

# Cavity Bandpass Filter

# ZVBP-K34R5G+

## Typical Performance Data

| FREQ.<br><br>(MHz) | INSERTION LOSS |        |        | INPUT RETURN LOSS |        |        | OUTPUT RETURN LOSS |        |        |
|--------------------|----------------|--------|--------|-------------------|--------|--------|--------------------|--------|--------|
|                    | (dB)           |        |        | (dB)              |        |        | (dB)               |        |        |
|                    | @-40°C         | @+25°C | @+85°C | @-40°C            | @+25°C | @+85°C | @-40°C             | @+25°C | @+85°C |
| 100                | 114.47         | 117.78 | 115.00 | 0.07              | 0.09   | 0.08   | 0.06               | 0.10   | 0.10   |
| 500                | 109.74         | 110.59 | 111.22 | 0.09              | 0.13   | 0.12   | 0.08               | 0.12   | 0.12   |
| 1000               | 103.31         | 102.49 | 104.34 | 0.11              | 0.16   | 0.15   | 0.09               | 0.15   | 0.15   |
| 2000               | 110.27         | 112.41 | 109.52 | 0.10              | 0.17   | 0.16   | 0.08               | 0.16   | 0.16   |
| 3000               | 104.01         | 103.78 | 104.19 | 0.08              | 0.15   | 0.14   | 0.04               | 0.13   | 0.13   |
| 4000               | 101.44         | 101.31 | 101.20 | 0.04              | 0.12   | 0.11   | 0.01               | 0.10   | 0.10   |
| 5000               | 97.87          | 99.82  | 100.17 | 0.08              | 0.17   | 0.15   | 0.02               | 0.12   | 0.12   |
| 6000               | 100.22         | 100.43 | 100.20 | 0.16              | 0.25   | 0.22   | 0.03               | 0.15   | 0.14   |
| 7000               | 91.56          | 91.88  | 92.26  | 0.17              | 0.27   | 0.23   | 0.00               | 0.13   | 0.13   |
| 8000               | 89.53          | 88.75  | 90.81  | 0.09              | 0.20   | 0.17   | 0.03               | 0.11   | 0.11   |
| 9000               | 82.00          | 83.50  | 85.89  | 0.02              | 0.13   | 0.11   | 0.04               | 0.11   | 0.11   |
| 10000              | 86.80          | 90.34  | 87.23  | 0.02              | 0.10   | 0.09   | 0.05               | 0.11   | 0.11   |
| 11000              | 85.24          | 85.81  | 85.57  | 0.01              | 0.13   | 0.12   | 0.02               | 0.14   | 0.14   |
| 12000              | 88.59          | 87.72  | 87.74  | 0.06              | 0.20   | 0.20   | 0.03               | 0.20   | 0.20   |
| 13000              | 84.24          | 84.52  | 85.23  | 0.04              | 0.17   | 0.18   | 0.02               | 0.14   | 0.15   |
| 15000              | 85.46          | 85.63  | 86.12  | 0.04              | 0.10   | 0.10   | 0.08               | 0.12   | 0.12   |
| 20000              | 83.46          | 86.51  | 85.17  | 0.04              | 0.23   | 0.24   | 0.02               | 0.25   | 0.26   |
| 25000              | 78.52          | 79.36  | 80.03  | 0.15              | 0.07   | 0.08   | 0.20               | 0.08   | 0.08   |
| 30000              | 86.74          | 87.87  | 87.42  | 0.00              | 0.28   | 0.29   | 0.02               | 0.31   | 0.32   |
| 32000              | 89.59          | 91.11  | 89.13  | 0.01              | 0.24   | 0.24   | 0.01               | 0.33   | 0.33   |
| 32400              | 69.18          | 66.41  | 63.36  | 0.02              | 0.27   | 0.32   | 0.04               | 0.35   | 0.38   |
| 32735              | 31.80          | 26.67  | 20.84  | 0.35              | 0.86   | 1.28   | 0.30               | 0.81   | 1.18   |
| 32795              | 22.27          | 16.30  | 10.08  | 0.67              | 1.60   | 3.21   | 0.55               | 1.47   | 3.08   |
| 32850              | 12.44          | 6.81   | 3.56   | 1.70              | 4.90   | 11.75  | 1.57               | 4.87   | 12.65  |
| 32910              | 3.69           | 2.44   | 2.11   | 8.31              | 18.78  | 23.73  | 8.69               | 23.19  | 24.52  |
| 33000              | 1.40           | 1.68   | 1.67   | 23.28             | 23.28  | 23.44  | 21.81              | 22.66  | 25.16  |
| 33300              | 0.82           | 1.19   | 1.23   | 24.35             | 23.11  | 23.57  | 27.38              | 27.43  | 30.28  |
| 33600              | 0.66           | 1.02   | 1.09   | 31.83             | 38.92  | 32.34  | 28.07              | 32.03  | 34.22  |
