



RF MOSFET Power Transistor, 60W, 12V

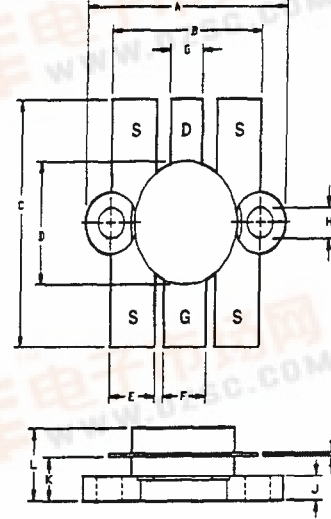
2 - 175 MHz

DU1260T

V2.00

Features

- N-Channel Enhancement Mode Device
- DMOS Structure
- Lower Capacitances for Broadband Operation
- High Saturated Output Power
- Lower Noise Figure Than Bipolar Devices
- Specifically Designed for 12 Volt Applications



Absolute Maximum Ratings at 25°C

| Parameter | Symbol | Rating | Units |
|----------------------|---------------|-------------|-------|
| Drain-Source Voltage | V_{DS} | 40 | V |
| Gate-Source Voltage | V_{GS} | 20 | V |
| Drain-Source Current | I_{DS} | 24 | A |
| Power Dissipation | P_D | 250 | W |
| Junction Temperature | T_J | 200 | °C |
| Storage Temperature | T_{STG} | -55 to +150 | °C |
| Thermal Resistance | θ_{JC} | 0.7 | °C/W |

| LETTER DIM | MILLIMETERS | | INCHES | |
|------------|-------------|-------|--------|------|
| | MIN | MAX | MIN | MAX |
| A | 24.38 | 25.15 | .960 | .990 |
| B | 18.29 | 18.54 | .720 | .730 |
| C | 21.36 | 21.74 | .841 | .856 |
| D | 12.60 | 12.85 | .496 | .506 |
| E | 5.33 | 5.59 | .210 | .220 |
| F | 5.08 | 5.33 | .200 | .210 |
| G | 3.81 | 4.06 | .150 | .160 |
| H | 3.10 | 3.15 | .122 | .128 |
| J | 2.51 | 2.67 | .099 | .105 |
| K | 4.06 | 4.57 | .160 | .180 |
| L | 6.68 | 7.49 | .263 | .295 |
| M | .10 | .15 | .004 | .006 |

