



38 dB Gain, 27 dBm P1dB, 0.01 GHz to 30 GHz, Broadband AC Low Noise Amplifier, Bench-Top, 110/220VAC, 3.7 dB Noise Figure, 2.92mm

TECHNICAL DATA SHEET

PE15A63025

The PE15A63025 is an AC powered Bench-Top Low Noise Amplifier that operates across a wideband frequency range from 10 MHz to 30 GHz. This 50 Ohm highly linear design exhibits impressive typical performance that includes 38 dB gain, 3.7 dB noise figure, +27 dBm P1dB, and +35 dBm output IP3. Maximum RF input power (CW) is -6 dBm. The rugged MIL Grade aluminium package is finished in gray paint and has 2.92mm Female connectors at the RF input and output ports, and an indicator light on the front panel. The rear panel supports an IEC 320-C14 AC power socket (IEC 320-C13 plug required), a fuse compartment, an On/Off switch, and a dedicated package common ground connector. The module supports a wide operating AC voltage range from 110VAC to 220VAC with 60 mA supply current. Designed for high reliability, the package supports an integrated heatsink and cooling fan and is suitable for outdoor operation (moisture exposure dependent on temperature and humidity conditions). The amplifier has an operational temperature range from -40°C to +85°C and meets a series of environmental test conditions including Altitude, Vibration, Humidity, and Shock.

Features

- AC Powered Bench-Top Low Noise Amplifier/10 MHz to 30 GHz/High Linearity
- Small Signal Gain 38 dB typ
- Low Noise Figure 3.7 dB typ
- Low VSWR 1.5:1 typ
- Output P1dB +27 dBm typ
- Output Psat +30 dBm typ
- Output IP3 +35 dBm typ
- AC Supply 110-220VAC @ 65 mA
- Max RF Input Power (CW) -6 dBm
- 50 Ohm Design
- Integrated Heatsink and Cooling Fan
- RF Input and Output 2.92mm Female Connectors
- On/Off Switch and Indicator Light
- Operational Temperature Range -40°C to +85°C
- Rugged MIL Grade Aluminum Package Design with Gray Paint finish
- Guaranteed Environmental Test Conditions Altitude, Vibration, Humidity, Shock

Applications

- Test & Measurement
- 5G Communication
- Wireless Infrastructure
- Military & Commercial Communications
- Military Electronic Systems
- Research & Development
- Microwave Radio
- VSAT
- Fiber Optics

Electrical Specifications (TA= 25°C)

Description	Minimum	Typical	Maximum	Units
Frequency Range	0.01		30	GHz
Gain	32	38		dB
Gain Flatness		±1.5	±3	dB
Gain Variation over Temp.		±1.25		dB/°C
Output at 1 dB Compression Point*	+20	+27		dBm
Saturation Output Power*		+30		dBm
Output 3 rd Intercept Point		+35		dBm
Reverse Isolation		-70		dB
Noise Figure		3.7	5.5	dB
Input VSWR		1.4:1	2:1	
Output VSWR		1.5:1	2.2:1	

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Operating AC Voltage	110 to 220	VAC
Supply Current (AC 110-220V)	65	mA
Operating Temperature Range (OTR)	-40	+85 °C

Performance by Frequency

Biassing Up Procedure

Step 1 Connect input and output with 50 Ohm source and load with in band return loss better than 10dB.

Step 2 Connect AC Plug

Step 3 Flip switch to "ON" position

Power OFF Procedure

Step 1 Flip switch to "OFF" position

Step 2 Remove AC Plug

Step 3 Remove RF Connection

Compression Point Notes:

*P1dB @ 0.01-0.05 GHz: 25 dBm typical

*P1dB, P3dB & Psat test signal: 200usec PW, 10% duty cycle

Saturation Output Notes:

*For average CW power testing or increased duty cycle, a 5 dB back off from Psat is required

Absolute Maximum Rating

Parameter	Rating
Supply Voltage	110V to 220V AC
RF Input Power (RFIN)*	-6dBm

*Note: Maximum RF input power is defined to protect the amplifier from damage. Input power may be increased at the users ownrisk to achieve the full output power of the amplifier. Please reference gain and power curves and monitor the temperature.

