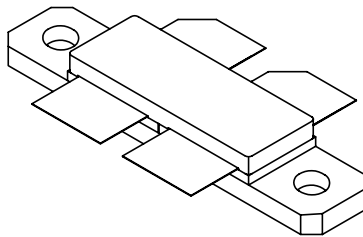
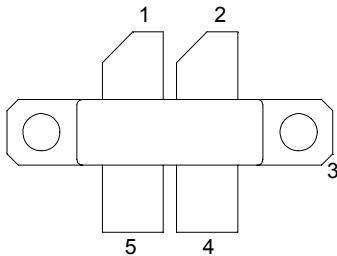


## RF power LDMOS transistor for frequencies up to 1.5 GHz


**M246**

 1-2 Drain  
 4-5 Gate

3 Source

### Features

Order code	F <sub>REQ</sub>	V <sub>DD</sub>	P <sub>OUT</sub> (typ.)	Gain	N <sub>D</sub>
ST50V10200	1000 MHz	50 V	200 W	18 dB	60%

- High efficiency and linear gain operations
- Integrated ESD protection
- Large positive and negative gate/source voltage range
- In compliance with the European Directive 2002/95/EC

### Applications

- Broadband communications
- Industrial, scientific and medical (ISM)
- Avionics

### Description

The ST50V10200 is a common-source N-channel enhancement-mode lateral field-effect RF power transistor designed for broadband commercial, avionics and industrial applications at frequencies up to 1.5 GHz. It can be used in A/AB and C classes for all typical modulation formats.



#### Product status link

[ST50V10200](#)

#### Product summary

<b>Order code</b>	ST50V10200
<b>Marking</b>	ST50V10200 ES
<b>Package</b>	M246
<b>Packing</b>	TBD

# 1 Electrical ratings

**Table 1. Absolute maximum ratings (+25 °C)**

Symbol	Parameter	Value	Unit
$B_{VDSS}$	Drain-source voltage	110	V
$V_{GS}$	Gate-source voltage	-8/+10	V
$V_{DD}$	Drain supply voltage	18	V
$T_{STG}$	Storage temperature range	-65 to +150	°C
$T_J$	Junction temperature	+200	°C

**Table 2. Thermal data**

Symbol	Parameter	Value	Unit
$R_{thj-case}$	Junction-case thermal resistance $T_{CASE} = +85\text{ °C}$ , $T_J = +200\text{ °C}$ , DC test	0.40	°C/W

**Table 3. ESD protection**

Symbol	Parameter	Class
HBM	Human body model (according to JESD22-A114)	2

## 2 Electrical characteristics

( $T_C = 25\text{ }^\circ\text{C}$  unless otherwise specified)

**Table 4. Static (per side)**

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
$V_{(BR)DSS}$	Drain-source breakdown voltage	$V_{GS} = 0\text{ V}$ , $I_D = 100\text{ }\mu\text{A}$	110			V
$I_{DSS}$	Zero-gate voltage drain current	$V_{GS} = 0\text{ V}$ , $V_{DS} = 50\text{ V}$			1	$\mu\text{A}$
$I_{GSS}$	Gate-body leakage current	$V_{DS} = 0\text{ V}$ , $V_{GS} = 6\text{ V}$			1	$\mu\text{A}$
$V_{GS(th)}$	Gate threshold voltage	$V_{DS} = 28\text{ V}$ , $I_D = 600\text{ }\mu\text{A}$	1	TBD	3	V
$V_{DS(on)}$	Static drain-source on-resistance	$V_{GS} = 10\text{ V}$ , $I_D = 5\text{ A}$			1.4	V
$C_{ISS}$	Common source input capacitance	$V_{GS} = 0\text{ V}$ , $V_{DD} = 50\text{ V}$ , $F_{REQ} = 1\text{ MHz}$		118		pF
$C_{RSS}$	Common source feedback capacitance			2		pF
$C_{OSS}$	Common source output capacitance			44		pF

**Table 5. Dynamic**

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
$P_{OUT}$	Output power	$V_{DD} = 50\text{ V}$ , $I_{DQ} = 0.2\text{ A}$ , $F_{REQ} = 1000\text{ MHz}$ ,	-	225	-	W
Gain	Power gain		-	17.5	-	dB
Efficiency	Drain efficiency		-	60	-	%
IMD3	3rd order intermodulation		-	TBD	-	dBc
VSWR	Load mismatch	$P_{OUT} = 200\text{ W}$ , all phases	-	10:1	-	

