

Coaxial

# RF Instrument Amplifier

TVA-63-183A+

50Ω

6 to 18 GHz

## Features

- Instrument model with built-in power supply 110/220 VAC
- Gain, 24 dB typ.
- Unconditionally stable
- Output Power, up to 17 dBm typ.
- Excellent Isolation, 62 dB typ.
- Thermally self-protected, LED indicator
- Good matching at input and output
- CE marked

## Applications

- Lab use
- Wideband test instrumentation



Generic photo used for illustration purposes only

CASE STYLE: PJ2059

| Connectors | Model        |
|------------|--------------|
| SMA        | TVA-63-183A+ |

+RoHS Compliant

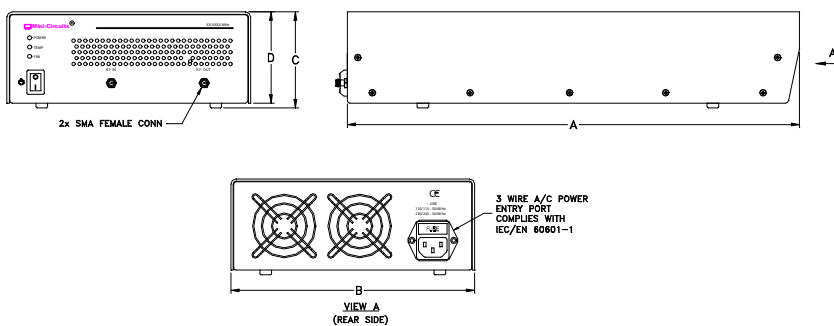
The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

## Electrical Specifications at 25°C, unless otherwise noted

| Parameter                          | Condition (GHz) | Min | Typ.    | Max. | Units |
|------------------------------------|-----------------|-----|---------|------|-------|
| Frequency Range                    |                 | 6   | —       | 18   | GHz   |
| Gain                               | 6 - 18          | 20  | 24      | —    | dB    |
| Gain Flatness                      | 6 - 18          | —   | ±1.5    | —    | dB    |
| Output Power at 1dB compression    | 6 - 18          | 15  | 17      | —    | dBm   |
| Noise Figure                       | 6 - 18          | —   | 6.4     | —    | dB    |
| Output third order intercept point | 6 - 18          | —   | 26      | —    | dBm   |
| Input VSWR                         | 6 - 18          | —   | 1.5     | —    | :1    |
| Output VSWR                        | 6 - 18          | —   | 1.25    | —    | :1    |
| AC Supply Voltage                  | 47 - 63 Hz      | 85  | 110/220 | 265  | V     |

Note: Keep area adjacent to the airvents clear to allow free air flow.

## Outline Drawing



## Maximum Ratings

| Parameter                  | Ratings       |
|----------------------------|---------------|
| Operating Temperature      | 0°C to 55°C   |
| Storage Temperature        | -40°C to 70°C |
| Input RF Power (no damage) | +20 dBm       |

Permanent damage may occur if any of these limits are exceeded.

## Outline Dimensions (inch/mm)

| A      | B      | C     | D     | W.T. |
|--------|--------|-------|-------|------|
| 15.35  | 8.27   | 3.25  | 3.09  | GRAM |
| 389.89 | 210.06 | 82.55 | 78.49 | 2490 |

