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# 1 Electrical data

## 1.1 Maximum ratings

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

Symbol	Parameter	Value	Unit
$V_{(BR)DSS}$	Drain-source voltage	40	V
$V_{GS}$	Gate-source voltage	$\pm 20$	V
$I_D$	Drain current	7	A
$P_{DISS}$	Power dissipation (@ $T_C = 70\text{ °C}$ )	93	W
$T_J$	Max. operating junction temperature	200	$^{\circ}\text{C}$
$T_{STG}$	Storage temperature	-65 to +150	$^{\circ}\text{C}$

## 1.2 Thermal data

**Table 3. Thermal data**

Symbol	Parameter	Value	Unit
$R_{thJC}$	Junction - case thermal resistance	1.4	$^{\circ}\text{C/W}$

## 2 Electrical characteristics

$$T_{\text{CASE}} = 25\text{ }^{\circ}\text{C}$$

### 2.1 Static

**Table 4. Static**

Symbol	Test conditions	Min.	Typ.	Max.	Unit	
$I_{\text{DSS}}$	$V_{\text{GS}} = 0, V_{\text{DS}} = 25\text{ V}$	-		1	$\mu\text{A}$	
$I_{\text{GSS}}$	$V_{\text{GS}} = 20\text{ V}, V_{\text{DS}} = 0\text{ V}$			1	$\mu\text{A}$	
$V_{\text{GS(Q)}}$	$V_{\text{DS}} = 10\text{ V}, I_{\text{D}} = 300\text{ mA}$			4.1		V
$V_{\text{DS(ON)}}$	$V_{\text{GS}} = 10\text{ V}, I_{\text{D}} = 1\text{ A}$			270	310	mV
$C_{\text{ISS}}$	$V_{\text{GS}} = 0, V_{\text{DS}} = 12.5\text{ V}, f = 1\text{ MHz}$			49		pF
$C_{\text{OSS}}$	$V_{\text{GS}} = 0, V_{\text{DS}} = 12.5\text{ V}, f = 1\text{ MHz}$			35		pF
$C_{\text{RSS}}$	$V_{\text{GS}} = 0, V_{\text{DS}} = 12.5\text{ V}, f = 1\text{ MHz}$			1.0		pF

### 2.2 Dynamic

**Table 5. Dynamic**

Symbol	Test conditions	Min.	Typ.	Max.	Unit
P3dB	$V_{\text{DD}} = 13.6\text{ V}, I_{\text{DQ}} = 300\text{ mA}, f = 945\text{ MHz}$	25	30	-	W
$G_{\text{P}}$	$V_{\text{DD}} = 13.6\text{ V}, I_{\text{DQ}} = 300\text{ mA}, P_{\text{OUT}} = 10\text{ W}, f = 945\text{ MHz}$	15	17.5		dB
$h_{\text{D}}$	$V_{\text{DD}} = 13.6\text{ V}, I_{\text{DQ}} = 300\text{ mA}, P_{\text{OUT}} = P_{3\text{dB}}, f = 945\text{ MHz}$	60	73		%
Load mismatch	$V_{\text{DD}} = 17\text{ V}, I_{\text{DQ}} = 300\text{ mA}, P_{\text{OUT}} = 45\text{ W}, f = 945\text{ MHz}$ All phase angles	20:1		-	VSWR