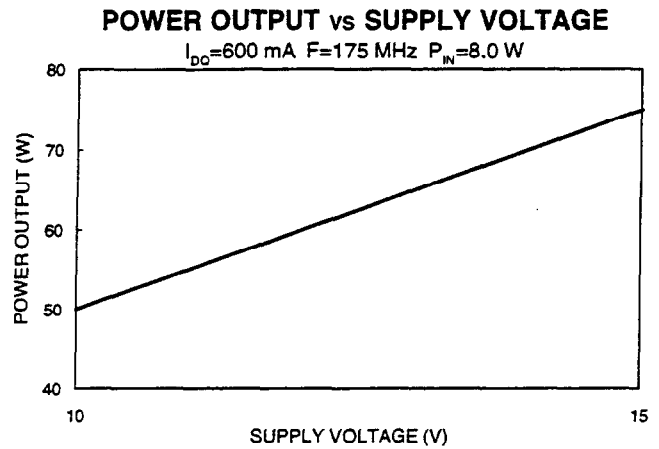
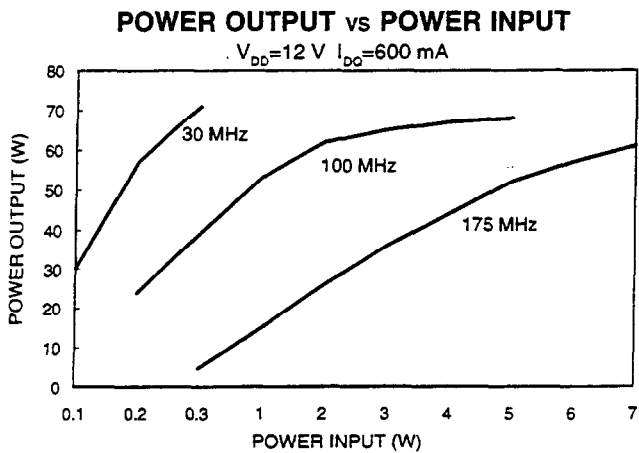
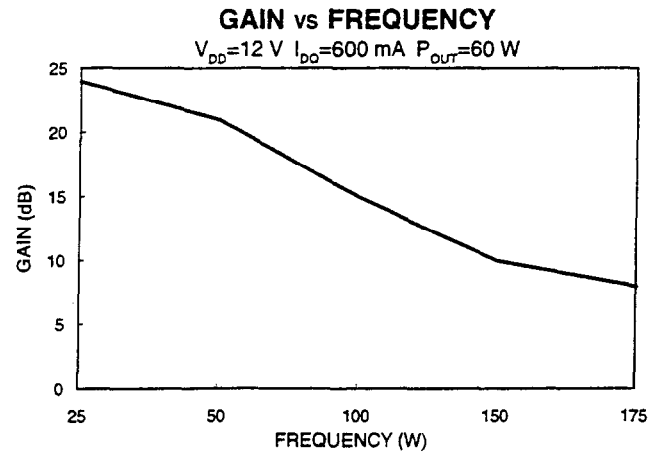
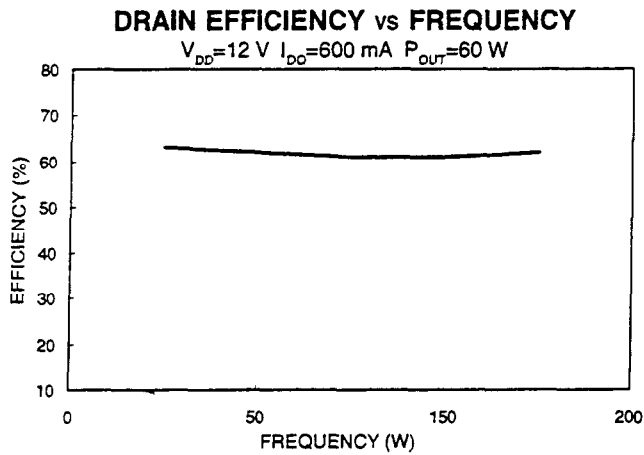
Electrical Characteristics at 25°C

| Parameter | Symbol | Min | Max | Units | Test Conditions |
|--------------------------------|--------------|-----|------|---------------|---|
| Drain-Source Breakdown Voltage | BV_{DSS} | 40 | - | V | $V_{GS}=0.0\text{ V}, I_{DS}=30.0\text{ mA}$ |
| Drain-Source Leakage Current | I_{DSS} | - | 6.0 | mA | $V_{DS}=15.0\text{ V}, V_{GS}=0.0\text{ V}$ |
| Gate-Source Leakage Current | I_{GSS} | - | 6.0 | μA | $V_{GS}=20\text{ V}, V_{DS}=0.0\text{ V}$ |
| Gate Threshold Voltage | $V_{GS(TH)}$ | 2.0 | 6.0 | V | $V_{DS}=10.0\text{ V}, I_{DS}=600\text{ mA}$ |
| Forward Transconductance | G_M | 3.0 | - | S | $V_{DS}=10.0\text{ V}, I_{DS}=6000\text{ mA}, \Delta V_{GS}=1.0\text{ V}$ |
| Input Capacitance | C_{ISS} | - | 200 | pF | $V_{DS}=12.0\text{ V}, F=1.0\text{ MHz}$ |
| Output Capacitance | C_{OSS} | - | 240 | pF | $V_{DS}=12.0\text{ V}, F=1.0\text{ MHz}$ |
| Reverse Capacitance | C_{RSS} | - | 48 | pF | $V_{DS}=12.0\text{ V}, F=1.0\text{ MHz}$ |
| Power Gain | G_P | 8.0 | - | dB | $V_{DS}=12.0\text{ V}, I_{DO}=600\text{ mA}, P_{OUT}=60\text{ W}, F=175\text{ MHz}$ |
| Drain Efficiency | η_D | 60 | - | % | $V_{DS}=12.0\text{ V}, I_{DO}=600\text{ mA}, P_{OUT}=60\text{ W}, F=175\text{ MHz}$ |
| Load Mismatch Tolerance | VSWR-T | - | 30:1 | - | $V_{DS}=12.0\text{ V}, I_{DO}=600\text{ mA}, P_{OUT}=60\text{ W}, F=175\text{ MHz}$ |

Specifications Subject to Change Without Notice.