### Notes

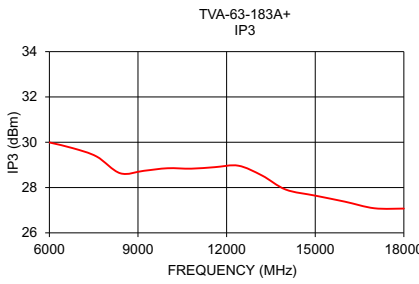
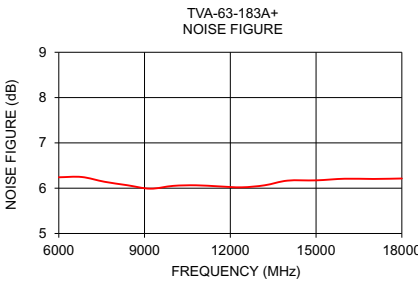
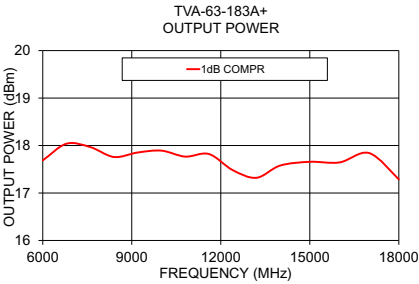
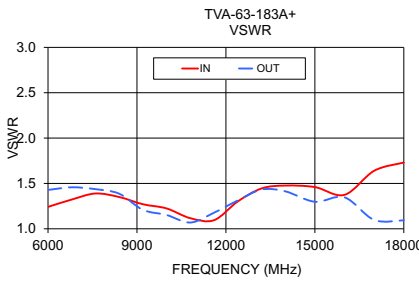
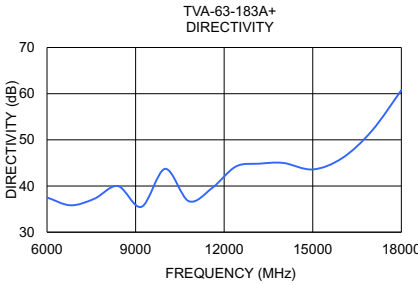
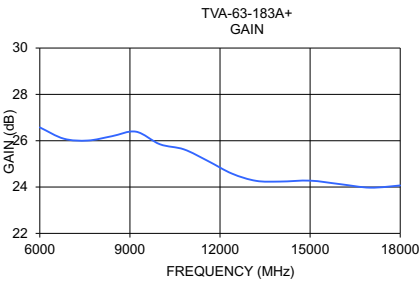
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| FREQUENCY<br>(MHz) | GAIN<br>(dB) | DIRECTIVITY<br>(dB) | VSWR<br>(:1) |      | NOISE<br>FIGURE<br>(dB) | POUT<br>at 1 dB<br>COMPR.<br>(dBm) | IP3<br>(dBm) |
|--------------------|--------------|---------------------|--------------|------|-------------------------|------------------------------------|--------------|
|                    |              |                     | IN           | OUT  |                         |                                    |              |
| 6000               | 26.57        | 37.52               | 1.24         | 1.43 | 6.24                    | 17.69                              | 29.99        |
| 6800               | 26.09        | 35.82               | 1.32         | 1.46 | 6.25                    | 18.04                              | 29.74        |
| 7600               | 26.01        | 37.23               | 1.39         | 1.44 | 6.14                    | 17.97                              | 29.37        |
| 8400               | 26.19        | 39.99               | 1.35         | 1.39 | 6.06                    | 17.76                              | 28.63        |
| 9200               | 26.39        | 35.49               | 1.27         | 1.21 | 5.99                    | 17.85                              | 28.74        |
| 10000              | 25.85        | 43.72               | 1.22         | 1.15 | 6.05                    | 17.89                              | 28.85        |
| 10800              | 25.63        | 36.72               | 1.12         | 1.07 | 6.06                    | 17.77                              | 28.83        |
| 11600              | 25.12        | 39.61               | 1.10         | 1.18 | 6.04                    | 17.82                              | 28.90        |
| 12400              | 24.58        | 44.23               | 1.30         | 1.31 | 6.02                    | 17.48                              | 28.96        |
| 13200              | 24.27        | 44.84               | 1.44         | 1.43 | 6.06                    | 17.32                              | 28.53        |
| 14000              | 24.24        | 45.00               | 1.48         | 1.41 | 6.17                    | 17.58                              | 27.91        |
| 15000              | 24.28        | 43.59               | 1.46         | 1.30 | 6.17                    | 17.66                              | 27.64        |
| 16000              | 24.12        | 46.06               | 1.37         | 1.35 | 6.21                    | 17.64                              | 27.38        |
| 17000              | 23.97        | 51.94               | 1.64         | 1.10 | 6.20                    | 17.84                              | 27.09        |
| 18000              | 24.07        | 60.76               | 1.73         | 1.09 | 6.21                    | 17.29                              | 27.07        |



