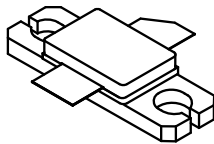
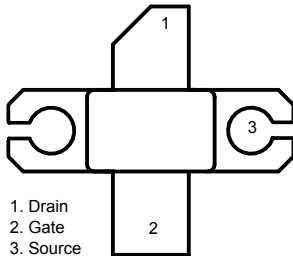


RF Power LDMOS transistor for frequencies up to 1.5 GHz



M243
Epoxy sealed



1. Drain
2. Gate
3. Source

GADG310120180952IG



Product status link

[ST50V10100](#)

Product summary

Order code	ST50V10100
Marking	ST50V10100
Package	M243
Packing	TBD

Features

Order code	F _{REQ}	V _{DD}	P _{OUT} (typ.)	Gain	N _D
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	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	$V_{DS} = 50\text{ V}$, $I_D = 600\text{ }\mu\text{A}$	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 rd 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. 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

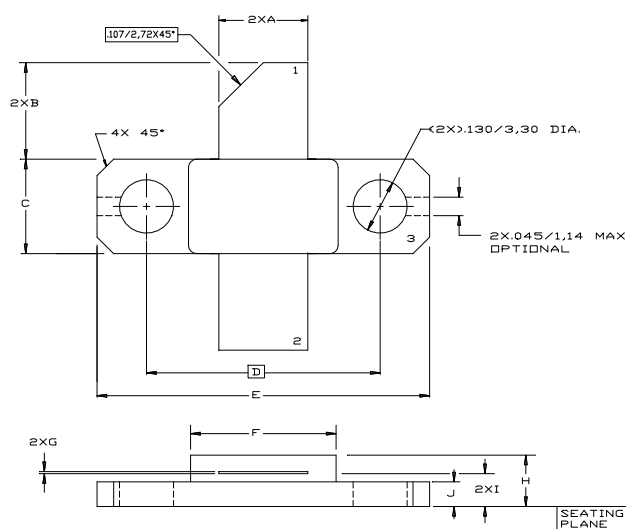


Table 7. M243 (0.230 x 0.360 2/L N/HERM W/FLG) package mechanical data

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 Table 1 and Table 4 .

Contents

1	Electrical ratings	2
2	Electrical characteristics	3
3	Package information	4
3.1	M243 (0.230 x 0.360 2/L N/HERM W/FLG) package information	4
	Revision history	5

IMPORTANT NOTICE – PLEASE READ CAREFULLY

STMicroelectronics NV and its subsidiaries (“ST”) reserve the right to make changes, corrections, enhancements, modifications, and improvements to ST products and/or to this document at any time without notice. Purchasers should obtain the latest relevant information on ST products before placing orders. ST products are sold pursuant to ST’s terms and conditions of sale in place at the time of order acknowledgement.

Purchasers are solely responsible for the choice, selection, and use of ST products and ST assumes no liability for application assistance or the design of Purchasers’ products.

No license, express or implied, to any intellectual property right is granted by ST herein.

Resale of ST products with provisions different from the information set forth herein shall void any warranty granted by ST for such product.

ST and the ST logo are trademarks of ST. For additional information about ST trademarks, please refer to www.st.com/trademarks. All other product or service names are the property of their respective owners.

Information in this document supersedes and replaces information previously supplied in any prior versions of this document.

© 2019 STMicroelectronics – All rights reserved