

**29 dB Gain, 22 dBm P1dB, 0.01 GHz to 20 GHz,  
Broadband AC Low Noise Amplifier, Bench-Top ,  
110/220VAC, 3.5 dB Noise Figure, SMA**

The FMAM63024 is an AC powered Bench-Top Low Noise Amplifier that operates across a wideband frequency range from 10 MHz to 20 GHz. This 50 Ohm highly linear design exhibits impressive typical performance that includes 29 dB gain, 3.5 dB noise figure, +22 dBm P1dB, and +29 dBm output IP3. Maximum RF input power (CW) is 0 dBm. The rugged MIL Grade aluminium package is finished in gray paint and has SMA 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), and an On/Off switch. 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 20 GHz
- High Linearity
- Small Signal Gain 29 dB typ
- Low Noise Figure 3.5 dB typ
- VSWR 1.8:1 typ
- Output P1dB +22 dBm typ
- Output Psat +23 dBm typ
- Output IP3 +29 dBm typ
- AC Supply 110-220VAC @ 60 mA
- Max RF Input Power (CW) 0 dBm
- 50 Ohm Design
- Integrated Heatsink and Cooling Fan
- RF Input and Output SMA 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

**Electrical Specifications (TA= 25°C)**

| Description                       | Min  | Typ        | Max | Unit  |
|-----------------------------------|------|------------|-----|-------|
| Frequency Range                   | 0.01 |            | 20  | GHz   |
| Gain                              | 26   | 29         |     | dB    |
| Gain Flatness                     |      | ±1.25      |     | dB    |
| Gain Variation over Temp.         |      | ±0.7       |     | dB/°C |
| P1dB                              | +19  | +22        |     | dBm   |
| Saturation Output Power           |      | +23        |     | dBm   |
| IP3                               |      | +29        |     | dBm   |
| Reverse Isolation                 |      | -65        |     | dB    |
| Noise Figure                      |      | 3.5        | 5.5 | dB    |
| Input VSWR                        |      | 1.5:1      |     |       |
| Output VSWR                       |      | 1.9:1      |     |       |
| Operating AC Voltage              |      | 110 to 220 |     | VAC   |
| Supply Current (AC 110-220V)      |      | 60         |     | mA    |
| Operating Temperature Range (OTR) | -40  |            | +85 | °C    |

**Performance by Frequency**
**Biasing 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          |

**Applications:**

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

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**Absolute Maximum Rating**

| Parameter              | Rating           |
|------------------------|------------------|
| Supply Voltage         | 110V to +240V AC |
| RF Input Power (RFIN)* | +0dBm            |

\*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.

**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           | 2.5 lbs [1.13 kg]   |  |
| Input Connector  | SMA Female          |  |
| Output Connector | SMA Female          |  |

**Environmental Specifications**

**Temperature**

|                 |  |
|-----------------|--|
| Operating Range | -40 to +85 deg C                                     |
| Storage Range   | -50 to +105 deg C                                    |
| Humidity        | 100% RH at 35°C, 95%RH at 40°C                       |
| Shock           | 20G for 11msec half sine wave,3 axis both directions |
| Vibration       | 25g RMS (15 degrees 2KHz) endurance, 1 hour per axis |
| Altitude        | 30,000 ft.   |

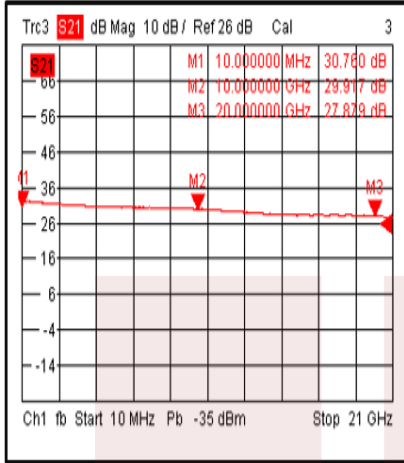
**Compliance Certifications** (see [product page](#) for current document)

