

DESCRIPTION

The high power HV1011-1000L device is a high voltage silicon enhancement mode RF transistor designed for L-band pulsed avionics applications operating over the frequency range of 1030 MHz to 1090MHz.

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

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	$P_{OUT}=1000W, F=1030\text{ MHz}$	15.5	dB
IRL^1	Input Return Loss	$P_{OUT}=1000W, F=1030\text{ MHz}$	10	dB
η_D^1	Drain Efficiency	$P_{OUT}=1000W, F=1030\text{ MHz}$	50	%
PD^1	Pulse Droop	$P_{OUT}=1000W, F=1030\text{ MHz}$	<0.20	dB
BD^1	Burst Droop	$P_{OUT}=1000W, F=1030\text{ MHz}$	<0.20	dB

¹Under Pulse Conditions: Pulse Width = 32 μs on/18 μs off x 48, repeat every 24ms with $V_{DD}=50V, I_{DQ}=200mA$
²Rated at $T_{CASE} = 25^\circ C$

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

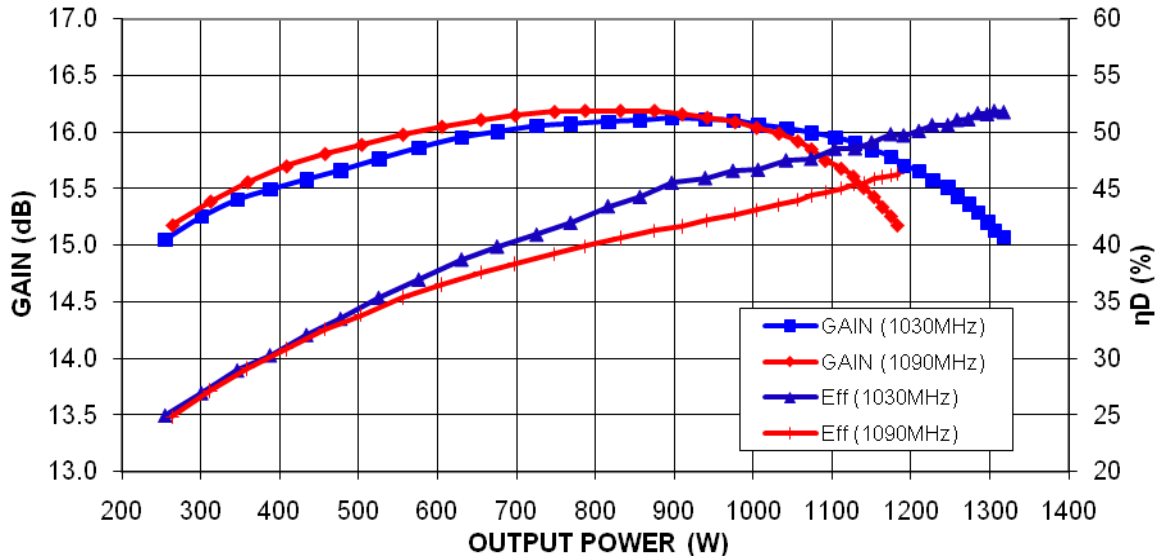
The HV1011-1000L device is capable of withstanding an output load mismatch corresponding to a 20:1 VSWR at rated output power over all phase angles and operating voltage across the frequency band of operation.

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

HVV1011-1000L

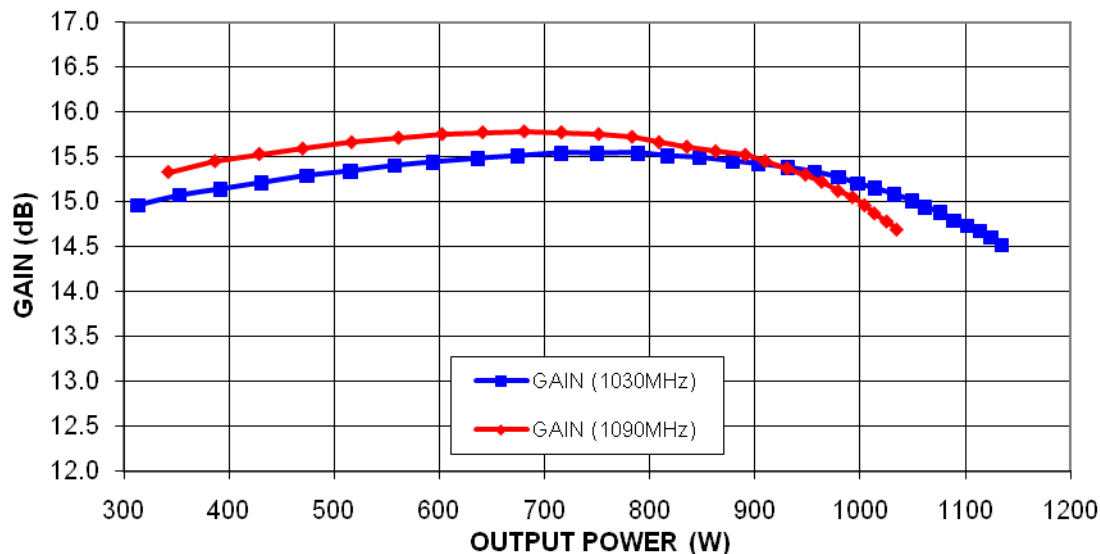
1000 Watts, 50V, 1030-1090MHz
(32us on/18us off x 48) repeat every 24ms

