

ILA1001

728-757MHz 34dBm LTE Power Amplifier



Description

The Model ILA1001 is designed for LTE applications from 728MHz to 757MHz frequency band. This amplifier utilizes LDMOS power devices and Analog Pre-distortion linearization technique to provide excellent efficiency and linearity characteristics. Inspower's high quality design technology makes the amplifier extremely stable within overall environmental temperature range.

Product Features

- Operating Frequency : 728-757MHz
- Bandwidth :29MHz
- Pout : +34dBm
- Analog Pre-distortion Linearization
- Application : LTE700 Repeater, DAS

Electrical Specifications

Parameters		Specifications	Remark
Operating Frequency		728 ~ 757MHz	
Output Power (Linear)		+34dBm Min	
Small Signal Gain		40dB Min, 41dB Typical, 42dB Max	In Band
Small Signal Gain Flatness		1dBp-p Max	Over temperature
Gain Variation Over operation Temp		±1 dB	
IMD3 & IMD5 product level @ Pout per Tone= 25dBm to 31dBm		-20dBm	2 tones 2MHz spacing
IMD3 & IMD5 product level of -20dBm @ 34dBm Pout composite vs. Tone spacing		1MHz Min , 29MHz Max	Any frequency location for 2tone 2MHz spacing. Any 2 tone spacing 1MHz – 29MHz around band center. IMD3, 5 product band of interest is 698-787MHz
Spurious emission		-32dBm Max	1. With CW tone 2. Without input signal
LTE @ 34dBm output	EVM	2%	Test Model: E.T.M 3.1 Down Link (EVM : test for all LTE BW) Test EVM and SEM for 1.4 & 10MHz BW located at center, right edge and left edge of band.
	Frequency Error	±0.01ppm	
	Spectrum Emission Mask	Per ETSI TS 136 106 V11.1.0(2013-02)	
	ACPR	±5MHz	
±10MHz		35dBc	
2 nd Harmonic		- 40dBc	Test ACPR or 5MHZ BW Located at center, right edge and Left edge of band.
Input / Output VSWR		1.2:1Typ, 1.5:1Max	S11 / S22
Noise Figure		10 dB Typ 15 dB Max	

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Specification Ver 3.0 2016-10-19

Parameters	Specifications	Remark
Turn-on time	300 mS	From DC power On or Enable
Forward (FWD) Power Monitoring: @33dBm CW 1FA 100mv/dB	3.95V Min , 4V Typ ,4.05V Max	True RMS detector.
Operating Voltage	27V Min, 28V Typ, 30V Max	
No Damage Supply Voltage	32V	<i>This parameter was updated</i>
Supply Current @ Pout = 34dBm / 1CW	1.1A Max	<i>This parameter was updated</i>
Supply Current @ Pout = 38dBm / 1CW	1.3A Max	<i>This parameter was updated</i>
Supply Current @ Pout = 10W / 1CW	1.7A Max	<i>This parameter was updated</i>

Mechanical Specifications

Parameter	Specifications	Remark
Dimensions (W x D x H)	120 * 110 * 25 mm	
Weight	0.6kg	
RF Connectors In/Out	SMA – Female	
Monitoring/DC Connectors	D-sub, 9 Pins, 4 – 40 screw	
Cooling	External Heat sink (not included)	

Environmental Characteristics

Parameters	Specifications	Remark
Case Temperature for operating without damage	-40°C to +85°C	
Case Temperature for operating with full performance	-30°C to +80°C	
Storage Temperature	-40°C to +85°C	
Relative humidity w/o condensation	95%	
Shock & Vibration	According to: ETSI EN 300 019-2-2 V2.1.2 (1999-09) Specification T 2.3: Public Transportation	
Operational conditions	According to: ETSI EN 300 019-2-4 V2.2.2 (2003-04) Specification T 4.1: Non-weather protected locations, mechanical test only.	
MTBF	220000Hr (25years)	MTBF standard- Bellcore Reliability prediction model B332.2-Telecordia SR-332V2. Environment - GB (Ground Fixed, Controlled), Case Temperature 45°C.

