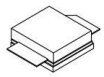
1300-1700MHz, 45W, 28V High Power RF LDMOS FETs

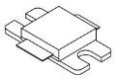
Description

The ITCH16045A is a 45-watt, input-matched LDMOS FETs, designed for Beidou Global Positioning System and communication/ISM applications with frequencies from 1300 MHz to 1700 MHz. It can be used in Class AB/B and Class C for all typical modulation formats.

ITCH16045A2



ITCH16045A2E



•Typical Performance (On Innogration fixture with device soldered):

V_{DD} = 28 Volts, I_{DQ} = 50 mA, CW.

Frequency	Gp (dB)	P_{-1dB} (W)	η_D@P_{-1} (%)
1615 MHz	20	43	64.5

Features

- High Efficiency and Linear Gain Operations
- Integrated ESD Protection
- Internally Matched for Ease of Use
- Excellent thermal stability, low HCI drift
- Large Positive and Negative Gate/Source Voltage Range for Improved Class C Operation
- Pb-free, RoHS-compliant

Table 1. Maximum Ratings

Rating	Symbol	Value	Unit
Drain--Source Voltage	V_{DSS}	65	Vdc
Gate--Source Voltage	V_{GS}	-10 to +10	Vdc
Operating Voltage	V_{DD}	+32	Vdc
Storage Temperature Range	Tstg	-65 to +150	°C
Case Operating Temperature	T_C	+150	°C
Operating Junction Temperature	T_J	+225	°C

Table 2. Thermal Characteristics

Characteristic	Symbol	Value	Unit
Thermal Resistance, Junction to Case T_C= 85°C, T_J=200°C, DC test	$R_{\theta JC}$	0.7	°C/W

Table 3. ESD Protection Characteristics

Test Methodology	Class
Human Body Model (per JESD22--A114)	Class 2

Table 4. Electrical Characteristics (TA = 25 ℃ unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
DC Characteristics					
Zero Gate Voltage Drain Leakage Current (V_{DS} = 65V, V_{GS} = 0 V)	I_{DSS}			100	μA
Zero Gate Voltage Drain Leakage Current (V_{DS} = 28 V, V_{GS} = 0 V)	I_{DSS}			1	μA
Gate--Source Leakage Current (V_{GS} = 10 V, V_{DS} = 0 V)	I_{GSS}			1	μA

Gate Threshold Voltage (V_{DS} = 28V, I_D = 300 μA)	$V_{GS(th)}$		1.75		V
Gate Quiescent Voltage (V_{DD} = 28 V, I_D = 50 mA, Measured in Functional Test)	$V_{GS(Q)}$		1.9		V

Functional Tests (In Innogration Test Fixture, 50 ohm system) V_{DD} = 28 Vdc, I_{DQ} = 50 mA, f =1615 MHz, CW Signal Measurements.

Power Gain	Gp		20		dB
1 dB Compression Point	P_{-1dB}		43		W
Drain Efficiency@P1dB	η_D		64.5		%
Input Return Loss	IRL		-10		dB

Load Mismatch (In Innogration Test Fixture, 50 ohm system): V_{DD} = 28 Vdc, I_{DQ} = 50 mA, f = 1615 MHz

VSWR 10:1 at 50W pulse CW Output Power	No Device Degradation

TYPICAL CHARACTERISTICS

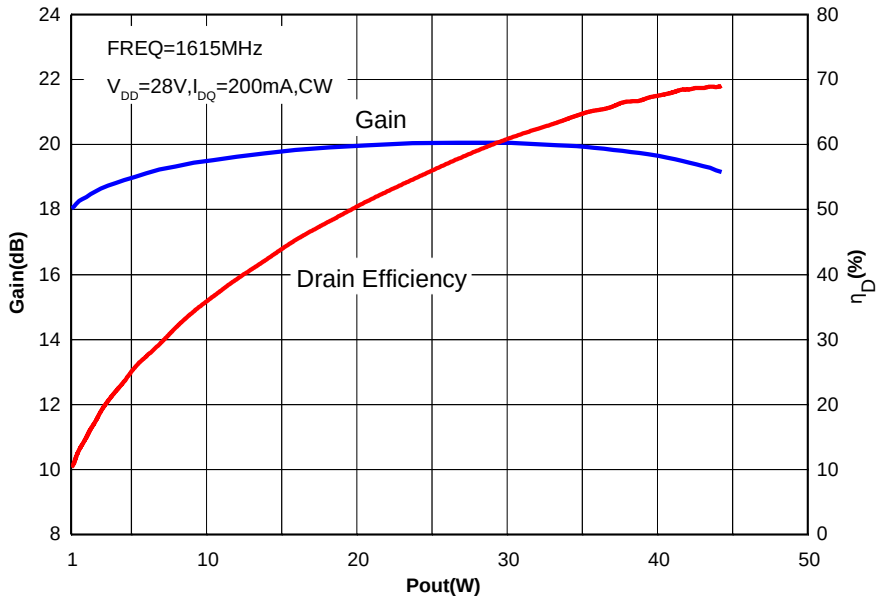
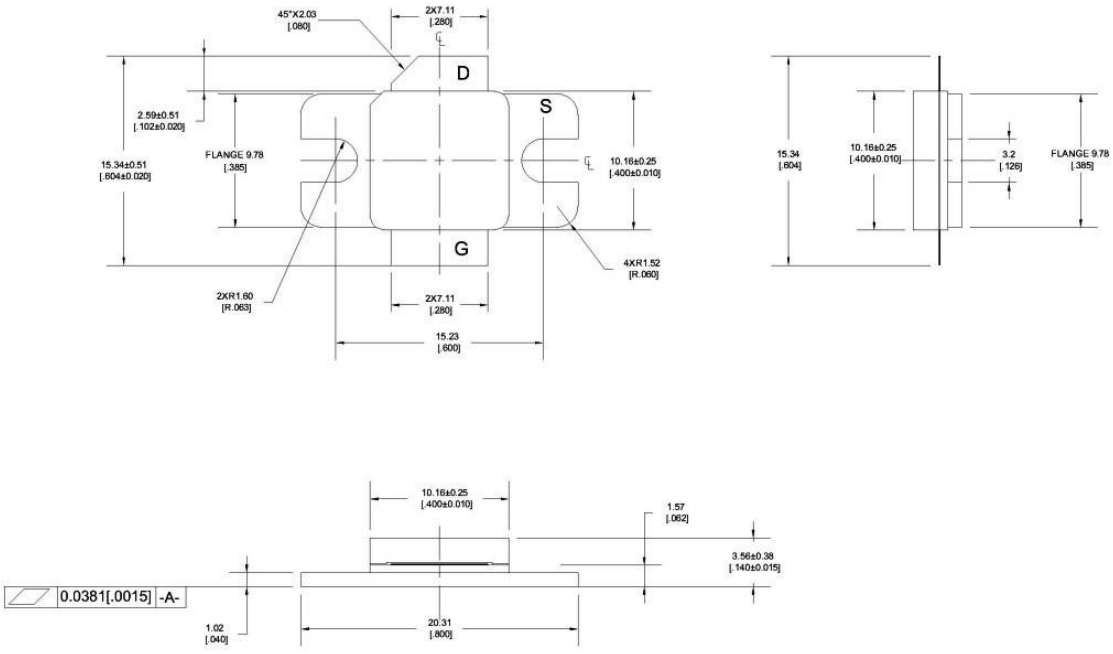