| 34000              | 0.62           | 0.97   | 1.03   | 22.93             | 25.84  | 26.06  | 22.31              | 23.53  | 24.97  |
| 34200              | 0.58           | 0.93   | 1.00   | 22.99             | 29.10  | 26.01  | 23.44              | 31.15  | 26.68  |
| 34500              | 0.57           | 0.93   | 1.00   | 33.11             | 33.56  | 31.68  | 29.83              | 29.68  | 32.00  |
| 34700              | 0.59           | 0.95   | 1.03   | 22.57             | 26.53  | 25.94  | 24.14              | 28.01  | 27.69  |
| 35000              | 0.65           | 1.00   | 1.08   | 19.21             | 21.01  | 19.76  | 19.18              | 21.60  | 20.16  |
| 35300              | 0.64           | 1.02   | 1.13   | 29.23             | 29.14  | 22.34  | 27.00              | 28.18  | 21.97  |
| 35600              | 0.73           | 1.13   | 1.26   | 26.58             | 24.91  | 22.76  | 30.65              | 27.25  | 24.56  |
| 36000              | 1.09           | 1.58   | 1.80   | 22.09             | 25.72  | 27.00  | 19.98              | 23.02  | 23.75  |
| 36180              | 2.24           | 5.36   | 10.78  | 15.18             | 6.03   | 2.59   | 15.46              | 5.78   | 2.42   |
| 36245              | 7.97           | 14.50  | 20.81  | 2.91              | 1.65   | 1.19   | 2.59               | 1.46   | 1.01   |
| 36305              | 17.31          | 23.40  | 28.89  | 0.96              | 0.98   | 0.90   | 0.70               | 0.86   | 0.77   |
| 36385              | 28.40          | 33.46  | 38.15  | 0.55              | 0.76   | 0.75   | 0.31               | 0.64   | 0.63   |
| 36400              | 30.25          | 35.18  | 39.73  | 0.52              | 0.74   | 0.74   | 0.29               | 0.62   | 0.61   |
| 36700              | 58.24          | 61.53  | 64.19  | 0.31              | 0.56   | 0.59   | 0.15               | 0.47   | 0.49   |
| 37000              | 75.40          | 78.04  | 79.38  | 0.23              | 0.50   | 0.53   | 0.10               | 0.41   | 0.43   |
| 37200              | 84.44          | 85.19  | 86.93  | 0.18              | 0.47   | 0.50   | 0.08               | 0.38   | 0.41   |
| 37400              | 86.58          | 87.48  | 88.04  | 0.14              | 0.44   | 0.47   | 0.05               | 0.35   | 0.39   |
| 37600              | 86.47          | 86.34  | 88.45  | 0.11              | 0.42   | 0.46   | 0.00               | 0.32   | 0.36   |
| 37800              | 87.55          | 89.21  | 87.29  | 0.07              | 0.38   | 0.42   | 0.05               | 0.29   | 0.33   |
| 38000              | 86.18          | 86.47  | 83.23  | 0.04              | 0.35   | 0.39   | 0.09               | 0.27   | 0.32   |
| 38200              | 83.34          | 83.71  | 80.14  | 0.03              | 0.34   | 0.38   | 0.12               | 0.25   | 0.30   |
| 38400              | 81.35          | 81.69  | 78.13  | 0.02              | 0.33   | 0.37   | 0.15               | 0.23   | 0.28   |
| 38600              | 80.94          | 80.86  | 77.72  | 0.01              | 0.32   | 0.36   | 0.19               | 0.21   | 0.25   |
| 38800              | 80.76          | 80.42  | 78.13  | 0.01              | 0.30   | 0.34   | 0.21               | 0.19   | 0.23   |
| 39000              | 79.61          | 79.54  | 78.42  | 0.03              | 0.28   | 0.32   | 0.22               | 0.19   | 0.23   |
| 39100              | 78.99          | 79.06  | 78.45  | 0.04              | 0.27   | 0.31   | 0.23               | 0.19   | 0.22   |
| 39200              | 78.43          | 78.66  | 78.32  | 0.04              | 0.26   | 0.30   | 0.23               | 0.19   | 0.22   |
| 39300              | 78.09          | 78.37  | 78.16  | 0.04              | 0.26   | 0.30   | 0.23               | 0.19   | 0.22   |
| 39400              | 77.79          | 77.96  | 77.65  | 0.04              | 0.26   | 0.30   | 0.23               | 0.19   | 0.21   |
| 39500              | 77.37          | 77.29  | 76.75  | 0.03              | 0.26   | 0.30   | 0.23               | 0.19   | 0.21   |
| 39800              | 75.47          | 74.62  | 73.53  | 0.01              | 0.27   | 0.31   | 0.24               | 0.18   | 0.20   |
| 40000              | 75.07          | 74.11  | 72.95  | 0.01              | 0.27   | 0.31   | 0.24               | 0.18   | 0.20   |

