

# 1 Electrical data

## 1.1 Maximum ratings

**Table 1. Absolute maximum ratings (T<sub>CASE</sub> = 25 °C)**

Symbol	Parameter	Value	Unit
V <sub>(BR)DSS</sub>	Drain source voltage (V <sub>GS</sub> = 0 V, T <sub>J</sub> = 150 °C)	200	V
V <sub>DGR</sub>	Drain-gate voltage (R <sub>GS</sub> = 1 MΩ)	200	V
V <sub>GS</sub>	Gate-source voltage	±20	V
T <sub>J</sub>	Maximum operating junction temperature	200	°C
T <sub>STG</sub>	Storage temperature range	-65 to +150	°C

## 1.2 Thermal data

**Table 2. Thermal data (1ms, 10%)**

Symbol	Parameter	Value	Unit
R <sub>thJC</sub>	Junction - case thermal resistance	0.075	°C/W

## 1.3 ESD protection characteristics

**Table 3. ESD protection**

Symbol	Test Methodology	Class
HBM	Human Body Model (per JESD22-A114)	2

## 2 Electrical characteristics

( $T_{CASE} = +25\text{ °C}$ , unless otherwise noted)

### 2.1 Static

**Table 4. Static**

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
$V_{(BR)DSS}$	Drain-source breakdown voltage	$V_{GS} = 0\text{ V}$ , $I_{DS} = 100\text{ mA}$ , $T_J = 150\text{ °C}$	200	250		V
$I_{DSS}$	Zero gate voltage drain leakage current	$V_{GS} = 0\text{ V}$ , $V_{DS} = 100\text{ V}$			1	mA
$I_{GSS}$	Gate-source leakage current	$V_{GS} = 20\text{ V}$ , $V_{DS} = 0\text{ V}$			250	nA
$V_{DS(ON)}$	Drain-source on voltage	$V_{GS} = 10\text{ V}$ , $I_D = 10\text{ A}$			3.6	V
$V_{TH}$	Gate-source threshold voltage	$I_{DS} = 250\text{ mA}$	2		4	V
$G_{FS}$	Forward transconductance	$V_{DS} = 10\text{ V}$ , $I_D = 2.5\text{ A}$		6		S
$C_{ISS}$	Input capacitance	$V_{GS} = 0\text{ V}$ , $V_{DS} = 100\text{ V}$ , $f = 1\text{ MHz}$		570		pF
$C_{OSS}$	Output capacitance			134		pF
$C_{RSS}$	Reverse transfer capacitance			8		pF

### 2.2 Dynamic

**Table 5. Dynamic <sup>(1)</sup>**

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
$P_{OUT}$	Output power		1000	1200	-	W
$\eta_D$	Drain efficiency	$P_{OUT} = 1000\text{ W}$		60	-	%
$G_{ps}$	Power gain	$P_{OUT} = 1000\text{ W}$		26	-	dB

1.  $V_{DD} = 100\text{ V}$ ,  $I_{DQ} = 2 \times 250\text{ mA}$ ,  $f = 123\text{ MHz}$ ,  $PW = 1\text{ ms}$ ,  $DC = 10\%$

### 3 Impedance

Figure 1. Current conventions

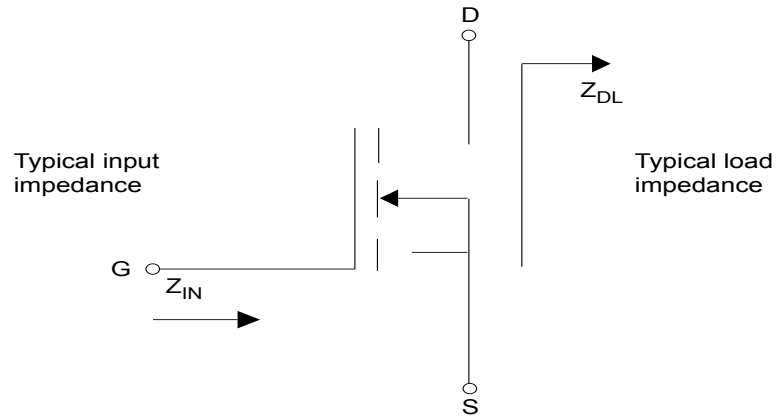


Table 6. Impedance data

Freq. (MHz)	$Z_{IN}(\Omega)$	$Z_{DL}(\Omega)$
123 MHz (pulsed)	1.3 - j 2.8	7.7 - j 9.4

Note: Measured gate-to-gate and drain-to-drain, respectively (balanced configuration).

