

Full Performance Amplifiers

T-74-09-01

Available in 4 Pin TO-8 (TM), 4 Pin TO-8B (TR), Flatpacks, Surface Mount Packages and Connectorized Housings

(Listed by increasing Frequency, Noise Figure, and Power)

B-74-09-51

| Model No. | Freq. Range (MHz) | Gain (dB) | | Noise Figure (dB) | | Power Output (dBm) | | Third Order Intercept Point Typ (dBm) | VSWR MAX In/Out | Power Typ | |
|-----------|-------------------|-----------|------|-------------------|------|--------------------|-------|---------------------------------------|-----------------|-----------|-----|
| | | Typ | Min | Typ | Max | Typ | Min | | | Vdc | mA |
| TM9311 | 5-1000 | 16.0 | 15.0 | 2.3 | 3.0 | + 1.0 | - 2.0 | +13 | 2.0:1 | +15 | 9 |
| TM9363 | 5-1000 | 16.0 | 15.0 | 2.4 | 3.5 | + 7.0 | + 6.0 | +21 | 2.0:1 | +15 | 16 |
| TM9111 | 5-1000 | 15.0 | 14.0 | 2.4 | 4.0 | + 1.0 | - 2.0 | +12 | 2.0:1 | +15 | 9 |
| TM9312 | 5-1000 | 16.5 | 15.0 | 2.5 | 4.0 | + 8.0 | + 4.0 | +18 | 2.0:1 | +15 | 18 |
| TM9112 | 10-1000 | 16.0 | 14.5 | 3.0 | 4.0 | +11.0 | + 9.0 | +21 | 2.0:1 | +15 | 22 |
| TM9163 | 5-1000 | 16.0 | 15.0 | 2.5 | 4.5 | + 6.0 | + 2.0 | +20 | 2.0:1 | +15 | 14 |
| *TM9143 | 10-1000 | 10.5 | 9.0 | 2.5 | 4.5 | +10.0 | + 8.0 | +27 | 2.0:1 | +15 | 25 |
| TM9366 | 10-1000 | 27.5 | 25.5 | 2.7 | 4.5 | +16.0 | +14.0 | +26 | 2.0:1 | +15 | 70 |
| TM6145 | 10-1000 | 10.7 | 10.0 | 3.0 | 5.0 | +19.0 | +16.0 | +33 | 2.0:1 | +15 | 60 |
| *TM9157 | 10-1000 | 10.5 | 9.0 | 4.5 | 5.5 | +14.0 | +13.0 | +27 | 2.0:1 | +15 | 44 |
| TM9318 | 10-1000 | 14.7 | 13.5 | 3.8 | 5.5 | +16.0 | +14.5 | +30 | 2.0:1 | +15 | 47 |
| *TR9169 | 10-1000 | 25.5 | 24.0 | 3.8 | 5.5 | +21.0 | +19.0 | +33 | 2.0:1 | +15 | 125 |
| *TM9333 | 5-1000 | 11.5 | 10.0 | 4.8 | 6.0 | +16.0 | +14.0 | +30 | 2.0:1 | +15 | 48 |
| TM9117 | 10-1000 | 12.0 | 10.0 | 4.0 | 6.0 | +16.0 | +15.0 | +29 | 2.0:1 | +15 | 46 |
| TM9106 | 5-1000 | 12.0 | 10.5 | 4.8 | 6.5 | +18.5 | +16.0 | +30 | 2.0:1 | +15 | 70 |
| TM9115 | 5-1000 | 15.2 | 13.0 | 4.1 | 7.0 | +10.2 | + 6.5 | +23 | 2.0:1 | +15 | 24 |
| TM9102 | 5-1000 | 14.5 | 13.5 | 5.0 | 7.0 | + 8.5 | + 7.0 | +21 | 2.0:1 | +15 | 23 |
| TM9319 | 10-1000 | 11.5 | 10.0 | 5.5 | 7.5 | +22.0 | +20.0 | +35 | 2.0:1 | +15 | 90 |
| TM9165 | 10-1000 | 10.5 | 9.0 | 4.0 | 8.0 | +11.0 | + 8.0 | +24 | 2.0:1 | +15 | 30 |
| TM9119 | 10-1000 | 9.0 | 7.0 | 6.5 | 9.0 | +22.0 | +19.0 | +35 | 2.0:1 | +15 | 100 |
| TM6345 | 10-1100 | 12.3 | 11.5 | 2.6 | 3.7 | +17.0 | +15.0 | +30 | 2.0:1 | +15 | 45 |
| *TM9316 | 10-1200 | 13.0 | 12.0 | 3.0 | 4.0 | + 6.0 | + 4.5 | +19 | 2.0:1 | +15 | 18 |
| TM9164 | 10-1200 | 26.0 | 23.0 | 3.0 | 4.5 | + 8.0 | + 6.5 | +19 | 2.0:1 | +15 | 35 |
| TM9166 | 10-1200 | 23.5 | 21.0 | 4.5 | 5.5 | +15.0 | +13.5 | +27 | 2.0:1 | +15 | 65 |