Figure 1. Power gain and drain efficiency as function of average load power

Package Outline

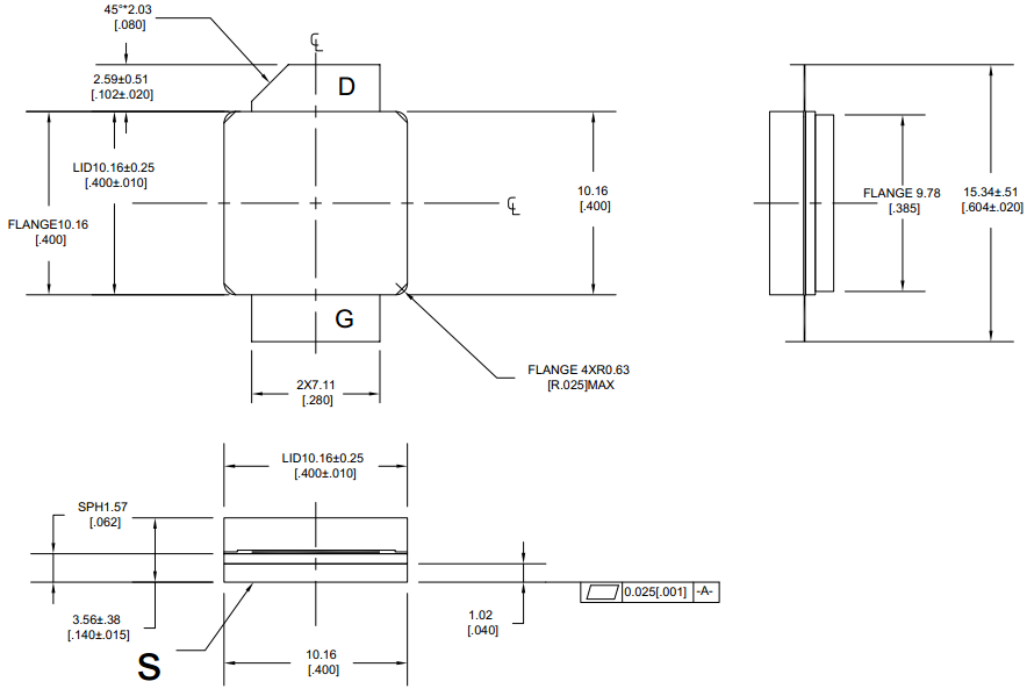
Eared Flanged ceramic package; 2 leads (A2E)



Unit：mm [inch]

Tolerance .xx +/- 0.01 .xxx +/- 0.005 inches

Earless Flanged ceramic package; 2 leads (A2)



Unit：mm [inch]

Tolerance .xx +/- 0.01 .xxx +/- 0.005 inches

Revision history

Table 5. Document revision history

Date	Revision	Datasheet Status
2016/12/26	Rev 1.0	Preliminary Datasheet
2017/03/17	Rev 2.0	Preliminary Datasheet

Disclaimers

Specifications are subject to change without notice. Innogration believes the information contained within this data sheet to be accurate and reliable. However, no responsibility is assumed by Innogration for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of Innogration . Innogration makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose."Typical" parameters are the average values expected by Innogration in large quantities and are provided for information purposes only. These values can and do vary in different applications and actual performance can vary over time. All operating parameters should be validated by customer's technical experts for each application. Innogration products are not designed, intended or authorized for use as components in applications intended for surgical implant into the body or to support or sustain life, in applications in which the failure of the Innogration product could result in personal injury or death or in applications for planning, construction, maintenance or direct operation of a nuclear facility. For any concerns or questions related to terms or conditions, pls check with Innogration and authorized distributors