HVV1011-1000L (Preliminary Datasheet)

L-Band High Power Pulsed Transistor
32µs on/18us off x 48, repeated every 24ms
For Mode S-ELM Interrogator Applications

The Innovative Semiconductor Company!

DESCRIPTION

The high power HVV1011-1000L device is a high voltage silicon enhancement mode RF transistor designed for L-band pulsed applications operating at frequencies of 1030 MHz and 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

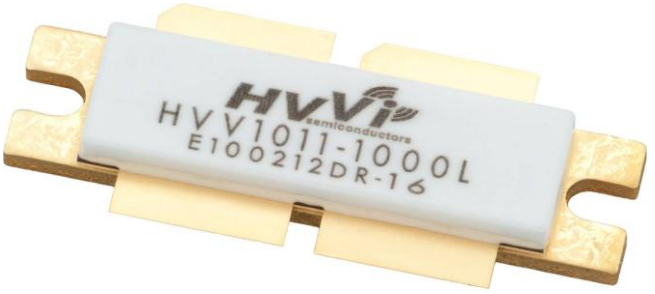
ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{DSS}	Drain-Source Voltage	95	V
V_{GS}	Gate-Source Voltage	-10 to +10	V
I_{DSX}	Drain Current	80	A
P_D[2]	Power Dissipation	TBD	W
T_S	Storage Temperature	-65 to +150	°C
T_J	Junction Temperature	200	°C

THERMAL CHARACTERISTICS

Symbol	Parameter	Max	Unit
θ_{JC}[1]	Thermal Resistance	TBD	°C/W

PACKAGE



The device utilizes a RoHS compliant flanged package with a ceramic lid. The HV1230 package style is qualified for gross leak test – MIL-STD-883, Method 1014.

RUGGEDNESS

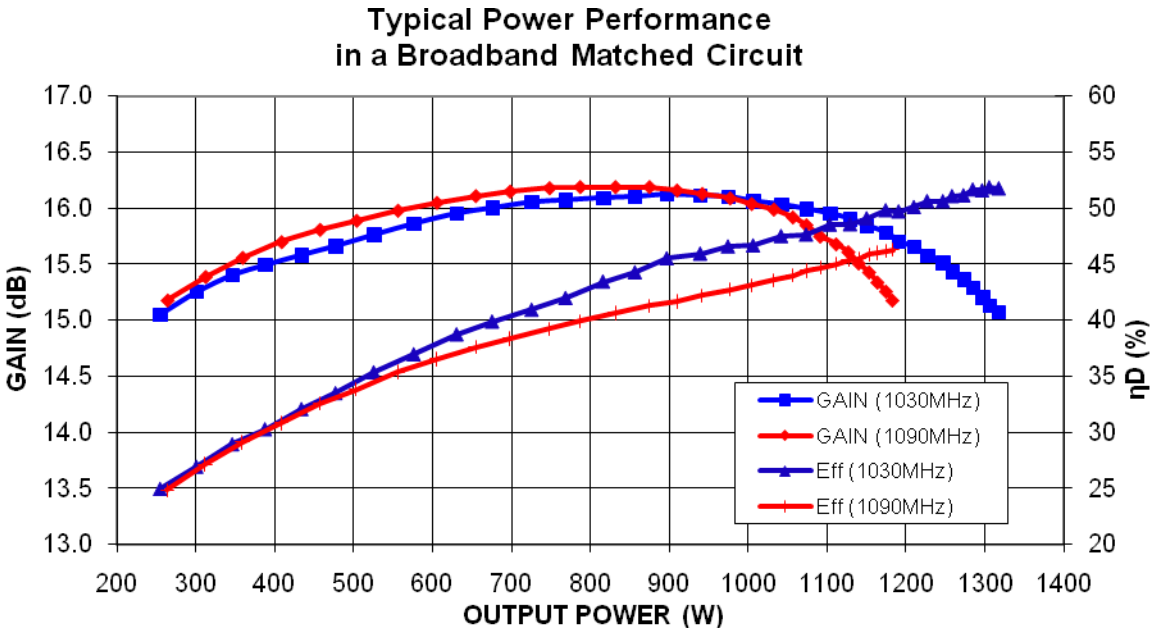
The HVV1011-1000L device is capable of withstanding an output load mismatch corresponding to a 20:1 VSWR at rated output power over all phase angles and operating voltage across the frequency band of operation.

Symbol	Parameter	Test Condition	Max	Units
LMT[1]	Load Mismatch Tolerance	P_{OUT} = 1000W F = 1030 MHz	20:1	VSWR

