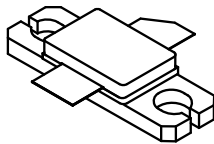
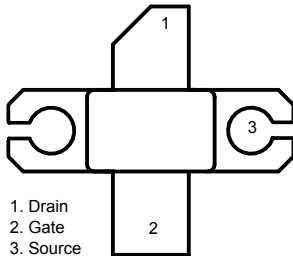


## RF Power LDMOS transistor for frequencies up to 1.5 GHz



M243  
Epoxy sealed



1. Drain  
2. Gate  
3. Source

GADG310120180952IG



### Product status link

[ST50V10100](#)

### Product summary

<b>Order code</b>	ST50V10100
<b>Marking</b>	ST50V10100
<b>Package</b>	M243
<b>Packing</b>	TBD

### Features

Order code	F <sub>REQ</sub>	V <sub>DD</sub>	P <sub>OUT</sub> (typ.)	Gain	N <sub>D</sub>
ST50V10100	1000 MHz	50 V	100 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

- Industrial, scientific and medical from HF to 1.5 GHz
- Avionics

### Description

The **ST50V10100** 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 class A/AB and C for all typical modulation formats.

# 1 Electrical ratings

**Table 1. Absolute maximum ratings**

Symbol	Parameter	Value	Unit
$BV_{DSS}$	Drain-source voltage	110	V
$V_{GS}$	Gate-source voltage	-8 / +10	V
$I_D$	Drain current	18	A
$T_{STG}$	Storage temperature range	-65 to +150	°C
$T_J$	Junction temperature	+200	°C

**Table 2. Thermal data**

Symbol	Parameter	Value	Unit
$R_{thj-case}$	Thermal resistance junction-case, $T_{CASE} = +85\text{ °C}$ , $P_{OUT}=100\text{ W}$	0.75	°C/W

**Table 3. ESD protection**

Symbol	Parameter	Class
HBM	Human body model (per 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	$V_{DS} = 50\text{ V}$ , $I_D = 600\text{ }\mu\text{A}$	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	$V_{GS} = 0\text{ V}$ , $V_{DD} = 50\text{ V}$ , $f = 1\text{ MHz}$		118		pF
$C_{oss}$	Common source output capacitance			2		
$C_{rss}$	Common source feedback capacitance			44		

**Table 5. Dynamic**

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
$P_{OUT}$	Output power	$V_{DD} = 28\text{ V}$ , $I_{DQ} = 0.1\text{ A}$ , $f = 915\text{ MHz}$	-	100	-	W
Gain	Power gain		-	18	-	dB
Efficiency	Drain efficiency		-	63	-	%
IMD3	3 <sup>rd</sup> order intermodulation		-	TBD	-	dBc
VSWR	Load mismatch	@ $P_{OUT} = 100\text{ W}$ all phases	-	10:1	-	

**Table 6. Impedance data**

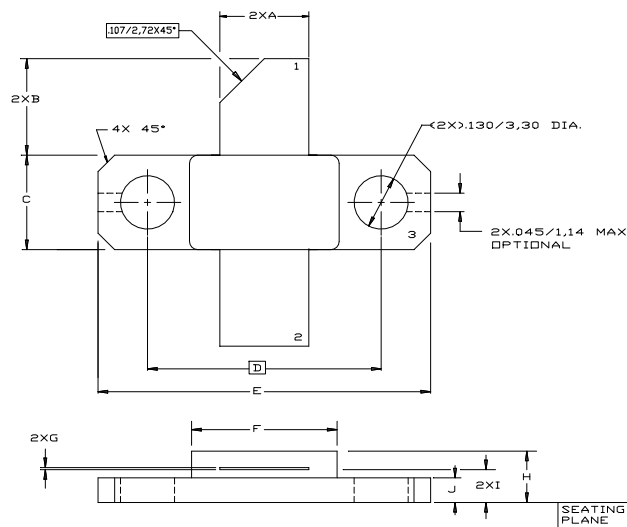
Frequency (MHz)	Input impedance $Z_{IN}$	Drain load impedance $Z_{DL}$
100	TBD	TBD
250		
500		
750		
1000		
1250		
1500		

### 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 M243 (0.230 x 0.360 2/L N/HERM W/FLG) package information

**Figure 1. M243 (0.230 x 0.360 2/L N/HERM W/FLG) package outline**



**Table 7. M243 (0.230 x 0.360 2/L N/HERM W/FLG) package mechanical data**

Dim.	mm		
	Min.	Typ.	Max.
A	5.21		5.72
B	5.46		6.48
C	5.59		6.1
D		14.27	
E	20.07		20.57
F	8.89		9.4
G	0.1		0.15
H	3.18		4.45
I	1.83		2.24
J	1.27		1.78

## Revision history

**Table 8. Document revision history**

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

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