

Digital Step Attenuator

DAT-31R5A-SN+

Typical Performance Data

TEST CONDITIONS: INPUT POWER=0 dBm, Vdd=+3V, Vss=-3.2V, TEMPERATURE=-40°C

| FREQUENCY (MHz) | STEP ATTENUATION* AT TTL CONTROL STATE (dB) | | | | | | | |
|--------------------|--|------------------|------------------|------------------|------------------|------------------|-----------------|-------------------|
| | 000000 THRU LOSS | 000001 0.5 dB | 000010 1.0 dB | 000100 2.0 dB | 001000 4.0 dB | 010000 8.0 dB | 100000 16 dB | 111111 31.5 dB |
| 0.1 | 1.02 | 0.54 | 1.04 | 2.05 | 4.07 | 8.05 | 15.92 | 31.52 |
| 0.3 | 1.01 | 0.54 | 1.05 | 2.05 | 4.07 | 8.05 | 15.92 | 31.51 |
| 0.5 | 1.01 | 0.54 | 1.05 | 2.05 | 4.07 | 8.05 | 15.92 | 31.52 |
| 1 | 1.01 | 0.54 | 1.05 | 2.05 | 4.07 | 8.05 | 15.92 | 31.50 |
| 5 | 1.04 | 0.54 | 1.05 | 2.05 | 4.07 | 8.05 | 15.92 | 31.50 |
| 10 | 1.04 | 0.54 | 1.05 | 2.05 | 4.07 | 8.05 | 15.92 | 31.52 |
| 50 | 1.06 | 0.54 | 1.04 | 2.05 | 4.07 | 8.05 | 15.92 | 31.51 |
| 100 | 1.06 | 0.54 | 1.04 | 2.05 | 4.06 | 8.04 | 15.91 | 31.50 |
| 200 | 1.07 | 0.54 | 1.05 | 2.05 | 4.06 | 8.05 | 15.92 | 31.50 |
| 300 | 1.07 | 0.54 | 1.05 | 2.05 | 4.07 | 8.06 | 15.93 | 31.51 |
| 400 | 1.07 | 0.55 | 1.05 | 2.05 | 4.08 | 8.07 | 15.94 | 31.52 |
| 500 | 1.08 | 0.55 | 1.05 | 2.06 | 4.08 | 8.07 | 15.95 | 31.53 |
| 600 | 1.10 | 0.54 | 1.05 | 2.05 | 4.07 | 8.07 | 15.95 | 31.51 |
| 700 | 1.12 | 0.55 | 1.05 | 2.05 | 4.08 | 8.07 | 15.95 | 31.50 |
| 800 | 1.15 | 0.54 | 1.05 | 2.05 | 4.07 | 8.08 | 15.96 | 31.49 |
| 900 | 1.18 | 0.55 | 1.05 | 2.06 | 4.08 | 8.08 | 15.97 | 31.53 |
| 1000 | 1.20 | 0.55 | 1.05 | 2.06 | 4.08 | 8.10 | 15.99 | 31.57 |
| 1100 | 1.21 | 0.55 | 1.05 | 2.06 | 4.09 | 8.11 | 16.02 | 31.59 |
| 1200 | 1.23 | 0.55 | 1.05 | 2.07 | 4.09 | 8.13 | 16.04 | 31.64 |
| 1300 | 1.25 | 0.55 | 1.06 | 2.07 | 4.10 | 8.14 | 16.07 | 31.68 |
| 1400 | 1.27 | 0.55 | 1.06 | 2.07 | 4.11 | 8.16 | 16.11 | 31.77 |
| 1500 | 1.30 | 0.55 | 1.06 | 2.08 | 4.11 | 8.18 | 16.13 | 31.75 |
| 1600 | 1.32 | 0.55 | 1.06 | 2.08 | 4.12 | 8.20 | 16.17 | 31.86 |
| 1700 | 1.35 | 0.56 | 1.07 | 2.08 | 4.13 | 8.22 | 16.21 | 31.89 |
| 1800 | 1.36 | 0.56 | 1.07 | 2.09 | 4.14 | 8.24 | 16.25 | 31.94 |
| 1900 | 1.37 | 0.56 | 1.08 | 2.10 | 4.16 | 8.28 | 16.31 | 31.95 |
| 2000 | 1.38 | 0.57 | 1.08 | 2.11 | 4.17 | 8.32 | 16.36 | 31.89 |
| 2100 | 1.40 | 0.57 | 1.09 | 2.12 | 4.19 | 8.35 | 16.41 | 31.88 |
| 2200 | 1.42 | 0.57 | 1.09 | 2.13 | 4.20 | 8.39 | 16.47 | 31.88 |
| 2300 | 1.44 | 0.57 | 1.09 | 2.14 | 4.22 | 8.43 | 16.51 | 31.80 |
| 2400 | 1.45 | 0.57 | 1.10 | 2.14 | 4.23 | 8.46 | 16.55 | 31.72 |
| 2500 | 1.46 | 0.58 | 1.10 | 2.15 | 4.24 | 8.50 | 16.61 | 31.67 |
| 2600 | 1.48 | 0.58 | 1.10 | 2.16 | 4.26 | 8.53 | 16.63 | 31.34 |
| 2700 | 1.50 | 0.58 | 1.10 | 2.16 | 4.26 | 8.56 | 16.67 | 31.31 |
| 2800 | 1.52 | 0.58 | 1.10 | 2.16 | 4.26 | 8.58 | 16.68 | 31.18 |
| 2900 | 1.53 | 0.57 | 1.09 | 2.15 | 4.25 | 8.58 | 16.68 | 30.99 |
| 3000 | 1.53 | 0.57 | 1.08 | 2.14 | 4.24 | 8.58 | 16.68 | 30.98 |
| 3200 | 1.52 | 0.56 | 1.07 | 2.12 | 4.20 | 8.57 | 16.67 | 30.83 |
| 3400 | 1.55 | 0.55 | 1.05 | 2.10 | 4.17 | 8.57 | 16.74 | 31.35 |
| 3600 | 1.62 | 0.55 | 1.05 | 2.09 | 4.16 | 8.61 | 16.92 | 31.81 |
| 3800 | 1.70 | 0.55 | 1.05 | 2.09 | 4.17 | 8.68 | 17.17 | 31.84 |
| 4000 | 1.76 | 0.55 | 1.05 | 2.10 | 4.18 | 8.74 | 17.27 | 30.68 |
| 4200 | 1.77 | 0.56 | 1.07 | 2.11 | 4.20 | 8.82 | 17.37 | 29.73 |
| 4400 | 1.84 | 0.57 | 1.08 | 2.13 | 4.23 | 8.91 | 17.46 | 29.18 |
| 4600 | 1.89 | 0.58 | 1.10 | 2.15 | 4.27 | 9.03 | 17.64 | 29.09 |
| 4800 | 1.94 | 0.59 | 1.12 | 2.17 | 4.32 | 9.20 | 17.91 | 29.35 |
| 5000 | 1.97 | 0.60 | 1.13 | 2.20 | 4.37 | 9.37 | 18.10 | 29.18 |

* Step Attenuation above Thru Loss (TTL Logic 00000).



