

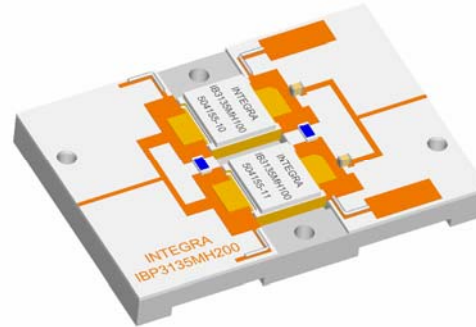
# Part Number: IBP3135MH200 (Preliminary)

# Integra

TECHNOLOGIES, INC.

## S-Band Radar Pallet

Part number IBP3135MH200 is a 50  $\Omega$  matched high power pulsed radar pallet amplifier for S-Band radar systems operating over the instantaneous bandwidth of 3.1-3.5 GHz. The pallet amplifier supplies a minimum of 200 watts of peak pulse power under the conditions of 100 $\mu$ s pulse width and 10% duty cycle. All units are 100% screened for large signal RF parameters.



### Silicon Bipolar

- Ultra-high  $f_T$

### Class C Operation

- High Efficiency

### Common Base Configuration

- Single Power Supply

### Gold Metal

- Maximum Reliability

### Emitter Ballasting

- Optimum Thermal Distribution

### Impedance Matched to 50 $\Omega$

- Ease of Use

### Pallet Carrier

- Ni Plated Copper Carrier
- High Er PCB

### BeO Based Transistor Package

- Unmatched Thermal Reliability

### US Patent Number

- 6181200B1

### PRELIMINARY DATA

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Device	Freq (GHz)	V <sub>CC</sub> (V)	P <sub>OUT</sub> (W)	IRL (dB)	P <sub>IN</sub> (W)	G <sub>P</sub> (dB)	I <sub>C</sub> (A)	n <sub>C</sub> (%)	Droop (dB)
D3919	3.10	36	238	8.5	32.0	8.72	14.6	45.1	0.07
	3.30	36	231	14.0	32.0	8.59	15.6	41.1	-0.06
	3.50	36	227	12.5	32.0	8.50	14.1	44.8	-0.21

Pulse Format = 100 $\mu$ s, 10%

**MAXIMUM RATINGS**

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Screen	Parameter	Symbol	Min	Max	Units	Test Conditions
BD	Collector-Emitter Voltage	$V_{CES}$	--	70	V	$V_{BE}=0V$
BD	Emitter-Base Voltage	$V_{EBO}$	--	3.0	V	--
BD	Storage Temperature Range	$T_{STG}$	-65	+200	°C	--
BD	Operating Junction Temperature Range	$T_J$	-65	+200	°C	--
Note	Screen 'BD' = parameter qualified By Design.					

