Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

Contact us

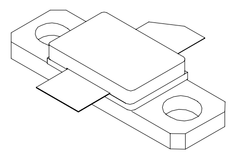
Tel: +86-755-8981 8866 Fax: +86-755-8427 6832
Email & Skype: info@chipsmall.com Web: www.chipsmall.com
Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China

LET20045C

RF power transistor from the LdmoST family of n-channel enhancement-mode lateral MOSFETs

Features

- Excellent thermal stability
- Common source configuration
- P_{OUT} (@ 28 V)= 54 W with 13.3 dB gain @ 2000 MHz
- P_{OUT} (@ 36 V)= 65 W with 12.5 dB gain @ 2000 MHz
- BeO free package
- In compliance with the 2002/95/EC European directive



M243
epoxy sealed

Description

The LET20045C is a common source n-channel enhancement-mode lateral field-effect RF power transistor designed for broadband commercial and industrial applications at frequencies up to 2.0 GHz. The LET20045C is designed for high gain and broadband performance operating in common source mode at 36 V. It is ideal for base station applications requiring high linearity.

Figure 1. Pin out

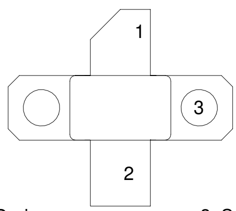


Table 1. Device summary

Order code	Package	Branding
LET20045C	M243	LET20045C

1 Maximum ratings

Table 2. Absolute maximum ratings (T_{CASE} = 25 °C)

Symbol	Parameter	Value	Unit
$V_{(BR)DSS}$	Drain-source voltage	80	V
V_{GS}	Gate-source voltage	-0.5 to +15	V
I_D	Drain current	12	A
P_{DISS}	Power dissipation (@ T_C = 70 °C)	130	W
T_J	Max. operating junction temperature	200	°C
T_{STG}	Storage temperature	-65 to +150	°C

Table 3. Thermal data

Symbol	Parameter	Value	Unit
$R_{th(JC)}$	Junction-case thermal resistance	1.0	°C/W

2 Electrical characteristics

T_C = 25 °C

Table 4. Static

Symbol	Test conditions	Min.	Typ.	Max.	Unit
$V_{(BR)DSS}$	V_{GS} = 0 V; I_{DS} = 10 mA	80			V
I_{DSS}	V_{GS} = 0 V; V_{DS} = 28 V			1	µA
I_{GSS}	V_{GS} = 5 V; V_{DS} = 0 V			1	µA
$V_{GS(Q)}$	V_{DS} = 28 V; I_D = 100 mA	2.0		5.0	V
$V_{DS(ON)}$	V_{GS} = 10 V; I_D = 3 A		0.8	1.2	V
G_{FS}	V_{DS} = 10 V; I_D = 3 A	2.5			mho
C_{ISS}	V_{GS} = 0 V; V_{DS} = 28 V; f = 1 MHz		77		pF
C_{OSS}	V_{GS} = 0 V; V_{DS} = 28 V; f = 1 MHz		39		pF
C_{RSS}	V_{GS} = 0 V; V_{DS} = 28 V; f = 1 MHz		1.2		pF

Table 5. Dynamic

Symbol	Test conditions	Min.	Typ.	Max.	Unit
P_{OUT}	V_{DD} = 28 V; I_{DQ} = 500 mA; P_{IN} = 2.5 W; f = 2000 MHz	45	54	-	W
G_{PS}	V_{DD} = 28 V; I_{DQ} = 500 mA; P_{IN} = 2.5 W; f = 2000 MHz	12	13.3	-	dB
h_D	V_{DD} = 28 V; I_{DQ} = 500 mA; P_{IN} = 2.5 W; f = 2000 MHz	45	51	-	%
Load mismatch	V_{DD} = 28 V; I_{DQ} = 500 mA; P_{IN} = 2.5 W; f = 2000 MHz All phase angles	10:1			VSWR