REV. A
DAT-31R5A-SN+

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Digital Step Attenuator

DAT-31R5A-SN+

Typical Performance Data

TEST CONDITIONS: INPUT POWER=0 dBm, Vdd=+3V, Vss=-3.2V, TEMPERATURE=-40°C

| FREQUENCY (MHz) | INPUT RETURN LOSS AT TTL CONTROL STATE (dB) | | | | | | | |
|--------------------|--|------------------|------------------|------------------|------------------|------------------|-----------------|-------------------|
| | 000000 0 dB | 000001 0.5 dB | 000010 1.0 dB | 000100 2.0 dB | 001000 4.0 dB | 010000 8.0 dB | 100000 16 dB | 111111 31.5 dB |
| 0.1 | 18.81 | 20.52 | 22.30 | 20.53 | 21.99 | 26.32 | 37.91 | 30.70 |
| 0.3 | 18.90 | 20.62 | 22.40 | 20.64 | 22.08 | 26.40 | 37.90 | 30.64 |
| 0.5 | 18.92 | 20.62 | 22.41 | 20.65 | 22.08 | 26.38 | 37.85 | 30.67 |
| 1 | 19.05 | 20.78 | 22.58 | 20.76 | 22.17 | 26.52 | 37.61 | 30.58 |
| 5 | 19.07 | 20.81 | 22.61 | 20.79 | 22.21 | 26.59 | 37.53 | 30.55 |
| 10 | 19.06 | 20.80 | 22.60 | 20.79 | 22.21 | 26.55 | 37.65 | 30.60 |
| 50 | 19.01 | 20.72 | 22.46 | 20.67 | 22.02 | 26.15 | 39.48 | 31.38 |
| 100 | 19.01 | 20.65 | 22.36 | 20.52 | 21.77 | 25.64 | 43.19 | 32.75 |
| 200 | 18.76 | 20.35 | 21.97 | 20.33 | 21.63 | 25.54 | 38.29 | 31.43 |
| 300 | 19.09 | 20.78 | 22.47 | 20.87 | 22.37 | 26.92 | 34.09 | 28.87 |
| 400 | 19.21 | 20.97 | 22.77 | 21.14 | 22.77 | 27.88 | 33.62 | 28.40 |
| 500 | 18.67 | 20.37 | 22.09 | 20.61 | 22.25 | 27.17 | 35.51 | 29.40 |
| 600 | 18.63 | 20.25 | 21.89 | 20.41 | 21.97 | 26.57 | 36.95 | 29.85 |
| 700 | 18.79 | 20.39 | 21.99 | 20.55 | 22.09 | 26.83 | 35.56 | 29.03 |
| 800 | 18.71 | 20.26 | 21.78 | 20.42 | 21.97 | 26.73 | 35.73 | 28.98 |
| 900 | 18.41 | 19.88 | 21.29 | 20.13 | 21.70 | 26.45 | 34.51 | 28.18 |
| 1000 | 18.22 | 19.65 | 20.99 | 20.00 | 21.68 | 26.73 | 32.37 | 26.91 |
| 1100 | 18.22 | 19.64 | 20.97 | 20.08 | 21.87 | 27.24 | 30.94 | 26.01 |
| 1200 | 18.27 | 19.67 | 20.97 | 20.11 | 21.94 | 27.56 | 30.30 | 25.54 |
| 1300 | 18.22 | 19.57 | 20.77 | 20.05 | 21.90 | 27.50 | 28.68 | 24.44 |
| 1400 | 18.74 | 20.09 | 21.24 | 20.61 | 22.58 | 28.47 | 26.54 | 23.06 |
| 1500 | 19.08 | 20.43 | 21.57 | 21.03 | 23.18 | 29.62 | 25.72 | 22.56 |
| 1600 | 19.01 | 20.32 | 21.39 | 20.98 | 23.18 | 29.68 | 25.29 | 22.23 |
| 1700 | 18.81 | 20.05 | 21.03 | 20.80 | 23.05 | 29.27 | 24.63 | 21.73 |
| 1800 | 18.62 | 19.77 | 20.64 | 20.64 | 22.90 | 28.35 | 23.45 | 20.83 |
| 1900 | 18.84 | 19.98 | 20.77 | 20.98 | 23.32 | 27.57 | 21.96 | 19.76 |
| 2000 | 19.38 | 20.59 | 21.35 | 21.69 | 24.15 | 27.25 | 21.01 | 19.12 |
| 2100 | 19.82 | 21.10 | 21.85 | 22.26 | 24.79 | 26.69 | 20.34 | 18.64 |
| 2200 | 20.36 | 21.72 | 22.44 | 22.96 | 25.50 | 25.95 | 19.67 | 18.17 |
| 2300 | 21.11 | 22.65 | 23.34 | 23.99 | 26.49 | 25.17 | 19.03 | 17.73 |
| 2400 | 21.70 | 23.37 | 24.02 | 24.77 | 27.00 | 24.37 | 18.51 | 17.34 |
| 2500 | 22.76 | 24.63 | 25.08 | 25.99 | 27.31 | 23.15 | 17.77 | 16.77 |
| 2600 | 24.63 | 27.05 | 27.01 | 28.30 | 27.70 | 21.92 | 16.98 | 16.18 |
| 2700 | 26.95 | 31.55 | 30.69 | 32.74 | 28.44 | 21.16 | 16.48 | 15.88 |
| 2800 | 28.09 | 37.71 | 35.59 | 39.83 | 28.63 | 20.67 | 16.17 | 15.74 |
| 2900 | 29.32 | 43.36 | 34.91 | 38.88 | 27.28 | 19.96 | 15.78 | 15.47 |
| 3000 | 29.33 | 35.56 | 31.64 | 34.09 | 26.15 | 19.46 | 15.50 | 15.29 |
| 3200 | 27.13 | 30.36 | 29.44 | 31.46 | 26.07 | 19.53 | 15.59 | 15.56 |
| 3400 | 29.70 | 32.55 | 29.76 | 33.43 | 26.86 | 20.05 | 15.96 | 15.90 |
| 3600 | 38.53 | 37.81 | 30.04 | 33.99 | 27.73 | 21.01 | 16.60 | 16.33 |
| 3800 | 30.04 | 30.19 | 27.74 | 28.34 | 27.29 | 22.54 | 17.63 | 17.00 |
| 4000 | 23.13 | 23.25 | 22.68 | 22.65 | 23.30 | 22.64 | 18.39 | 17.12 |
| 4200 | 19.57 | 19.76 | 19.52 | 19.50 | 20.33 | 21.24 | 18.33 | 16.56 |
| 4400 | 17.84 | 17.86 | 17.54 | 17.73 | 18.31 | 18.88 | 16.81 | 15.06 |
| 4600 | 17.44 | 17.41 | 16.98 | 17.26 | 17.64 | 17.69 | 15.67 | 14.04 |
| 4800 | 18.31 | 18.11 | 17.40 | 17.83 | 17.80 | 16.93 | 14.66 | 13.25 |
| 5000 | 20.99 | 20.06 | 18.64 | 19.32 | 18.31 | 16.00 | 13.48 | 12.43 |