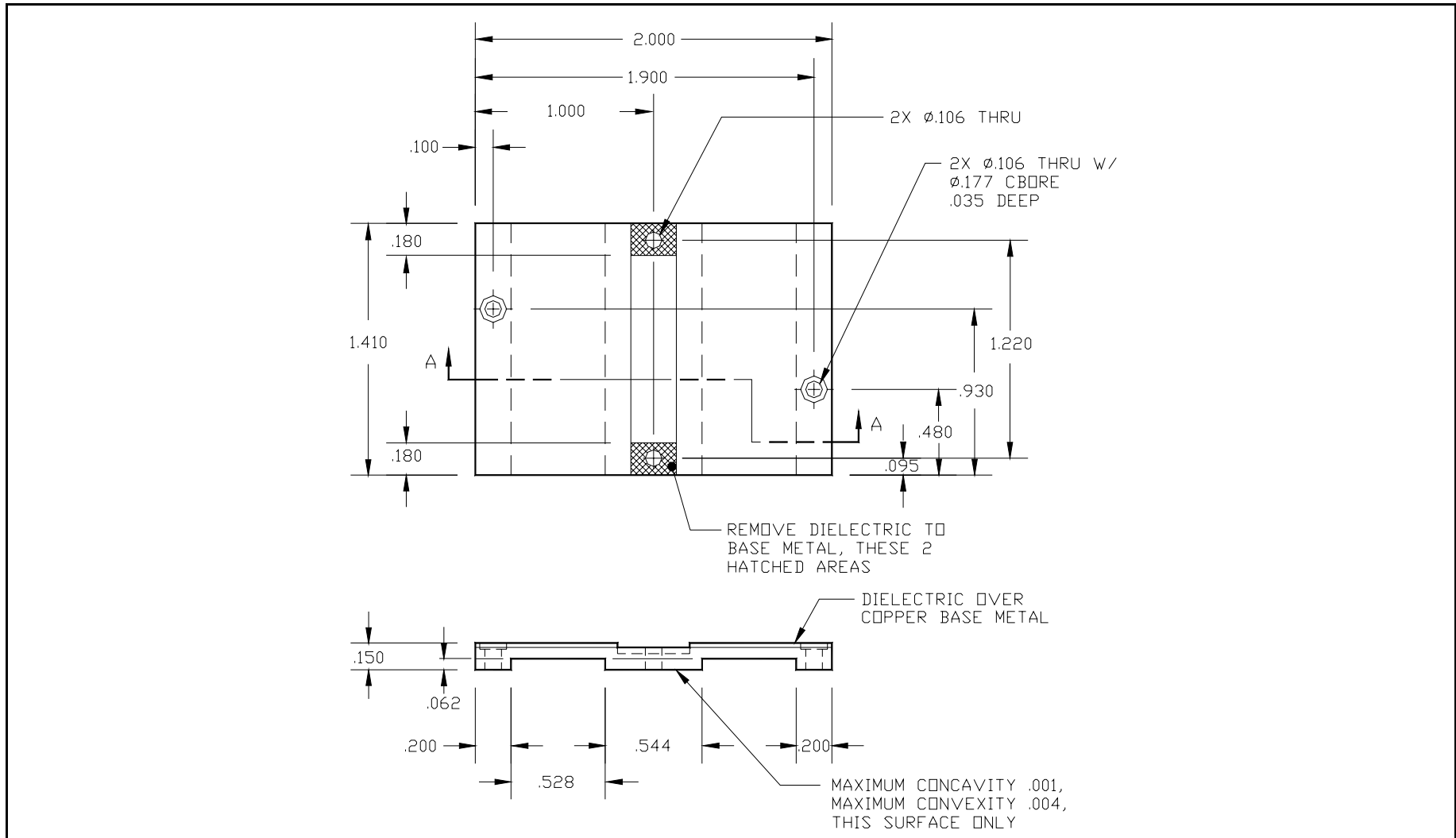
**THERMAL CHARACTERISTICS**

Screen	Parameter	Symbol	Min	Max	Units	Test Conditions
BD	Thermal Resistance	$R_{TH(JC)}$	--	TBD	°C/W	$V_{CC}=36V$ , Pulse format=100µs, 10%, $T_F=25\pm 5^\circ C$ , $P_{IN}=32W$ .
Note	Screen 'BD' = parameter qualified By Design.					