Typical Broadband Performance Curves



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Typical Device Impedance

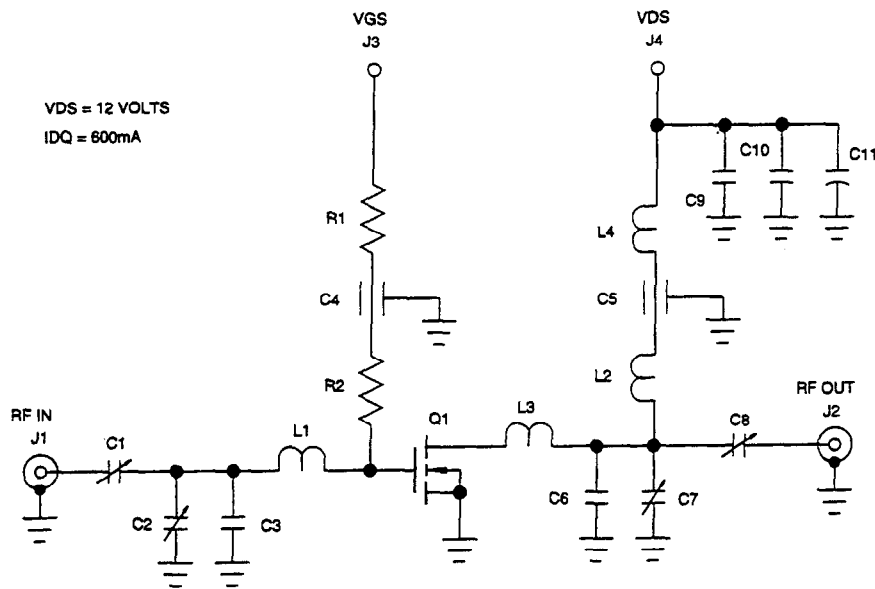
| Frequency (MHz) | Z _{IN} (OHMS) | Z _{LOAD} (OHMS) |
|-----------------|------------------------|--------------------------|
| 30 | 4.5 - j 8.0 | 4.6 - j 7.9 |
| 100 | 1.4 - j 4.0 | 1.4 - j 8.0 |
| 175 | 1.0 - j 0.5 | 1.0 - j 0.5 |

V_{DD}=12 V, I_{DQ}=600 mA, P_{OUT}=60 Watts

Z_{IN} is the series equivalent input impedance of the device from gate to source.

Z_{LOAD} is the optimum series equivalent load impedance as measured from drain to ground.

RF Test Fixture



VDS = 12 VOLTS
IDQ = 600mA

PARTS LIST

| | |
|-------|--|
| C1,C8 | ARCO NO. 462 TRIMMER CAPACITOR 5-80pF |
| C2,C7 | ARCO NO. 422 TRIMMER CAPACITOR 4-40pF |
| C3 | SEMCO CAPACITOR 50pF |
| C4,C5 | FEEDTHROUGH CAPACITOR 0.001uF |
| C6 | SEMCO CAPACITOR 30pF |
| C9 | SEMCO CAPACITOR 1000pF |
| C10 | MONOLITHIC CERAMIC CAPACITOR 0.01uF |
| C11 | ELECTROLYTIC CAPACITOR 50uF 50 V. |
| L1,L3 | NO. 12 AWG COPPER WIRE X 1" |
| L2 | 8 TURNS OF NO. 20 AWG ENAMEL WIRE ON '0.25", CLOSE WOUND |
| L4 | 12 TURNS OF NO. 20 AWG ON '0.25", CLOSE WOUND |
| R1,R2 | RESISTOR 100K OHMS |
| Q1 | DU1260T |
| BOARD | FR4 0.062" |

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