REV. A
DAT-31R5A-SN+

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Digital Step Attenuator

DAT-31R5A-SN+

Typical Performance Data

TEST CONDITIONS: INPUT POWER=0 dBm, Vdd=+3V, Vss=-3.2V, TEMPERATURE=-40°C

| FREQUENCY (MHz) | OUTPUT RETURN LOSS AT TTL CONTROL STATE (dB) | | | | | | | |
|--------------------|---|------------------|------------------|------------------|------------------|------------------|-----------------|-------------------|
| | 000000 0 dB | 000001 0.5 dB | 000010 1.0 dB | 000100 2.0 dB | 001000 4.0 dB | 010000 8.0 dB | 100000 16 dB | 111111 31.5 dB |
| 0.1 | 18.49 | 19.27 | 19.61 | 25.31 | 30.65 | 40.19 | 35.65 | 29.79 |
| 0.3 | 18.57 | 19.34 | 19.67 | 25.44 | 30.78 | 40.51 | 35.81 | 29.76 |
| 0.5 | 18.65 | 19.39 | 19.73 | 25.50 | 30.87 | 40.55 | 35.74 | 29.78 |
| 1 | 18.77 | 19.51 | 19.83 | 25.68 | 31.08 | 40.99 | 35.90 | 29.68 |
| 5 | 18.89 | 19.64 | 19.96 | 25.86 | 31.30 | 41.38 | 36.09 | 29.66 |
| 10 | 18.90 | 19.65 | 19.98 | 25.87 | 31.30 | 41.32 | 36.05 | 29.74 |
| 50 | 18.90 | 19.65 | 19.95 | 25.76 | 30.87 | 39.87 | 35.10 | 30.29 |
| 100 | 18.81 | 19.49 | 19.79 | 25.32 | 29.98 | 36.98 | 33.39 | 31.48 |
| 200 | 18.67 | 19.35 | 19.66 | 24.91 | 29.07 | 34.81 | 33.09 | 30.24 |
| 300 | 18.53 | 19.25 | 19.60 | 24.83 | 29.01 | 34.75 | 34.52 | 28.49 |
| 400 | 18.90 | 19.67 | 20.02 | 25.55 | 29.84 | 35.15 | 36.49 | 27.12 |
| 500 | 19.49 | 20.29 | 20.64 | 26.71 | 31.51 | 37.43 | 41.44 | 26.66 |
| 600 | 19.59 | 20.32 | 20.64 | 26.59 | 31.10 | 38.44 | 40.95 | 27.32 |
| 700 | 19.23 | 19.94 | 20.24 | 25.54 | 29.23 | 35.13 | 38.17 | 27.07 |
| 800 | 19.32 | 19.98 | 20.27 | 25.27 | 28.28 | 33.21 | 37.32 | 26.28 |
| 900 | 19.28 | 19.91 | 20.20 | 24.70 | 27.14 | 31.28 | 36.15 | 25.23 |
| 1000 | 19.34 | 19.96 | 20.27 | 24.42 | 26.48 | 30.06 | 35.67 | 24.15 |
| 1100 | 19.43 | 20.08 | 20.42 | 24.53 | 26.48 | 29.88 | 35.97 | 23.61 |
| 1200 | 19.49 | 20.12 | 20.47 | 24.39 | 26.15 | 29.43 | 35.34 | 23.19 |
| 1300 | 19.30 | 19.94 | 20.33 | 24.03 | 25.75 | 29.04 | 34.53 | 22.83 |
| 1400 | 18.80 | 19.45 | 19.87 | 23.48 | 25.32 | 28.86 | 34.11 | 22.63 |
| 1500 | 18.49 | 19.12 | 19.55 | 23.03 | 24.80 | 28.38 | 33.33 | 22.31 |
| 1600 | 18.26 | 18.87 | 19.28 | 22.44 | 23.99 | 27.29 | 31.63 | 21.72 |
| 1700 | 17.96 | 18.54 | 18.95 | 21.76 | 23.08 | 26.07 | 29.79 | 21.00 |
| 1800 | 17.57 | 18.14 | 18.56 | 21.02 | 22.16 | 24.76 | 27.71 | 20.14 |
| 1900 | 17.41 | 18.00 | 18.44 | 20.72 | 21.68 | 23.81 | 26.00 | 19.37 |
| 2000 | 17.56 | 18.18 | 18.64 | 20.88 | 21.63 | 23.34 | 24.89 | 18.88 |
| 2100 | 17.71 | 18.34 | 18.80 | 20.99 | 21.54 | 22.89 | 24.01 | 18.46 |
| 2200 | 17.91 | 18.56 | 19.01 | 21.08 | 21.36 | 22.33 | 23.07 | 17.98 |
| 2300 | 18.34 | 19.01 | 19.47 | 21.40 | 21.31 | 21.79 | 22.12 | 17.52 |
| 2400 | 18.85 | 19.54 | 20.00 | 21.70 | 21.22 | 21.25 | 21.26 | 17.10 |
| 2500 | 19.35 | 20.10 | 20.56 | 22.08 | 21.21 | 20.80 | 20.50 | 16.75 |
| 2600 | 20.19 | 21.06 | 21.58 | 23.00 | 21.52 | 20.48 | 19.80 | 16.47 |
| 2700 | 21.35 | 22.48 | 23.10 | 24.60 | 22.12 | 20.30 | 19.28 | 16.33 |
| 2800 | 22.73 | 24.25 | 25.10 | 26.61 | 22.78 | 20.18 | 18.85 | 16.30 |
| 2900 | 23.25 | 25.22 | 26.41 | 29.25 | 23.69 | 20.24 | 18.58 | 16.41 |
| 3000 | 23.12 | 25.30 | 26.77 | 33.00 | 24.81 | 20.47 | 18.53 | 16.70 |
| 3200 | 21.93 | 23.89 | 25.17 | 36.15 | 26.87 | 21.02 | 18.57 | 17.47 |
| 3400 | 20.45 | 21.98 | 22.91 | 31.01 | 28.48 | 21.54 | 18.68 | 18.48 |
| 3600 | 19.50 | 20.77 | 21.46 | 28.06 | 29.09 | 21.99 | 18.84 | 19.62 |
| 3800 | 19.17 | 20.31 | 20.87 | 26.63 | 28.73 | 22.15 | 18.88 | 20.64 |
| 4000 | 20.69 | 21.88 | 22.40 | 29.90 | 31.20 | 22.87 | 19.24 | 20.93 |
| 4200 | 23.64 | 25.12 | 25.76 | 33.93 | 29.31 | 22.08 | 18.57 | 19.67 |
| 4400 | 27.55 | 29.76 | 30.97 | 30.41 | 25.63 | 20.72 | 17.58 | 18.02 |
| 4600 | 34.41 | 41.00 | 47.97 | 24.94 | 21.94 | 18.33 | 15.75 | 16.13 |
| 4800 | 35.29 | 35.41 | 33.77 | 22.02 | 19.57 | 16.33 | 14.09 | 14.58 |
| 5000 | 27.81 | 27.39 | 26.76 | 19.94 | 17.82 | 14.68 | 12.65 | 13.36 |