Notes

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# RF Instrument Amplifier

TVA-63-183A+

## Typical Performance Data

| FREQUENCY<br>(MHz) | GAIN      | DIRECTIVITY | VSWR (:1) |           | NOISE<br>FIGURE | POUT @ 1 dB<br>COMPRESSION | OUTPUT IP3 |
|--------------------|-----------|-------------|-----------|-----------|-----------------|----------------------------|------------|
|                    | (dB)      | (dB)        | IN        | OUT       | (dB)            | (dBm)                      | (dBm)      |
|                    | 110V/220V | 110V/220V   | 110V/220V | 110V/220V | 110V/220V       | 110V/220V                  | 110V/220V  |
| 6000.0             | 26.57     | 37.52       | 1.24      | 1.43      | 6.24            | 17.69                      | 29.99      |
| 6200.0             | 26.43     | 37.23       | 1.39      | 1.39      | 6.27            | 17.93                      | 29.93      |
| 6400.0             | 26.40     | 36.27       | 1.38      | 1.21      | 6.35            | 18.05                      | 29.85      |
| 6600.0             | 26.30     | 35.94       | 1.28      | 1.27      | 6.23            | 18.06                      | 30.00      |
| 6800.0             | 26.09     | 35.82       | 1.32      | 1.46      | 6.25            | 18.04                      | 29.74      |
| 7000.0             | 25.92     | 35.98       | 1.44      | 1.46      | 6.25            | 17.98                      | 29.46      |
| 7200.0             | 25.98     | 35.87       | 1.43      | 1.28      | 6.24            | 17.99                      | 29.50      |
| 7400.0             | 26.09     | 36.48       | 1.30      | 1.22      | 6.12            | 17.96                      | 29.56      |
| 7600.0             | 26.01     | 37.23       | 1.39      | 1.44      | 6.14            | 17.97                      | 29.37      |
| 7800.0             | 25.93     | 38.58       | 1.56      | 1.50      | 6.24            | 17.73                      | 28.78      |
| 8000.0             | 26.09     | 39.43       | 1.54      | 1.35      | 6.14            | 17.93                      | 29.04      |
| 8200.0             | 26.24     | 39.76       | 1.38      | 1.26      | 6.09            | 17.96                      | 28.97      |
| 8400.0             | 26.19     | 39.99       | 1.35      | 1.39      | 6.06            | 17.76                      | 28.63      |
| 8600.0             | 26.13     | 40.17       | 1.41      | 1.42      | 6.03            | 17.77                      | 28.69      |
| 8800.0             | 26.26     | 39.49       | 1.35      | 1.28      | 6.17            | 17.83                      | 28.78      |
| 9000.0             | 26.39     | 37.59       | 1.23      | 1.15      | 6.03            | 17.76                      | 28.90      |
| 9200.0             | 26.39     | 35.49       | 1.27      | 1.21      | 5.99            | 17.85                      | 28.74      |
| 9400.0             | 26.24     | 38.88       | 1.28      | 1.21      | 6.09            | 17.94                      | 28.70      |
| 9600.0             | 26.16     | 43.57       | 1.23      | 1.12      | 6.08            | 17.94                      | 28.75      |
| 10000.0            | 25.85     | 43.72       | 1.22      | 1.15      | 6.05            | 17.89                      | 28.85      |
| 10200.0            | 25.72     | 39.52       | 1.22      | 1.10      | 6.07            | 17.95                      | 28.79      |
| 10400.0            | 25.67     | 41.31       | 1.14      | 1.02      | 6.06            | 17.67                      | 28.89      |
| 10600.0            | 25.64     | 39.34       | 1.10      | 1.04      | 6.08            | 17.80                      | 28.89      |
| 10800.0            | 25.63     | 36.72       | 1.12      | 1.07      | 6.06            | 17.77                      | 28.83      |
| 11000.0            | 25.53     | 37.35       | 1.11      | 1.05      | 6.06            | 17.65                      | 28.87      |
| 11200.0            | 25.41     | 38.28       | 1.05      | 1.08      | 6.03            | 17.75                      | 28.82      |
| 11400.0            | 25.27     | 38.86       | 1.06      | 1.16      | 6.09            | 17.81                      | 28.89      |
