

## DESCRIPTION

The high power HVV1011-500L device is a high voltage silicon enhancement mode RF transistor designed for L-band pulsed applications operating at 1030 MHz & 1090 MHz using a 2.4ms pulse burst (32μs on/18μs off x 48) repeated every 24ms.

## FEATURES

High Power Gain  
Excellent Ruggedness  
50V Supply Voltage

## ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V <sub>DSS</sub>	Drain-Source Voltage	95	V
V <sub>GS</sub>	Gate-Source Voltage	-10 to +10	V
I <sub>DSX</sub>	Drain Current	40	A
P <sub>D</sub> <sup>2</sup>	Power Dissipation	970	W
T <sub>S</sub>	Storage Temperature	-65 to +150	°C
T <sub>J</sub>	Junction Temperature	200	°C

## THERMAL CHARACTERISTICS

Symbol	Parameter	Max	Unit
θ <sub>JC</sub> <sup>1</sup>	Thermal Resistance	0.18	°C/W

## ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Conditions	Typ	Units
V <sub>BR(DSS)</sub>	Drain-Source Breakdown	V <sub>GS</sub> =0V, I <sub>D</sub> =10mA	102	V
I <sub>DSS</sub>	Drain Leakage Current	V <sub>GS</sub> =0V, V <sub>DS</sub> =50V	<300	μA
I <sub>GSS</sub>	Gate Leakage Current	V <sub>GS</sub> =5V, V <sub>DS</sub> =0V	<2	μA
G <sub>P</sub> <sup>1</sup>	Power Gain	P <sub>OUT</sub> =500W, F=1030 MHz	16.5	dB
IRL <sup>1</sup>	Input Return Loss	P <sub>OUT</sub> =500W, F=1030 MHz	12	dB
η <sub>D</sub> <sup>1</sup>	Drain Efficiency	P <sub>OUT</sub> =500W, F=1030 MHz	51	%
PD <sup>1</sup>	Pulse Droop	P <sub>OUT</sub> =500W, F=1030 MHz	0.2	dB
BD <sup>1</sup>	Burst Droop	P <sub>OUT</sub> =500W, F=1030 MHz	0.9	dB

<sup>1</sup>Under Pulse Conditions: 32μs on/18μs off x 48, Period = 24ms at V<sub>DD</sub> = 50V, I<sub>DQ</sub> = 100mA

<sup>2</sup>Rated at T<sub>CASE</sub> = 25°C

## PACKAGE



The device utilizes a RoHS compliant metal ceramic flanged package with a ceramic lid. The HV800A package style is qualified for gross leak test – MIL-STD-883, Method 1014.

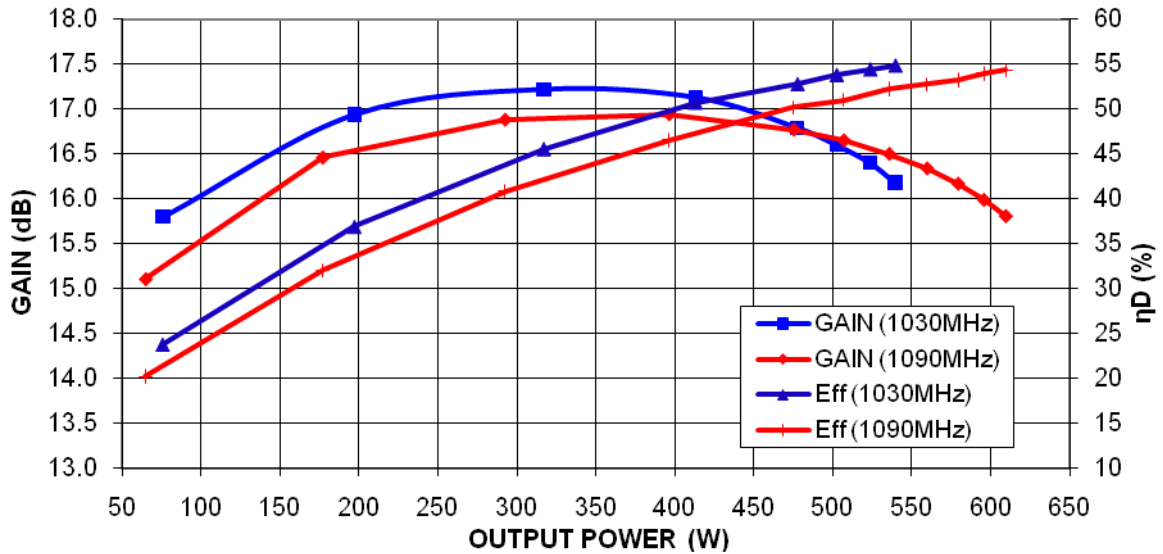
## RUGGEDNESS

The HVV1011-500L device is capable of withstanding an output load mismatch corresponding to a 20:1 VSWR at rated output power over all phase angles and operating voltage across the frequency band of operation.