REV. A
DAT-31R5A-SN+

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IF/RF MICROWAVE COMPONENTS

Digital Step Attenuator

DAT-31R5A-SN+

Typical Performance Data

TEST CONDITIONS: INPUT POWER=0 dBm, Vdd=+3V, Vss=-3.2V, TEMPERATURE=+25°C

| FREQUENCY (MHz) | STEP ATTENUATION* AT TTL CONTROL STATE (dB) | | | | | | | |
|--------------------|--|------------------|------------------|------------------|------------------|------------------|-----------------|-------------------|
| | 000000 THRU LOSS | 000001 0.5 dB | 000010 1.0 dB | 000100 2.0 dB | 001000 4.0 dB | 010000 8.0 dB | 100000 16 dB | 111111 31.5 dB |
| 0.1 | 1.13 | 0.53 | 1.02 | 2.01 | 4.01 | 7.94 | 15.83 | 31.28 |
| 0.3 | 1.12 | 0.53 | 1.02 | 2.01 | 4.01 | 7.94 | 15.83 | 31.30 |
| 0.5 | 1.12 | 0.52 | 1.02 | 2.01 | 4.01 | 7.94 | 15.83 | 31.30 |
| 1 | 1.12 | 0.52 | 1.02 | 2.01 | 4.01 | 7.93 | 15.83 | 31.28 |
| 5 | 1.15 | 0.53 | 1.02 | 2.01 | 4.01 | 7.94 | 15.83 | 31.28 |
| 10 | 1.15 | 0.53 | 1.02 | 2.01 | 4.01 | 7.94 | 15.83 | 31.30 |
| 50 | 1.16 | 0.53 | 1.02 | 2.01 | 4.01 | 7.94 | 15.83 | 31.29 |
| 100 | 1.16 | 0.53 | 1.02 | 2.01 | 4.01 | 7.94 | 15.83 | 31.29 |
| 200 | 1.16 | 0.52 | 1.02 | 2.01 | 4.01 | 7.94 | 15.83 | 31.29 |
| 300 | 1.17 | 0.52 | 1.02 | 2.01 | 4.00 | 7.94 | 15.83 | 31.29 |
| 400 | 1.18 | 0.52 | 1.02 | 2.01 | 4.00 | 7.94 | 15.84 | 31.29 |
| 500 | 1.19 | 0.52 | 1.02 | 2.01 | 4.01 | 7.94 | 15.85 | 31.30 |
| 600 | 1.21 | 0.53 | 1.02 | 2.01 | 4.01 | 7.95 | 15.85 | 31.30 |
| 700 | 1.22 | 0.52 | 1.02 | 2.01 | 4.01 | 7.95 | 15.86 | 31.30 |
| 800 | 1.24 | 0.52 | 1.02 | 2.01 | 4.01 | 7.96 | 15.86 | 31.31 |
| 900 | 1.26 | 0.52 | 1.02 | 2.01 | 4.01 | 7.96 | 15.88 | 31.34 |
| 1000 | 1.29 | 0.52 | 1.02 | 2.01 | 4.01 | 7.97 | 15.89 | 31.37 |
| 1100 | 1.31 | 0.53 | 1.02 | 2.01 | 4.01 | 7.98 | 15.91 | 31.41 |
| 1200 | 1.34 | 0.53 | 1.02 | 2.01 | 4.01 | 7.98 | 15.92 | 31.45 |
| 1300 | 1.36 | 0.53 | 1.02 | 2.01 | 4.01 | 7.99 | 15.95 | 31.51 |
| 1400 | 1.38 | 0.53 | 1.02 | 2.02 | 4.02 | 8.01 | 15.97 | 31.56 |
| 1500 | 1.41 | 0.53 | 1.02 | 2.02 | 4.02 | 8.02 | 16.00 | 31.62 |
| 1600 | 1.43 | 0.53 | 1.03 | 2.02 | 4.03 | 8.04 | 16.04 | 31.69 |
| 1700 | 1.46 | 0.53 | 1.03 | 2.03 | 4.04 | 8.06 | 16.08 | 31.77 |
| 1800 | 1.48 | 0.53 | 1.03 | 2.04 | 4.05 | 8.08 | 16.12 | 31.82 |
| 1900 | 1.50 | 0.54 | 1.04 | 2.04 | 4.06 | 8.11 | 16.18 | 31.88 |
| 2000 | 1.51 | 0.54 | 1.04 | 2.05 | 4.07 | 8.15 | 16.23 | 31.92 |
| 2100 | 1.53 | 0.54 | 1.05 | 2.06 | 4.09 | 8.19 | 16.29 | 31.93 |
| 2200 | 1.55 | 0.55 | 1.05 | 2.07 | 4.11 | 8.23 | 16.35 | 31.92 |
| 2300 | 1.56 | 0.55 | 1.06 | 2.08 | 4.12 | 8.27 | 16.41 | 31.87 |
| 2400 | 1.57 | 0.55 | 1.06 | 2.09 | 4.14 | 8.31 | 16.46 | 31.82 |
| 2500 | 1.58 | 0.55 | 1.06 | 2.10 | 4.15 | 8.34 | 16.51 | 31.73 |
| 2600 | 1.60 | 0.55 | 1.06 | 2.10 | 4.16 | 8.38 | 16.55 | 31.58 |
| 2700 | 1.62 | 0.55 | 1.06 | 2.10 | 4.16 | 8.40 | 16.57 | 31.42 |
| 2800 | 1.64 | 0.55 | 1.05 | 2.10 | 4.15 | 8.41 | 16.59 | 31.26 |
| 2900 | 1.65 | 0.55 | 1.05 | 2.09 | 4.14 | 8.42 | 16.58 | 31.14 |
| 3000 | 1.66 | 0.54 | 1.04 | 2.08 | 4.13 | 8.42 | 16.58 | 31.07 |
| 3200 | 1.64 | 0.53 | 1.02 | 2.06 | 4.10 | 8.42 | 16.61 | 31.14 |
| 3400 | 1.68 | 0.53 | 1.01 | 2.04 | 4.07 | 8.43 | 16.69 | 31.58 |
| 3600 | 1.75 | 0.52 | 1.01 | 2.04 | 4.07 | 8.48 | 16.89 | 32.17 |
| 3800 | 1.83 | 0.52 | 1.01 | 2.04 | 4.08 | 8.55 | 17.11 | 31.95 |
| 4000 | 1.88 | 0.53 | 1.02 | 2.06 | 4.10 | 8.62 | 17.25 | 30.82 |
| 4200 | 1.91 | 0.53 | 1.03 | 2.07 | 4.11 | 8.68 | 17.31 | 29.81 |
| 4400 | 1.99 | 0.54 | 1.05 | 2.08 | 4.13 | 8.76 | 17.42 | 29.33 |
| 4600 | 2.03 | 0.55 | 1.06 | 2.10 | 4.17 | 8.88 | 17.65 | 29.40 |
| 4800 | 2.07 | 0.57 | 1.09 | 2.13 | 4.22 | 9.06 | 17.96 | 29.63 |
| 5000 | 2.13 | 0.58 | 1.10 | 2.16 | 4.27 | 9.25 | 18.21 | 29.56 |

* Step Attenuation above Thru Loss (TTL Logic 00000).



