteristics | Symbol | Min. | Typ. | Max. | Unit | Conditions |
|---|---|---|---|---|---|---|
| **DC Characteristics** | | | | | | |
| Zero Gate Threshold Drain Leakage Current | $I_{DSS}$ | | | 10 | uA | $V_{DS}$=26 V, $V_{GS}$=0V |
| Zero Gate Threshold Drain Leakage Current | $I_{DSS}$ | | | 1 | uA | $V_{DS}$=12 V, $V_{GS}$=0V |
| Gate--Source Leakage Current | $I_{GSS}$ | | | 1 | uA | $V_{DS}$=0V, $V_{GS}$=6V |
| Gate Threshold Voltage | $V_{GS(th)}$ | | 1.85 | | V | $V_{DS}$=12 V, $I_D$=250uA |
| Gate Quiescent Voltage | $V_{GS(Q)}$ | | 2.68 | | V | $V_{DD}$=12V, $I_D$=100mA |
| **RF Characteristics[1]( Tc=25℃,$F_0$=1615MHz unless otherwise noted)** | | | | | | |
| Saturated Output Power | $P_{sat}$ | | 15 | | W | |
| Drain Efficiency@Psat,1615MHz | Eff | | 60 | | % | |
| Power Gain | $G_P$ | | 15 | | dB | |
| Input Return Loss | $I_{RL}$ | | -10 | | dB | |

**Note:**

1. Measured in INNOTION Test Fixture, 50ohm System, $V_{DD}$=12V, $I_{DQ}$=100mA, CW Signal Measurements.

## Table 4. Thermal Characteristics

| Characteristic | Symbol | Value | Unit |
|---|---|---|---|
| Thermal Resistance, Junction to Case $T_C$= 85° C, $T_J$=200°C, DC test | RθJC | 1.8 | °C/W |

## Table 5. Pin Description

| Pin No. | Symbol | Description |
|---|---|---|
| 1-4 | Gate | RF input, |
| 5-8 | Drain | RF Output |
| EP | Source | The bottom exposed pad is the RF ground. For best thermal dissipation |

## Typical Performance

Bias:VDD=12V, IDQ=100mA, PulseWidth=20us, Dutycycle=10%)

