

INCH-POUND

MIL-DTL-28875/5B  
20 January 2015  
SUPERSEDING  
MIL-DTL-28875/5A  
24 August 2000

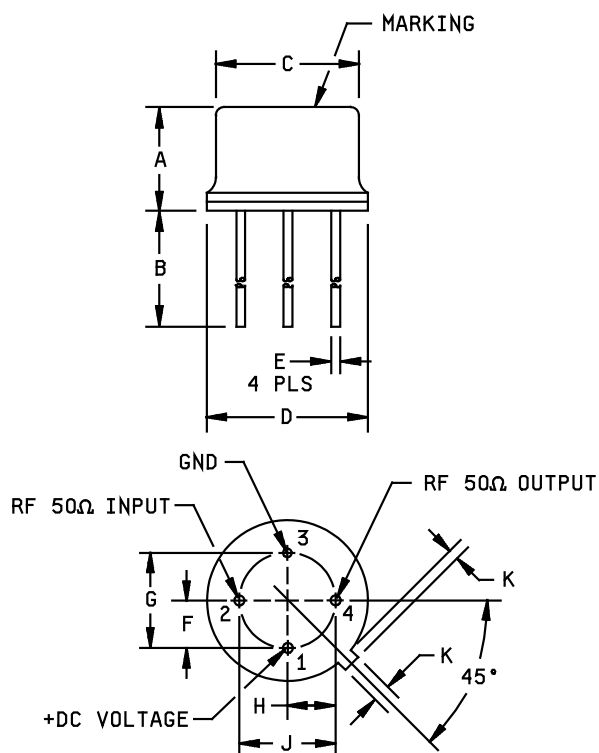
# DETAIL SPECIFICATION SHEET

## AMPLIFIERS, RADIO-FREQUENCY AND MICROWAVE, SOLID-STATE, LOW NOISE, WIDEBAND, TO CONFIGURATION

This specification is approved for use by all Departments and  
Agencies of the Department of Defense.

Inactive for new design  
after 20 May 2010

The requirements for acquiring the amplifiers described herein  
shall consist of this specification sheet and MIL-DTL-28875.



|   | Inches   |          | Millimeters |           |
|---|----------|----------|-------------|-----------|
|   | Max      | Min      | Max         | Min       |
| B | N/A      | .17      | N/A         | 4.3       |
| C | .455 dia | .445 dia | 11.56 dia   | 11.30 dia |
| D | .510     | .490     | 12.95       | 12.45     |
| E | .019     | .016     | .48         | .41       |
| F | .160     | .140     | 4.06        | 3.56      |
| G | .310     | .290     | 7.87        | 7.37      |
| H | .160     | .140     | 4.06        | 3.56      |
| J | .310     | .290     | 7.87        | 7.37      |
| K | .05      | N/A      | 1.3         | N/A       |

### NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only (1.00 in = 25.4 mm).

FIGURE 1. Dimensions and configuration.



TABLE I. Electrical characteristics (25°C unless otherwise specified).