REV. A
DAT-31R5A-SN+

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Digital Step Attenuator

DAT-31R5A-SN+

Typical Performance Data

TEST CONDITIONS: INPUT POWER=0 dBm, Vdd=+3V, Vss=-3.2V, TEMPERATURE=+25°C

| FREQUENCY (MHz) | INPUT RETURN LOSS AT TTL CONTROL STATE (dB) | | | | | | | |
|--------------------|--|------------------|------------------|------------------|------------------|------------------|-----------------|-------------------|
| | 000000 0 dB | 000001 0.5 dB | 000010 1.0 dB | 000100 2.0 dB | 001000 4.0 dB | 010000 8.0 dB | 100000 16 dB | 111111 31.5 dB |
| 0.1 | 17.93 | 19.15 | 20.30 | 18.41 | 18.88 | 20.71 | 28.31 | 33.69 |
| 0.3 | 18.02 | 19.23 | 20.39 | 18.48 | 18.94 | 20.75 | 28.39 | 33.78 |
| 0.5 | 18.02 | 19.22 | 20.39 | 18.49 | 18.94 | 20.75 | 28.39 | 33.72 |
| 1 | 18.15 | 19.36 | 20.53 | 18.59 | 19.00 | 20.81 | 28.47 | 33.75 |
| 5 | 18.17 | 19.39 | 20.55 | 18.61 | 19.04 | 20.84 | 28.47 | 33.80 |
| 10 | 18.18 | 19.39 | 20.55 | 18.61 | 19.05 | 20.84 | 28.44 | 33.84 |
| 50 | 18.17 | 19.37 | 20.54 | 18.61 | 19.03 | 20.80 | 28.34 | 33.57 |
| 100 | 18.30 | 19.52 | 20.68 | 18.72 | 19.13 | 20.91 | 28.47 | 33.73 |
| 200 | 18.25 | 19.45 | 20.60 | 18.69 | 19.09 | 20.88 | 28.33 | 33.43 |
| 300 | 18.29 | 19.48 | 20.63 | 18.71 | 19.11 | 20.89 | 28.25 | 33.29 |
| 400 | 18.36 | 19.55 | 20.69 | 18.75 | 19.14 | 20.89 | 28.17 | 33.12 |
| 500 | 18.30 | 19.46 | 20.60 | 18.71 | 19.12 | 20.88 | 28.10 | 33.01 |
| 600 | 18.28 | 19.44 | 20.54 | 18.68 | 19.09 | 20.87 | 27.94 | 32.72 |
| 700 | 18.15 | 19.27 | 20.33 | 18.54 | 18.95 | 20.71 | 27.54 | 31.88 |
| 800 | 18.09 | 19.19 | 20.21 | 18.46 | 18.87 | 20.63 | 27.32 | 31.22 |
| 900 | 18.02 | 19.08 | 20.06 | 18.41 | 18.85 | 20.66 | 27.40 | 30.80 |
| 1000 | 18.00 | 19.05 | 20.00 | 18.41 | 18.88 | 20.78 | 27.69 | 30.58 |
| 1100 | 17.92 | 18.91 | 19.82 | 18.37 | 18.89 | 20.88 | 27.98 | 30.24 |
| 1200 | 17.84 | 18.80 | 19.65 | 18.32 | 18.88 | 20.98 | 28.21 | 29.62 |
| 1300 | 17.69 | 18.60 | 19.39 | 18.26 | 18.91 | 21.19 | 28.76 | 28.96 |
| 1400 | 17.54 | 18.41 | 19.15 | 18.22 | 18.99 | 21.52 | 29.55 | 28.25 |
| 1500 | 17.38 | 18.21 | 18.90 | 18.19 | 19.10 | 21.92 | 30.45 | 27.56 |
| 1600 | 17.23 | 18.02 | 18.67 | 18.17 | 19.23 | 22.39 | 31.28 | 26.81 |
| 1700 | 17.14 | 17.90 | 18.51 | 18.23 | 19.44 | 23.02 | 32.02 | 26.05 |
| 1800 | 17.11 | 17.85 | 18.42 | 18.34 | 19.73 | 23.80 | 31.86 | 25.17 |
| 1900 | 17.10 | 17.85 | 18.40 | 18.51 | 20.08 | 24.68 | 30.69 | 24.25 |
| 2000 | 17.23 | 17.98 | 18.50 | 18.79 | 20.54 | 25.68 | 28.87 | 23.29 |
| 2100 | 17.60 | 18.36 | 18.84 | 19.32 | 21.27 | 26.94 | 26.80 | 22.28 |
| 2200 | 18.26 | 19.05 | 19.51 | 20.17 | 22.35 | 28.47 | 25.12 | 21.50 |
| 2300 | 19.07 | 19.95 | 20.39 | 21.17 | 23.61 | 29.59 | 23.79 | 20.89 |
| 2400 | 19.95 | 20.97 | 21.41 | 22.32 | 25.06 | 30.06 | 22.71 | 20.37 |
| 2500 | 21.39 | 22.63 | 23.01 | 24.14 | 27.30 | 29.09 | 21.47 | 19.73 |
| 2600 | 23.44 | 25.12 | 25.38 | 26.96 | 30.60 | 27.19 | 20.28 | 19.09 |
| 2700 | 25.94 | 28.77 | 28.97 | 31.30 | 35.22 | 25.55 | 19.41 | 18.68 |
| 2800 | 27.53 | 33.00 | 34.30 | 36.99 | 38.55 | 24.46 | 18.88 | 18.50 |
| 2900 | 28.21 | 36.25 | 41.28 | 40.58 | 36.37 | 23.81 | 18.61 | 18.45 |
| 3000 | 28.58 | 37.21 | 43.76 | 39.14 | 33.23 | 23.09 | 18.28 | 18.30 |
| 3200 | 27.27 | 31.46 | 33.11 | 31.98 | 29.40 | 22.09 | 17.82 | 18.23 |
| 3400 | 27.88 | 33.09 | 36.21 | 33.82 | 32.30 | 23.48 | 18.64 | 19.22 |
| 3600 | 31.60 | 43.37 | 39.26 | 39.30 | 46.08 | 26.04 | 19.83 | 20.20 |
| 3800 | 26.11 | 27.24 | 26.97 | 26.78 | 29.67 | 32.80 | 22.57 | 21.93 |
| 4000 | 20.93 | 21.14 | 20.99 | 21.25 | 22.80 | 28.19 | 24.42 | 21.36 |
| 4200 | 18.07 | 18.17 | 18.03 | 18.45 | 19.66 | 23.39 | 23.08 | 19.38 |
| 4400 | 16.40 | 16.40 | 16.16 | 16.73 | 17.69 | 20.16 | 20.00 | 16.97 |
| 4600 | 15.92 | 15.88 | 15.56 | 16.27 | 17.06 | 18.70 | 17.97 | 15.47 |
| 4800 | 16.97 | 16.67 | 16.04 | 17.00 | 17.42 | 17.71 | 16.10 | 14.22 |
| 5000 | 19.89 | 18.94 | 17.70 | 19.07 | 18.61 | 16.95 | 14.62 | 13.37 |



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Digital Step Attenuator

DAT-31R5A-SN+

Typical Performance Data

TEST CONDITIONS: INPUT POWER=0 dBm, Vdd=+3V, Vss=-3.2V, TEMPERATURE=+25°C

| FREQUENCY (MHz) | OUTPUT RETURN LOSS AT TTL CONTROL STATE (dB) | | | | | | | |
|--------------------|---|------------------|------------------|------------------|------------------|------------------|-----------------|-------------------|
| | 000000 0 dB | 000001 0.5 dB | 000010 1.0 dB | 000100 2.0 dB | 001000 4.0 dB | 010000 8.0 dB | 100000 16 dB | 111111 31.5 dB |
| 0.1 | 17.68 | 18.07 | 18.11 | 21.97 | 24.03 | 25.46 | 23.36 | 36.33 |
| 0.3 | 17.74 | 18.13 | 18.18 | 22.05 | 24.09 | 25.52 | 23.42 | 36.47 |
| 0.5 | 17.82 | 18.20 | 18.23 | 22.11 | 24.13 | 25.53 | 23.41 | 36.37 |
| 1 | 17.92 | 18.31 | 18.33 | 22.22 | 24.25 | 25.66 | 23.49 | 36.47 |
| 5 | 18.04 | 18.41 | 18.43 | 22.35 | 24.36 | 25.71 | 23.52 | 36.50 |
| 10 | 18.06 | 18.43 | 18.44 | 22.36 | 24.34 | 25.67 | 23.50 | 36.45 |
| 50 | 18.08 | 18.45 | 18.46 | 22.35 | 24.30 | 25.61 | 23.46 | 36.03 |
| 100 | 18.09 | 18.47 | 18.49 | 22.35 | 24.29 | 25.63 | 23.49 | 35.83 |
| 200 | 18.17 | 18.55 | 18.56 | 22.41 | 24.32 | 25.67 | 23.53 | 35.36 |
| 300 | 18.29 | 18.66 | 18.66 | 22.52 | 24.40 | 25.76 | 23.60 | 34.85 |
| 400 | 18.52 | 18.86 | 18.85 | 22.73 | 24.55 | 25.87 | 23.71 | 34.24 |
| 500 | 18.57 | 18.91 | 18.90 | 22.75 | 24.51 | 25.89 | 23.76 | 33.49 |
| 600 | 18.79 | 19.10 | 19.06 | 22.94 | 24.64 | 26.00 | 23.84 | 32.73 |
| 700 | 18.95 | 19.25 | 19.20 | 23.02 | 24.65 | 26.06 | 23.96 | 31.88 |
| 800 | 19.10 | 19.35 | 19.29 | 23.04 | 24.57 | 26.05 | 24.01 | 30.95 |
| 900 | 18.99 | 19.25 | 19.20 | 22.79 | 24.26 | 25.94 | 24.07 | 30.05 |
| 1000 | 18.83 | 19.08 | 19.04 | 22.45 | 23.90 | 25.77 | 24.12 | 29.06 |
| 1100 | 18.63 | 18.88 | 18.86 | 22.07 | 23.48 | 25.60 | 24.24 | 28.09 |
| 1200 | 18.41 | 18.65 | 18.66 | 21.63 | 23.01 | 25.43 | 24.47 | 27.04 |
| 1300 | 18.07 | 18.31 | 18.36 | 21.09 | 22.45 | 25.20 | 24.78 | 26.04 |
| 1400 | 17.65 | 17.91 | 18.01 | 20.48 | 21.85 | 24.95 | 25.23 | 25.04 |
| 1500 | 17.22 | 17.51 | 17.65 | 19.92 | 21.29 | 24.67 | 25.75 | 24.08 |
| 1600 | 16.84 | 17.15 | 17.33 | 19.41 | 20.77 | 24.40 | 26.47 | 23.17 |
| 1700 | 16.52 | 16.84 | 17.06 | 18.97 | 20.30 | 24.12 | 27.27 | 22.28 |
| 1800 | 16.27 | 16.61 | 16.86 | 18.63 | 19.93 | 23.88 | 28.17 | 21.53 |
| 1900 | 16.10 | 16.46 | 16.73 | 18.38 | 19.62 | 23.63 | 28.91 | 20.79 |
| 2000 | 16.04 | 16.43 | 16.73 | 18.26 | 19.45 | 23.45 | 29.43 | 20.16 |
| 2100 | 16.11 | 16.51 | 16.84 | 18.29 | 19.40 | 23.32 | 29.32 | 19.59 |
| 2200 | 16.38 | 16.80 | 17.14 | 18.52 | 19.53 | 23.30 | 28.69 | 19.14 |
| 2300 | 16.91 | 17.35 | 17.70 | 19.01 | 19.86 | 23.37 | 27.75 | 18.80 |
| 2400 | 17.62 | 18.08 | 18.43 | 19.67 | 20.31 | 23.47 | 26.59 | 18.54 |
| 2500 | 18.42 | 18.94 | 19.31 | 20.55 | 20.96 | 23.69 | 25.53 | 18.42 |
| 2600 | 19.44 | 20.05 | 20.46 | 21.81 | 21.89 | 23.96 | 24.51 | 18.38 |
| 2700 | 20.60 | 21.35 | 21.82 | 23.55 | 23.12 | 24.29 | 23.65 | 18.47 |
| 2800 | 21.91 | 22.87 | 23.43 | 25.93 | 24.67 | 24.58 | 22.88 | 18.67 |
| 2900 | 22.79 | 23.99 | 24.66 | 28.81 | 26.42 | 24.80 | 22.23 | 18.99 |
| 3000 | 22.89 | 24.27 | 25.02 | 33.25 | 28.84 | 25.10 | 21.72 | 19.49 |
| 3200 | 21.28 | 22.54 | 23.17 | 38.37 | 37.15 | 25.38 | 20.98 | 20.96 |
| 3400 | 19.77 | 20.73 | 21.15 | 29.42 | 35.68 | 25.08 | 20.49 | 23.21 |
| 3600 | 18.71 | 19.49 | 19.77 | 26.16 | 30.46 | 24.63 | 20.26 | 26.07 |
| 3800 | 19.05 | 19.74 | 19.90 | 26.28 | 29.97 | 24.92 | 20.46 | 28.31 |
| 4000 | 20.76 | 21.37 | 21.42 | 29.62 | 33.93 | 26.69 | 21.15 | 27.66 |
| 4200 | 23.51 | 24.08 | 24.10 | 35.53 | 37.33 | 28.86 | 21.66 | 24.38 |
| 4400 | 26.99 | 27.45 | 27.66 | 29.80 | 28.49 | 26.46 | 20.64 | 21.06 |
| 4600 | 30.70 | 30.93 | 31.59 | 25.07 | 23.81 | 22.04 | 18.22 | 18.31 |
| 4800 | 36.77 | 35.19 | 34.77 | 22.73 | 21.19 | 18.74 | 15.78 | 16.27 |
| 5000 | 33.49 | 31.40 | 29.97 | 21.06 | 19.29 | 16.29 | 13.78 | 14.69 |

