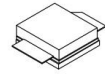


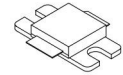


700-1000MHz, 45W, 28V High Power RF LDMOS FE

ITCH09045A2



ITCH09045A2E



Description

The ITCH09045A2 is a 45-watt, input-matched LDMOS FETs, designed for cellular and communication/ISM applications with frequencies from 700 MHz to 1000 MHz. It can be used in Class AB/B and Class C for all typical modulation formats.

• Typical Performance (On Test Fixture with device soldered):

VDD = 28 Volts, I_{DQ} = 200 mA, Pulse CW, Pulse Width=20 us, Duty cycle=10%

V_{ds} = 28V, I_{DQ} = 200mA (V_{gs} = 3.0V)							
Freq (MHz)	P1dB(dBm)	P1dB(W)	P1dB Eff(%)	P1dB Gain(dB)	P3dB(dBm)	P3dB(W)	P3dB Eff(%)
758	47.57	57.2	58.1	20.08	48.21	66.3	61.1
780	46.72	47.0	59.6	20.22	47.72	59.1	65.5
803	45.62	36.5	57.7	19.27	46.94	49.4	63.7

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	T _{stg}	-65 to +150	°C
Case Operating Temperature	T _c	-55~+150	°C
Operating Junction Temperature	T _j	+225	°C

Table 2. Thermal Characteristics

Characteristic	Symbol	Value	Unit
Thermal Resistance, Junction to Case T _c = 87°C, T _j =175°C, DC test	R _{θJC}	1.7	°C/W

Table 3. ESD Protection Characteristics

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



Table 4. Electrical Characteristics (TA = 25 °C 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 _{loss}			100	μA
Zero Gate Voltage Drain Leakage Current (V _{DS} = 28 V, V _{GS} = 0 V)	I _{loss}			1	μA
Gate--Source Leakage Current (V _{GS} = 10 V, V _{DS} = 0 V)	I _{loss}			1	μA
Gate Threshold Voltage (V _{DS} = 28V, I _D = 450 μA)	V _{GS(th)}		2.0		V
Gate Quiescent Voltage (V _{DD} = 28 V, I _D = 200 mA, Measured in Functional Test)	V _{GS(Q)}		3		V

Functional Tests (In Innegration Test Fixture, 50 ohm system) V_{DD} = 28 Vdc, I_{DQ} = 200 mA, f = 758 MHz, CW Signal Measurements.

Power Gain @ P _{1dB}	G _p		20		dB
1 dB Compression Point	P _{-1dB}		45		W
Drain Efficiency@P _{1dB}	η _D		55		%
Input Return Loss	IRL		-7		dB

Load Mismatch (In Innegration Test Fixture, 50 ohm system): V_{DD} = 28 Vdc, I_{DQ} = 200 mA, f = 758 MHz

VSWR 10:1 at 80W pulse CW Output Power	No Device Degradation
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TYPICAL CHARACTERISTICS