| 11600.0            | 25.12     | 39.61       | 1.10      | 1.18      | 6.04            | 17.82                      | 28.90      |
| 11800.0            | 24.96     | 42.14       | 1.09      | 1.15      | 6.02            | 17.37                      | 29.15      |
| 12000.0            | 24.81     | 44.51       | 1.11      | 1.25      | 6.02            | 17.88                      | 29.02      |
| 12200.0            | 24.68     | 43.98       | 1.21      | 1.36      | 5.97            | 17.61                      | 28.99      |
| 12400.0            | 24.58     | 44.23       | 1.30      | 1.31      | 6.02            | 17.48                      | 28.96      |
| 12600.0            | 24.54     | 44.16       | 1.31      | 1.22      | 5.97            | 17.31                      | 28.98      |
| 12800.0            | 24.48     | 44.00       | 1.27      | 1.37      | 6.02            | 17.40                      | 28.71      |
| 13000.0            | 24.32     | 44.90       | 1.33      | 1.51      | 6.11            | 17.35                      | 28.77      |
| 13200.0            | 24.27     | 44.84       | 1.44      | 1.43      | 6.06            | 17.32                      | 28.53      |
| 13400.0            | 24.34     | 44.50       | 1.44      | 1.33      | 6.16            | 17.52                      | 28.40      |
| 13600.0            | 24.33     | 44.58       | 1.36      | 1.46      | 6.09            | 17.37                      | 28.30      |
| 13800.0            | 24.23     | 44.99       | 1.38      | 1.54      | 6.10            | 17.37                      | 28.22      |
| 14000.0            | 24.24     | 45.00       | 1.48      | 1.41      | 6.17            | 17.58                      | 27.91      |
| 14200.0            | 24.33     | 44.53       | 1.48      | 1.31      | 6.17            | 17.63                      | 27.91      |
| 14400.0            | 24.35     | 44.25       | 1.37      | 1.42      | 6.19            | 17.15                      | 28.02      |
| 14600.0            | 24.28     | 44.02       | 1.37      | 1.46      | 6.16            | 17.38                      | 27.86      |
| 14800.0            | 24.28     | 44.08       | 1.48      | 1.34      | 6.20            | 17.65                      | 27.67      |
| 15000.0            | 24.28     | 43.59       | 1.46      | 1.30      | 6.17            | 17.66                      | 27.64      |
| 15200.0            | 24.19     | 43.71       | 1.37      | 1.39      | 6.19            | 17.35                      | 27.72      |
| 15400.0            | 24.18     | 44.36       | 1.43      | 1.37      | 6.24            | 17.68                      | 27.45      |
| 15600.0            | 24.20     | 44.91       | 1.51      | 1.25      | 6.23            | 17.82                      | 27.49      |
| 15800.0            | 24.21     | 44.82       | 1.42      | 1.28      | 6.23            | 17.47                      | 27.48      |
| 16000.0            | 24.12     | 46.06       | 1.37      | 1.35      | 6.21            | 17.64                      | 27.38      |
| 16200.0            | 24.03     | 47.19       | 1.57      | 1.27      | 6.24            | 17.61                      | 27.48      |
| 16400.0            | 24.00     | 47.76       | 1.67      | 1.12      | 6.19            | 17.75                      | 27.38      |
| 16600.0            | 24.04     | 49.01       | 1.53      | 1.13      | 6.25            | 17.20                      | 27.52      |
| 16800.0            | 24.04     | 49.19       | 1.47      | 1.16      | 6.28            | 17.60                      | 27.32      |
| 17000.0            | 23.97     | 51.94       | 1.64      | 1.10      | 6.20            | 17.84                      | 27.09      |
| 17200.0            | 23.95     | 54.67       | 1.70      | 1.10      | 6.30            | 17.41                      | 27.27      |
| 17400.0            | 24.00     | 56.79       | 1.63      | 1.14      | 6.15            | 17.45                      | 27.26      |
| 18000.0            | 24.07     | 60.76       | 1.73      | 1.09      | 6.21            | 17.29                      | 27.07      |