Digital Step Attenuator

DAT-31R5A-SN+

Typical Performance Data

TEST CONDITIONS: INPUT POWER=0 dBm, Vdd=+3V, Vss=-3.2V, TEMPERATURE=+105°C

| FREQUENCY (MHz) | STEP ATTENUATION* AT TTL CONTROL STATE (dB) | | | | | | | |
|--------------------|--|------------------|------------------|------------------|------------------|------------------|-----------------|-------------------|
| | 000000 THRU LOSS | 000001 0.5 dB | 000010 1.0 dB | 000100 2.0 dB | 001000 4.0 dB | 010000 8.0 dB | 100000 16 dB | 111111 31.5 dB |
| 0.1 | 1.30 | 0.51 | 0.99 | 1.97 | 3.95 | 7.83 | 15.72 | 31.02 |
| 0.3 | 1.28 | 0.51 | 0.99 | 1.97 | 3.95 | 7.83 | 15.72 | 31.00 |
| 0.5 | 1.28 | 0.51 | 0.99 | 1.98 | 3.95 | 7.83 | 15.72 | 31.02 |
| 1 | 1.29 | 0.51 | 0.99 | 1.98 | 3.95 | 7.83 | 15.73 | 31.01 |
| 5 | 1.31 | 0.51 | 0.99 | 1.97 | 3.95 | 7.83 | 15.73 | 31.02 |
| 10 | 1.31 | 0.51 | 0.99 | 1.98 | 3.95 | 7.83 | 15.73 | 31.02 |
| 50 | 1.32 | 0.51 | 0.99 | 1.98 | 3.95 | 7.84 | 15.73 | 31.02 |
| 100 | 1.30 | 0.51 | 1.00 | 1.97 | 3.95 | 7.84 | 15.73 | 31.02 |
| 200 | 1.31 | 0.51 | 1.00 | 1.98 | 3.95 | 7.84 | 15.74 | 31.02 |
| 300 | 1.33 | 0.51 | 0.99 | 1.98 | 3.95 | 7.84 | 15.74 | 31.01 |
| 400 | 1.35 | 0.51 | 0.99 | 1.97 | 3.95 | 7.84 | 15.74 | 31.02 |
| 500 | 1.37 | 0.51 | 0.99 | 1.97 | 3.95 | 7.84 | 15.75 | 31.03 |
| 600 | 1.39 | 0.51 | 0.99 | 1.98 | 3.95 | 7.85 | 15.75 | 31.04 |
| 700 | 1.41 | 0.51 | 0.99 | 1.98 | 3.95 | 7.85 | 15.76 | 31.05 |
| 800 | 1.44 | 0.51 | 0.99 | 1.98 | 3.95 | 7.86 | 15.77 | 31.06 |
| 900 | 1.46 | 0.51 | 0.99 | 1.98 | 3.95 | 7.86 | 15.78 | 31.10 |
| 1000 | 1.49 | 0.50 | 0.99 | 1.98 | 3.95 | 7.87 | 15.79 | 31.15 |
| 1100 | 1.51 | 0.51 | 0.99 | 1.98 | 3.96 | 7.87 | 15.81 | 31.18 |
| 1200 | 1.54 | 0.51 | 0.99 | 1.98 | 3.95 | 7.88 | 15.82 | 31.24 |
| 1300 | 1.57 | 0.51 | 1.00 | 1.98 | 3.95 | 7.88 | 15.83 | 31.30 |
| 1400 | 1.59 | 0.51 | 1.00 | 1.98 | 3.95 | 7.89 | 15.86 | 31.41 |
| 1500 | 1.62 | 0.51 | 1.00 | 1.98 | 3.95 | 7.89 | 15.87 | 31.41 |
| 1600 | 1.65 | 0.51 | 1.00 | 1.98 | 3.96 | 7.91 | 15.91 | 31.56 |
| 1700 | 1.67 | 0.51 | 1.00 | 1.99 | 3.96 | 7.93 | 15.95 | 31.67 |
| 1800 | 1.70 | 0.51 | 1.00 | 1.99 | 3.97 | 7.94 | 15.99 | 31.75 |
| 1900 | 1.72 | 0.52 | 1.01 | 2.00 | 3.98 | 7.97 | 16.04 | 31.86 |
| 2000 | 1.73 | 0.52 | 1.01 | 2.00 | 3.98 | 7.99 | 16.09 | 31.85 |
| 2100 | 1.75 | 0.52 | 1.01 | 2.01 | 4.00 | 8.02 | 16.13 | 31.85 |
| 2200 | 1.77 | 0.52 | 1.02 | 2.02 | 4.01 | 8.06 | 16.19 | 31.86 |
| 2300 | 1.78 | 0.52 | 1.02 | 2.03 | 4.02 | 8.10 | 16.26 | 31.90 |
| 2400 | 1.79 | 0.53 | 1.02 | 2.04 | 4.03 | 8.13 | 16.31 | 31.84 |
| 2500 | 1.80 | 0.53 | 1.02 | 2.04 | 4.04 | 8.17 | 16.38 | 31.87 |
| 2600 | 1.82 | 0.53 | 1.03 | 2.05 | 4.05 | 8.20 | 16.41 | 31.56 |
| 2700 | 1.84 | 0.53 | 1.02 | 2.05 | 4.05 | 8.23 | 16.44 | 31.50 |
| 2800 | 1.86 | 0.53 | 1.02 | 2.05 | 4.05 | 8.25 | 16.47 | 31.42 |
| 2900 | 1.87 | 0.52 | 1.02 | 2.04 | 4.04 | 8.26 | 16.47 | 31.25 |
| 3000 | 1.87 | 0.52 | 1.01 | 2.03 | 4.03 | 8.27 | 16.49 | 31.27 |
| 3200 | 1.85 | 0.52 | 1.00 | 2.02 | 4.01 | 8.29 | 16.52 | 31.15 |
| 3400 | 1.90 | 0.51 | 0.98 | 2.00 | 3.99 | 8.31 | 16.63 | 31.84 |
| 3600 | 1.96 | 0.50 | 0.98 | 2.00 | 3.99 | 8.37 | 16.83 | 32.56 |
| 3800 | 2.04 | 0.50 | 0.98 | 2.01 | 4.01 | 8.44 | 17.05 | 32.23 |
| 4000 | 2.12 | 0.51 | 0.99 | 2.03 | 4.02 | 8.50 | 17.15 | 30.94 |
| 4200 | 2.18 | 0.51 | 1.00 | 2.04 | 4.03 | 8.54 | 17.22 | 30.02 |
| 4400 | 2.24 | 0.52 | 1.01 | 2.04 | 4.03 | 8.58 | 17.28 | 29.38 |
| 4600 | 2.28 | 0.53 | 1.03 | 2.06 | 4.06 | 8.70 | 17.54 | 29.61 |
| 4800 | 2.31 | 0.55 | 1.06 | 2.09 | 4.10 | 8.88 | 17.89 | 29.94 |
| 5000 | 2.39 | 0.56 | 1.08 | 2.12 | 4.16 | 9.08 | 18.23 | 30.06 |