## 4 Typical performance

Figure 2. Safe operating area

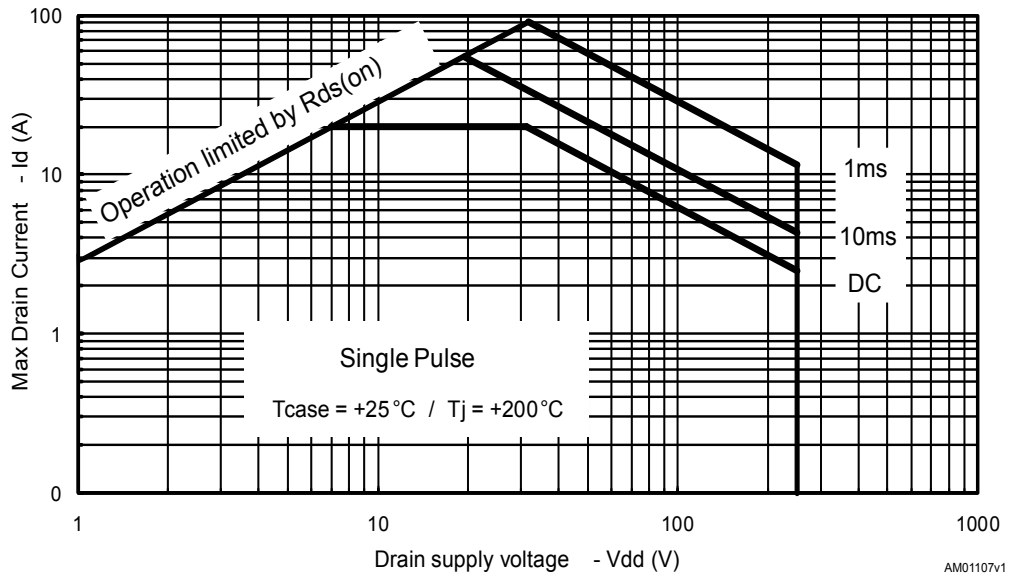


Figure 3. Transient thermal impedance