| Dash No.         | Frequency range<br>(MHz) | DC input power      |                | Gain (dB)<br>Min                                        | Gain flatness (dB)<br>Max                                       | RF output power (dBm)<br>Min                            | VSWR Max                                                |                                                         | Noise figure (dB)<br>Max                                | Intercept point 3 <sup>rd</sup> order (dBm)<br>Min | Harmonic output (dBc) | Gain versus temp. (dB) | RF input power (dBm)<br>Max | Isolation (dB)<br>Min | Phase Linearity (deg)<br>Max |
|------------------|--------------------------|---------------------|----------------|---------------------------------------------------------|-----------------------------------------------------------------|---------------------------------------------------------|---------------------------------------------------------|---------------------------------------------------------|---------------------------------------------------------|----------------------------------------------------|-----------------------|------------------------|-----------------------------|-----------------------|------------------------------|
|                  |                          | Voltage             | Curr. Max (mA) |                                                         |                                                                 |                                                         | IN                                                      | OUT                                                     |                                                         |                                                    |                       |                        |                             |                       |                              |
| S1<br>01 S2<br>N | 5-250                    | +15 ±1%             | 40             | $\frac{31}{29 \text{ from } -54/+85^{\circ}\text{C}}$   | $\frac{+0.2}{1.0 \text{ from } -54/+85^{\circ}\text{C}}$        | $\frac{+9}{+7 \text{ from } -54/+85^{\circ}\text{C}}$   | $\frac{1.3:1}{2.0:1 \text{ from } +85^{\circ}\text{C}}$ | $\frac{1.3:1}{2.0:1 \text{ from } -54^{\circ}\text{C}}$ | $\frac{4}{5.5 \text{ from } -54/+85^{\circ}\text{C}}$   | +21                                                | N/A                   | ±2                     | +17                         | N/A                   | N/A                          |
| S1<br>02 S2<br>N | 200-400                  | +15 V dc<br>±1 V dc | 20             | 12.2                                                    | ±0.5                                                            | +6                                                      | 1.17:1                                                  | 1.17:1                                                  | 2.5                                                     | +19                                                | N/A                   | N/A                    | +13                         | 25                    | ±5                           |
| S1<br>03 S2<br>N | 5-500                    | +15 ±1%             | 25             | 20                                                      | ±1.0                                                            | +7                                                      | 2.0:1                                                   | 2.0:1                                                   | 4.5                                                     | +20                                                | N/A                   | N/A                    | N/A                         | N/A                   | N/A                          |
| S1<br>04 S2<br>N | 5-500                    | +15 ±1%             | 10             | 15                                                      | ±1.0                                                            | $\frac{-2}{-3 \text{ from } -54/+85^{\circ}\text{C}}$   | 2.0:1                                                   | 2.0:1                                                   | $\frac{2.5}{3.0 \text{ from } -54/+85^{\circ}\text{C}}$ | +8                                                 | N/A                   | N/A                    | +13                         | N/A                   | N/A                          |
| S1<br>05 S2<br>N | 5-500                    | +15 ±1%             | 10             | $\frac{14}{13.5 \text{ from } -54/+85^{\circ}\text{C}}$ | ±1.0                                                            | $\frac{-2}{-3 \text{ from } -54/+85^{\circ}\text{C}}$   | 2.0:1                                                   | 2.0:1                                                   | $\frac{4}{4.5 \text{ from } -54/+85^{\circ}\text{C}}$   | +11                                                | N/A                   | ±0.5                   | +13                         | N/A                   | N/A                          |
| S1<br>06 S2<br>N | 5-500                    | +15 ±1%             | 23             | $\frac{20}{19 \text{ from } -54/+85^{\circ}\text{C}}$   | ±1.0                                                            | +7                                                      | 2.0:1                                                   | 2.0:1                                                   | $\frac{4.5}{5.0 \text{ from } -54/+85^{\circ}\text{C}}$ | +20                                                | N/A                   | ±1.0                   | +13                         | N/A                   | N/A                          |
| S1<br>07 S2<br>N | 5-500                    | +15 ±1%             | 23             | $\frac{14}{13.5 \text{ from } -54/+85^{\circ}\text{C}}$ | ±1.0                                                            | +7                                                      | 2.0:1                                                   | 2.0:1                                                   | $\frac{5.5}{6.0 \text{ from } -54/+85^{\circ}\text{C}}$ | +21                                                | N/A                   | ±0.5                   | +13                         | N/A                   | N/A                          |
| S1<br>08 S2<br>N | 2-1000                   | +15 ±1%             | 10             | $\frac{14}{13.5 \text{ from } -54/+85^{\circ}\text{C}}$ | $\frac{+0.7}{\pm 1.0 \text{ from } -54/+85^{\circ}\text{C}}$    | $\frac{-5}{-6 \text{ from } -54/+85^{\circ}\text{C}}$   | 2.0:1                                                   | 2.2:1                                                   | $\frac{3.5}{4 \text{ from } -54/+85^{\circ}\text{C}}$   | +10                                                | N/A                   | N/A                    | +13                         | N/A                   | N/A                          |
| S1<br>09 S2<br>N | 5-1000                   | +15 ±1%             | 25             | $\frac{14}{13 \text{ from } -54/+85^{\circ}\text{C}}$   | $\frac{\pm 1.0}{\pm 1.2 \text{ from } -54/+85^{\circ}\text{C}}$ | $\frac{+7}{+6.5 \text{ from } -54/+85^{\circ}\text{C}}$ | 2.0:1                                                   | 2.0:1                                                   | $\frac{6.5}{7 \text{ from } -54/+85^{\circ}\text{C}}$   | +21                                                | N/A                   | N/A                    | +17                         | N/A                   | N/A                          |

TABLE I. Electrical characteristics (25°C unless otherwise specified) - Continued.