## Typical Performance Data

| FREQ.<br><br>(MHz) | GROUP DELAY |        |        |
|--------------------|-------------|--------|--------|
|                    | (nsec)      |        |        |
|                    | @-40°C      | @+25°C | @+85°C |
| 33000              | 3.04        | 2.70   | 2.49   |
| 33050              | 2.61        | 2.42   | 2.28   |
| 33100              | 2.36        | 2.23   | 2.12   |
| 33150              | 2.18        | 2.08   | 1.99   |
| 33200              | 2.04        | 1.96   | 1.89   |
| 33250              | 1.93        | 1.86   | 1.81   |
| 33300              | 1.84        | 1.79   | 1.75   |
| 33350              | 1.78        | 1.73   | 1.69   |
| 33400              | 1.71        | 1.67   | 1.64   |
| 33450              | 1.65        | 1.62   | 1.59   |
| 33500              | 1.61        | 1.58   | 1.56   |
| 33550              | 1.56        | 1.54   | 1.52   |
| 33600              | 1.53        | 1.51   | 1.49   |
| 33650              | 1.50        | 1.48   | 1.47   |
| 33700              | 1.47        | 1.45   | 1.43   |
| 33750              | 1.45        | 1.43   | 1.41   |
| 33800              | 1.42        | 1.40   | 1.39   |
| 33850              | 1.40        | 1.38   | 1.38   |
| 33900              | 1.38        | 1.37   | 1.36   |
| 33950              | 1.36        | 1.35   | 1.34   |
| 34000              | 1.35        | 1.34   | 1.33   |
| 34050              | 1.34        | 1.33   | 1.32   |
| 34100              | 1.33        | 1.32   | 1.31   |
| 34150              | 1.31        | 1.30   | 1.30   |
| 34200              | 1.31        | 1.31   | 1.30   |
| 34250              | 1.28        | 1.28   | 1.28   |
| 34300              | 1.29        | 1.29   | 1.28   |
| 34500              | 1.27        | 1.27   | 1.27   |
| 34600              | 1.26        | 1.26   | 1.26   |
| 34700              | 1.25        | 1.26   | 1.26   |
| 34800              | 1.25        | 1.25   | 1.26   |
| 34900              | 1.26        | 1.26   | 1.27   |
| 35000              | 1.26        | 1.27   | 1.28   |
| 35100              | 1.28        | 1.29   | 1.31   |
| 35200              | 1.32        | 1.33   | 1.34   |
| 35300              | 1.34        | 1.35   | 1.36   |
| 35400              | 1.36        | 1.38   | 1.40   |
| 35500              | 1.41        | 1.44   | 1.46   |
| 35600              | 1.48        | 1.50   | 1.52   |
| 35700              | 1.53        | 1.57   | 1.61   |
| 36000              | 2.00        | 2.14   | 2.34   |