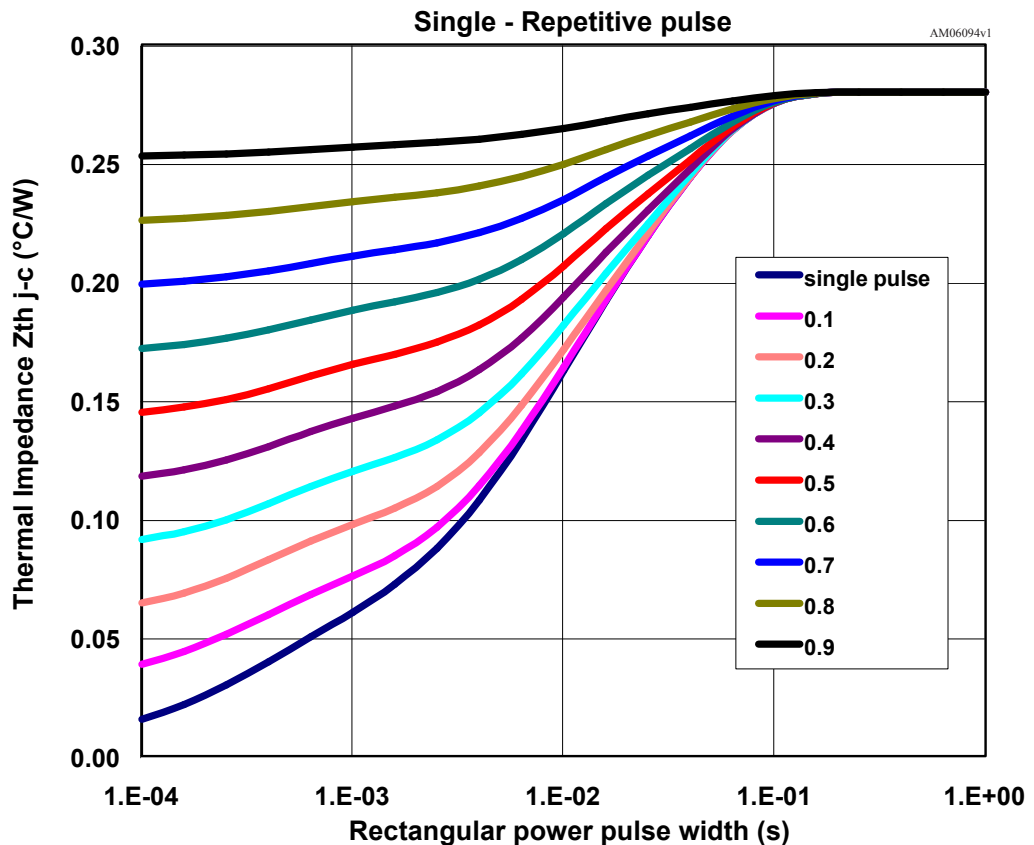
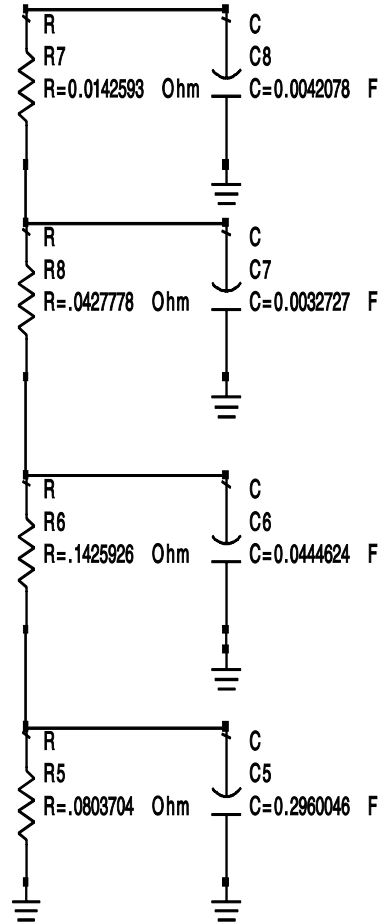
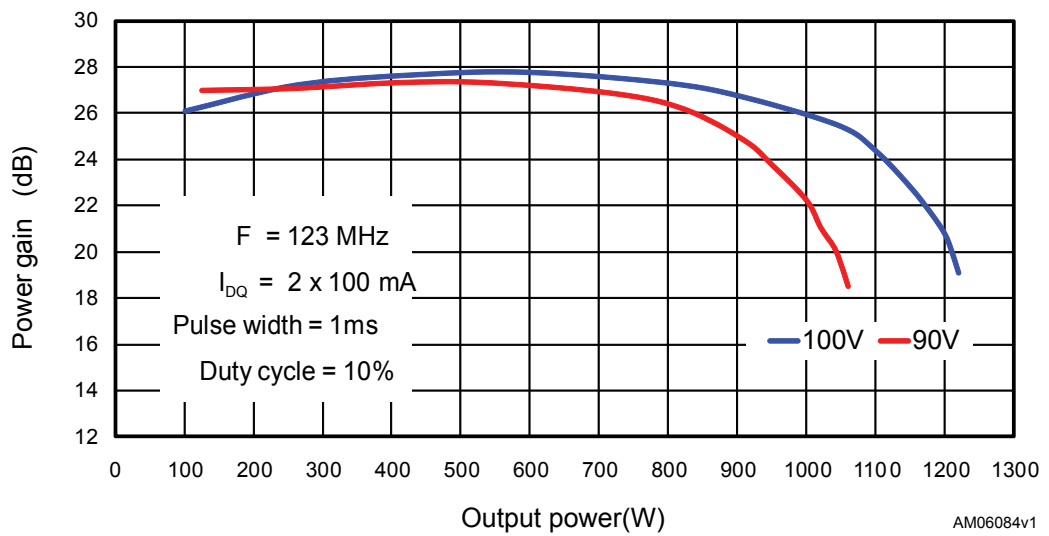