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IF/RF MICROWAVE COMPONENTS

REV. OR

TVA-63-183A+

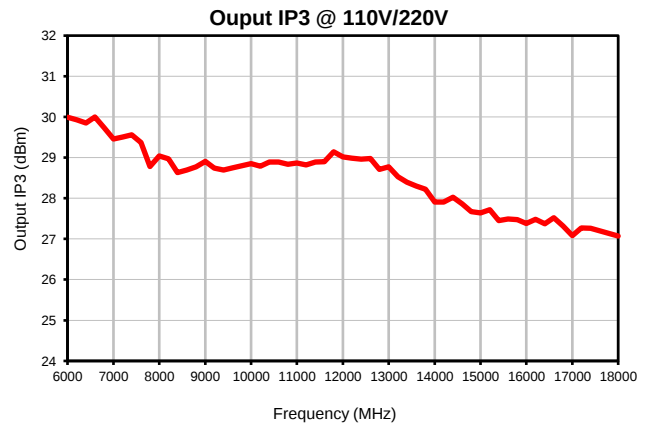
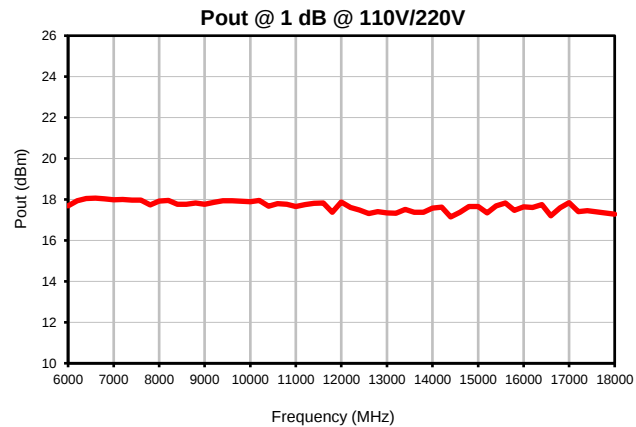
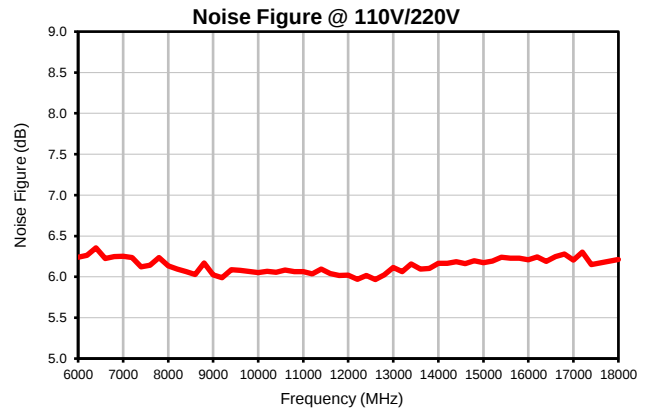
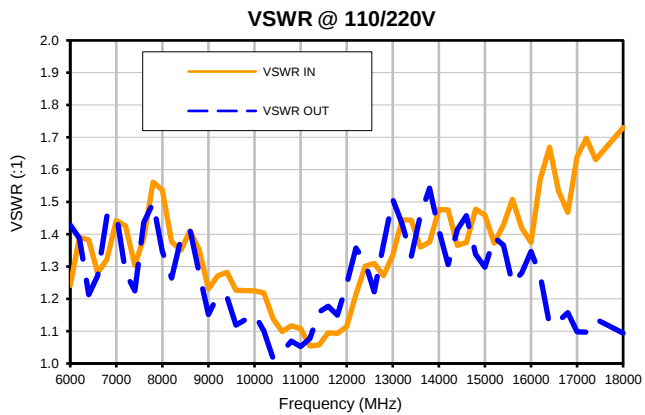
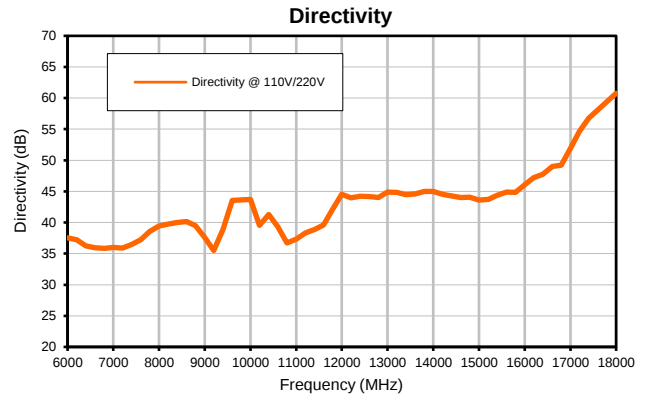
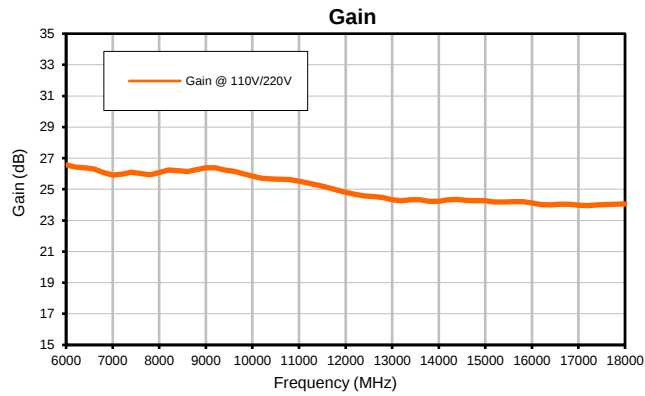
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# RF Instrument Amplifier

