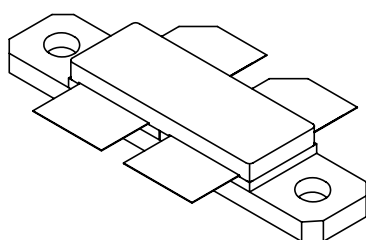
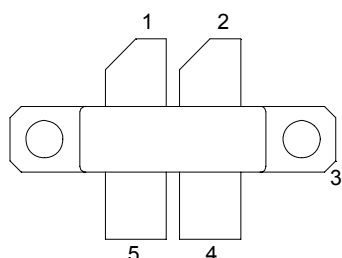


RF power LDMOS transistor for frequencies up to 1.5 GHz


M246

 1-2 Drain
4-5 Gate

3 Source

Features

Order code	F _{REQ}	V _{DD}	P _{OUT} (typ.)	Gain	N _D
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

Order code	ST50V10200
Marking	ST50V10200 ES
Package	M246
Packing	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	μA
I_{GSS}	Gate-body leakage current	$V_{DS} = 0\text{ V}$, $V_{GS} = 6\text{ V}$			1	μA
$V_{GS(th)}$	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

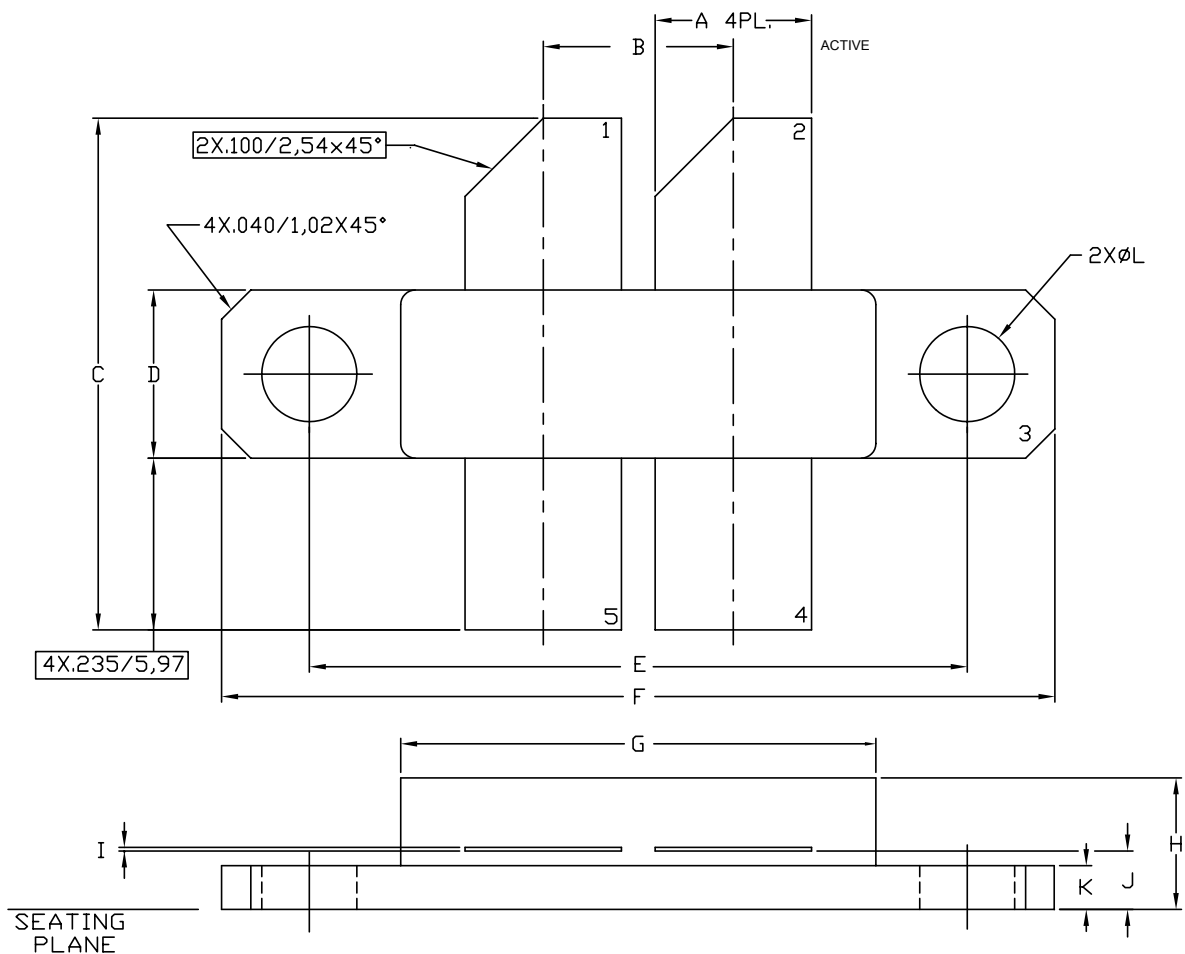
Frequency (in MHz)	Input impedance (Z_{IN})	Drain load impedance (Z_{DL})
2	TBD	TBD
5	TBD	TBD
10	TBD	TBD
30	TBD	TBD
60	TBD	TBD
100	TBD	TBD
200	TBD	TBD

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. 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 Table 1 and Table 4 .

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