### 2.3 ESD protection characteristics

**Table 6. ESD protection characteristics**

Test conditions	Class
Human body model	2
Machine model	M3

### 3 Impedance

Figure 2. Current conventions

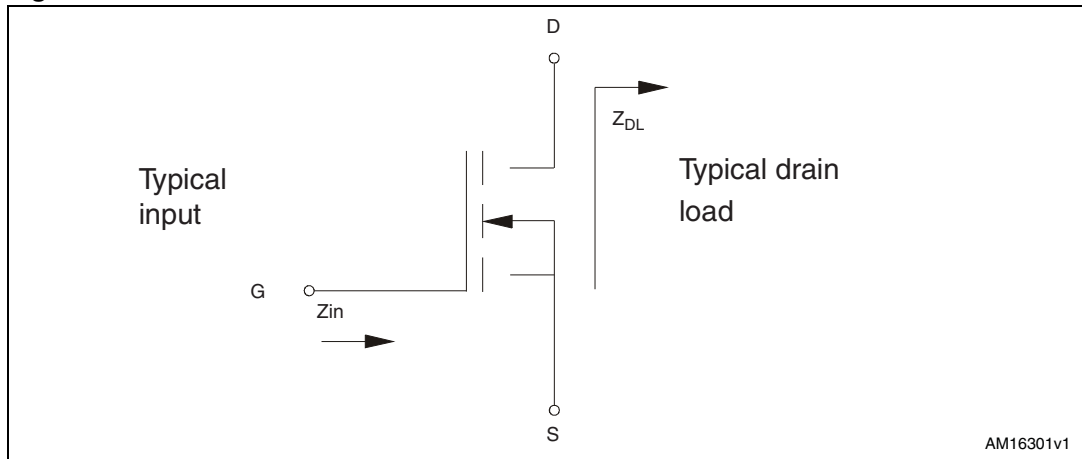


Table 7. Impedance data

Freq. (MHz)	$Z_{IN} (\Omega)$	$Z_{DL} (\Omega)$
945 MHz	$1.01 + j 2.03$	$1.75 + j 2.20$