**Plotted and Other Data**

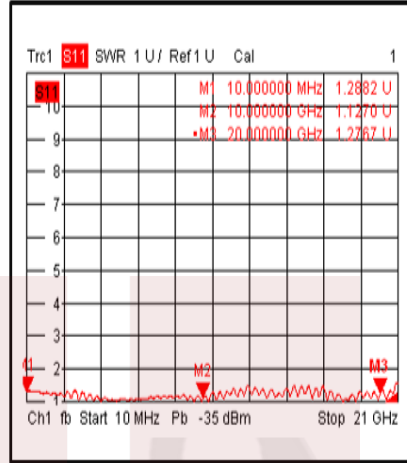
Notes:

**Typical Performance Data**

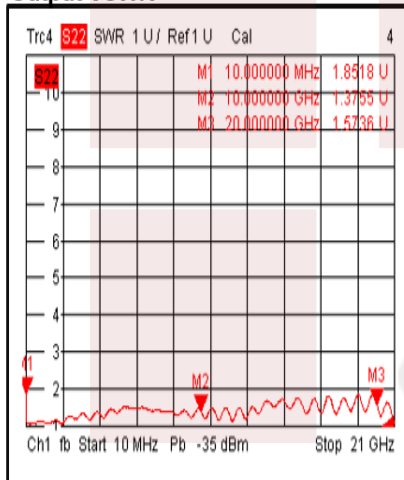
**Gain**



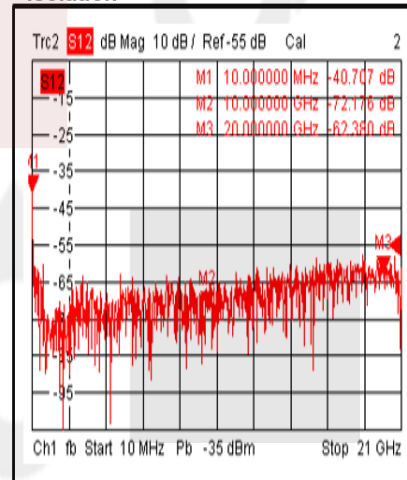
**Input VSWR**



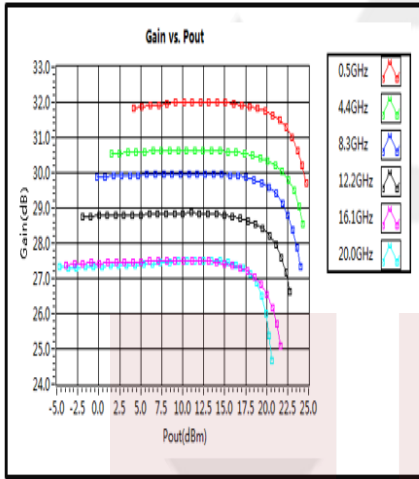
**Output VSWR**



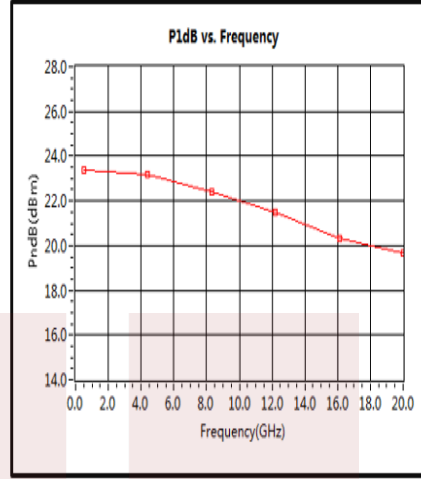
**Isolation**



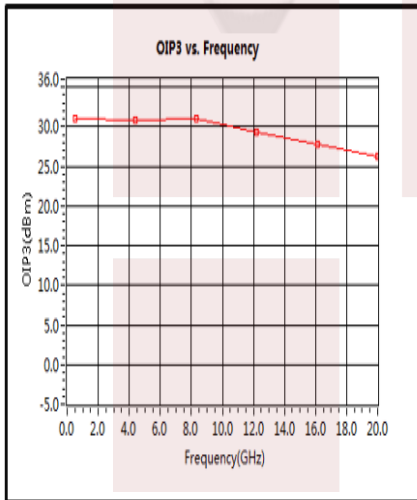
**Gain vs. Output Power**



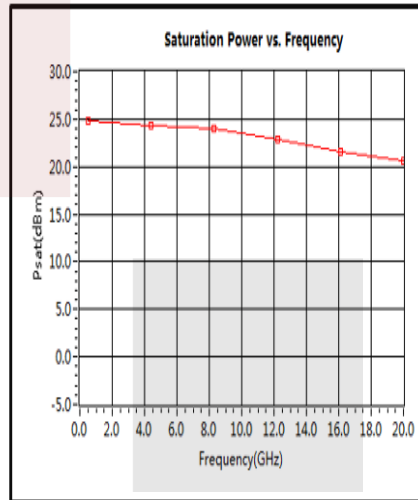
**P1dB vs. Frequency**



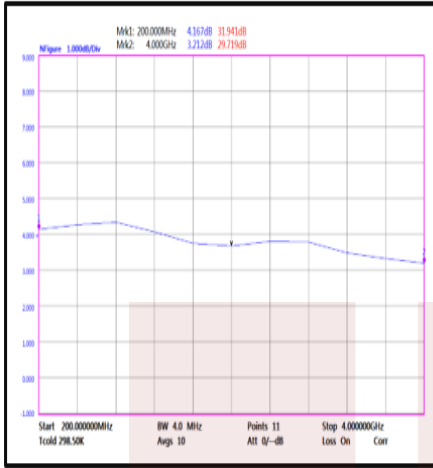
**Output Third Order Intercept (OIP3)**



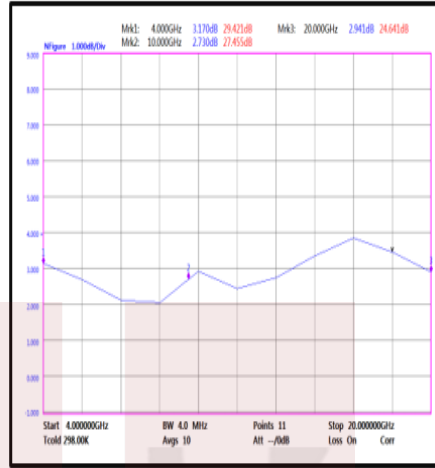
**Saturated Power vs. Frequency**



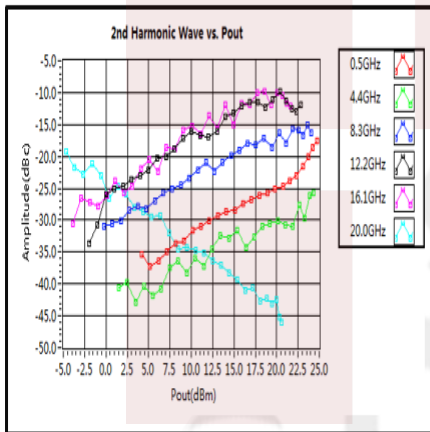