* Step Attenuation above Thru Loss (TTL Logic 00000).



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Digital Step Attenuator

DAT-31R5A-SN+

Typical Performance Data

TEST CONDITIONS: INPUT POWER=0 dBm, Vdd=+3V, Vss=-3.2V, TEMPERATURE=+105°C

| FREQUENCY (MHz) | INPUT RETURN LOSS AT TTL CONTROL STATE (dB) | | | | | | | |
|--------------------|--|------------------|------------------|------------------|------------------|------------------|-----------------|-------------------|
| | 000000 0 dB | 000001 0.5 dB | 000010 1.0 dB | 000100 2.0 dB | 001000 4.0 dB | 010000 8.0 dB | 100000 16 dB | 111111 31.5 dB |
| 0.1 | 16.71 | 17.44 | 18.11 | 16.13 | 15.90 | 16.45 | 19.66 | 21.42 |
| 0.3 | 16.78 | 17.52 | 18.18 | 16.19 | 15.94 | 16.48 | 19.69 | 21.43 |
| 0.5 | 16.77 | 17.52 | 18.18 | 16.18 | 15.94 | 16.48 | 19.67 | 21.40 |
| 1 | 16.88 | 17.62 | 18.27 | 16.26 | 15.99 | 16.51 | 19.69 | 21.42 |
| 5 | 16.91 | 17.65 | 18.30 | 16.29 | 16.02 | 16.53 | 19.71 | 21.44 |
| 10 | 16.91 | 17.64 | 18.30 | 16.30 | 16.02 | 16.54 | 19.71 | 21.45 |
| 50 | 17.03 | 17.78 | 18.45 | 16.44 | 16.17 | 16.71 | 19.95 | 21.72 |
| 100 | 17.31 | 18.10 | 18.80 | 16.74 | 16.49 | 17.08 | 20.48 | 22.38 |
| 200 | 17.25 | 18.06 | 18.77 | 16.76 | 16.55 | 17.18 | 20.58 | 22.55 |
| 300 | 16.90 | 17.64 | 18.28 | 16.33 | 16.08 | 16.59 | 19.60 | 21.34 |
| 400 | 17.03 | 17.73 | 18.34 | 16.31 | 15.96 | 16.35 | 19.17 | 20.81 |
| 500 | 17.23 | 17.90 | 18.49 | 16.41 | 16.02 | 16.37 | 19.12 | 20.75 |
| 600 | 17.17 | 17.82 | 18.37 | 16.32 | 15.91 | 16.24 | 18.89 | 20.47 |
| 700 | 16.99 | 17.60 | 18.13 | 16.13 | 15.71 | 16.00 | 18.53 | 20.02 |
| 800 | 17.00 | 17.58 | 18.06 | 16.08 | 15.64 | 15.92 | 18.39 | 19.79 |
| 900 | 16.99 | 17.54 | 18.00 | 16.10 | 15.68 | 15.97 | 18.42 | 19.77 |
| 1000 | 16.88 | 17.40 | 17.84 | 16.06 | 15.67 | 16.01 | 18.50 | 19.77 |
| 1100 | 16.66 | 17.17 | 17.59 | 15.98 | 15.66 | 16.08 | 18.60 | 19.79 |
| 1200 | 16.57 | 17.04 | 17.43 | 15.99 | 15.74 | 16.24 | 18.84 | 19.92 |
| 1300 | 16.44 | 16.91 | 17.29 | 16.03 | 15.89 | 16.51 | 19.25 | 20.23 |
| 1400 | 16.27 | 16.73 | 17.10 | 16.05 | 16.02 | 16.80 | 19.70 | 20.55 |
| 1500 | 16.02 | 16.48 | 16.84 | 16.02 | 16.14 | 17.12 | 20.24 | 20.87 |
| 1600 | 15.84 | 16.29 | 16.64 | 16.03 | 16.29 | 17.48 | 20.83 | 21.22 |
| 1700 | 15.74 | 16.19 | 16.55 | 16.11 | 16.51 | 17.95 | 21.61 | 21.70 |
| 1800 | 15.76 | 16.22 | 16.57 | 16.29 | 16.84 | 18.56 | 22.66 | 22.34 |
| 1900 | 15.77 | 16.24 | 16.59 | 16.48 | 17.20 | 19.26 | 23.89 | 22.92 |
| 2000 | 15.87 | 16.34 | 16.68 | 16.75 | 17.63 | 20.09 | 25.39 | 23.43 |
| 2100 | 16.06 | 16.55 | 16.87 | 17.09 | 18.15 | 21.07 | 27.30 | 23.89 |
| 2200 | 16.41 | 16.91 | 17.22 | 17.58 | 18.81 | 22.27 | 29.70 | 24.30 |
| 2300 | 17.01 | 17.54 | 17.82 | 18.32 | 19.75 | 23.98 | 33.24 | 24.72 |
| 2400 | 17.84 | 18.42 | 18.67 | 19.32 | 20.99 | 26.38 | 36.11 | 24.92 |
| 2500 | 18.91 | 19.55 | 19.76 | 20.57 | 22.50 | 29.63 | 33.32 | 24.68 |
| 2600 | 20.22 | 20.95 | 21.11 | 22.07 | 24.38 | 34.81 | 29.92 | 24.43 |
| 2700 | 22.06 | 23.01 | 23.09 | 24.22 | 27.15 | 51.44 | 27.00 | 23.97 |
| 2800 | 24.37 | 25.84 | 25.88 | 27.13 | 31.35 | 36.58 | 24.64 | 23.42 |
| 2900 | 27.13 | 29.76 | 29.64 | 30.87 | 37.68 | 30.53 | 22.89 | 22.69 |
| 3000 | 29.28 | 34.40 | 34.41 | 34.05 | 39.79 | 27.77 | 21.81 | 22.23 |
| 3200 | 28.43 | 34.26 | 46.68 | 31.08 | 30.93 | 24.80 | 20.51 | 22.04 |
| 3400 | 27.17 | 31.44 | 37.63 | 28.77 | 28.61 | 24.24 | 20.37 | 22.82 |
| 3600 | 27.15 | 31.09 | 35.41 | 27.92 | 28.57 | 26.48 | 22.10 | 26.12 |
| 3800 | 23.64 | 24.88 | 25.35 | 23.80 | 24.90 | 28.84 | 26.08 | 35.24 |
| 4000 | 19.52 | 19.85 | 19.84 | 19.79 | 20.86 | 25.93 | 36.38 | 28.91 |
| 4200 | 16.41 | 16.52 | 16.43 | 16.85 | 17.87 | 21.80 | 29.66 | 21.97 |
| 4400 | 14.80 | 14.82 | 14.64 | 15.35 | 16.32 | 19.53 | 23.26 | 18.37 |
| 4600 | 14.06 | 14.01 | 13.73 | 14.65 | 15.54 | 18.04 | 19.58 | 16.02 |
| 4800 | 14.90 | 14.68 | 14.18 | 15.42 | 16.19 | 17.78 | 17.53 | 14.83 |
| 5000 | 17.37 | 16.62 | 15.65 | 17.37 | 17.50 | 17.02 | 15.34 | 13.71 |