# 4 Typical performance

Figure 3. Capacitance vs drain voltage

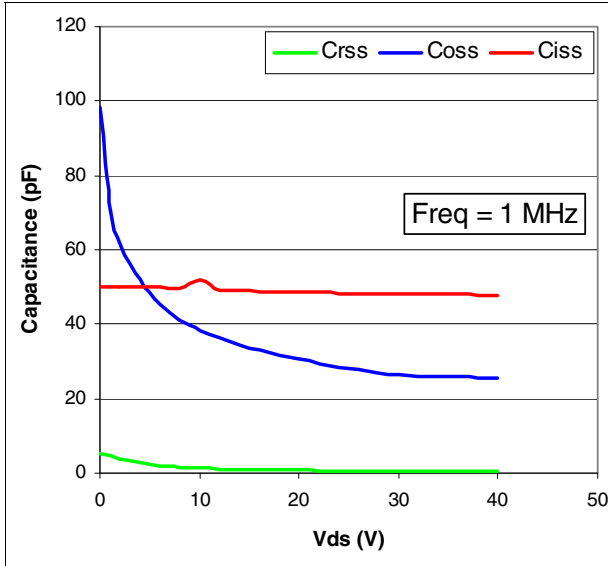


Figure 4. DC output characteristics  
Tamb=-40°C

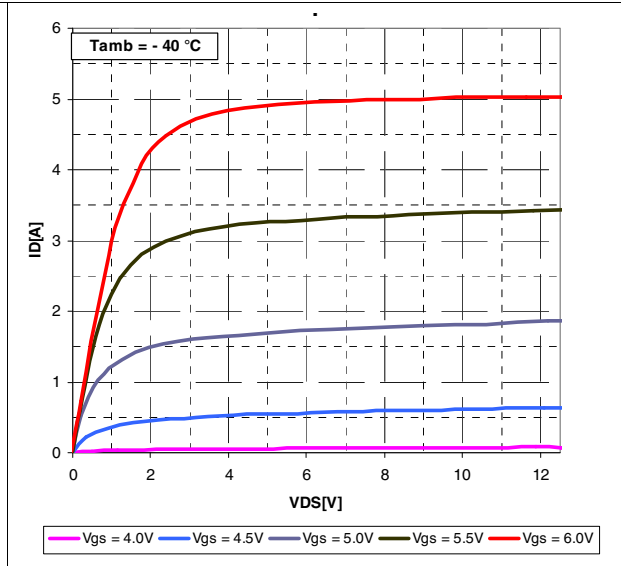


Figure 5. DC output characteristics  
Tamb=20°C

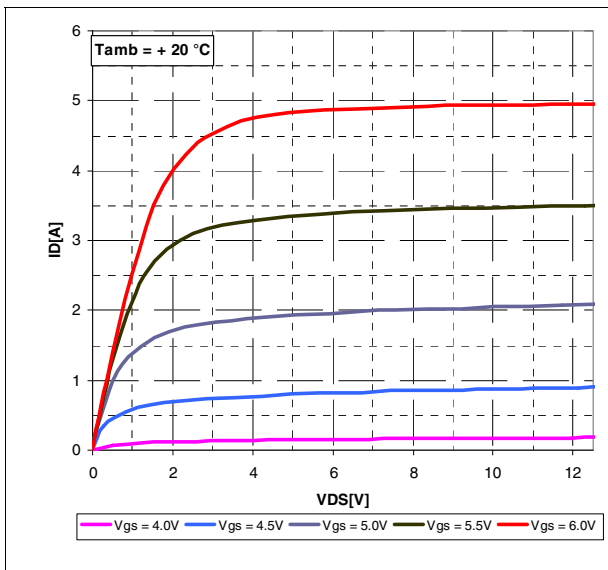
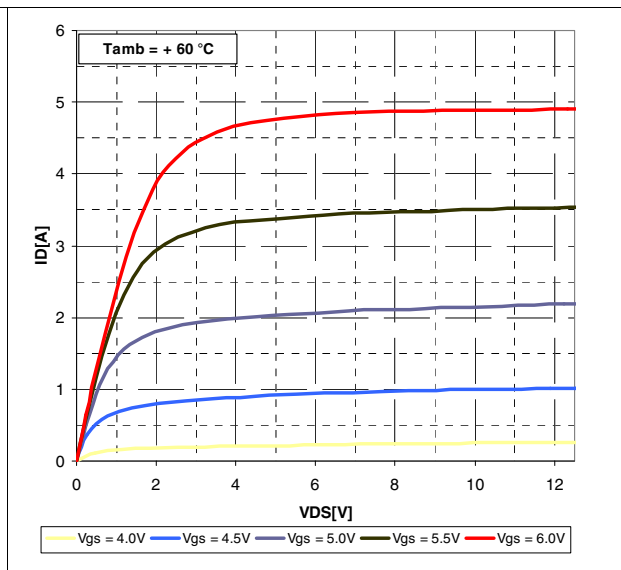
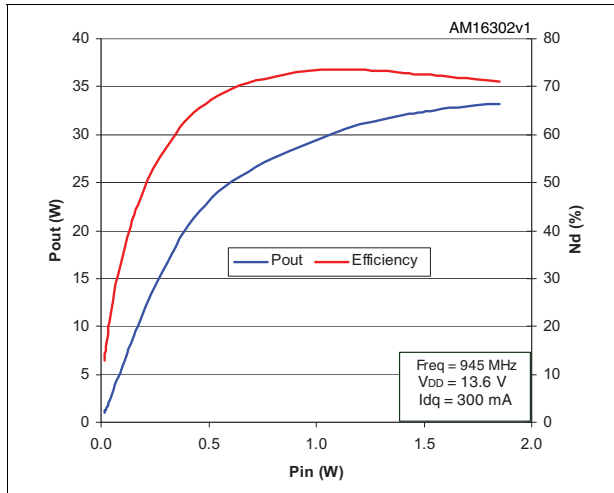


