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# 1 Electrical data

## 1.1 Maximum ratings

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

Symbol	Parameter	Value	Unit
$V_{(BR)DSS}$	Drain-source voltage	40	V
$V_{GS}$	Gate-source voltage	-0.5 to +15	V
$I_D$	Drain current	8	A
$P_{DISS}$	Power dissipation (@ $T_C = 70^{\circ}C$ )	108	W
$T_J$	Max. operating junction temperature	200	$^{\circ}C$
$T_{STG}$	Storage temperature	-65 to +150	$^{\circ}C$

## 1.2 Thermal data

**Table 3. Thermal data**

Symbol	Parameter	Value	Unit
$R_{thJC}$	Junction - case thermal resistance	1.2	$^{\circ}C/W$

## 2 Electrical characteristics

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

### 2.1 Static

Table 4. Static

Symbol	Test conditions		Min	Typ	Max	Unit
$I_{DSS}$	$V_{GS} = 0\text{ V}$	$V_{DS} = 25\text{ V}$			1	$\mu\text{A}$
$I_{GSS}$	$V_{GS} = 20\text{ V}$	$V_{DS} = 0\text{ V}$			1	$\mu\text{A}$
$V_{GS(Q)}$	$V_{DS} = 10\text{ V}$	$I_D = \text{TBD}$		TBD		V
$V_{DS(ON)}$	$V_{GS} = 10\text{ V}$	$I_D = 3\text{ A}$		0.64	0.7	V
$C_{ISS}$	$V_{GS} = 0\text{ V}$	$V_{DS} = 12.5\text{ V}$		76		pF
$C_{OSS}$	$V_{GS} = 0\text{ V}$	$V_{DS} = 12.5\text{ V}$		45		pF
$C_{RSS}$	$V_{GS} = 0\text{ V}$	$V_{DS} = 12.5\text{ V}$		1.4		pF

### 2.2 Dynamic

Table 5. Dynamic

Symbol	Test conditions		Min	Typ	Max	Unit
P3dB	$V_{DD} = 13.6\text{ V}$ , $I_{DQ} = 350\text{ mA}$	$f = 945\text{ MHz}$	35			W
$G_P$	$V_{DD} = 13.6\text{ V}$ , $I_{DQ} = 350\text{ mA}$ , $P_{OUT} = 15\text{ W}$	$f = 945\text{ MHz}$	15	17.5		dB
$h_D$	$V_{DD} = 13.6\text{ V}$ , $I_{DQ} = 350\text{ mA}$ , $P_{OUT} = \text{P3dB}$	$f = 945\text{ MHz}$	60	77		%
Load mismatch	$V_{DD} = 17\text{ V}$ , $I_{DQ} = 350\text{ mA}$ , $P_{OUT} = 50\text{ W}$	$f = 945\text{ MHz}$ 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

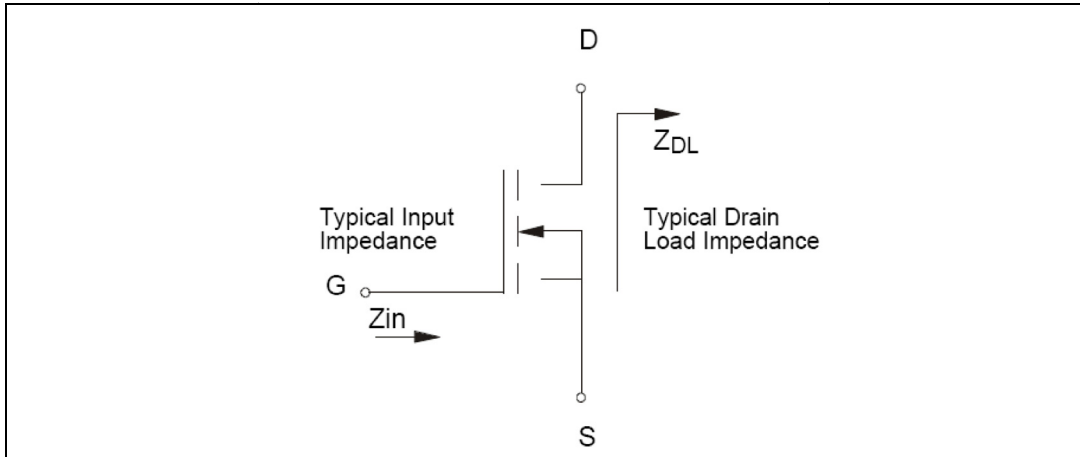


Table 7. Impedance data

Freq. (MHz)	$Z_{IN} (\Omega)$	$Z_{DL}(\Omega)$
945 MHz	$1.08 + j 2.05$	$2.14 + j 2.17$