3 Impedance data

Figure 2. Impedance data

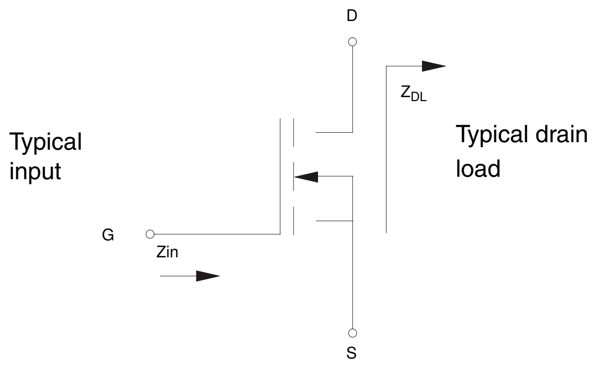


Table 6. Impedance data

Frequency	Z_{IN} (Ω)	Z_{DL} (Ω)
TBD	TBD	TBD

4 Typical performances

Figure 3. Gain vs output power and bias current

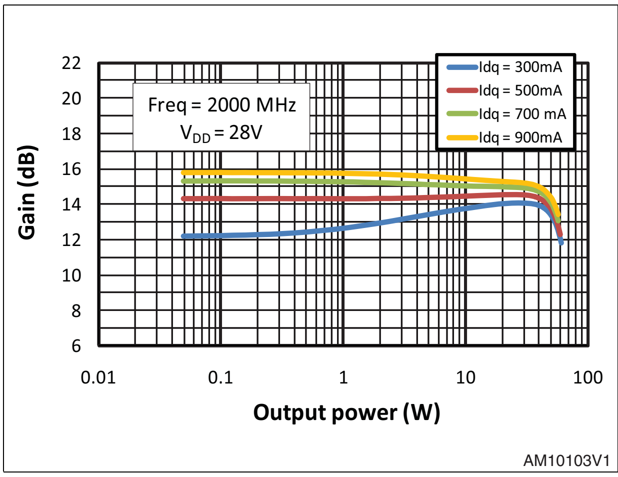


Figure 4. Gain and efficiency vs output power

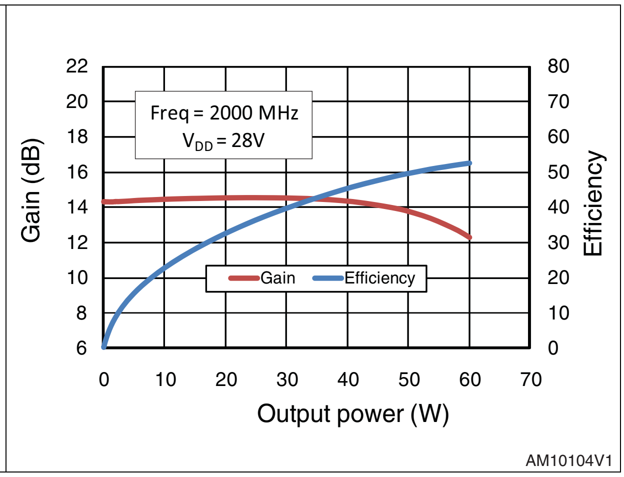


Figure 5. Gain vs output power and supply voltage