**Table 6. Impedance data**

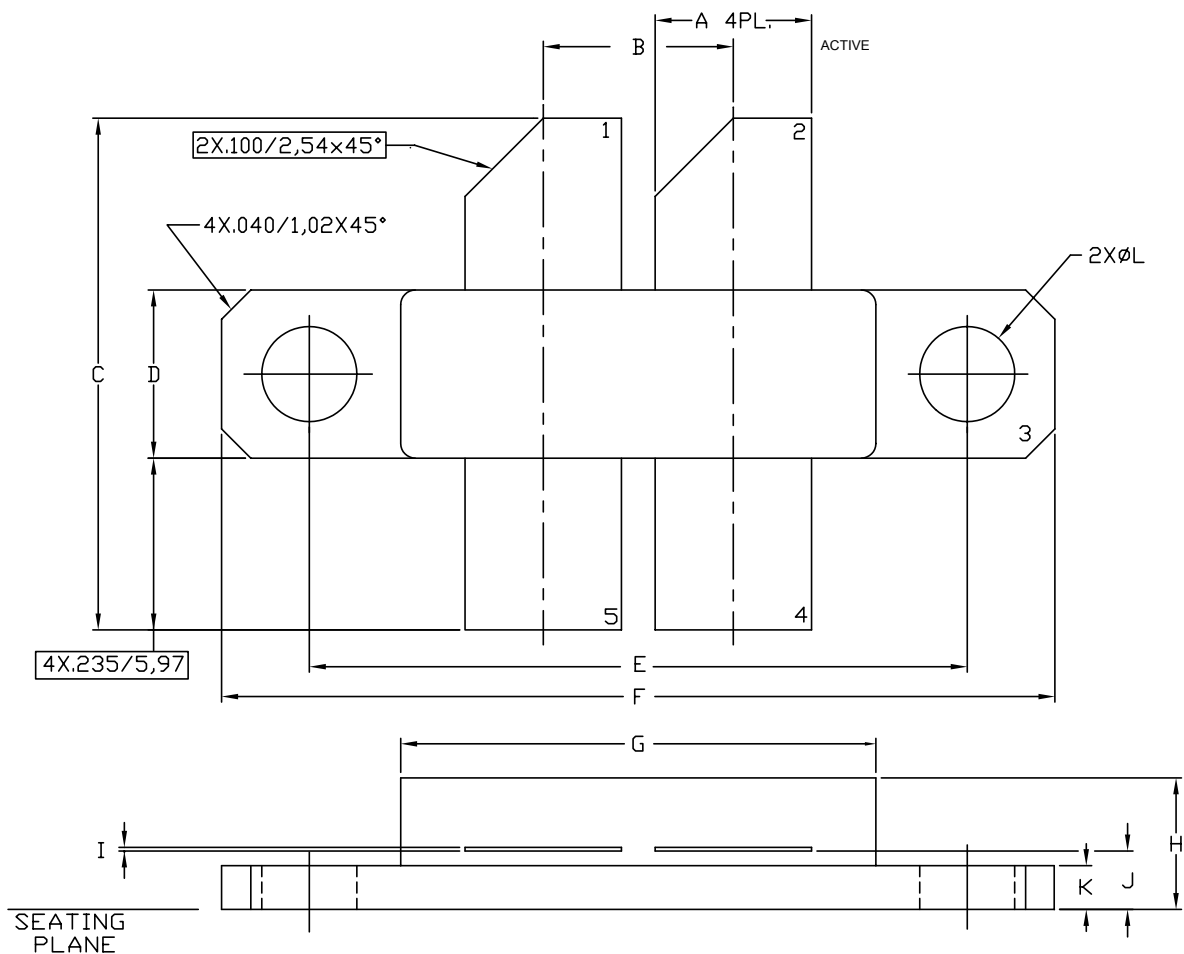
Frequency (in MHz)	Input impedance ( $Z_{IN}$ )	Drain load impedance ( $Z_{DL}$ )
2	TBD	TBD
5	TBD	TBD
10	TBD	TBD
30	TBD	TBD
60	TBD	TBD
100	TBD	TBD
200	TBD	TBD

### 3 Package information

In order to meet environmental requirements, ST offers these devices in different grades of **ECOPACK** packages, depending on their level of environmental compliance. ECOPACK specifications, grade definitions and product status are available at: [www.st.com](http://www.st.com). ECOPACK is an ST trademark.

#### 3.1 0.230 x 0.650 WIDE 4/L BAL N/HERM W/FLG M246 package information

**Figure 1. 0.230 x 0.650 WIDE 4/L BAL N/HERM W/FLG M246 package outline**



7145054\_5

**Table 7. 0.230 x 0.650 WIDE 4/L BAL N/HERM W/FLG M246 mechanical data**

Symbol	Millimeters		
	Min.	Typ.	Max.
A	5.33		5.59
B	6.48		6.73
C	17.27		18.29
D	5.72		5.97
E		22.86	
F	28.83		29.08
G	16.26		16.76
H	4.19		5.08
I	0.08		0.15
J	1.83		2.24
K	1.40		1.65
L	3.18		3.43

## Revision history

**Table 8. Document revision history**

Date	Version	Changes
12-Sep-2018	1	Initial release
22-Mar-2019	2	Updated <a href="#">Table 1</a> and <a href="#">Table 4</a> .

## Contents

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<b>3.1</b>	<b>0.230 x 0.650 WIDE 4/L BAL N/HERM W/FLG M246 package information</b> .....	<b>4</b>
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