# 4 Typical performance

Figure 3. Capacitances vs drain voltage

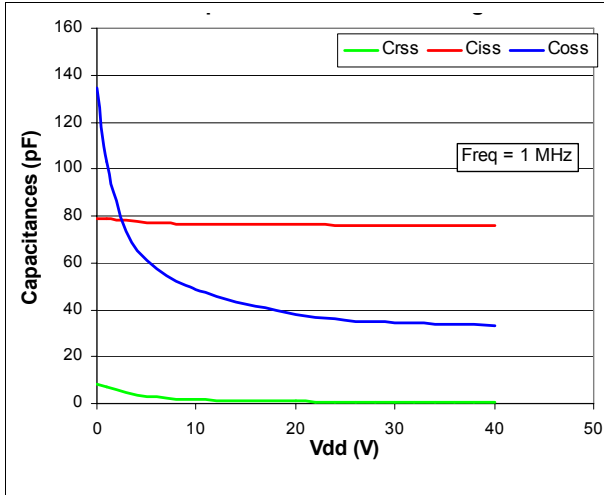


Figure 4. ID vs VGS

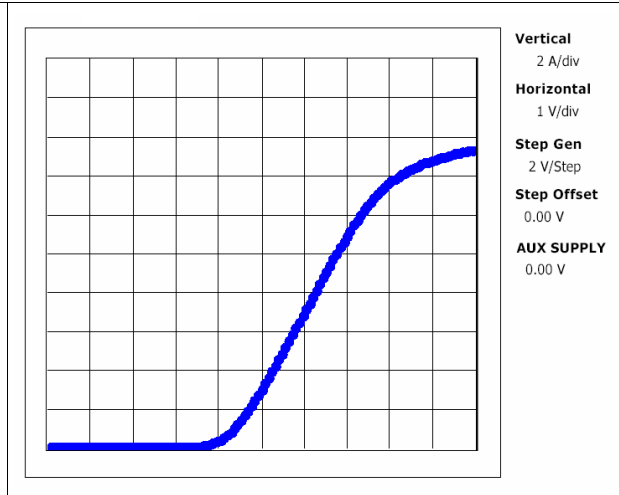


Figure 5. Threshold voltage

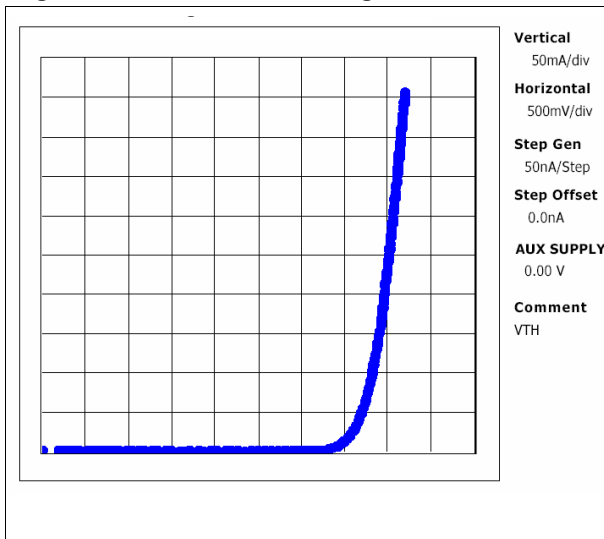
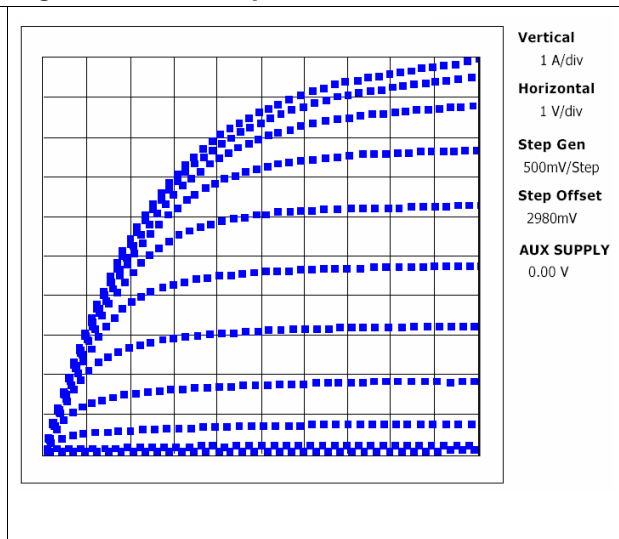
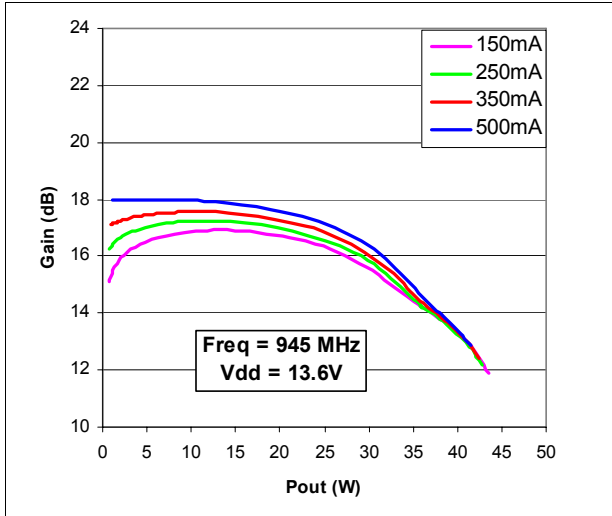