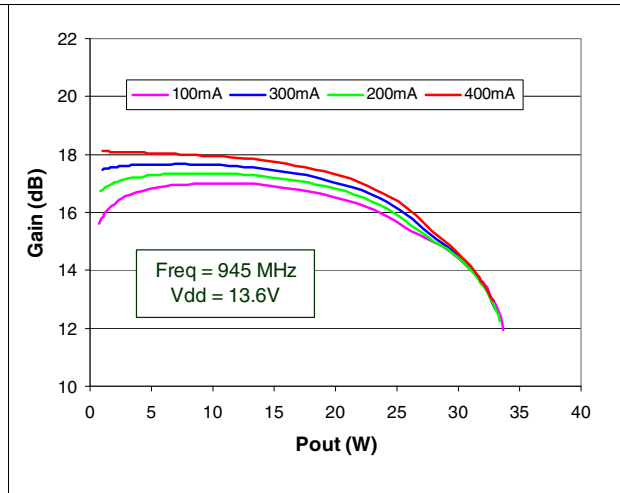
Figure 6. DC output characteristic  
Tamb=60°C



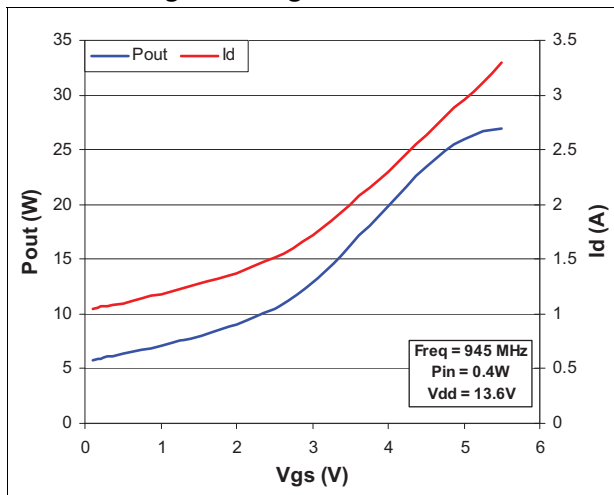
**Figure 7. Output power and efficiency vs input power**



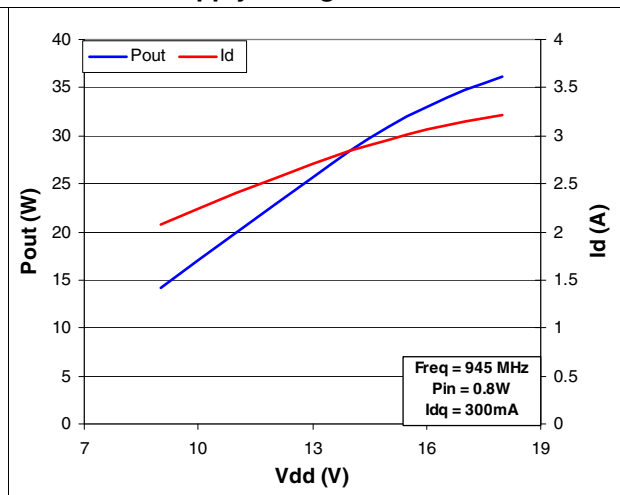
**Figure 8. Gain vs output power and bias current**



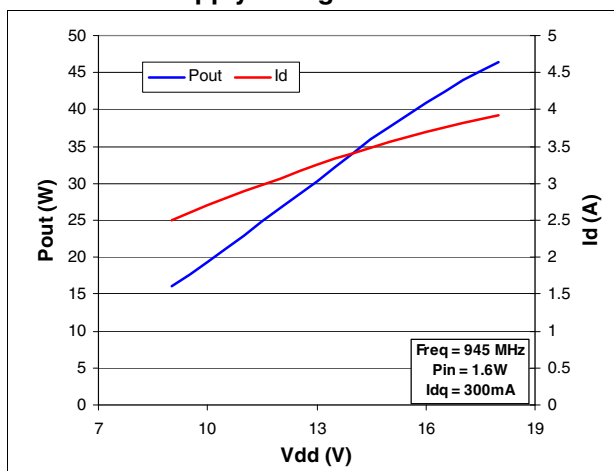
**Figure 9. Pout and drain current vs gate voltage**