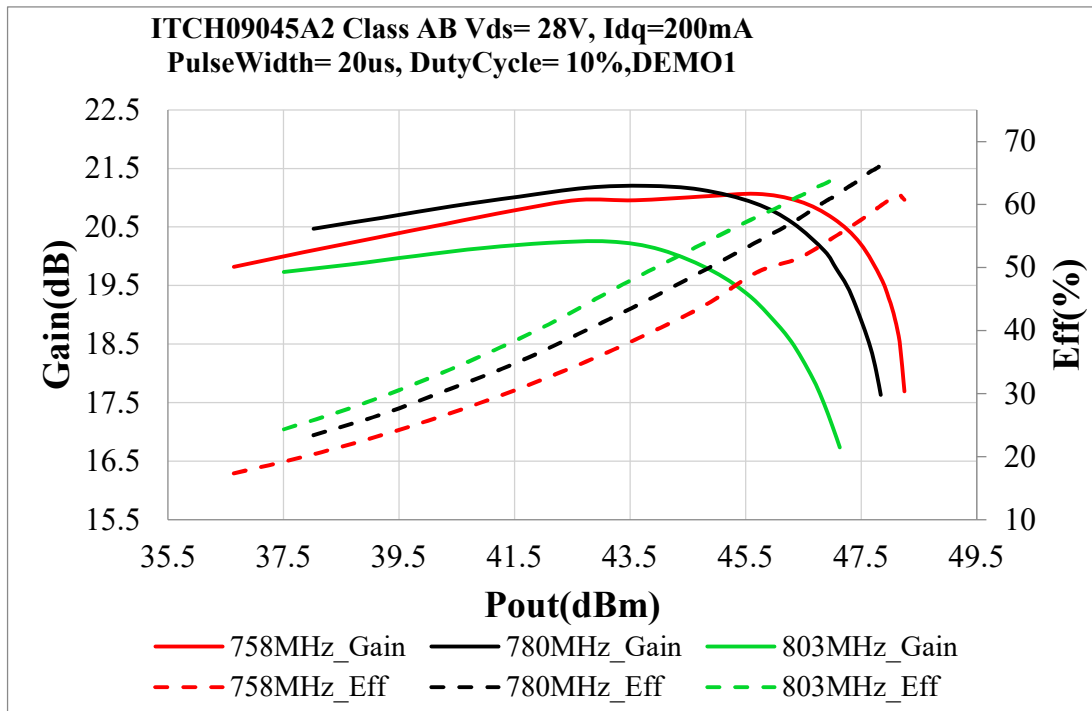


Figure 2. Power Gain and Drain Efficiency as function of Power Out

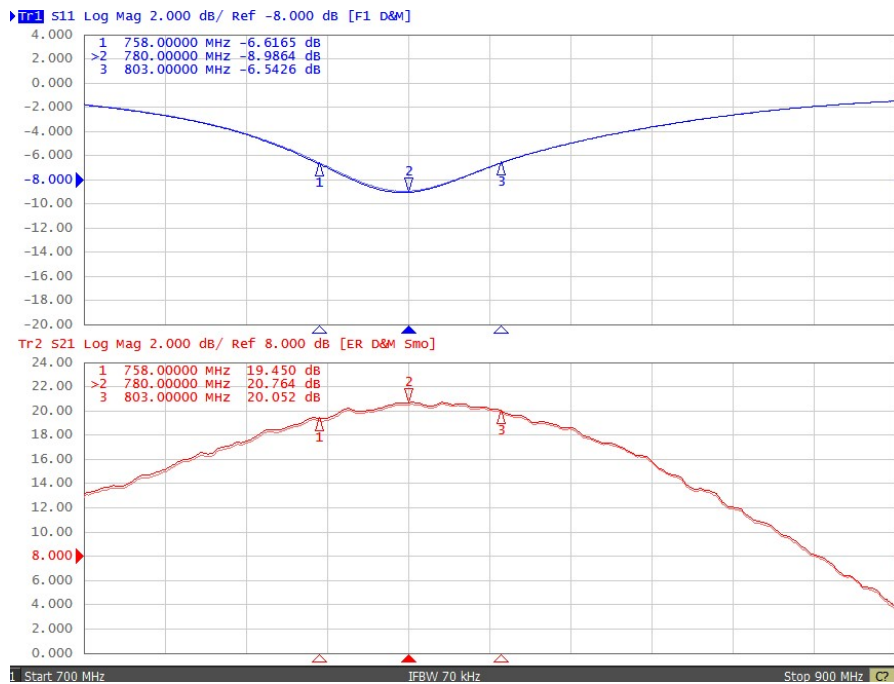


Figure 3. S11 and S21 of Network analyzer output

Reference Circuit of Test Fixture Assembly Diagram

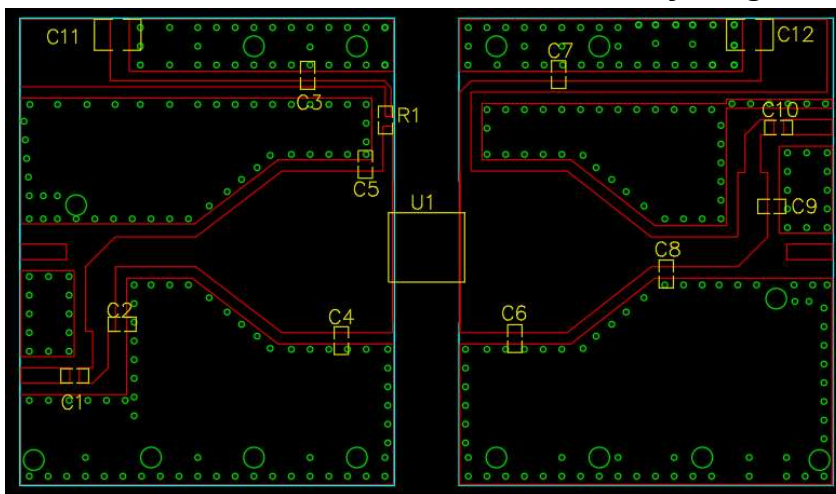


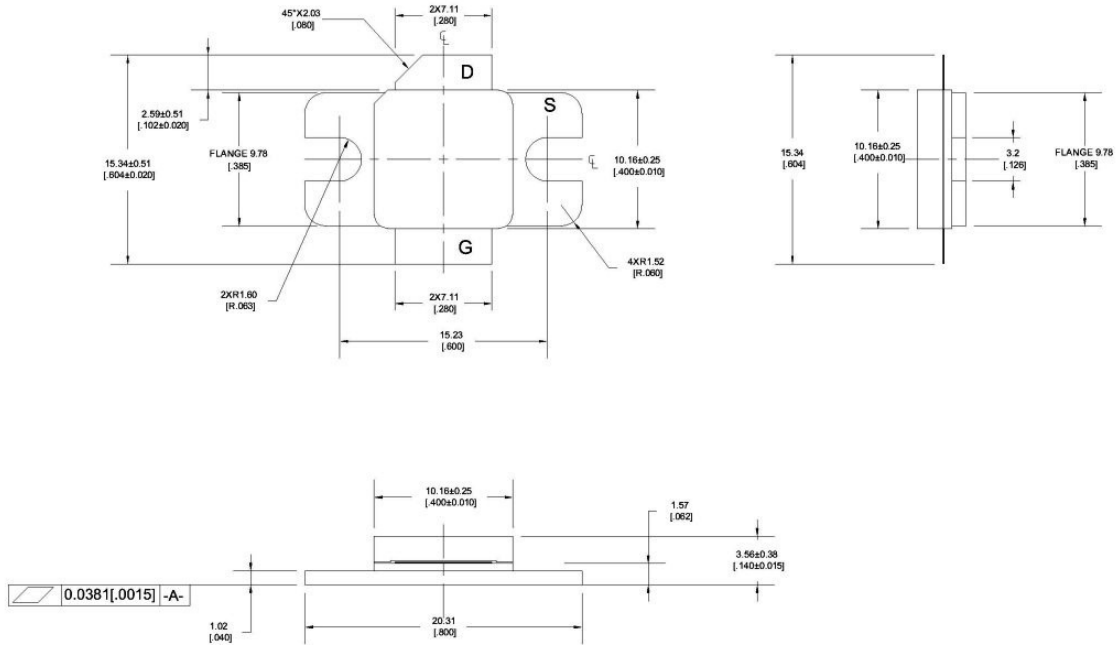
Table 5. Test Circuit Component Designations and Values