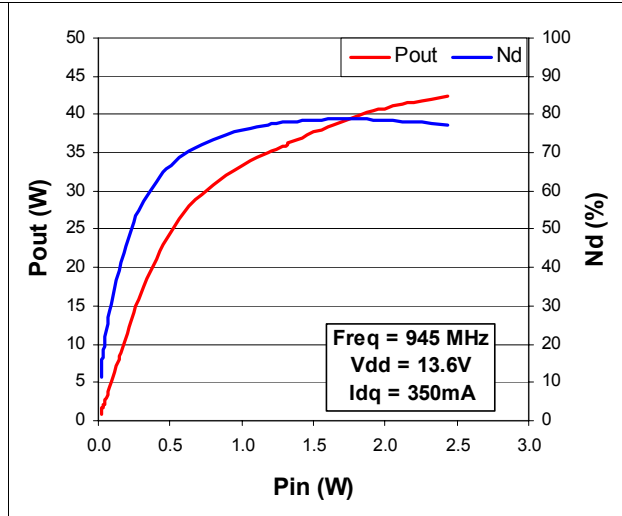
Figure 6. DC output characteristic



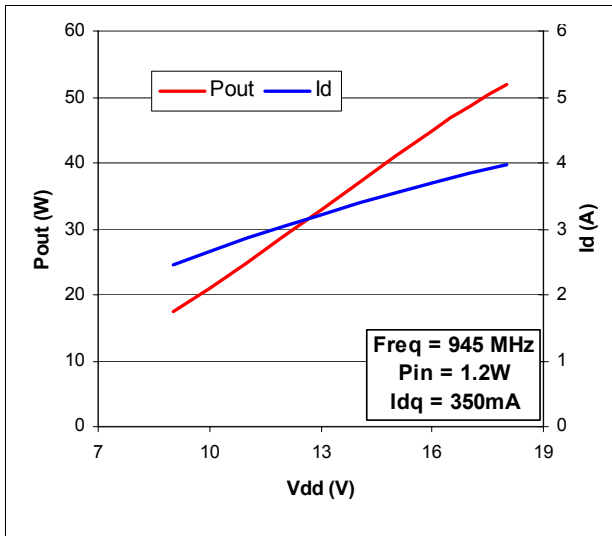
**Figure 7. Gain vs output power and bias current**