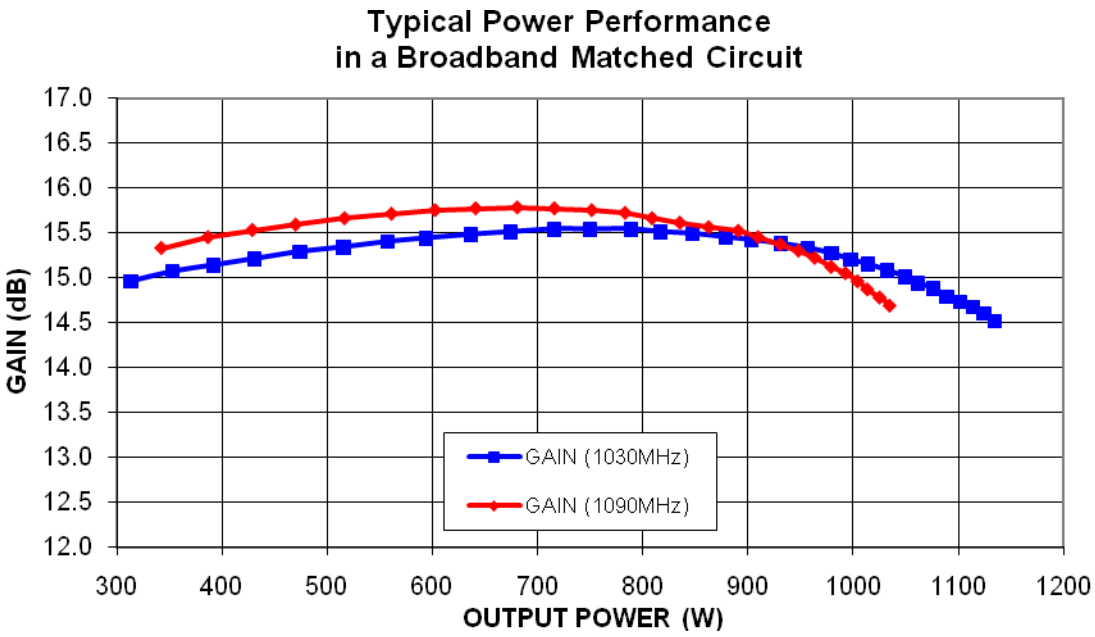
ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Conditions	Typ	Units
$V_{BR(DSS)}$	Drain-Source Breakdown	V_{GS}=0V,I_D=10mA	102	V
I_{DSS}	Drain Leakage Current	V_{GS}=0V,V_{DS}=50V	<500	µA
I_{GSS}	Gate Leakage Current	V_{GS}=5V,V_{DS}=0V	<10	µA
G_P[1]	Power Gain	P_{OUT}=1000W,F=1030 MHz	15.5	dB
IRL[1]	Input Return Loss	P_{OUT}=1000W,F=1030 MHz	10	dB
η_D[1]	Drain Efficiency	P_{OUT}=1000W,F=1030 MHz	50	%
PD[1]	Pulse Droop	P_{OUT}=1000W,F=1030 MHz	0.2	dB
BD[1]	Burst Droop	P_{OUT}=1000W,F=1030 MHz	1.0	dB

[1]Under Pulse Conditions: 32µs on/18µs off x 48, repeated every 24ms with V_{DD} = 50V, I_{DQ} = 200mA
[2]Rated at T_{CASE} = 25°C

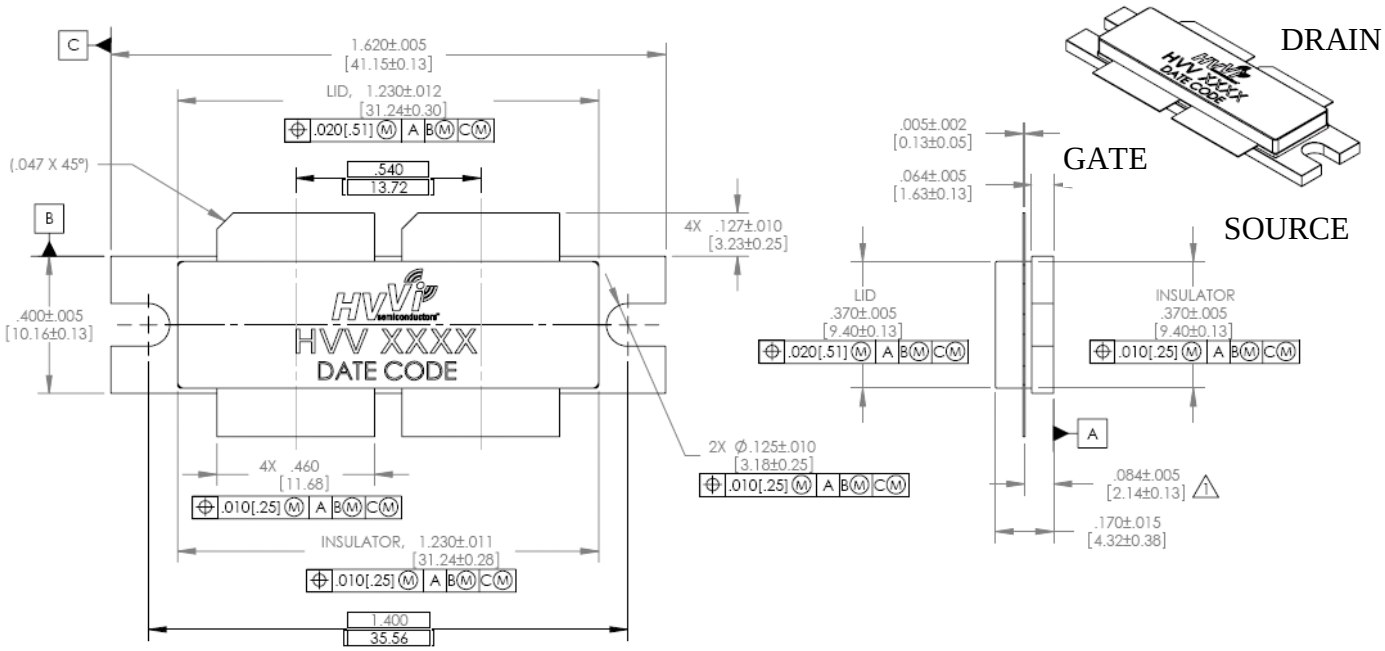


Typical device performance under Class AB mode of operation and RF signal conditions of 50µs pulse width and 2% duty cycle with V_{DD} = 50V and I_{DQ} = 100mA.



Typical 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.