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Mechanical Specifications

Size

Length	6.46 in [164.08 mm]
Width	5.83 in [148.08 mm]
Height	2.28 in [57.91 mm]
Weight	2.495 lbs [1.13 kg]
Input Connector	2.92mm Female
Output Connector	2.92mm Female

Environmental Specifications

Temperature

Operating Range	-40 to +85 deg C
Storage Range	-50 to +105 deg C

Humidity

Shock	100% RH at 35°C, 95%RH at 40°C
Vibration	20G for 11msec half sine wave, 3 axis both directions
Altitude	25g RMS (15 degrees 2KHz) endurance, 1 hour per axis 30,000 ft.

Compliance Certifications (see [product page](#) for current document)

Plotted and Other Data

Notes:

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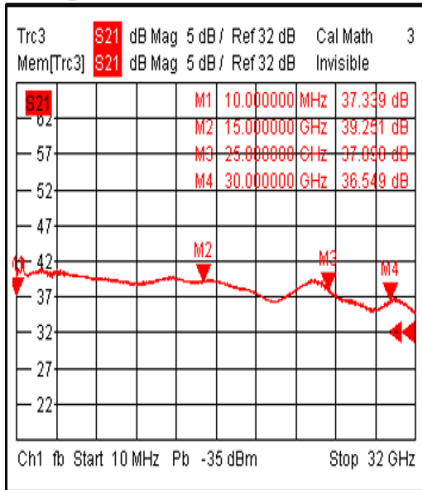
38 dB Gain, 27 dBm P1dB, 0.01 GHz to 30 GHz, Broadband AC Low Noise Amplifier, Bench-Top, 110/220VAC, 3.7 dB Noise Figure, 2.92mm

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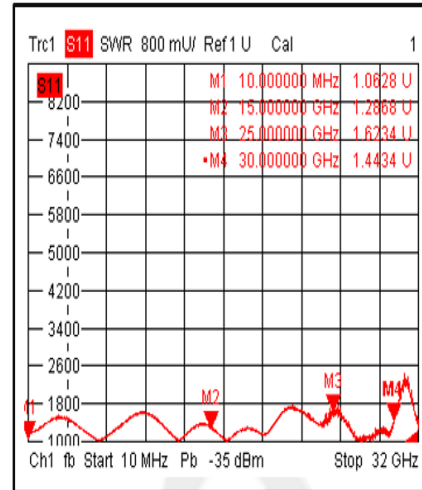
PE15A63025