**Noise Figure(0.2-4GHz)**



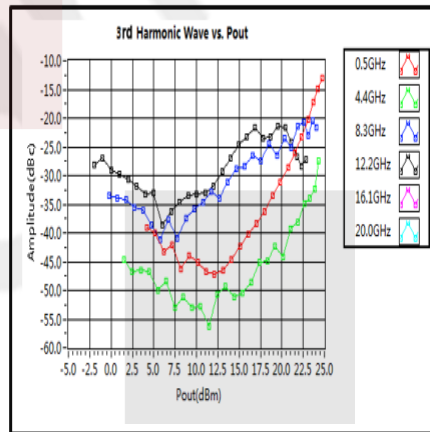
**Noise Figure(4-20GHz)**



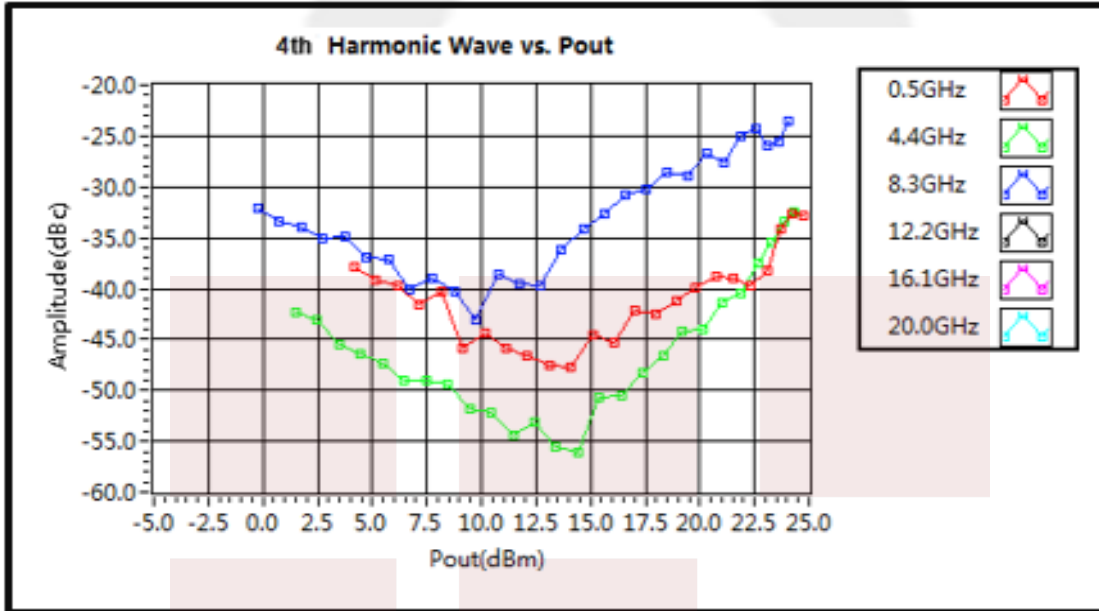
**2nd Harmonic Wave Output Power**



**3rd Harmonic Wave Output Power**



## 4th Harmonic Wave output Power

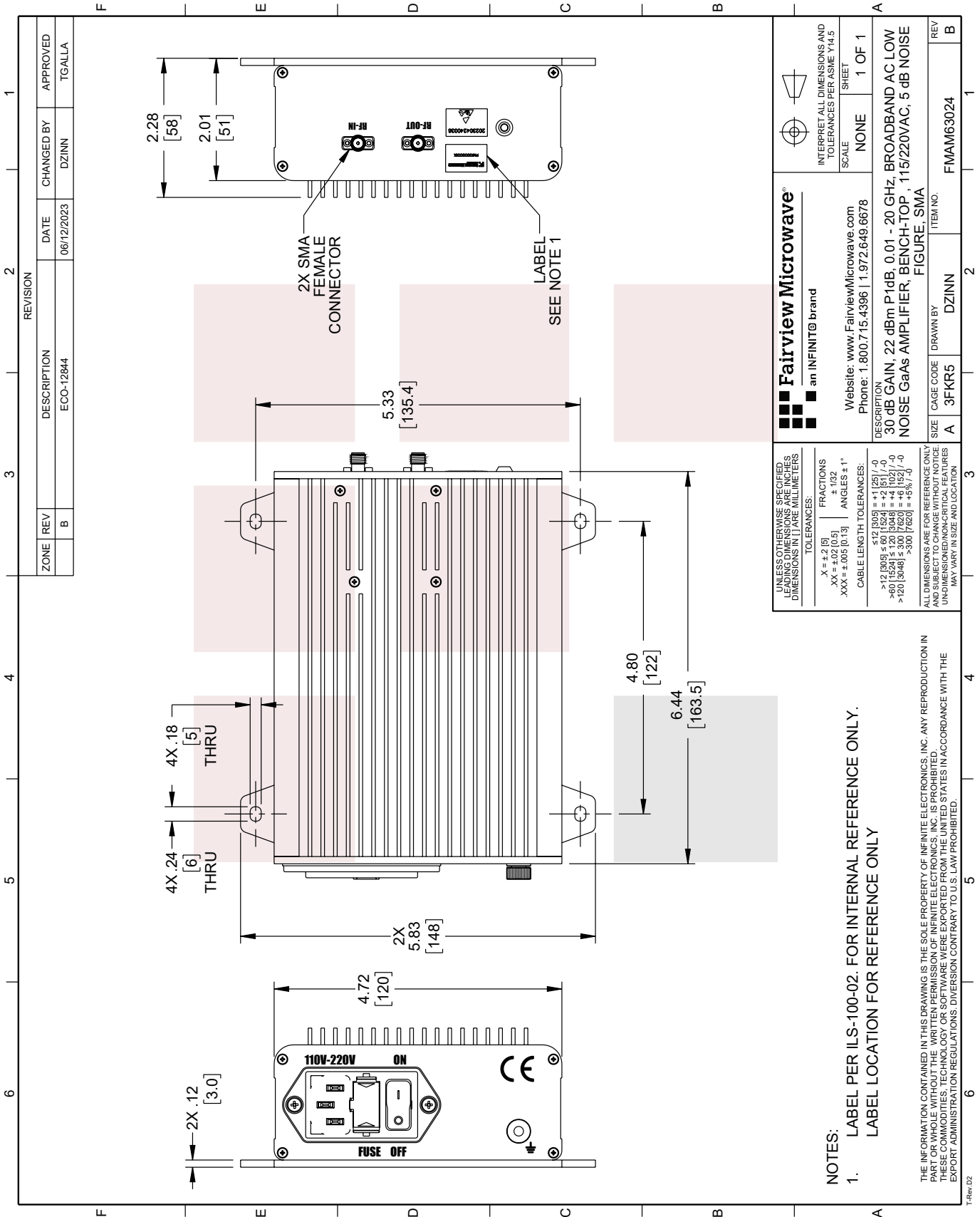


29 dB Gain, 22 dBm P1dB, 0.01 GHz to 20 GHz, Broadband AC Low Noise Amplifier, Bench-Top , 110/220VAC, 3.5 dB Noise Figure, SMA from Fairview Microwave is in-stock and available to ship same-day. All of our RF/microwave products are available off-the-shelf from our ISO 9001:2008 certified facilities in Lewisville, Texas. Fairview Microwave is RF on-demand.

