

S-Band Radar Pallet

Part number IBP2226M300 is a 50 Ω matched high power pulsed radar pallet amplifier for S-Band radar systems operating over the instantaneous bandwidth of 2.25-2.55 GHz. The pallet amplifier supplies a minimum of 300 watts of peak pulse power under the conditions of 200µs pulse width and 10% duty cycle. All devices 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

Internal Impedance Matching

- Ease of Use
- Ultra-low Loss Design

Be0 Package

- Unmatched Thermal Reliability

RF Test Fixture

- Broadband
- Matched to 50Ω
- Long-term Correlation
- 100% Device RF Screening
- No External Tuning Allowed
- Micro-strip structure on soft pc board with dielectric constant 10.2

TYPICAL DATA TYPICAL DATA TYPICAL DATA TYPICAL DATA

Device	Freq (MHz)	V _{CC} (V)	P _{OUT} (W)	IRL (dB)	P _{IN} (W)	G _P (dB)	I _C (A)	N _C (%)	Droop (dB)
D3422-2	2250	34	371.4	-16.0	50	8.70	17.68	61.78	-0.25
	2400	34	355.0	-22.0	50	8.52	18.7	55.84	-0.19
	2550	34	346.8	-18.5	50	8.37	18.2	56.19	-0.26

MAXIMUM RATINGS

Screen	Parameter	Symbol	Min	Max	Units	Test Conditions
BD	Collector-Emitter Voltage	V_{CES}	--	65	V	$V_{BE}=0V$.
BD	Emitter-Base Voltage	V_{EBO}	--	3	V	--
BD	Collector Current, Peak	I_C	--	34.1	A	PW=PW1, DF=DF1.
BD	Continuous Power Dissipation, Peak	P_D	--	1049	W	PW=PW1, DF=DF1, $T_F=25^{\circ}C$.
BD	Storage Temperature Range	T_{STG}	-20	+125	$^{\circ}C$	--
BD	Operating Junction Temperature Range					
Note	Screen 'BD' = parameter qualified By Design.					

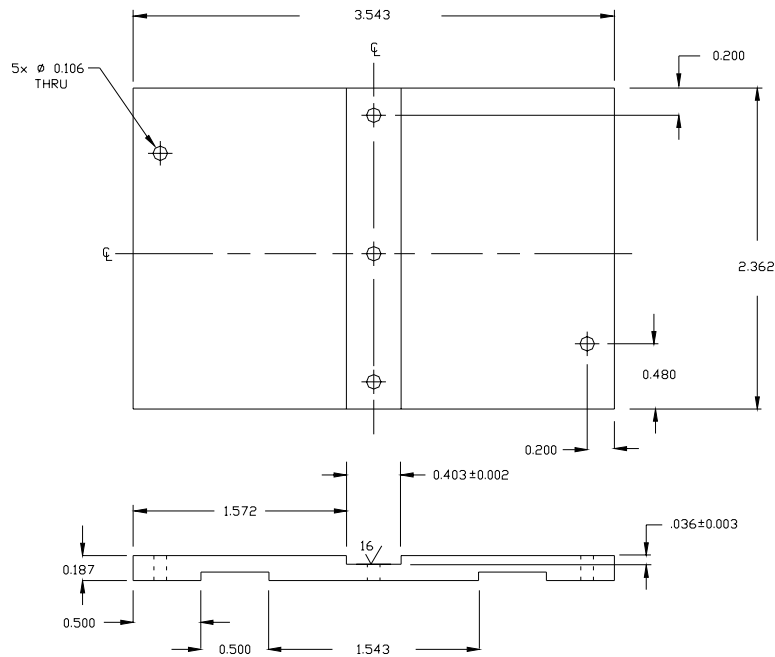
THERMAL CHARACTERISTICS

Screen	Parameter	Symbol	Min	Max	Units	Test Conditions
BD	Thermal Resistance per Device	$R_{TH(JC)}$	--	0.30	$^{\circ}C/W$	$V_{CC}=V1$, PW=PW1, DF=DF1, $T_F=25\pm5^{\circ}C$, $P_{OUT}=300W$
Note	Screen 'BD' = parameter qualified By Design.					