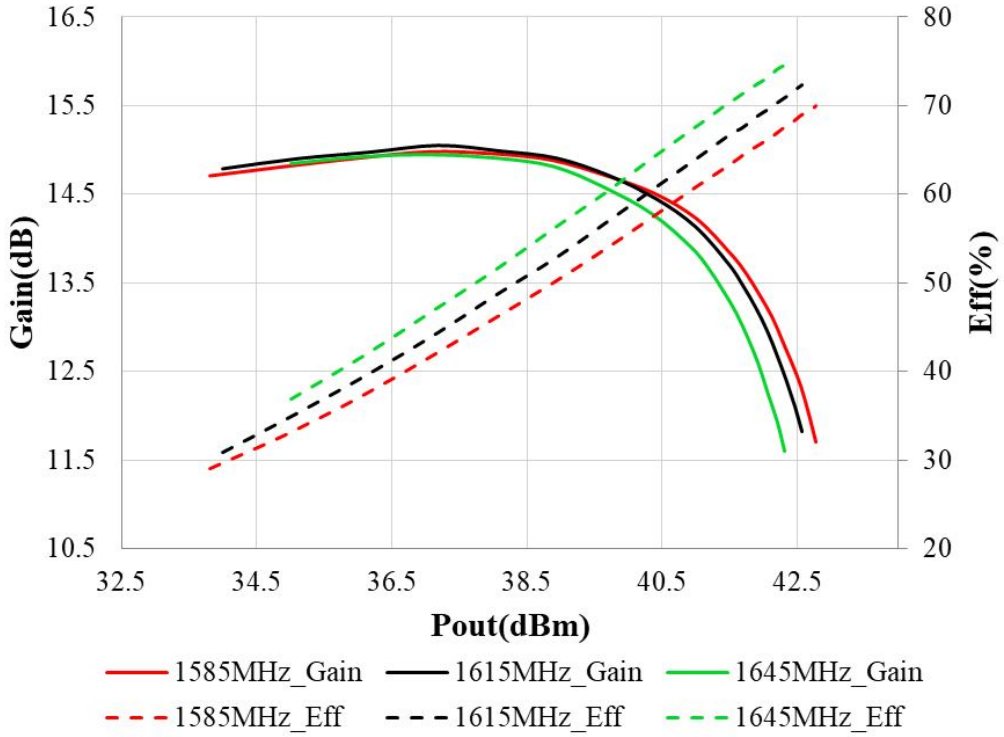



figure1. YP161515T Power sweep

Bias:YP161515T, VDD=12V, IDQ=100mA; YP163038, VCC=5V,VR=2.5V

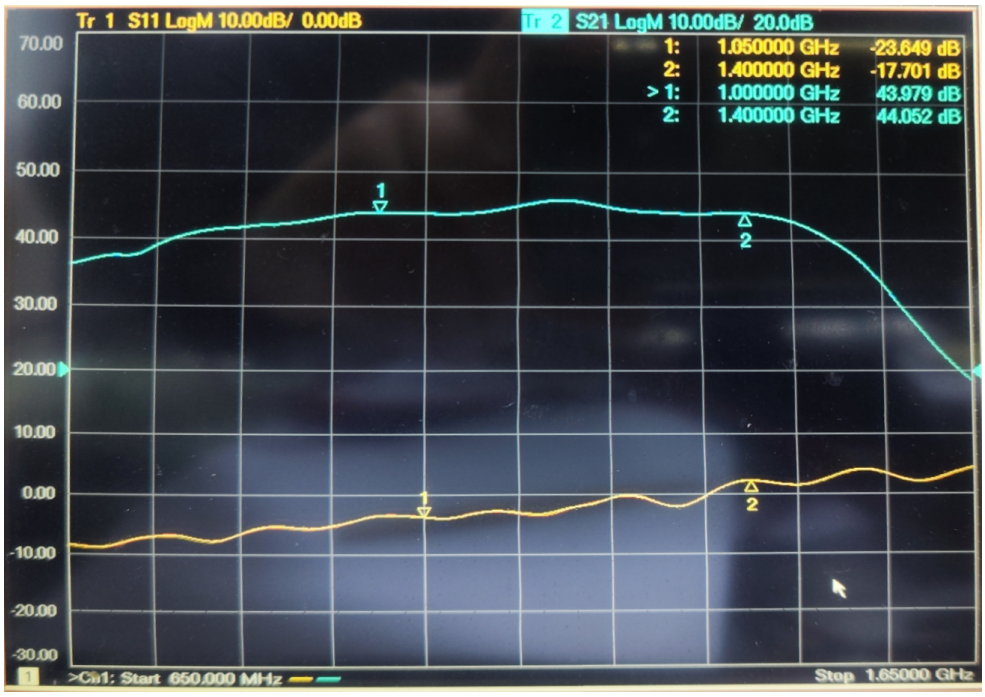
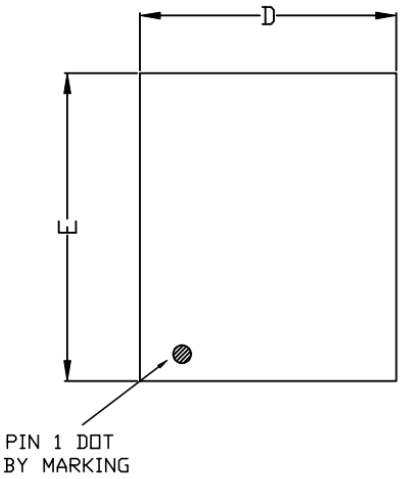
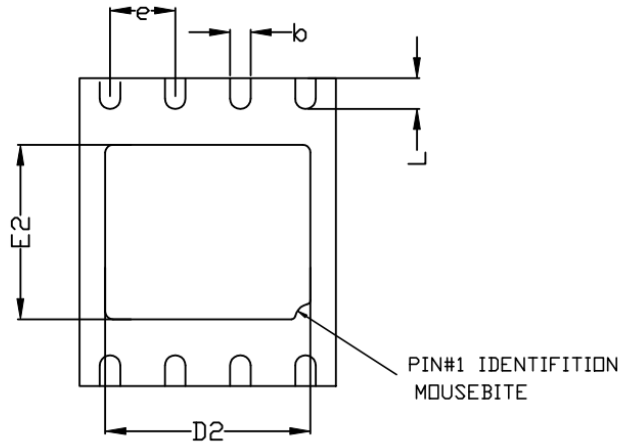



figure2. S21&S11 of YP163038+YP161515T

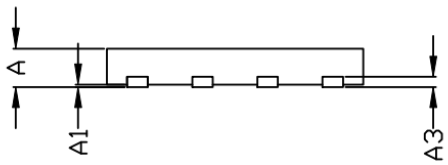
## Packaging Diagram




TOP VIEW




BOTTOM VIEW




SIDE VIEW

| COMMON DIMENSIONS(MM) | | | |
|---|---|---|---|
| PKG. | W:VERY VERY THIN | | |
| REF. | MIN. | NOM. | MAX |
| A | 0.70 | 0.75 | 0.80 |
| A1 | 0.00 | – | 0.05 |
| A3 | 0.20 REF. | | |
| D | 4.95 | 5.00 | 5.05 |
| E | 5.95 | 6.00 | 6.05 |
| D2 | 3.85 | 4.00 | 4.10 |
| E2 | 3.25 | 3.40 | 3.50 |
| b | 0.35 | 0.40 | 0.45 |
| L | 0.50 | 0.60 | 0.70 |
| e | 1.27 BSC | | |

PIN 1 - PIN 4 : Gate
PIN 5 - PIN 8 : Drain
PIN 9(Pkg Base) : GND