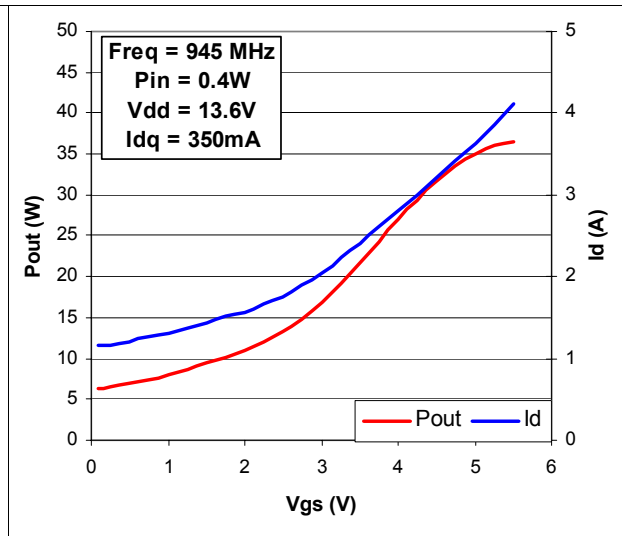
**Figure 8. Pout and efficiency vs input power**



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



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



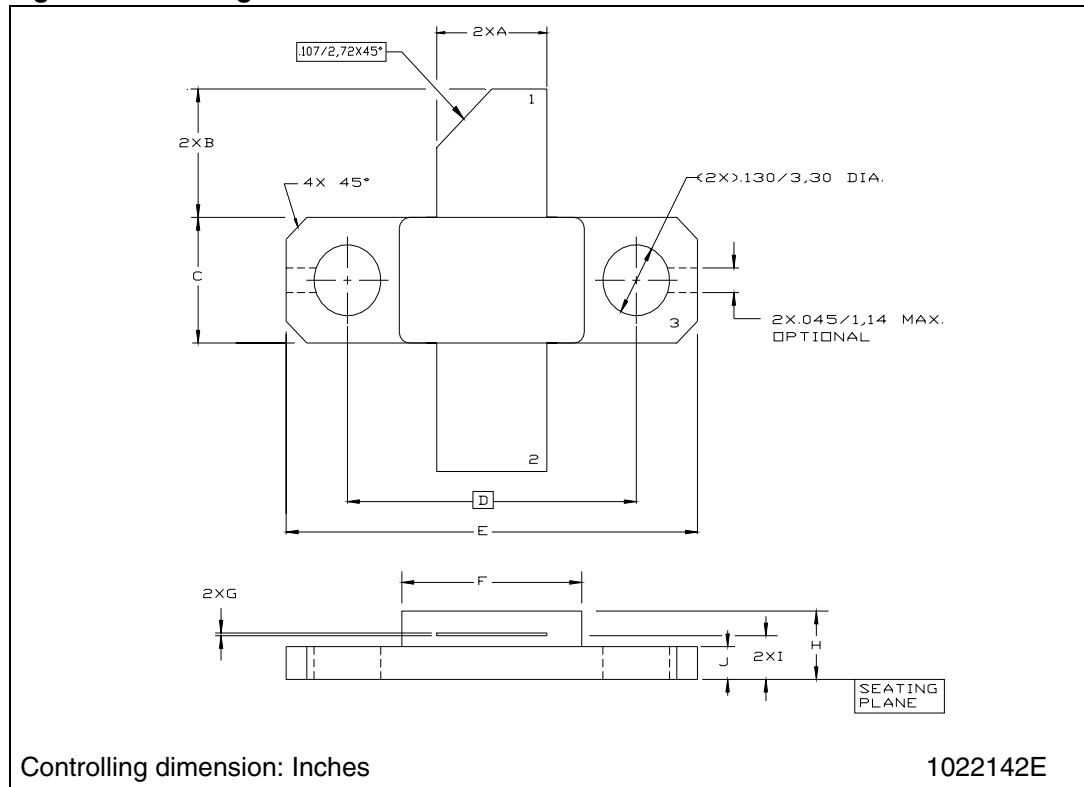
## 5 Package mechanical data

In order to meet environmental requirements, ST offers these devices in ECOPACK® packages. These packages have a Lead-free second level interconnect. The category of second level interconnect is marked on the package and on the inner box label, in compliance with JEDEC Standard JESD97. The maximum ratings related to soldering conditions are also marked on the inner box label. ECOPACK is an ST trademark. ECOPACK specifications are available at: [www.st.com](http://www.st.com)

**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 11. Package dimensions**





## 6 Revision history

**Table 9. Document revision history**

Date	Revision	Changes
16-Nov-2007	1	Initial release.

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