RF ELECTRICAL CHARACTERISTICS

Screen	Parameter	Symbol	Min	Max	Units	Test Conditions
100%	Input Return Loss	IRL	10	--	dB	$V_{CC}=V1, PW=PW1, DF=DF1, T_F=25\pm5^\circ C, P_{IN}=50W, F=F1, F2, F3.$
100%	Output Power	P_{OUT}	300	--	W	$V_{CC}=V1, PW=PW1, DF=DF1, T_F=25\pm5^\circ C, P_{IN}=50W, F=F1, F2, F3.$
100%	Power Gain	G_P	7.7	--	dB	$V_{CC}=V1, PW=PW1, DF=DF1, T_F=25\pm5^\circ C, P_{IN}=50W, F=F1, F2, F3.$
100%	Collector Efficiency ($P_O/I_C/V_{CC}$)	N_C	40	--	%	$V_{CC}=V1, PW=PW1, DF=DF1, T_F=25\pm5^\circ C, P_{IN}=50W, F=F1, F2, F3.$
100%	Pulse Amplitude Droop	D	--	0.6	dB	$V_{CC}=V1, PW=PW1, DF=DF1, T_F=25\pm5^\circ C, P_{IN}=50W, F=F1, F2, F3.$
100%	Gain Flatness	Delta Po	--	1.0dB	dB	Calculate from min/max gains at frequencies F1, F2 and F3.
100%	Delta Pout with 1dB Overdrive	Pcomp	0.2	0.9	dB	$V_{CC}=V1, PW=PW1, DF=DF1, T_F=25\pm5^\circ C, P_{IN}=63W, F=F1, F2, F3.$
100%	Delta Insertion Phase Variation	d-IP	-15	+15	Deg	$V_{CC}=V1, PW=PW1, DF=DF1, T_F=25\pm5^\circ C, P_{IN}=50W, F=F1, F2, F3.$ (With respect to phase standard).
100%	Stability into 1.5:1 VSWR	VSWR-S	--	--	--	$V_{CC}=V1, PW=PW1, DF=DF1, T_F=25\pm5^\circ C, P_{IN}=50W, F=F1, F2, F3.$ Rotate 1.5:1 output VSWR through 360° phase. No oscillatory or pulse break-up characteristics allowed on detected output pulse.
100%	Ruggedness into 2:1VSWR	VSWR-T	--	--	--	$V_{CC}=V1, PW=PW1, DF=DF1, T_F=25\pm5^\circ C, P_{IN}=50W, F=F1, F2, F3.$ Survival only.
BD	2 nd Harmonic	2fo	--	-30	dBc	$V_{CC}=V1, PW=PW1, DF=DF1, T_F=25\pm5^\circ C, P_{IN}=50W, F=F1, F2, F3.$
BD	Spurious Level	Spurious	--	-50	dBc	$V_{CC}=V1, PW=PW1, DF=DF1, T_F=25\pm5^\circ C, P_{IN}=50W, F=F1, F2, F3.$
Note	V1 = 34V; PW1 = 200μs; DF1 = 10%; F1 = 2.25 GHz, F2 = 2.40 GHz, F3 = 2.55 GHz.					
Note	T _F = Device flange temperature.					
Note	Screen 'BD' = parameter qualified By Design.					

PALLET DIMENSIONAL OUTLINE DRAWING



NOTES: ALL DIMENSIONS ARE SIMETRICAL TO CENTER LINE.
ALL DIMENSION ARE IN INCHES.

50Ω RF TEST FIXTURE

T B D

Data Sheet Status	
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.
Maximum Ratings	
Stress above one or more of the maximum ratings may cause permanent damage to the device. These are maximum ratings only. 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

Product and environmental safety - toxic materials
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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