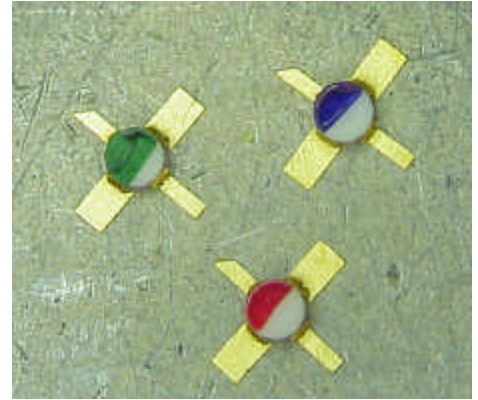


- FEATURES

- ◆ 23 dBm Output Power at 1-dB Compression at 15 GHz
- ◆ 11.5 dB Power Gain at 15 GHz
- ◆ 50% Power-Added Efficiency



- DESCRIPTION AND APPLICATIONS

The LP6836P70 is a packaged AlGaAs/InGaAs/AlGaAs pseudomorphic high electron mobility transistor (pHEMT) intended for applications requiring medium output power and/or high dynamic range. It utilizes a 0.25 μm x 360 μm Schottky barrier gate, defined by electron-beam photolithography.

Typical applications include pre-drivers in commercial wireless infrastructure and radio link high-performance power amplifiers.

- ELECTRICAL SPECIFICATIONS @ $T_{\text{Ambient}} = 25^{\circ}\text{C}^*$

Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Saturated Drain-Source Current**	I_{DSS}	$V_{\text{DS}} = 2 \text{ V}; V_{\text{GS}} = 0 \text{ V}$	80		125	mA
Power at 1-dB Compression	P-1dB	$V_{\text{DS}} = 5 \text{ V}; I_{\text{DS}} = 50\% I_{\text{DSS}}$	22	23		dBm
Power Gain at 1-dB Compression	G-1dB	$V_{\text{DS}} = 5 \text{ V}; I_{\text{DS}} = 50\% I_{\text{DSS}}$	10.5	12		dB
Power-Added Efficiency	PAE	$V_{\text{DS}} = 5 \text{ V}; I_{\text{DS}} = 50\% I_{\text{DSS}};$ $P_{\text{IN}} = 20 \text{ dBm}$		50		%
Maximum Drain-Source Current	I_{MAX}	$V_{\text{DS}} = 2 \text{ V}; V_{\text{GS}} = 1 \text{ V}$		190		mA
Transconductance	G_{M}	$V_{\text{DS}} = 2 \text{ V}; V_{\text{GS}} = 0 \text{ V}$	70	95		mS
Gate-Source Leakage Current	I_{GSO}	$V_{\text{GS}} = -5 \text{ V}$		1	15	μA
Pinch-Off Voltage	V_{P}	$V_{\text{DS}} = 2 \text{ V}; I_{\text{DS}} = 2 \text{ mA}$	-0.25	-0.8	-2.0	V
Gate-Source Breakdown Voltage Magnitude	$ V_{\text{BDGS}} $	$I_{\text{GS}} = \text{mA}$	-11	-15		V
Gate-Drain Breakdown Voltage Magnitude	$ V_{\text{BDGD}} $	$I_{\text{GD}} = 2 \text{ mA}$	-12	-16		V

*frequency=15 GHz, unless otherwise noted

**Formerly binned as: LP6836P70-1 = 80-95 mA, LP6836P70-2 = 96-105 mA, and LP6836P70-3 = 106-125 mA

• **ABSOLUTE MAXIMUM RATINGS**

Parameter	Symbol	Test Conditions	Min	Max	Units
Drain-Source Voltage	V_{DS}	$T_{Ambient} = 22 \pm 3 \text{ }^{\circ}\text{C}$		7	V
Gate-Source Voltage	V_{GS}	$T_{Ambient} = 22 \pm 3 \text{ }^{\circ}\text{C}$		-4	V
Drain-Source Current	I_{DS}	$T_{Ambient} = 22 \pm 3 \text{ }^{\circ}\text{C}$		I_{DSS}	mA
Gate Current	I_G	$T_{Ambient} = 22 \pm 3 \text{ }^{\circ}\text{C}$		18	mA
RF Input Power	P_{IN}	$T_{Ambient} = 22 \pm 3 \text{ }^{\circ}\text{C}$		150	mW
Channel Operating Temperature	T_{CH}	$T_{Ambient} = 22 \pm 3 \text{ }^{\circ}\text{C}$		175	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	—	-65	175	$^{\circ}\text{C}$
Total Power Dissipation	P_{TOT}	$T_{Ambient} = 22 \pm 3 \text{ }^{\circ}\text{C}$		1.0	W

Notes:

- Operating conditions that exceed the Absolute Maximum Ratings could result in permanent damage to the device.
- Power Dissipation defined as: $P_{TOT} \equiv (P_{DC} + P_{IN}) - P_{OUT}$, where
 P_{DC} : DC Bias Power
 P_{IN} : RF Input Power
 P_{OUT} : RF Output Power
- Absolute Maximum Power Dissipation to be de-rated as follows above 25 $^{\circ}\text{C}$:
 $P_{TOT} = 1.0\text{W} - (.0036\text{W}/^{\circ}\text{C}) \times T_{HS}$
 where T_{HS} = heatsink or ambient temperature.
- This PHEMT is susceptible to damage from Electrostatic Discharge. Proper precautions should be used when handling these devices.

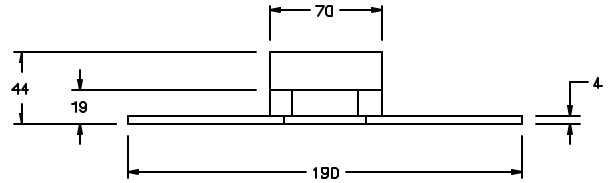
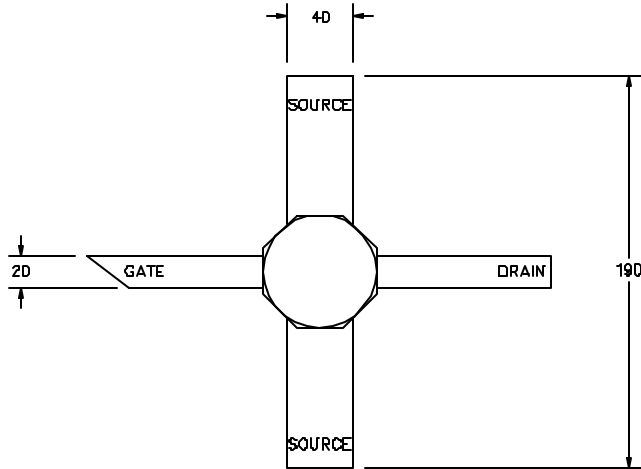
• **HANDLING PRECAUTIONS**

To avoid damage to the devices care should be exercised during handling. Proper Electrostatic Discharge (ESD) precautions should be observed at all stages of storage, handling, assembly, and testing. These devices should be treated as Class 1A (0-500 V). Further information on ESD control measures can be found in MIL-STD-1686 and MIL-HDBK-263.

• **APPLICATIONS NOTES & DESIGN DATA**

Applications Notes are available from your local Filtronic Sales Representative or directly from the factory. Complete design data, including S-parameters, noise data, and large-signal models are available on the Filtronic web site.

- **PACKAGE OUTLINE**
(dimensions in mils)



All information and specifications are subject to change without notice.