Typical Performance Data

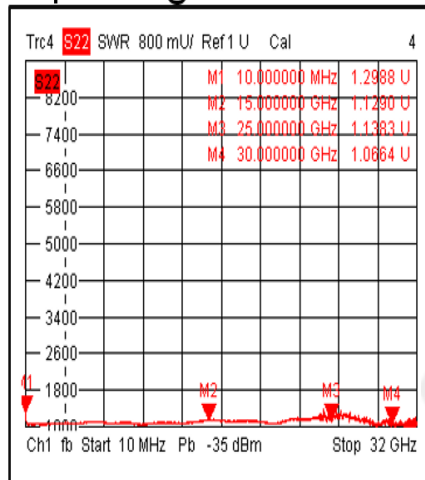
Gain@+25°C



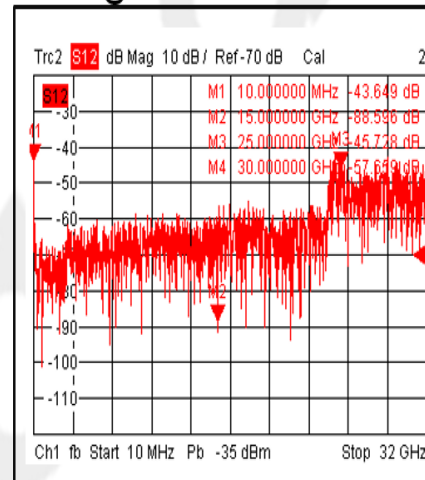
Input VSWR@+25°C



Output VSWR@+25°C



Isolation@+25°C



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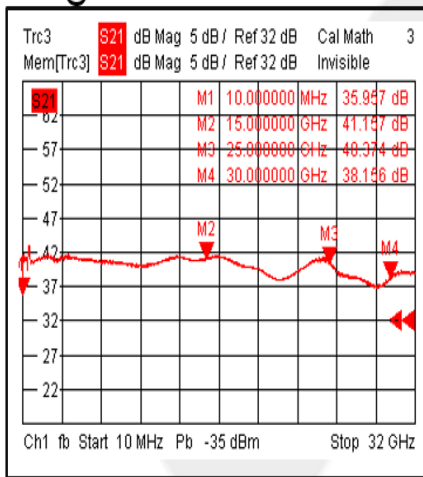


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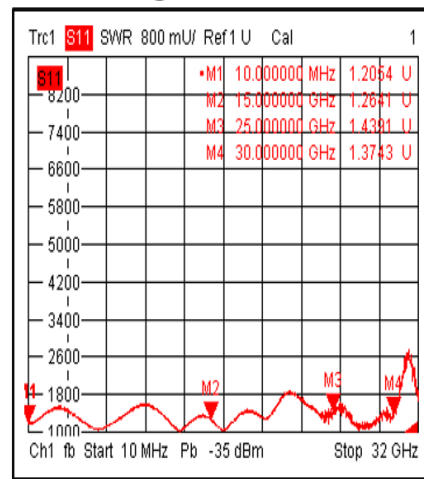
TECHNICAL DATA SHEET

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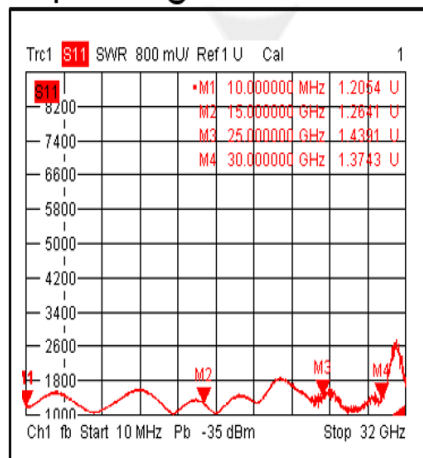
Gain@-40°C



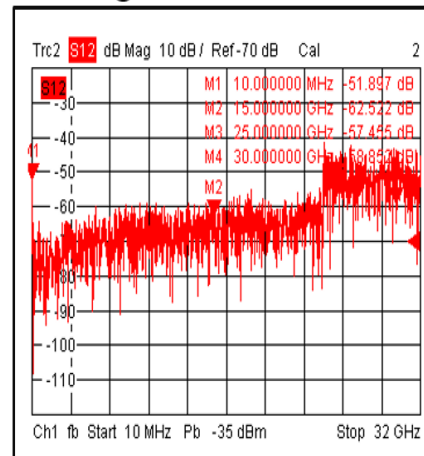
Input VSWR@-40°C



Output VSWR@-40°C



Isolation@-40°C



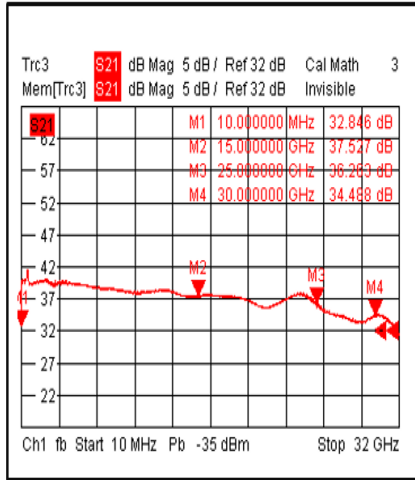
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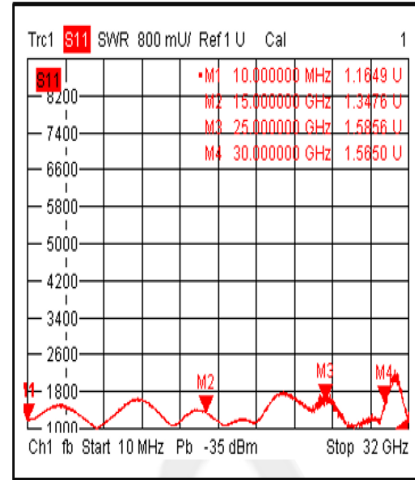
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TECHNICAL DATA SHEET **PE15A63025**