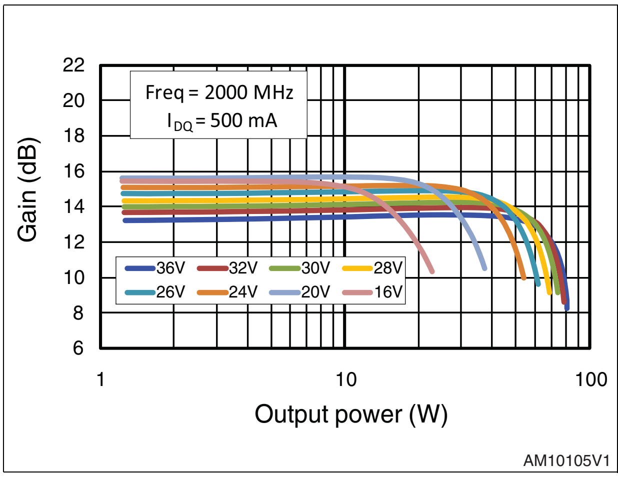


Figure 6. Efficiency vs output power and supply voltage

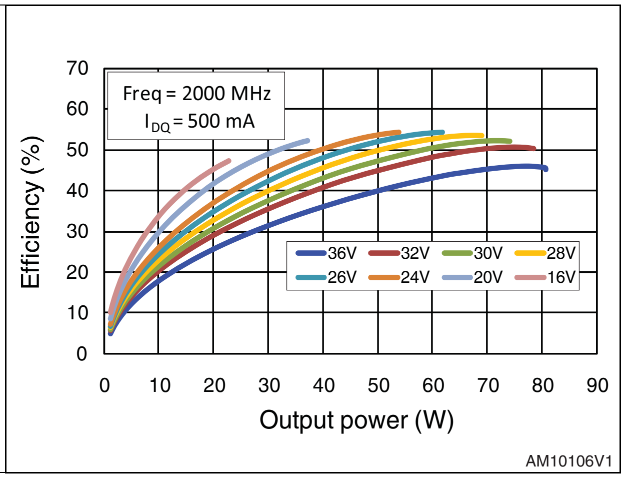


Figure 7. IMD vs output power @ 28 V

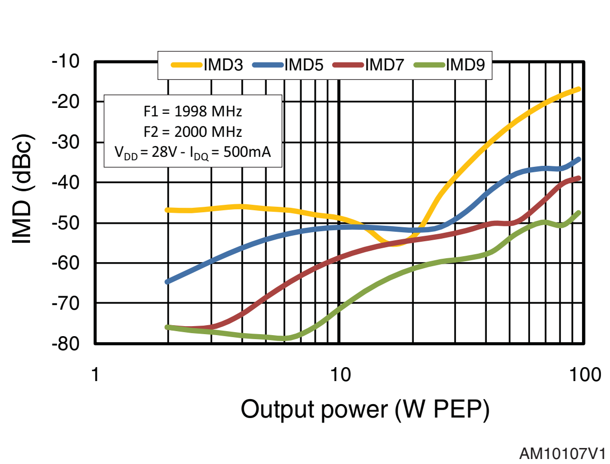


Figure 8. IMD vs output power @ 32 V

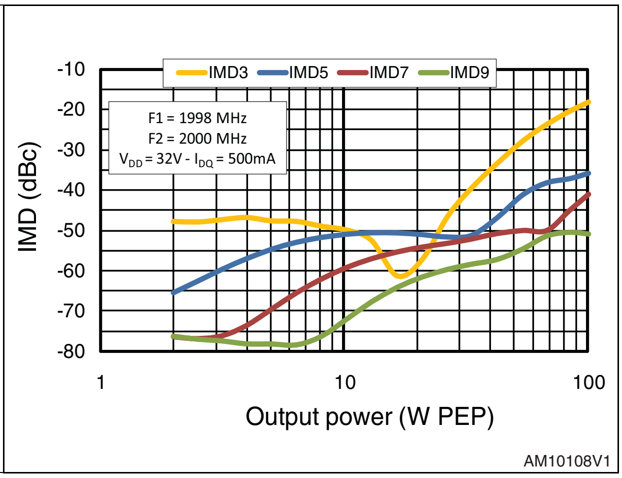


Figure 9. ACPR and efficiency vs output power @ 28 V

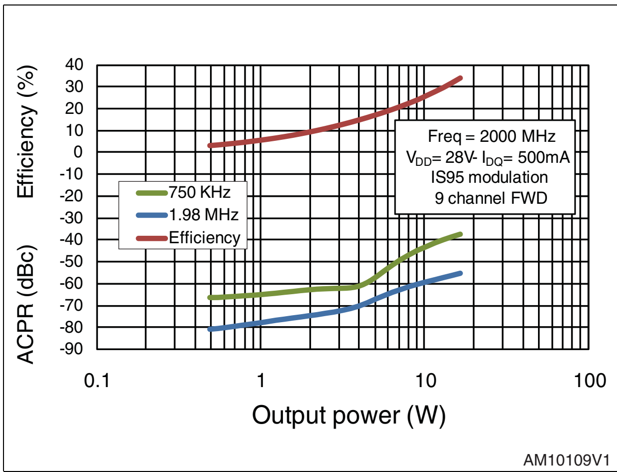
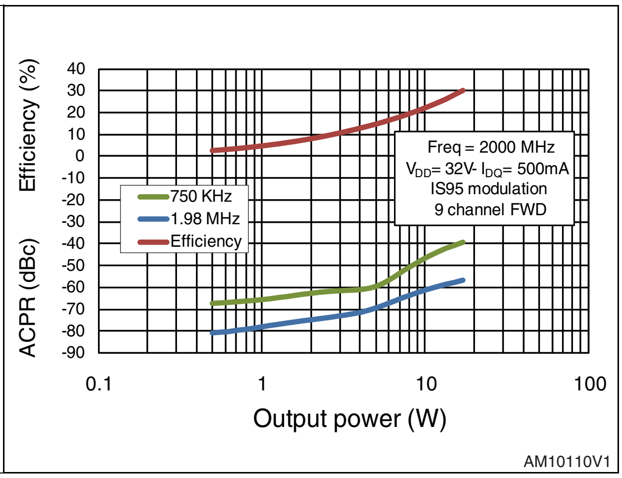