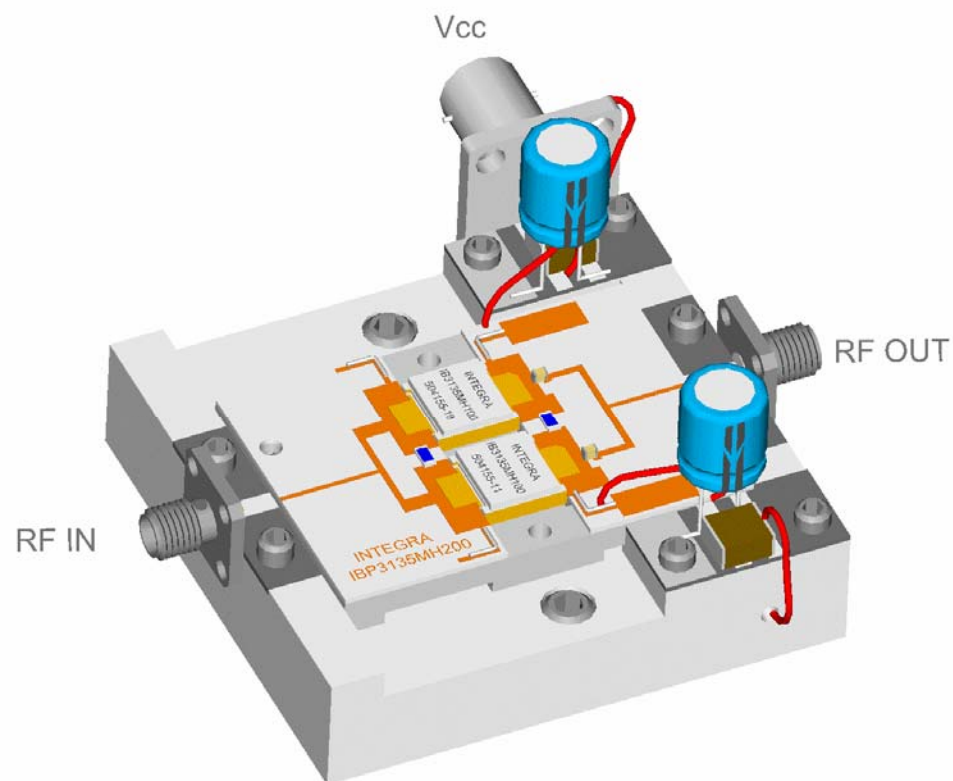
**RF ELECTRICAL CHARACTERISTICS**

Screen	Parameter	Symbol	Min	Max	Units	Test Conditions
100%	Input Return Loss	IRL	8	--	dB	$V_{CC}=36V$ , $P_{IN}=32W$ , Pulse = Note 2, $T_F=25\pm 5^\circ C$ , F=F1, F2, F3
100%	Output Power	$P_{out}$	200	--	W	$V_{CC}=36V$ , $P_{IN}=32W$ , Pulse = Note 2, $T_F=25\pm 5^\circ C$ , F=F1, F2, F3
100%	Power Gain	$G_P$	7.96		dB	$V_{CC}=36V$ , $P_{IN}=32W$ , Pulse = Note 2, $T_F=25\pm 5^\circ C$ , F=F1, F2, F3
100%	Collector Efficiency ( $P_o/I_C/V_{CC}$ )	$N_C$	38	--	%	$V_{CC}=36V$ , $P_{IN}=32W$ , Pulse = Note 2, $T_F=25\pm 5^\circ C$ , F=F1, F2, F3
100%	Pulse Amplitude Droop	D	--	0.6	dB	$V_{CC}=36V$ , $P_{IN}=32W$ , Pulse = Note 2, $T_F=25\pm 5^\circ C$ , F=F1, F2, F3
100%	Gain Flatness	GF		1.0	dB	Calculate from min/max gains at frequencies F1, F2, F3
100%	Delta Insertion Phase Variation	$\Delta IP$	-20	+20	deg	$V_{CC}=36V$ , $P_{IN}=32W$ , Pulse = Note 2, $T_F=25\pm 5^\circ C$ , F=F1, F2, F3
100%	Stability into 1.5:1 VSWR	VSWR-S	1.5:1	--	--	$V_{CC}=36V$ , $P_{IN}=32W$ , Pulse = Note 2, $T_F=25\pm 5^\circ C$ , F=F1, F2, F3. Rotate 1.5:1 output VSWR through 360° phase. No oscillatory or pulse break-up characteristics allowed on detected output pulse.
100%	Load Mismatch Tolerance	LMT	2:1	--	--	$V_{CC}=36V$ , $P_{IN}=32W$ , Pulse = Note 2, $T_F=25\pm 5^\circ C$ , F=F1, F2, F3. Rotate 2:1 output VSWR through 360° phase. Survival.
Note 1	F1 = 3.10 GHz, F2=3.30 GHz, F3=3.50 GHz.					
Note 2	Pulse format = 100 $\mu$ s, 10%					
Note 3	$T_F$ = Device flange temperature.					
Note 4	Screen 'BD' = parameter qualified By Design.					

**PALLET DIMENSIONAL OUTLINE DRAWING**



**50 OHM TEST FIXTURE**



**DEFINITIONS**

<b>Data Sheet Status</b>	
Proposed Specification	This data sheet contains proposed specifications.
Preliminary Specification	This data sheet contains specifications based on preliminary measurements and data.
Product Specification	This data sheet contains final product specifications.
<b>Maximum Ratings</b>	
Stress above one or more of the maximum ratings may cause permanent damage to the device. These are maximum ratings only and operation of the device at these or at any other conditions above those given in the characteristics sections of the specification is not implied. Exposure to maximum values for extended periods of time may affect device reliability.	

**WARNING**

<b>Product and environmental safety - toxic materials</b>
This product contains beryllium oxide. The product is entirely safe provided that the BeO base is not damaged. All persons who handle, use or dispose of this product should be aware of its nature and of the necessary safety precautions. After use, dispose of as chemical or special waste according to the regulations applying at the location of the user. It must never be thrown out with general or domestic waste.

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