Symbol	Parameter	Test Condition	Max	Units
LMT <sup>1</sup>	Load Mismatch Tolerance	P <sub>OUT</sub> = 500W F = 1030 MHz	20:1	VSWR

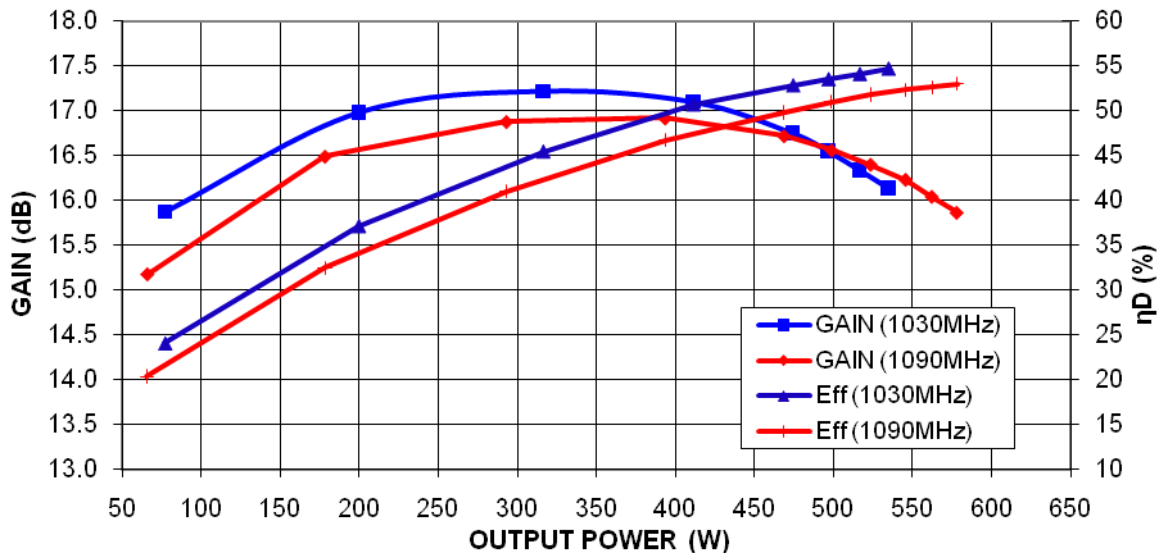
**HVV1011-500L (Preliminary Datasheet)**  
*L-Band High Power Pulsed Transistor*  
*32μs on/18us off x 48, repeated every 24ms*  
*For Mode S-ELM Interrogator Applications*

**Typical Power Performance  
in a Broadband Matched Circuit**



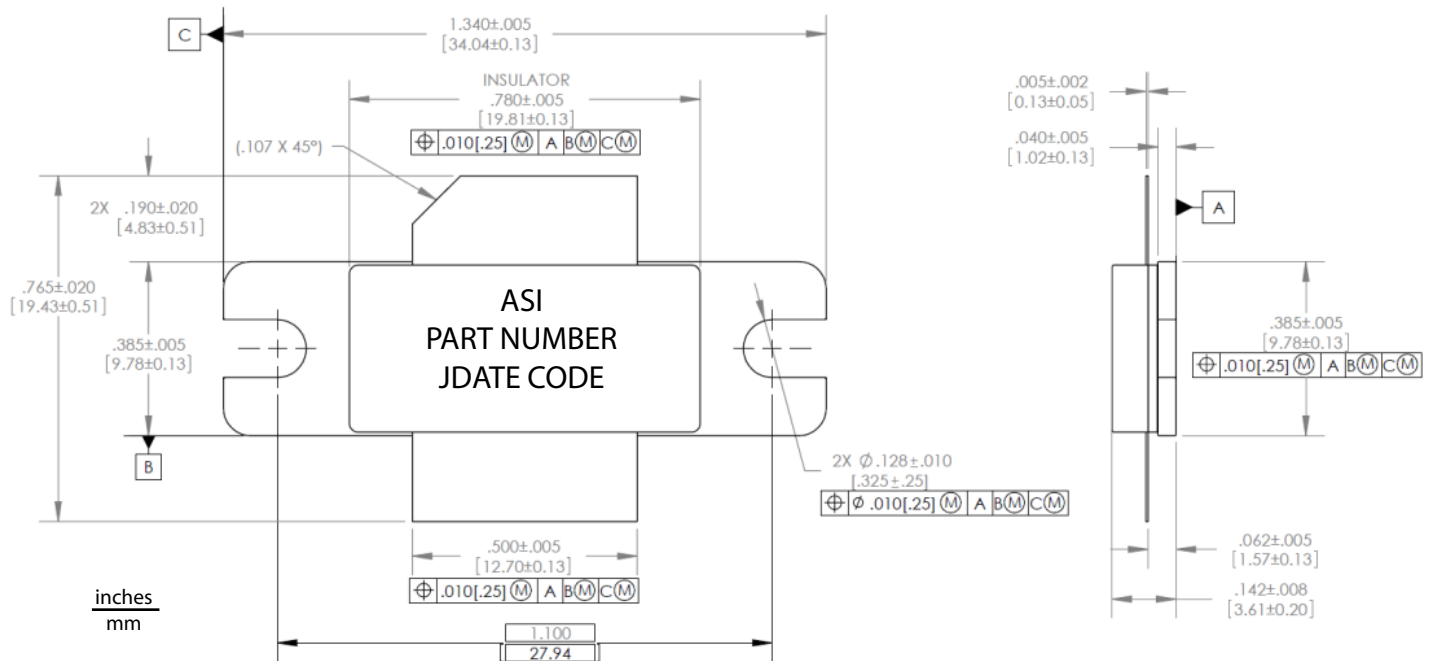
Typical device performance under Class AB mode of operation and RF signal conditions of 50μs pulse width and 2% duty cycle with  $V_{DD} = 50V$  and  $I_{DQ} = 100mA$ .

**Typical Power Performance  
in a Broadband Matched Circuit**

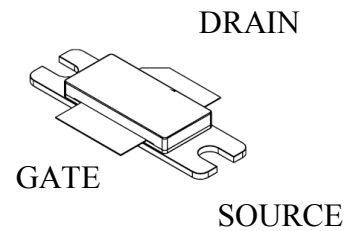


Typical device performance under Class AB mode of operation and RF burst conditions of 32μs on/18μs off x 48, repeated every 24ms with  $V_{DD} = 50V$  and  $I_{DQ} = 100mA$ .

# PACKAGE DIMENSIONS



Note: Drawing is not actual size.



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