## Typical Performance Curves

**TVA-63-183A+**



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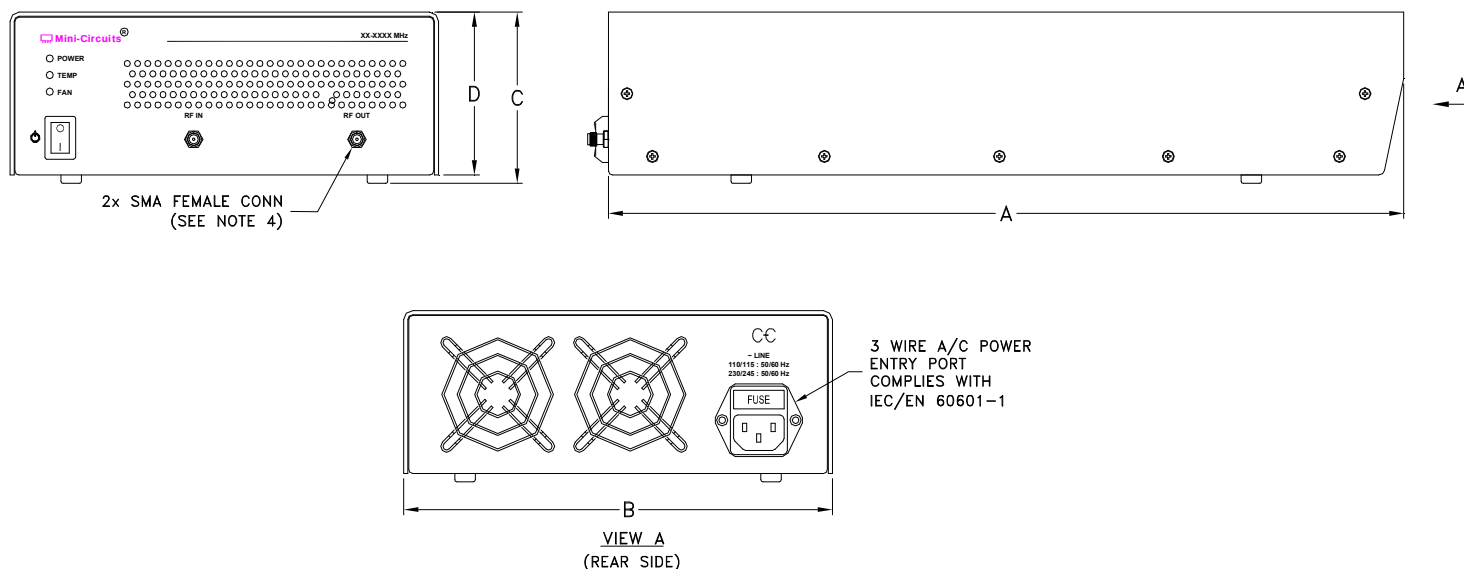
REV. OR  
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# Case Style

PJ

## Outline Dimensions

PJ2059



| CASE#  | A                | B               | C              | D              | E        | WT, GRAM |
|--------|------------------|-----------------|----------------|----------------|----------|----------|
| PJ2059 | 15.35<br>(390.0) | 8.27<br>(210.0) | 3.25<br>(82.6) | 3.09<br>(78.5) | --<br>-- | 2490     |

Dimensions are in inches (mm). Tolerances: 2 Pl.  $\pm .03$ ; 3 Pl.  $\pm .015$

### Notes:

1. Case material: Aluminum alloy.
2. Finish: White paint.
3. Keep area adjacent to airvents clear to allow free air flow. Caution: Do not insert anything, especially conductors or fingers into case opening. Physical injury, shock or death may occur.
4. Connector shape may vary.



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| Specification         | Test/Inspection Condition            | Reference/Spec              |
|-----------------------|--------------------------------------|-----------------------------|
| Operating Temperature | -0° to 55° C<br>Ambient Environment  | Individual Model Data Sheet |
| Storage Temperature   | -40° to 70° C<br>Ambient Environment | Individual Model Data Sheet |