**Figure 10. Pout and drain current vs supply voltage**



**Figure 11. Pout and drain current vs supply voltage**



## 5 Package mechanical data

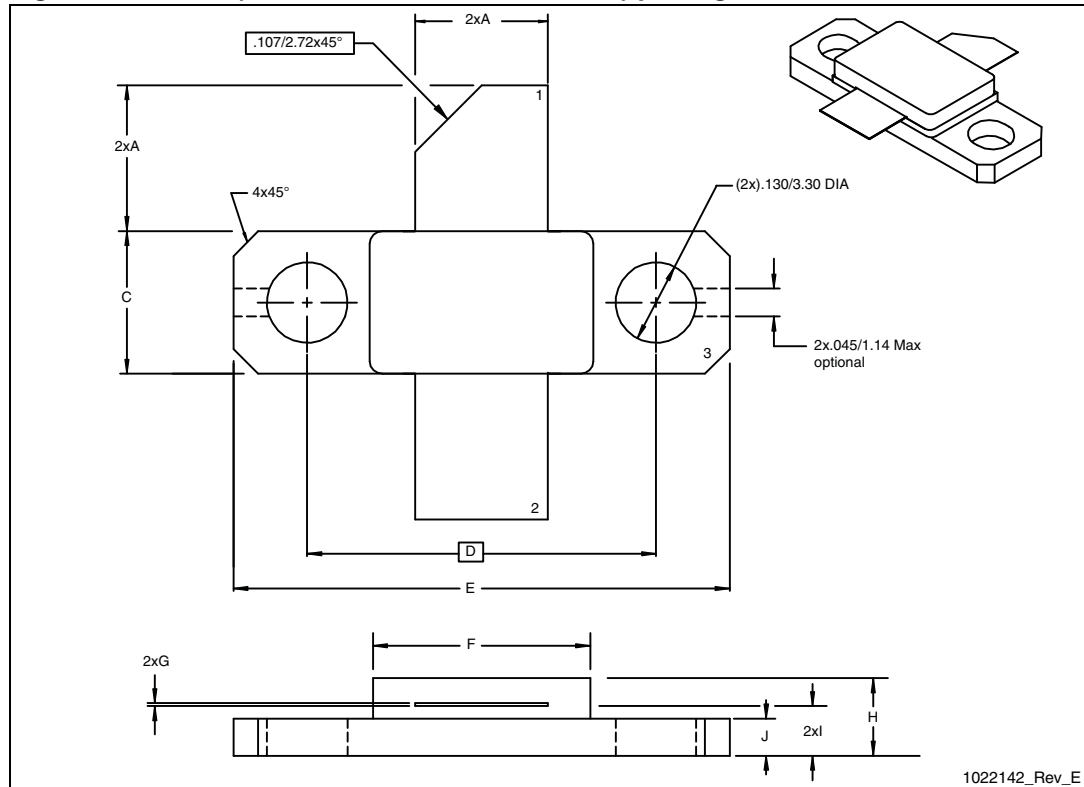
In order to meet environmental requirements, ST offers these devices in different grades of ECOPACK<sup>®</sup> packages, depending on their level of environmental compliance. ECOPACK<sup>®</sup> specifications, grade definitions and product status are available at: [www.st.com](http://www.st.com). ECOPACK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



**Table 8. 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		6.10	0.220		0.240
D		14.27			0.562	
E	20.07		20.57	0.790		0.810
F	8.89		9.40	0.350		0.370
G	0.10		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	0.050		0.070

**Figure 12. M243 (.230 x .360 2L N/HERM W/FLG) package dimensions<sup>(a)</sup>**



a. Controlled dimensions are in inches.

## 6 Revision history

**Table 9. Document revision history**

Date	Revision	Changes
10-Dec-2007	1	Initial release.
04-Oct-2012	2	<ul style="list-style-type: none"><li>– <i>Figure 7: Output power and efficiency vs input power</i> has been corrected.</li><li>– <i>Section 5: Package mechanical data</i> has been updated.</li><li>– Modified document title.</li></ul>

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