Figure 10. ACPR and efficiency vs output power @ 32 V



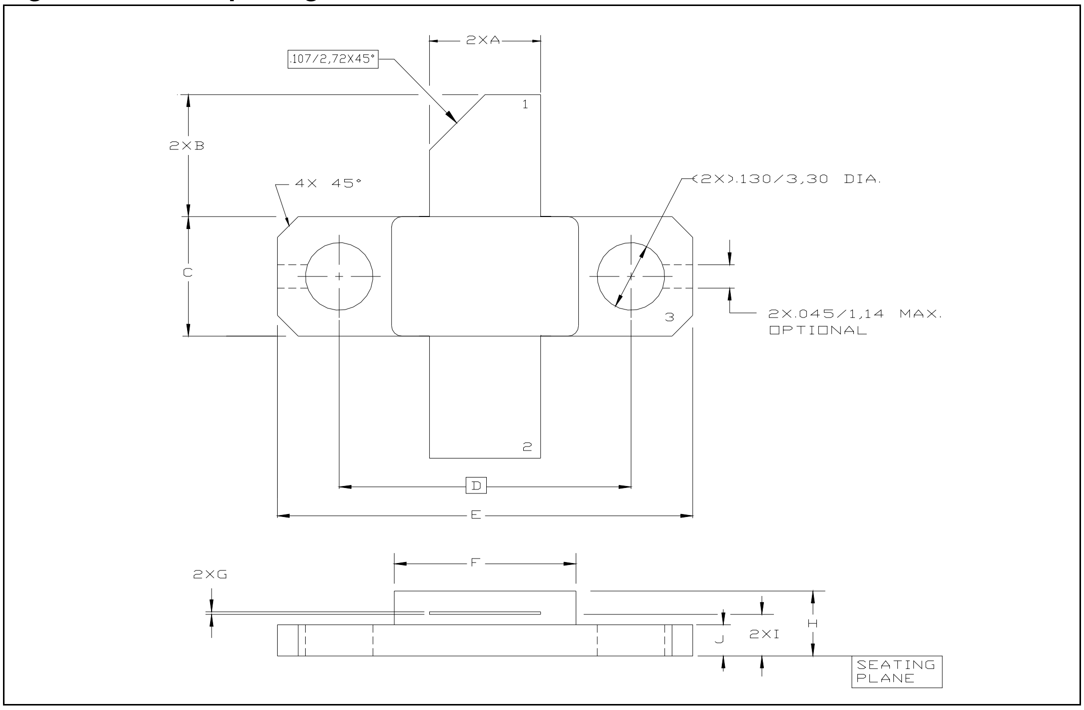
5 Package mechanical data

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.

Table 7. M243 (.230 x .360 2L N/HERM W/FLG) mechanical data

Dim.	mm			inch		
	Min.	Typ	Max.	Min.	Typ	Max.
A	5.21		5.72	0.205		0.225
B	5.46		6.48	0.215		0.255
C	5.59		6.1	0.22		0.24
D		14.27			0.562	
E	20.07		20.57	0.79		0.81
F	8.89		9.4	0.35		0.37
G	0.1		0.15	0.004		0.006
H	3.18		4.45	0.125		0.175
I	1.83		2.24	0.072		0.088
J	1.27		1.78	0.05		0.07

Figure 11. M243 package dimensions



6 Revision history

Table 8. Document revision history

Date	Revision	Changes
19-Jul-2011	1	Initial release.