

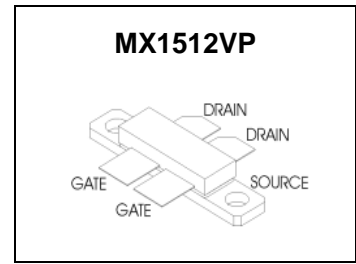
# MX1512VP LDMOS TRANSISTOR

Document Number: MX1512VP  
Preliminary Datasheet V1.0

## 120W, 50V High Power RF LDMOS FETs

### Description

The MX1512VP is a 120-watt, highly rugged, unmatched LDMOS FET, designed for wide-band commercial and industrial applications with frequencies HF to 1.5 GHz. It is featured for high power and high ruggedness, suitable for Industrial, Scientific and Medical application, as well as FM radio, VHF TV and Aerospace applications.



- Typical Performance (On Innogration narrow band fixture with device soldered):

$V_{DD} = 50$  Volts,  $I_{DQ} = 100$  mA, CW.

Frequency	Gp (dB)	$P_{out}$ (W)	$\eta_D @ P_{out}$ (%)
915 MHz	23	120	60

### 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)
- 1200-1400MHz(L band)
- 136-174MHz (Commercial ground communication)
- 160-230MHz (TV VHF III)
- 30-512MHz (Jammer, Ground/Air communication)
- 470-860MHz (TV UHF)
- 100kHz - 1000MHz (ISM, instrumentation)
- 960-1215MHz(Avionics)

**Table 1. Maximum Ratings**

Rating	Symbol	Value	Unit
Drain--Source Voltage	$V_{DSS}$	+125	Vdc
Gate--Source Voltage	$V_{GS}$	-10 to +10	Vdc
Operating Voltage	$V_{DD}$	+55	Vdc
Storage Temperature Range	$T_{stg}$	-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 $T_c = 85^\circ\text{C}$ , $P_{out} = 120\text{W}$ CW,	$R_{\theta JC}$	0.7	°C/W

**Table 3. ESD Protection Characteristics**

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

# MX1512VP LDMOS TRANSISTOR

Document Number: MX1512VP  
Preliminary Datasheet V1.0

**Table 4. Electrical Characteristics** (TA = 25 °C unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
<b>DC Characteristics</b>					
Drain-Source Voltage V <sub>GS</sub> =0, I <sub>DS</sub> =1.0Ma	V <sub>(BR)DSS</sub>		122		V
Zero Gate Voltage Drain Leakage Current (V <sub>DS</sub> = 50V, V <sub>GS</sub> = 0 V)	I <sub>DSS</sub>	—	—	1	μA
Gate—Source Leakage Current (V <sub>GS</sub> = 10 V, V <sub>DS</sub> = 0 V)	I <sub>GSS</sub>	—	—	1	μA
Gate Threshold Voltage (V <sub>DS</sub> = 50V, I <sub>D</sub> = 600 μA)	V <sub>GS(th)</sub>	—	2.65	—	V
Gate Quiescent Voltage (V <sub>DD</sub> = 50 V, I <sub>D</sub> = 400 mA, Measured in Functional Test)	V <sub>GS(Q)</sub>	—	3.57	—	V
Drain source on state resistance (V <sub>DS</sub> = 0.1V, V <sub>GS</sub> = 10 V) Each section side of device measured	R <sub>ds(on)</sub>		448		mΩ
Common Source Input Capacitance (V <sub>GS</sub> = 0V, V <sub>DS</sub> =50 V, f = 1 MHz) Each section side of device measured	C <sub>ISS</sub>		55.5		pF
Common Source Output Capacitance (V <sub>GS</sub> = 0V, V <sub>DS</sub> =50 V, f = 1 MHz) Each section side of device measured	C <sub>OSS</sub>		22.6		pF
Common Source Feedback Capacitance (V <sub>GS</sub> = 0V, V <sub>DS</sub> =50 V, f = 1 MHz) Each section side of device measured	C <sub>RSS</sub>		0.57		pF

**Functional Tests** (In Demo Test Fixture, 50 ohm system) V<sub>DD</sub> = 50 Vdc, I<sub>DQ</sub> = 400mA, f = 915 MHz, CW Signal Measurements, Pin=22.5dBm

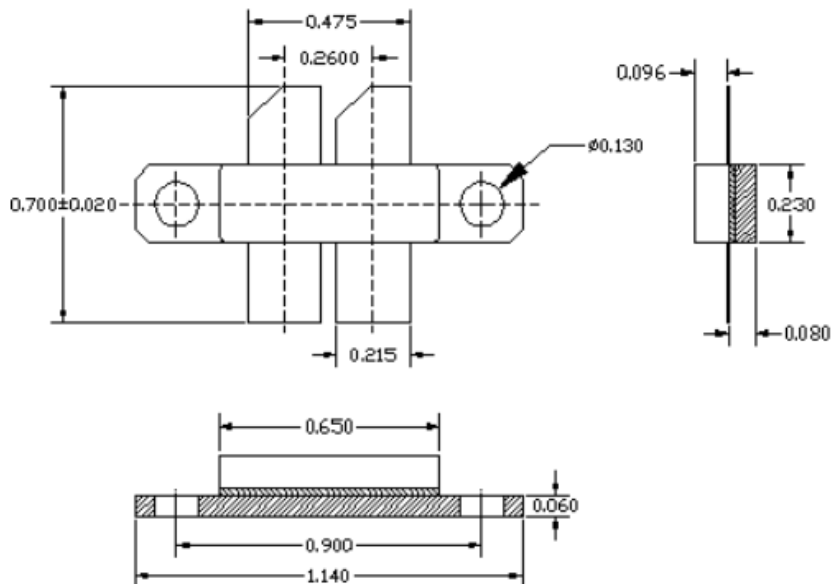
Power Gain@Pout	G <sub>p</sub>	—	23	—	dB
Output Power	P <sub>out</sub>		120		W
Drain Efficiency@Pout	η <sub>D</sub>	—	60	—	%
Input Return Loss	IRL	—	-7	—	dB
Ruggedness at all phase angle	VSWR		10:1		

# MX1512VP LDMOS TRANSISTOR

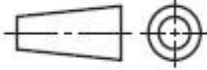
Document Number: MX1512VP  
Preliminary Datasheet V1.0

## Package Outline

Flanged ceramic package; 2 mounting holes; 4 leads



Tolerance .XX +/-0.01 .XXX +/- .005 inches

OUTLINE VERSION	REFERENCE			EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	JEITA		
PKG-LB/LBB					03/12/2013

## Revision history

Table 5. Document revision history

Date	Revision	Datasheet Status
2017/9/15	Rev 1.0	Preliminary Datasheet Creation

## 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

Copyright © by Innogration (Suzhou) Co.,Ltd.