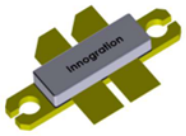
MX1521C LDMOS TRANSISTOR

Document Number: MX1521C
Product Datasheet V1.0

70W, 12.5V High Power RF LDMOS FETs

MX1521C



Description

The MX1526G is a 70-watt capable, highly rugged, unmatched, push pull LDMOS FET, designed for wide-band commercial and industrial applications with frequencies HF to 600MHz.

- **Typical performance** (on 2-54MHz wideband board with device soldered)

  Signal：CW , V_{DS}=12.5V, I_{DQ}=200mA

Freq (MHz)	P_{3dB} (dBm)	G_P (dB)	Eff (%)
2	48.8	21.3	77.6%
5	48.8	22.6	77.3%
10	48.8	21.8	76.5%
15	48.8	21.8	76.0%
20	48.7	20.8	74.0%
25	48.7	19.9	73.4%
30	48.7	21.1	73.3%
35	48.7	21.4	73.4%
40	48.8	21.8	73.5%
45	48.9	22.1	71.6%
50	49.0	22.3	71.5%
54	48.6	21.1	71.5%

- **Typical performance** (on 2-54MHz wideband board with device soldered)

  Signal：Two-tone space 1.6MHz , V_{DS}=12.5V, I_{DQ}=800mA

Freq (MHz)	P_{AVG} (dBm)	P_{PEP} (dBm)	G_P (dB)	Eff (%)	IMD3(dBc)
1.6	44.0	47.0	24.1	40.7%	-31
5	45.4	48.4	24.8	52.8%	-30.5
10	45.0	48.0	26.0	49.6%	-30
15	45.0	48.0	26.1	50.3%	-30
20	45.0	48.0	26.1	49.8%	-31
25	45.0	48.0	25.9	49.1%	-30.7
30	44.8	47.8	27.0	48.0%	-30.5
35	44.5	47.5	26.4	45.7%	-30.5
40	44.3	47.3	25.3	44.1%	-30
45	44.1	47.1	24.8	41.2%	-30.5
50	44.0	47.0	23.6	40.8%	-30
54	44.0	47.0	21.8	40.2%	-30

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Features

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

Suitable Applications

- 2-30MHz (HF or Short wave communication)
- 30-88MHz (Ground communication)
- 54-88MHz (TV VHF I)
- 88-108MHz (FM)
- 118 -140MHz (Avionics)
- 136-174MHz (Commercial ground communication)
- 160-230MHz (TV VHF III)
- 30-512MHz (Jammer, Ground/Air communication)
- 470-860MHz (TV UHF)
- 100kHz - 1000MHz (ISM, instrumentation)

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_{DS}	+20	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	RθJC	0.35	°C/W

Table 3. ESD Protection Characteristics

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

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

Characteristic	Symbol	Min	Typ	Max	Unit
DC Characteristics (per half section)					
Drain-Source Voltage V_{GS}=0, I_{DS}=1.0mA	$V_{(BR)DSS}$	65			V
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 = 600 μA)	$V_{GS(th)}$	——	1.98	——	V
Gate Quiescent Voltage (V_{DD} = 28 V, I_D = 800 mA, Measured in Functional Test)	$V_{GS(Q)}$	——	2.72	——	V
Drain source on state resistance (V_{DS} = 0.1V, V_{GS} = 10 V)	Rds(on)		100		mΩ

Common Source Input Capacitance (V_{GS} = 0V, V_{DS} =28 V, f = 1 MHz)	C_{ISS}		92		pF
Common Source Output Capacitance (V_{GS} = 0V, V_{DS} =28 V, f = 1 MHz)	C_{OSS}		39		pF
Common Source Feedback Capacitance (V_{GS} = 0V, V_{DS} =28 V, f = 1 MHz)	C_{RSS}		1.58		pF

Functional Tests (In Demo Test Fixture, 50 ohm system) V_{DD} = 12.5 Vdc, I_{DQ} = 200 mA, f = 50 MHz, CW Signal Measurements.