| *TM5131 | 5-1300 | 18.0 | 17.0 | 5.0 | 7.0 | + 7.0 | + 5.0 | +19 | 2.0:1 | +15 | 40 |
| TM6212 | 10-1300 | 10.0 | 8.5 | 6.0 | 8.0 | +23.0 | +19.5 | +34 | 2.0:1 | +15 | 92 |
| TM9524 | 10-1500 | 22.0 | 20.0 | 4.3 | 5.0 | +13.0 | +10.0 | +23 | 2.0:1 | +15 | 56 |
| *TM9502 | 5-1500 | 10.5 | 8.5 | 4.0 | 5.5 | + 9.0 | + 7.0 | +24 | 2.0:1 | +15 | 23 |
| TM9123 | 5-1500 | 12.0 | 10.0 | 3.5 | 6.0 | + 4.5 | + 2.0 | +19 | 2.0:1 | +15 | 14 |
| TM9114 | 10-1500 | 20.0 | 18.0 | 4.5 | 6.0 | + 6.5 | + 5.5 | +20.5 | 2.0:1 | +12 | 34 |
| TM9124 | 10-1500 | 20.0 | 18.0 | 4.5 | 6.0 | + 7.0 | + 6.0 | +20.5 | 2.0:1 | +15 | 34 |
| TM9522 | 5-1500 | 20.5 | 18.5 | 5.0 | 6.0 | +14.0 | +10.0 | +23.5 | 2.0:1 | +15 | 64 |
| TM9126 | 10-1500 | 20.5 | 18.5 | 5.0 | 6.0 | +15.0 | +13.0 | +28 | 2.0:1 | +15 | 64 |
| TM9128 | 10-1500 | 11.5 | 10.0 | 4.5 | 6.0 | +15.0 | +13.5 | +29 | 2.0:1 | +15 | 40 |
| TM9122 | 10-1500 | 15.0 | 13.0 | 4.7 | 7.0 | + 5.0 | + 4.0 | +21 | 2.0:1 | +15 | 34 |
| TM9121 | 10-1500 | 15.0 | 13.0 | 5.0 | 7.0 | + 7.0 | + 5.0 | +19 | 2.0:1 | +15 | 35 |
| TM9125 | 10-1500 | 10.1 | 8.0 | 5.0 | 8.0 | + 8.0 | + 6.5 | +21 | 2.0:1 | +15 | 24 |
| TM9329 | 10-1500 | 9.0 | 7.5 | 6.5 | 9.0 | +22.0 | +19.0 | +35 | 2.0:1 | +15 | 90 |
| TM9127 | 10-1500 | 9.0 | 7.0 | 7.5 | 9.5 | +15.5 | +13.5 | +22.5 | 2.0:1 | +15 | 53 |
| TM9129 | 10-1500 | 7.5 | 5.0 | 9.0 | 10.5 | +21.0 | +19.5 | +34 | 2.0:1 | +15 | 93 |
| TM9331 | 10-2000 | 11.8 | 10.5 | 3.5 | 4.5 | - 2.0 | - 4.5 | +9 | 2.0:1 | +15 | 11 |
| *TM9352 | 5-2000 | 10.0 | 8.5 | 4.0 | 5.5 | + 8.0 | + 5.0 | +20 | 2.0:1 | +15 | 18 |
| *TM9324 | 5-2000 | 16.0 | 14.5 | 4.8 | 5.5 | + 6.5 | + 4.5 | +19 | 2.0:1 | +15 | 38 |
| *TM9113 | 500-2000 | 11.0 | 8.5 | 4.5 | 6.0 | +22.0 | +18.0 | +33 | 2.0:1 | +15 | 120 |
| TM9133 | 10-2000 | 10.0 | 8.0 | 4.2 | 6.0 | + 3.0 | + 2.0 | +15 | 2.0:1 | +15 | 16 |
| TM9135 | 10-2000 | 10.2 | 8.5 | 5.0 | 6.5 | + 9.0 | + 7.5 | +23 | 2.0:1 | +15 | 25 |
| *TM9322 | 10-2000 | 10.0 | 8.5 | 5.0 | 6.5 | + 9.0 | + 7.5 | +23 | 2.0:1 | +15 | 25 |
| TM9136 | 100-2000 | 16.5 | 14.5 | 5.5 | 6.5 | +12.0 | +11.0 | +23 | 2.0:1 | +15 | 64 |
| TM9134 | 100-2000 | 16.0 | 14.0 | 5.5 | 7.0 | + 7.0 | + 5.0 | +18 | 2.0:1 | +15 | 34 |
| *TM9323 | 10-2000 | 8.5 | 7.5 | 5.5 | 7.5 | +15.0 | +14.0 | +30 | 2.0:1 | +15 | 50 |
| TM9103 | 1000-2000 | 9.0 | 7.5 | 5.0 | 8.5 | +11.0 | + 7.0 | +24 | 2.0:1 | +15 | 30 |
| TM9137 | 10-2000 | 9.3 | 7.0 | 6.5 | 8.5 | +15.5 | +13.5 | +28 | 2.0:1 | +15 | 53 |
| TM9138 | 10-2000 | 7.5 | 6.0 | 6.0 | 9.5 | +19.0 | +16.5 | +33 | 2.0:1 | +15 | 72 |
| *TM9139 | 10-2000 | 7.5 | 6.0 | 7.5 | 10.0 | +22.0 | +20.0 | +34 | 2.0:1 | +15 | 90 |
| TM9336 | 100-2300 | 16.0 | 14.0 | 6.0 | 7.5 | +12.0 | +11.0 | +23 | 2.0:1 | +15 | 63 |
| *TM9302 | 1700-2300 | 10.5 | 8.5 | 5.0 | 6.5 | +15.0 | +14.0 | +23 | 2.0:1 | +15 | 18 |