Component	Value	Quantity
C1、C3、C7、C10	33pF	4
C6、C8	15pF	2
C2	4.7pF	1
C4	20pF	1
C5	8.2pF	1
C9	6.8pF	1
C11、C12	10nF	2
R1	10 Ω	1



Package Outline

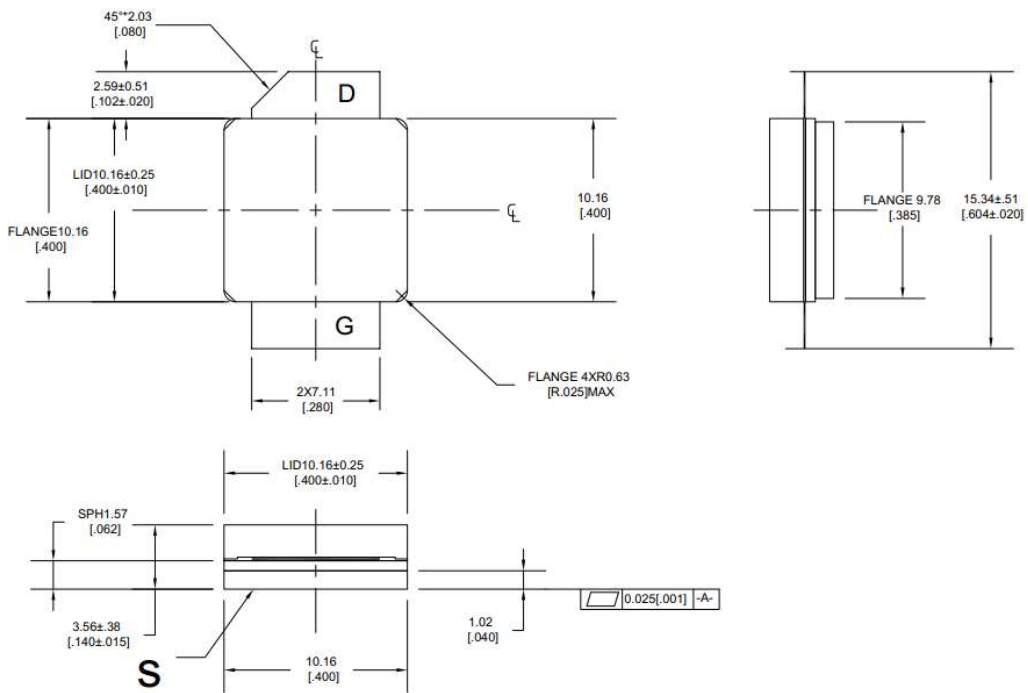
Eared Flanged ceramic package; 2 leads (A2E)



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
2022/4/6	Rev 1.0	Product Datasheet

Application data based on ZXY-22-03

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