For additional information on this product, please click the following link: [29 dB Gain, 22 dBm P1dB, 0.01 GHz to 20 GHz, Broadband AC Low Noise Amplifier, Bench-Top , 110/220VAC, 3.5 dB Noise Figure, SMA FMAM63024](#)

URL: <https://www.fairviewmicrowave.com/10-mhz-20-ghz-low-noise-broadband-amplifier-fmam63024-p.aspx>

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

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

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

FRACTIONS: ± 1/32  
 ANGLES: ± 1°

CABLE LENGTH TOLERANCES:  
 ±12 [305] ≤ 812 [205] = +1 [25] / -0  
 ±60 [1524] ≤ 120 [3048] = +4 [102] / -0  
 >120 [3048] ≤ 300 [7620] = +6 [152] / -0  
 >300 [7620] = +5% / -0

ALL DIMENSIONS ARE FOR REFERENCE ONLY AND SUBJECT TO CHANGE WITHOUT NOTICE. UNDIMENSIONED/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:  
**NOISE GaAs AMPLIFIER, BENCH-TOP, 115/220VAC, 5 dB NOISE FIGURE, SMA**

|         |                  |                 |                     |
|---------|------------------|-----------------|---------------------|
| SIZE: A | CAGE CODE: 3FKR5 | DRAWN BY: DZINN | ITEM NO.: FMAM63024 |
|---------|------------------|-----------------|---------------------|

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

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