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DAT-31R5A-SN+

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Digital Step Attenuator

DAT-31R5A-SN+

Typical Performance Data

TEST CONDITIONS: INPUT POWER=0 dBm, Vdd=+3V, Vss=-3.2V, TEMPERATURE=+105°C

| FREQUENCY (MHz) | OUTPUT RETURN LOSS AT TTL CONTROL STATE (dB) | | | | | | | |
|--------------------|---|------------------|------------------|------------------|------------------|------------------|-----------------|-------------------|
| | 000000 0 dB | 000001 0.5 dB | 000010 1.0 dB | 000100 2.0 dB | 001000 4.0 dB | 010000 8.0 dB | 100000 16 dB | 111111 31.5 dB |
| 0.1 | 16.48 | 16.54 | 16.33 | 18.79 | 19.28 | 19.06 | 17.40 | 22.10 |
| 0.3 | 16.54 | 16.60 | 16.39 | 18.84 | 19.31 | 19.10 | 17.42 | 22.12 |
| 0.5 | 16.57 | 16.64 | 16.42 | 18.86 | 19.31 | 19.10 | 17.41 | 22.09 |
| 1 | 16.67 | 16.72 | 16.49 | 18.93 | 19.37 | 19.13 | 17.44 | 22.11 |
| 5 | 16.77 | 16.81 | 16.58 | 19.01 | 19.42 | 19.15 | 17.47 | 22.11 |
| 10 | 16.79 | 16.82 | 16.59 | 19.03 | 19.45 | 19.17 | 17.48 | 22.12 |
| 50 | 16.86 | 16.91 | 16.68 | 19.17 | 19.60 | 19.37 | 17.66 | 22.40 |
| 100 | 16.95 | 17.01 | 16.81 | 19.33 | 19.84 | 19.67 | 17.96 | 22.87 |
| 200 | 17.21 | 17.30 | 17.10 | 19.72 | 20.25 | 20.07 | 18.29 | 23.47 |
| 300 | 17.35 | 17.39 | 17.13 | 19.65 | 20.00 | 19.64 | 17.86 | 22.72 |
| 400 | 17.36 | 17.34 | 17.04 | 19.41 | 19.61 | 19.11 | 17.37 | 21.84 |
| 500 | 17.29 | 17.23 | 16.93 | 19.23 | 19.37 | 18.85 | 17.15 | 21.38 |
| 600 | 17.55 | 17.48 | 17.14 | 19.41 | 19.45 | 18.89 | 17.17 | 21.26 |
| 700 | 17.75 | 17.62 | 17.24 | 19.47 | 19.43 | 18.81 | 17.08 | 21.02 |
| 800 | 17.75 | 17.60 | 17.22 | 19.34 | 19.21 | 18.61 | 16.95 | 20.63 |
| 900 | 17.57 | 17.41 | 17.05 | 19.05 | 18.96 | 18.47 | 16.89 | 20.29 |
| 1000 | 17.39 | 17.25 | 16.91 | 18.79 | 18.75 | 18.40 | 16.92 | 20.04 |
| 1100 | 17.15 | 17.02 | 16.74 | 18.52 | 18.57 | 18.42 | 17.05 | 19.88 |
| 1200 | 16.84 | 16.76 | 16.52 | 18.20 | 18.34 | 18.43 | 17.22 | 19.72 |
| 1300 | 16.43 | 16.40 | 16.23 | 17.80 | 18.07 | 18.44 | 17.44 | 19.55 |
| 1400 | 16.08 | 16.08 | 15.98 | 17.43 | 17.83 | 18.53 | 17.75 | 19.39 |
| 1500 | 15.74 | 15.78 | 15.74 | 17.10 | 17.61 | 18.65 | 18.17 | 19.26 |
| 1600 | 15.47 | 15.56 | 15.56 | 16.85 | 17.45 | 18.85 | 18.70 | 19.19 |
| 1700 | 15.25 | 15.36 | 15.42 | 16.62 | 17.31 | 19.04 | 19.28 | 19.07 |
| 1800 | 15.06 | 15.21 | 15.30 | 16.43 | 17.19 | 19.28 | 20.00 | 18.95 |
| 1900 | 14.96 | 15.13 | 15.26 | 16.31 | 17.12 | 19.55 | 20.82 | 18.81 |
| 2000 | 14.95 | 15.14 | 15.30 | 16.27 | 17.11 | 19.90 | 21.87 | 18.69 |
| 2100 | 15.07 | 15.28 | 15.46 | 16.35 | 17.21 | 20.35 | 23.21 | 18.59 |
| 2200 | 15.33 | 15.56 | 15.76 | 16.57 | 17.43 | 20.93 | 24.86 | 18.56 |
| 2300 | 15.76 | 16.00 | 16.22 | 16.94 | 17.78 | 21.68 | 27.03 | 18.59 |
| 2400 | 16.38 | 16.64 | 16.87 | 17.50 | 18.31 | 22.64 | 30.07 | 18.70 |
| 2500 | 17.17 | 17.44 | 17.69 | 18.25 | 19.02 | 23.86 | 34.35 | 18.93 |
| 2600 | 18.18 | 18.48 | 18.73 | 19.27 | 19.98 | 25.47 | 38.75 | 19.31 |
| 2700 | 19.25 | 19.60 | 19.85 | 20.53 | 21.17 | 27.49 | 35.56 | 19.77 |
| 2800 | 20.46 | 20.87 | 21.12 | 22.17 | 22.72 | 30.26 | 31.07 | 20.40 |
| 2900 | 21.37 | 21.89 | 22.13 | 24.03 | 24.58 | 33.87 | 28.00 | 21.16 |
| 3000 | 22.01 | 22.65 | 22.88 | 26.47 | 27.13 | 37.14 | 25.65 | 22.16 |
| 3200 | 21.09 | 21.76 | 21.92 | 29.72 | 33.04 | 30.78 | 22.48 | 25.38 |
| 3400 | 19.14 | 19.66 | 19.74 | 26.13 | 28.71 | 25.57 | 20.53 | 31.08 |
| 3600 | 18.03 | 18.43 | 18.41 | 23.44 | 24.78 | 22.97 | 19.44 | 37.00 |
| 3800 | 18.20 | 18.47 | 18.33 | 22.95 | 23.58 | 22.26 | 19.30 | 31.01 |
| 4000 | 19.75 | 19.85 | 19.57 | 24.24 | 24.17 | 23.56 | 20.35 | 27.45 |
| 4200 | 22.14 | 21.98 | 21.64 | 25.41 | 25.08 | 27.54 | 22.61 | 24.92 |
| 4400 | 23.80 | 23.53 | 23.48 | 23.94 | 24.24 | 42.13 | 24.86 | 22.27 |
| 4600 | 24.09 | 24.06 | 24.53 | 21.80 | 22.38 | 29.67 | 22.36 | 19.75 |
| 4800 | 25.43 | 25.58 | 26.25 | 20.81 | 21.01 | 22.45 | 18.29 | 17.60 |
| 5000 | 30.58 | 29.97 | 29.83 | 20.67 | 20.08 | 18.53 | 15.25 | 15.92 |