Figure 4. Transient thermal model



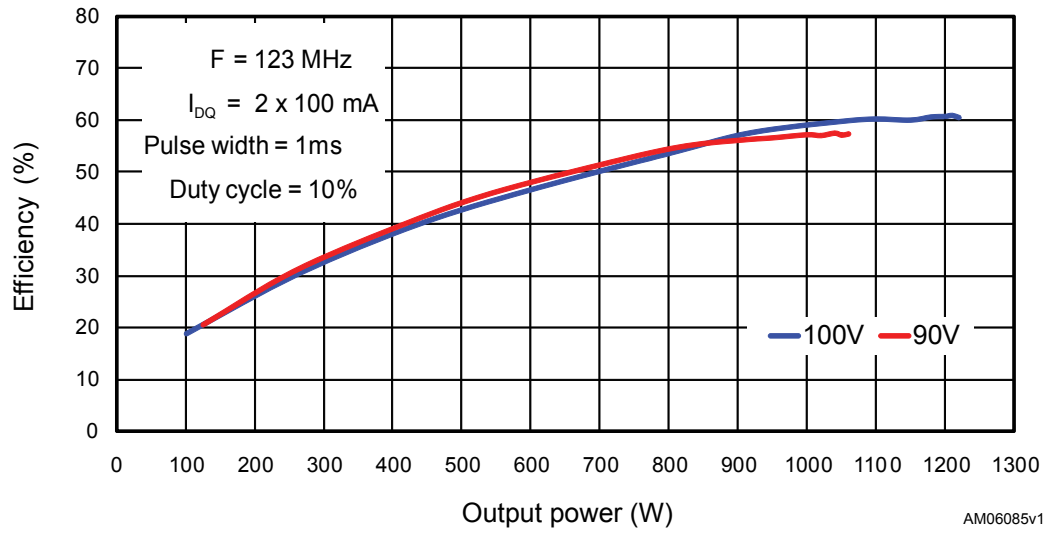
AM06106V1

Figure 5. Power gain vs. output power



AM06084v1

Figure 6. Efficiency vs. output power

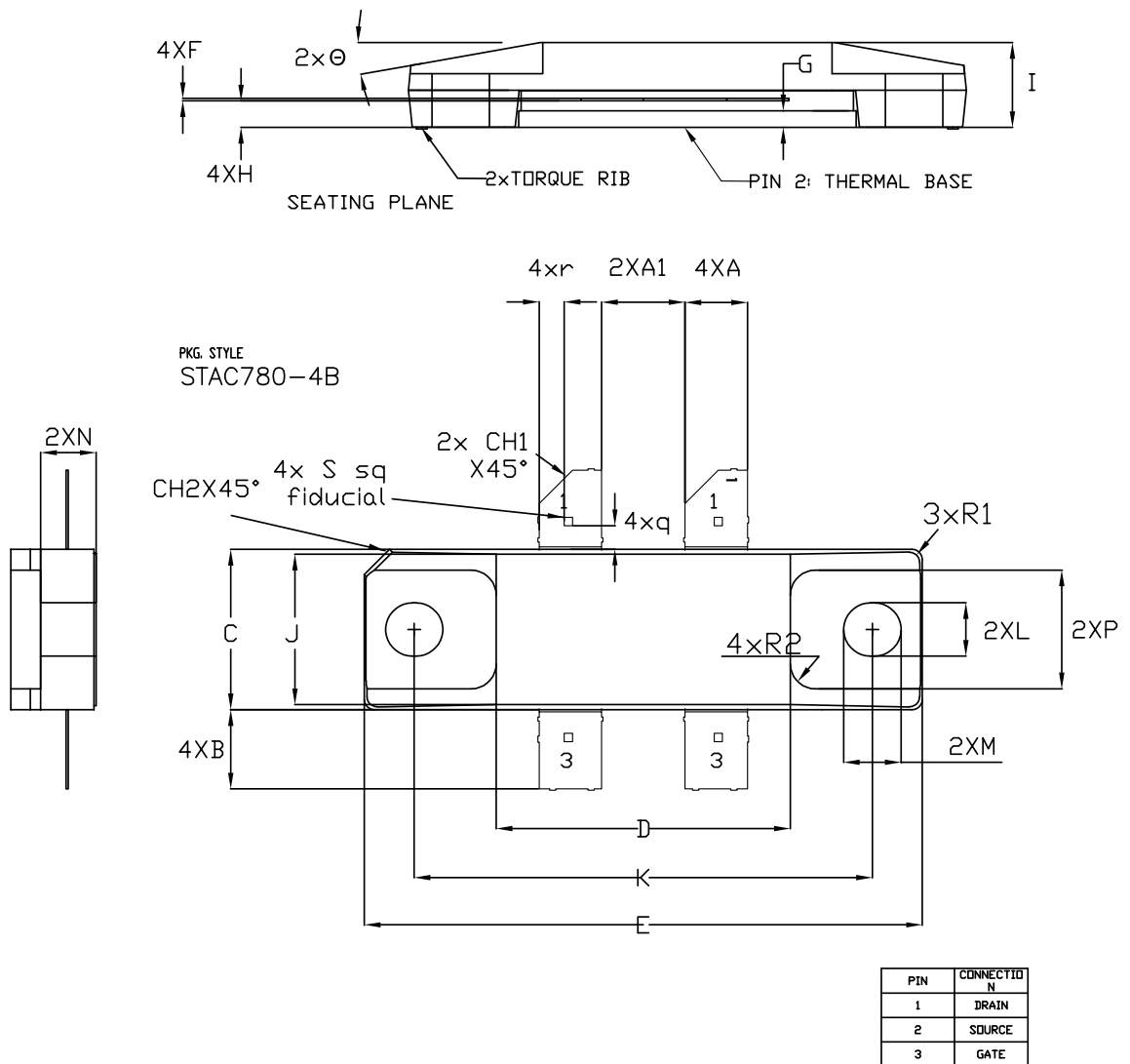


## 5 Package information

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.

### 5.1 STAC780-4B package information

Figure 7. STAC780-4B package outline



DM00481937 rev.2

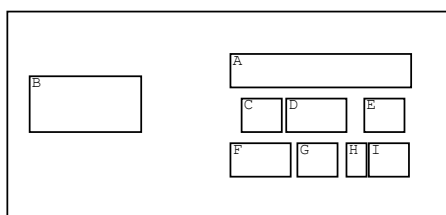
Table 7. STAC780-4B mechanical data

Symbol	Millimeters		
	Min	Typ	Max
A	3.76		3.86
A1	5.03		5.13
B	4.57		5.08
C	9.65		9.91
D	17.78		18.08
E	33.88		34.19
F	0.13		0.18
G	0.97		1.14
H	1.52		1.70
I	4.83		5.33
J	9.52		9.78
K	27.69		28.19
L	3.20	3.25	3.30
M	3.43	3.51	3.58
M	3.30	3.38	3.45
p	7.14	7.21	7.29
q		1.45	
R1		0.64	
R2		1.52	
r		1.52	
s		0.51	
Θ		10°	
CH1		2.03	
CH2		1.52	



## 5.2 Marking information

**PACKAGE FACE : TOP**



### LEGEND

- Marking Composition Field
- A - MARKING AREA
  - B - ST LOGO
  - C - Assy Plant  
(PP)
  - D - BE Sequence  
(LLL)
  - E - Diffusion Traceability Plant  
(WX)
  - F - COUNTRY OF ORIGIN  
(MAX CHAR ALLOWED = 3)
  - G - Test & Finishing Plant  
(TF)
  - H - Assy Year  
(Y)
  - I - Assy Week  
(WW)

## Revision history

**Table 8. Document revision history**

Date	Revision	Changes
19-Feb-2010	1	First release.
26-May-2010	2	Document status promoted from preliminary data to datasheet.
03-Aug-2010	3	Updated description on cover page and Table 3.
03-Sep-2010	4	Updated figures: 3, 4 and 5.
12-Sep-2011	5	Inserted new Section 6: Marking, packing and shipping specifications. Updated Table 6. Minor text changes.
01-Jul-2013	6	Modified pin labeling in Figure 1: Pin connection. Modified document title. Minor text corrections throughout document.
27-Jan-2014	7	Modified pin labeling in Figure 1: Pin connection.
09-Apr-2020	8	Updated package information. Added <a href="#">Section 1.3 ESD protection characteristics</a> .

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