ILA1001

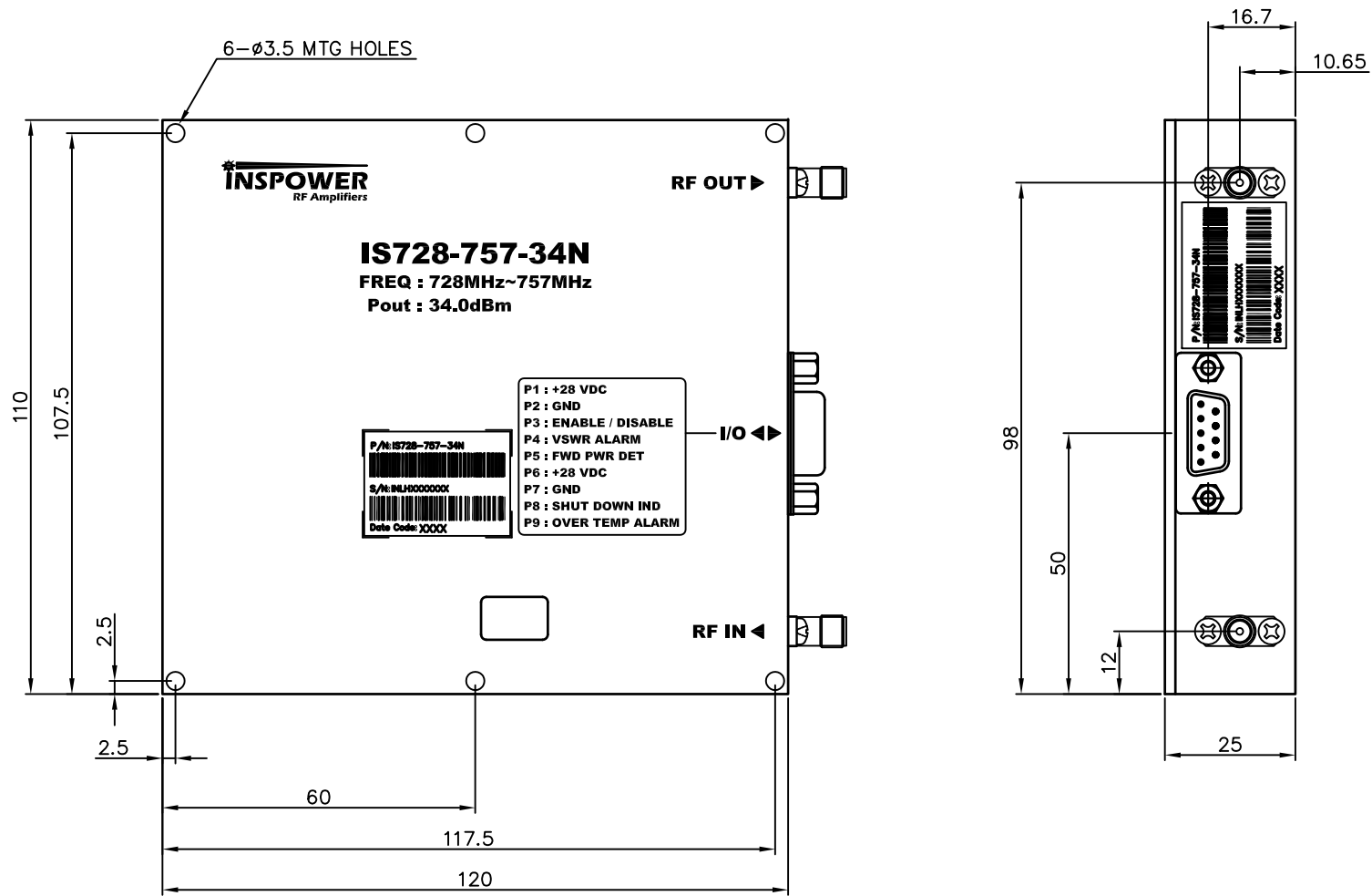
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I/O Interface (D-sub 9pin Male)

Pin No	Pin Description	Specifications	Remark
1	+28V DC Input		
2	GND		
3	Enable : Low Disable : High or Open		
4	VSWR Alarm	Alarm "High" at VSWR event	
5	Forward Power Detector	4.0V@ 33dBm CW 1FA, 100mv/dB	
6	+28V DC Input		
7	GND		
8	PA Shut Down Indicator	Alarm "High" PA Shut Down	Open Drain
9	Over Temperature Alarm	Alarm "High" at Over temperature event - Measured on PA case.	

Protection

Item	Specifications for Activation	Remark
Over Power Shutdown	40dBm min - 41dBm max	Recovery by toggling the Enable pin.
VSWR Auto-Shutdown/Recover	2.32:1 Max (R.L = 8dB)	VSWR Alarm will remain "High" till recovery by toggling Enable pin.
VSWR Auto-Shutdown Threshold	20dBm min	VSWR Auto-Shutdown shall work from output power of 20dBm and above. The feature disabled below this value.
Over Temperature Alarm	80°±2°C	Alarm only, At Thermal Overload, The Alarm remains on till Auto Recovery or toggling the Enable pin.
Thermal Overload	85°±2°C Shutdown	75°C Auto-recover



APPROVED S.K.Kim 2016.10.20	MATERIAL A6061	PART NAME OUTSIDE DRAWING	
CHECKED	FINISH ☆White-CHROMATE(Cr ³⁺)	DWG NO. INS 01-003	SHEET 1 OF 1
DESIGNED K.M.Jang 2016.10.20	THIRD ANGLE PROJECTION 	UNIT: mm	SCALE: CAD=1/1 PLOT=N/S
	SIZE A3	Q'TY:	
	MODEL/TITLE INS IS728_757_34N	INSPOWER RF Amplifiers	