Typical Power Performance
in a Broadband Matched Circuit



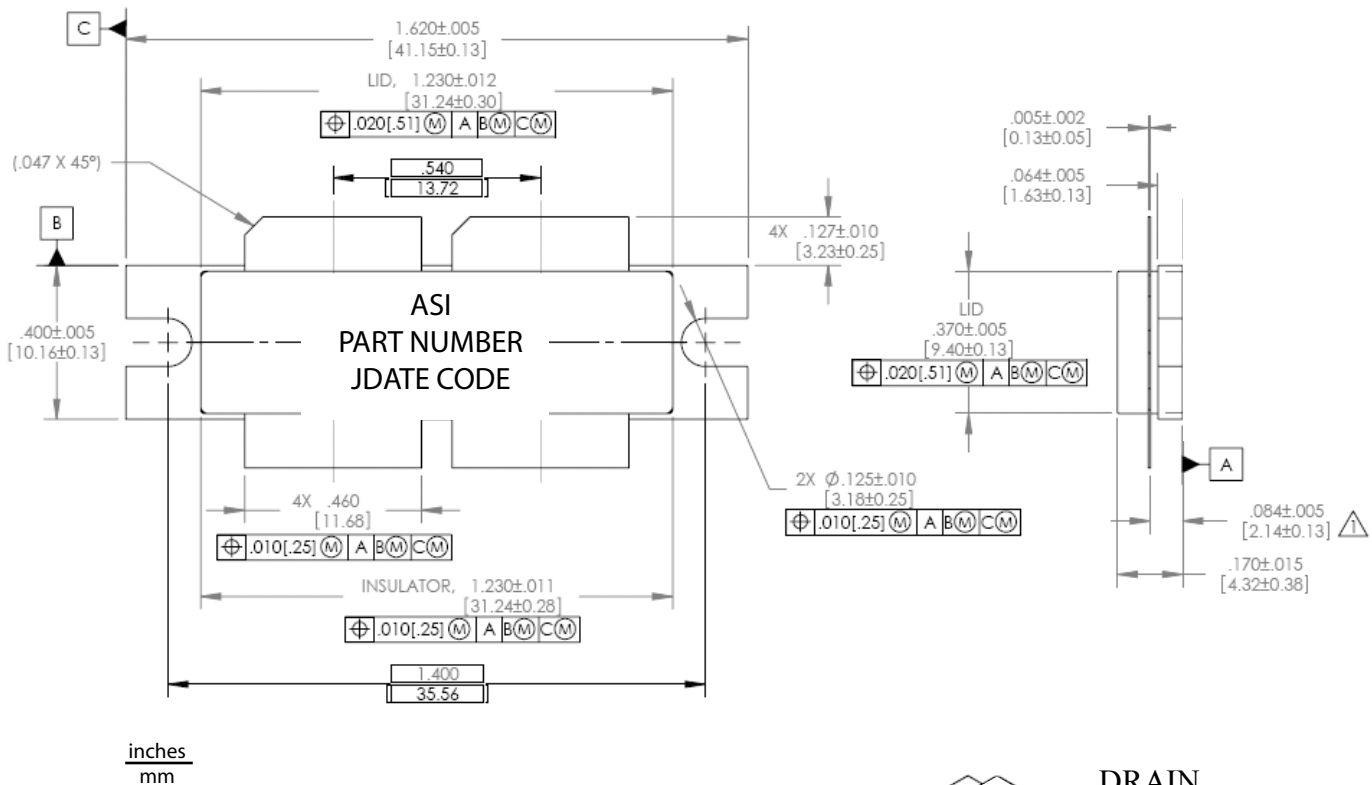
Typical device performance under Class AB mode of operation and RF signal conditions of 50 μ s pulse width and 2% duty cycle with $V_{DD} = 50V$ and $I_{DQ} = 100mA$.

Typical Power Performance
in a Broadband Matched Circuit

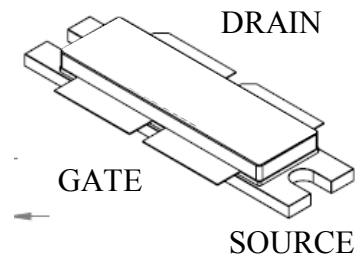


Typical device performance under Class AB mode of operation and RF burst conditions of 32 μ s on/18 μ s off x 48, repeated every 24ms with $V_{DD} = 50V$ and $I_{DQ} = 100mA$.

PACKAGE DIMENSIONS



Note: Drawing is not actual size.



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