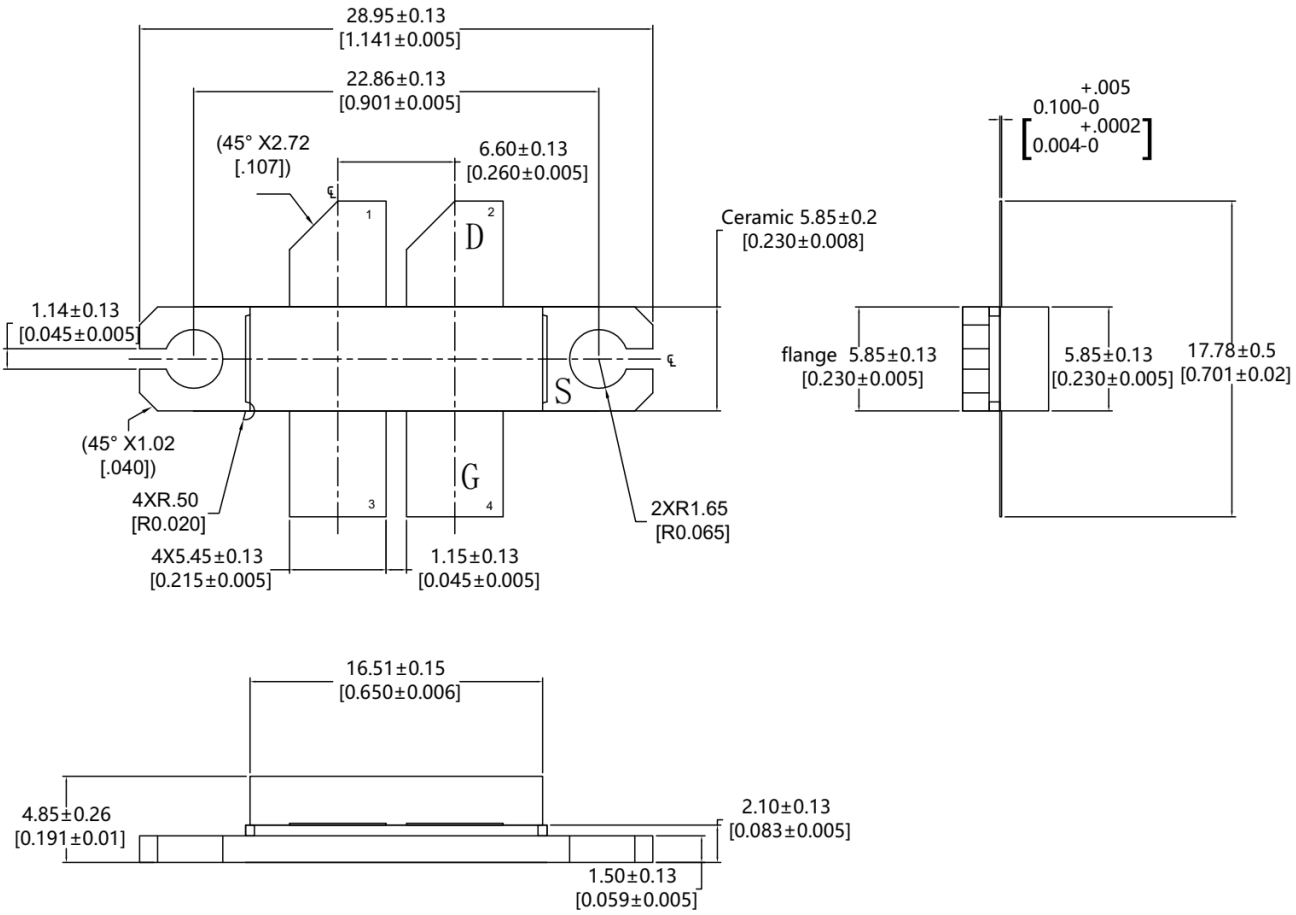
Power Gain @ P_{3dB}	Gp	———	22	———	dB
Drain Efficiency@P_{3dB}	η_D	———	71.5	———	%
3 dB Compression Point	P_{3dB}	48.5		———	dBm
Input Return Loss	IRL	———	-7	———	dB

Load Mismatch (In Innogration Test Fixture, 50 ohm system): V_{DD} = 12.5 Vdc, I_{DQ} = 200 mA, f = 50 MHz

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

Package Outline

Flanged ceramic package; 2 mounting holes; 4 leads



OUTLINE VERSION	REFERENCE			EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	JEITA		
PKG-LB/LBB					05/21/2021

Revision history

Table 5. Document revision history

Date	Revision	Datasheet Status
2025/10/29	Rev 1.0	Product Datasheet Creation

Application data based on GZY-18-38/19-06

Disclaimers