*New Product

Outline Drawings

All unmarked Pins are internally grounded.

T2 (TO-5 Package)

BASE IS GLASS.

PINS EQ SPACED ON 0.230 DIA BC LOCATED AS SHOWN

| Model No. | IN1 | IN2 | A | B | 50HM | LY | Y | CTL |
|-----------|-----|-----|-----|-----|------|-----|-----|-----|
| TWR2213 | 2 | 6 | 3 | 5 | N/A | N/A | N/A | N/A |
| TWR2224 | 2 | 6 | 3 | 5 | 8 | N/A | N/A | N/A |
| TWR2224 | 2 | 6 | N/A | N/A | 8 | 3 | 5 | 4 |

T4 (TO-8 Package)

T5 (5 Pin TO-8 Package)

T7 (TO-12 Package)

T8 (TO8-B Package)

T10 (TO-39 Package)

SM1 (Surface Mount Package)

SM2 (Surface Mount Package)

| Model No. | Is | Out | DC | A | B | CTL |
|-----------|----|-----|-----|-----|-----|-----|
| AB Amps | 3 | 1 | 2 | N/A | N/A | N/A |
| TWR2278 | 3 | 1 | N/A | 4 | 2 | N/A |
| TWR9002 | 1 | 3 | 2 | N/A | N/A | 4 |

SM3 (Surface Mount Package)

SM4 (Surface Mount Package)

Outline Drawings All unmarked Pins are internally grounded.