| Dash No.         | Frequency range<br><br>(MHz) | DC input power |                | Gain (dB)                                                     | Gain flatness (dB)                                                   | RF output power (dBm)                                           | VSWR Max |       | Noise figure (dB)                                                | Intercept point 3 <sup>rd</sup> order (dBm) | Harmonic output (dBc) | Gain versus temp. (dB) | RF input power (dBm) | Isolation (dB) | Phase Linearity (deg) |
|------------------|------------------------------|----------------|----------------|---------------------------------------------------------------|----------------------------------------------------------------------|-----------------------------------------------------------------|----------|-------|------------------------------------------------------------------|---------------------------------------------|-----------------------|------------------------|----------------------|----------------|-----------------------|
|                  |                              | Voltage        | Curr. Max (mA) | Min                                                           | Max                                                                  | Min                                                             | IN       | OUT   | Max                                                              | Min                                         |                       |                        | Max                  | Min            | Max                   |
| S1<br>10 S2<br>N | 10-1200                      | +15 ±1%        | 40             | $\frac{24}{23 \text{ from } -54^{\circ}/+85^{\circ}\text{C}}$ | $\frac{\pm 0.8}{1.0 \text{ from } -54^{\circ}/+85^{\circ}\text{C}}$  | $\frac{+7}{+6.5 \text{ from } -54^{\circ}/+85^{\circ}\text{C}}$ | 2.0:1    | 2.0:1 | $\frac{4.3}{+4.8 \text{ from } -54^{\circ}/+85^{\circ}\text{C}}$ | +20                                         | N/A                   | N/A                    | +17                  | N/A            | N/A                   |
| S1<br>11 S2<br>N | 10-2000                      | +15 ±1%        | 12             | $\frac{10.5}{\text{from } -54^{\circ}/+100^{\circ}\text{C}}$  | $\frac{\pm 1.0}{\text{from } -54^{\circ}/+100^{\circ}\text{C}}$      | $\frac{-4.5}{\text{from } -54^{\circ}/+100^{\circ}\text{C}}$    | 2.2:1    | 2.2:1 | $\frac{4.5}{\text{from } -54^{\circ}/+100^{\circ}\text{C}}$      | +10                                         | N/A                   | N/A                    | +27                  | N/A            | N/A                   |
| S1<br>12 S2<br>N | 100-2000                     | +15 ±1%        | 40             | $\frac{15}{14 \text{ from } -54^{\circ}/+85^{\circ}\text{C}}$ | $\frac{\pm 0.7}{+1.0 \text{ from } -54^{\circ}/+85^{\circ}\text{C}}$ | $\frac{+6}{+5 \text{ from } -54^{\circ}/+85^{\circ}\text{C}}$   | 2.0:1    | 2.0:1 | $\frac{6.5}{7.0 \text{ from } -54^{\circ}/+85^{\circ}\text{C}}$  | +18                                         | N/A                   | N/A                    | +17                  | N/A            | N/A                   |

TABLE II. Dimension, physical and environmental characteristics.

| Dash number      | Dimension A in inches (mm) Max | Mass Max (Grams) | Temperature range   |              | Burn-in temperature (case temp) | Seal     | Salt       |
|------------------|--------------------------------|------------------|---------------------|--------------|---------------------------------|----------|------------|
|                  |                                |                  | Operating case temp | Nonoperating |                                 |          |            |
| 01 S1<br>S2<br>N | .22 (5.6)                      | 2.5              | -54/+85°C           | -65/+100°C   | +100°C                          | Hermetic | Applicable |
| 02 S1<br>S2<br>N | .27 (6.8)                      | 2.5              | -55/+100°C          | -65/+125°C   | +100°C                          | Hermetic | Applicable |
| 03 S1<br>S2<br>N | .18 (4.6)                      | 2.5              | -54/+85°C           | -65/+100°C   | +125°C                          | Hermetic | Applicable |
| 04 S1<br>S2<br>N | .18 (4.6)                      | 2.5              | -54/+85°C           | -65/+100°C   | +100°C                          | Hermetic | Applicable |
| 05 S1<br>S2<br>N | .18 (4.6)                      | 2.5              | -54/+85°C           | -65/+100°C   | +125°C                          | Hermetic | Applicable |
| 06 S1<br>S2<br>N | .18 (4.6)                      | 2.5              | -54/+85°C           | -65/+100°C   | +125°C                          | Hermetic | Applicable |
| 07 S1<br>S2<br>N | .18 (4.6)                      | 2.5              | -54/+85°C           | -65/+100°C   | +125°C                          | Hermetic | Applicable |
| 08 S1<br>S2<br>N | .18 (4.6)                      | 2.5              | -54/+85°C           | -65/+100°C   | +125°C                          | Hermetic | Applicable |
| 09 S1<br>S2<br>N | .18 (4.6)                      | 2.5              | -54/+85°C           | -65/+100°C   | +125°C                          | Hermetic | Applicable |
| 10 S1<br>S2<br>N | .22 (5.6)                      | 2.5              | -54/+85°C           | -65/+100°C   | +100°C                          | Hermetic | Applicable |
| 11 S1<br>S2<br>N | .22 (5.6)                      | 2.5              | -54/+100°C          | -62/+125°C   | +125°C                          | Hermetic | Applicable |
| 12 S1<br>S2<br>N | .22 (5.6)                      | 2.5              | -54/+100°C          | -62/+125°C   | +125°C                          | Hermetic | Applicable |

REQUIREMENTS:

Dimensions and configuration: See figure 1 and table II.

Electrical characteristics: See table I.

Physical and environmental characteristics: See table II.

Part number. M28875/5-(dash number from tables I and II).

Referenced documents. This specification sheet only references MIL-DTL-28875.

The margins of this specification sheet are marked with vertical lines to indicate where modifications from this revision were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations.

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