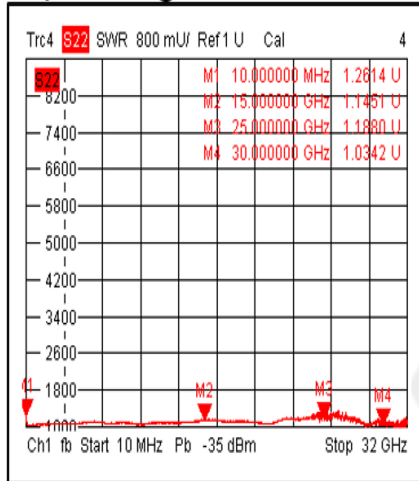
Gain@+85°C



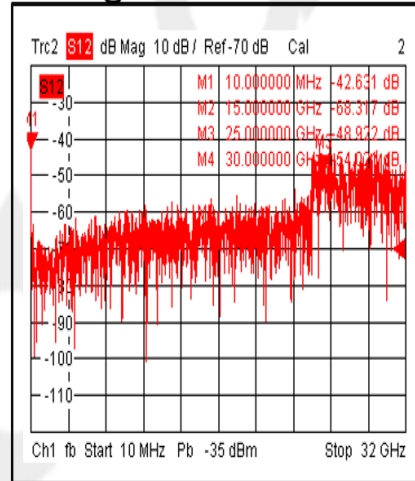
Input VSWR@+85°C



Output VSWR@+85°C



Isolation@+85°C



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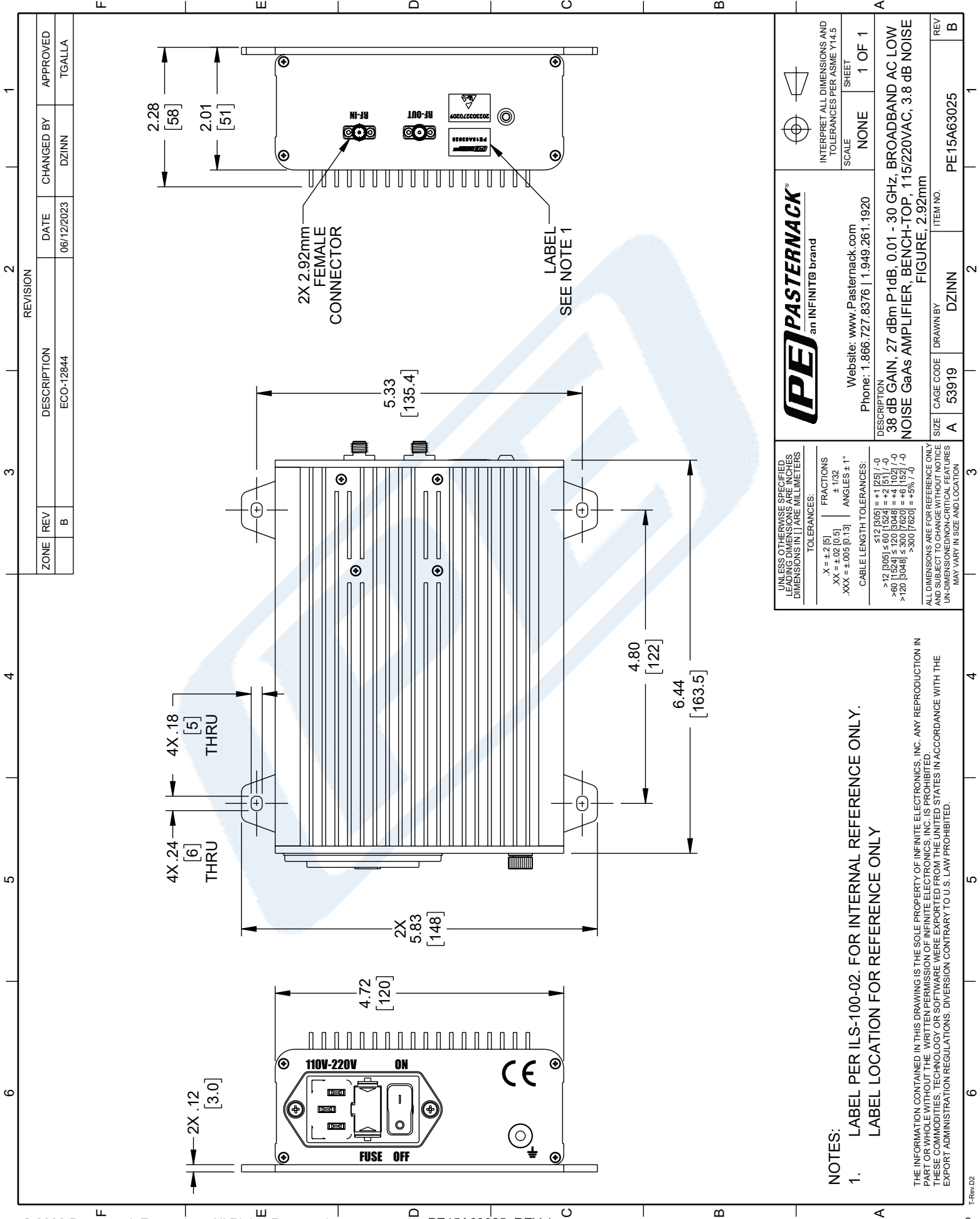
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URL: <https://www.pasternack.com/33-dbm-ip3-3.5-db-30-ghz-low-noise-broadband-amplifier-37-db-gain-2.92mm-pe15a63025-p.aspx>