FP2 (Flatpack)

50 OHM INPUT, 50 OHM OUTPUT, 0.38, 0.30, 0.20, 0.25, 0.20 (5.1), 0.08 (1.31), 0.2 (0.46), DIA (4) PLACES, 0.15 (3.81), 0.50 (12.70)

FP4 (Flatpack)

50 OHM INPUT, 50 OHM OUTPUT, 0.38, 0.30, 0.20, 0.25, 0.20 (5.1), 0.08 (1.31), 0.2 (0.46), DIA (4) PLACES, 0.15 (3.81), 0.50 (12.70)

FP7 (Flatpack)

ORIENTATION MARK, 0.100 SQ. MAX, 0.250 MIN, 0.015 ±0.003 TYP, 3 EQUAL SPACES @ 0.050 (1.27) TOLERANCE NON-CUMULATIVE, PIN 1, PIN 8, 0.025, 0.005 ±0.002

| Model No. | RF COM | RF 1 | RF 2 | A | B |
|-----------|--------|------|------|---|---|
| SPST | N/A | 8 | 5 | 2 | 3 |
| SPDT | 1 | 3 | 6 | 4 | 5 |

FP9 (Flatpack)

750, 125, 0.50 TYP, 24 PLACES, 750, 500, PIN 1, PIN 14, 150 MAX, 0.065

| Model No. | COM | RF 1 | RF 2 | RF 3 | RF 4 | RF 5 | RF 6 | RF 7 | -V | CTL | CTL 1 | CTL 2 |
|-----------|-----|------|------|------|------|------|------|------|----|-----|-------|-------|
| TWP6004 | 7 | 14 | 16 | 18 | 20 | 22 | 24 | 26 | 13 | 3 | 4 | 5 |

FP10 (Flatpack)

100, 8 PL, NON-CUMULATIVE, 115, 1.130 ± 0.015, 500 MIN TYP, 398, 0.795 ± 0.015, 109 DIA THRU, 2 PL, 25, 0.15, 0.15 DIA, 10 PL, 175 MAX, 0.015

FP11 (Flatpack)

PIN 8, 51, 25, 28 TYP, PIN 1, 0.020, 0.13 DIA TYP, 0.02, 51, 205 MAX, 0.080 TYP, 160, 110, 140 TYP, 0.080 TYP

| Model No. | Out | RF 1 | RF 2 | RF 3 | RF 4 |
|-----------|-----|------|------|------|------|
| W003 | 7 | 3 | 1 | | |

FP12 (Flatpack)

0.375 ±0.020, PIN 1, 0.375 ±0.020, 0.312 MIN TYP, PIN 6, 0.088, 0.100, 0.200, 0.015 DIA ±0.005, 6 PLACES, 0.080, 0.125 MAX

| Model No. | RF 1 | RF 2 | COM | A | B | -S | -R | CTL |
|-----------|------|------|-----|-----|-----|-----|-----|-----|
| TWP2214 | 2 | 4 | N/A | 1 | 3 | N/A | N/A | N/A |
| TWP2282 | 4 | 6 | 2 | 1 | 3 | N/A | N/A | N/A |
| TWP2225 | 4 | 6 | 2 | N/A | N/A | 1 | 3 | 4 |

FP13 (Flatpack)

6 EQUAL SPACES @ 0.100 TOLERANCE NON-CUMULATIVE, 0.110 TYP, PIN 1, 0.325 MIN, 0.490, 0.820 ± 0.005, PIN 14, DIA 14 PLACES, 0.070, 0.145 MAX, RF 2 not connected on SPST +V = +5 Vdc

FP14 (Flatpack)

7 EQUAL SPACES @ 0.100 TOLERANCE NON-CUMULATIVE, 0.150 TYP, PIN 1, 0.325 MIN, 0.800, 1.000 ± 0.005, PIN 16, 0.015 ± 0.005 DIA 16 PLACES, 0.070, 0.145 MAX, RF 4 not connected on SPST +V = +5 Vdc