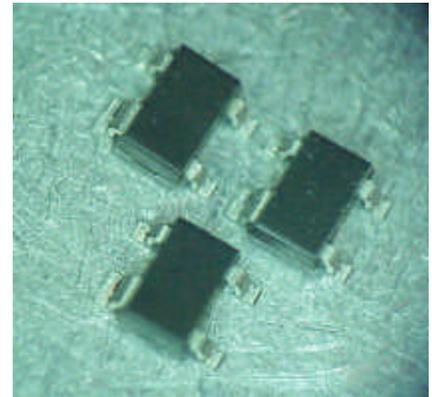


**• FEATURES**

- ◆ 0.5 dB Noise Figure at 2 GHz
- ◆ 19 dBm P-1dB 2 GHz, 19 dBm at 6 GHz
- ◆ 19 dB Power Gain at 2 GHz, 8 dB at 6 GHz
- ◆ 70% 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  $0.25\ \mu\text{m} \times 360\ \mu\text{m}$  Schottky barrier gate, defined by electron-beam photolithography. The LP6836's active areas are passivated with  $\text{Si}_3\text{N}_4$ , and the SOT343 (also known as SC-70) package is ideal for low-cost, high-performance applications that require a surface-mount package.

The LP6836SOT343 is designed for commercial systems for use in low noise amplifiers and oscillators operating over the RF and Microwave frequency ranges. The low noise figure makes it appropriate for use in receivers in MMDS and GPS. This device is also suitable as a driver stage for WLAN and ISM band spread spectrum applications.

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Saturated Drain-Source Current	$I_{\text{DSS}}$	$V_{\text{DS}} = 2\ \text{V}; V_{\text{GS}} = 0\ \text{V}$	80		125	mA
Power at 1-dB Compression	P-1dB	$f=2\text{GHz}; V_{\text{DS}} = 3\ \text{V}; I_{\text{DS}} = 50\% I_{\text{DSS}}$	18	19		dBm
Power Gain at 1-dB Compression	G-1dB	$f=2\text{GHz}; V_{\text{DS}} = 3\ \text{V}; I_{\text{DS}} = 50\% I_{\text{DSS}}$	18	20		dB
Power-Added Efficiency	PAE	$f=2\text{GHz}; V_{\text{DS}} = 3\ \text{V}; I_{\text{DS}} = 50\% I_{\text{DSS}};$ $P_{\text{OUT}} = 19.5\ \text{dBm}$		70		%
Noise Figure	NF	$f=2\text{GHz}; V_{\text{DS}} = 3\ \text{V}; I_{\text{DS}} = 25\% I_{\text{DSS}}$		0.5		dB
		$f=2\text{GHz}; V_{\text{DS}} = 3\ \text{V}; I_{\text{DS}} = 50\% I_{\text{DSS}}$		0.7		dB
Transconductance	$G_{\text{M}}$	$V_{\text{DS}} = 2\ \text{V}; V_{\text{GS}} = 0\ \text{V}$	75	100		mS
Gate-Source Leakage Current	$I_{\text{GSO}}$	$V_{\text{GS}} = -5\ \text{V}$		1	10	$\mu\text{A}$
Pinch-Off Voltage	$V_{\text{P}}$	$V_{\text{DS}} = 2\ \text{V}; I_{\text{DS}} = 2\ \text{mA}$	-0.25		-2.0	V
Gate-Source Breakdown Voltage Magnitude	$ V_{\text{BDGS}} $	$I_{\text{GS}} = 2\ \text{mA}$	11	15		V
Gate-Drain Breakdown Voltage Magnitude	$ V_{\text{BDGD}} $	$I_{\text{GD}} = 2\ \text{mA}$	12	16		V

**• 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	$V_{GS}$	$T_{Ambient} = 22 \pm 3 \text{ }^{\circ}\text{C}$		-3	V
Drain-Source Current	$I_{DS}$	$T_{Ambient} = 22 \pm 3 \text{ }^{\circ}\text{C}$		$I_{DSS}$	mA
Gate Current	$I_G$	$T_{Ambient} = 22 \pm 3 \text{ }^{\circ}\text{C}$		5	mA
RF Input Power	$P_{IN}$	$T_{Ambient} = 22 \pm 3 \text{ }^{\circ}\text{C}$		60	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	$^{\circ}\text{C}$

Notes: Even temporary operating conditions that exceed the Absolute Maximum Ratings could result in permanent damage to the device.

**• HANDLING PRECAUTIONS**

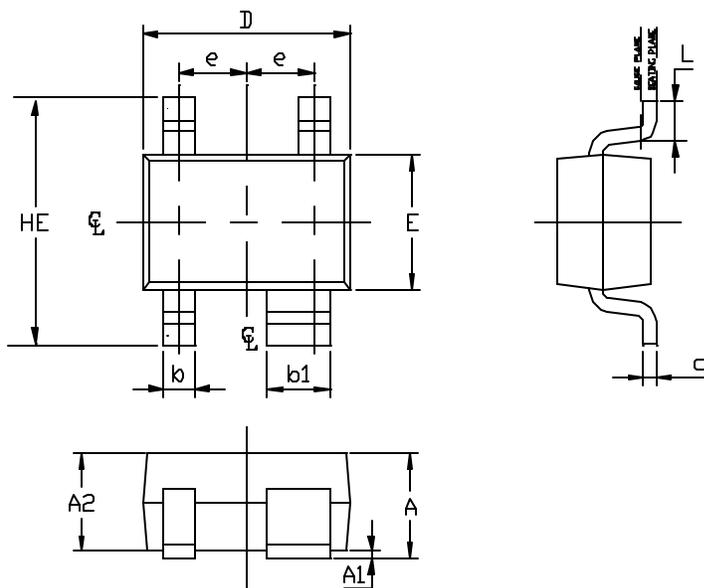
To avoid damage to the devices care should be exercised during handling. Proper Electrostatic Discharge (ESD) precautions should be observed at all stages of storage, handling, assembly, and testing. These devices should be treated as Class 1A (0-500 V). Further information on ESD control measures can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



SYMBOL	MIN	MAX
E	1.15	1.35
D	1.85	2.25
HE	1.80	2.40
A	0.80	1.10
A2	0.80	1.00
A1	0.00	0.10
e	0.65 BSC	
b	0.25	0.40
b1	0.55	0.70
c	0.10	0.18
L	0.26	0.46

All information and specifications are subject to change without notice.