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PE15A63025 CAD Drawing

38 dB Gain, 27 dBm P1dB, 0.01 GHz to 30 GHz, Broadband AC Low Noise Amplifier, Bench-Top, 110/220VAC, 3.7 dB Noise Figure, 2.92mm



ZONE	REV	DESCRIPTION	DATE	CHANGED BY	APPROVED
	B	ECO-12844	06/12/2023	DZINN	TGALLA

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UNLESS OTHERWISE SPECIFIED, LEADING DIMENSIONS ARE INCHES, DIMENSIONS IN [] ARE MILLIMETERS.

TOLERANCES:
 .X = ±.2 [5]
 .XX = ±.02 [0.5]
 .XXX = ±.005 [0.13]
 ANGLES ± 1°

FRACTIONS
 ± 1/32

CABLE LENGTH TOLERANCES:
 ≤ 12 [305] = ±1 [25] / -0
 > 12 [305] ≤ 60 [1524] = +2 [51] / -0
 > 60 [1524] ≤ 120 [3048] = +4 [102] / -0
 > 120 [3048] ≤ 300 [7620] = +6 [152] / -0
 > 300 [7620] = +3% / -0

ALL DIMENSIONS ARE FOR REFERENCE ONLY AND SUBJECT TO CHANGE WITHOUT NOTICE. UN-DIMENSIONED NON-CRITICAL FEATURES MAY VARY IN SIZE AND LOCATION.

INTERPRET ALL DIMENSIONS AND TOLERANCES PER ASME Y14.5
SCALE NONE SHEET 1 OF 1

DESCRIPTION
38 dB GAIN, 27 dBm P1dB, 0.01 - 30 GHz, BROADBAND AC LOW NOISE GaAs AMPLIFIER, BENCH-TOP, 115/220VAC, 3.8 dB NOISE FIGURE, 2.92mm

SIZE	CAGE CODE	DRAWN BY	ITEM NO.
A	53919	DZINN	PE15A63025

NOTES:
 1. LABEL PER ILS-100-02. FOR INTERNAL REFERENCE ONLY.
 LABEL LOCATION FOR REFERENCE ONLY

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