# Silicon Hyperabrupt Tuning Varactors: UHF


Bare Die


Ceramic Epoxy SMT


Glass Axial Leaded

- High Reliability, Silicon Planar
- Octave Tuning at UHF
- Octave Tuning at VHF
- Straight-Line Frequency Applications Over a 3 to 8 Volt Bias Range
- Low Cost Applications

The Aeroflex / Metelics UHF Tuning Varactors offer higher Qs than their VHF counterparts, but have slightly lower capacitance ratios. These diodes are excellent for octave tuning up to 800 MHz and for straight-line-frequency tuning between 3 and 8 volts of bias. They also achieve exceptionally high Q values and large signal capabilities when tuned between 9 and 20 volts, which extends their useful range to over 1 GHz. Closely matched sets are available, designed by suffix "A".

| Model | Total Capacitance pF | | | | | | Tuning Ratio | | | | Q | | $V_{BR}$ | | $I_R$ nAdc | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | TYP | MIN | TYP | TYP | MAX | TYP | MAX | TYP | MAX |
| TV2101 | 10.5 | 12.5 | 4.3 | 5.7 | 2.0 | 2.3 | 5.0 | 5.8 | – | – | 300 | 350 | 22 | 30 | – | – | – | – | 10 | 100 |
| TV2101A | 10.9 | 12.1 | 4.6 | 5.4 | 2.0 | 2.3 | 5.0 | 5.8 | – | – | 300 | 350 | 22 | 30 | – | – | – | – | 10 | 100 |
| TV2102 | 10.5 | 12.5 | 4.3 | 5.7 | 2.0 | 2.4 | 4.7 | 5.5 | – | – | 200 | 300 | 22 | 30 | – | – | – | – | 10 | 100 |
| TV2102A | 10.9 | 12.1 | 4.6 | 5.4 | 2.0 | 2.4 | 4.7 | 5.5 | – | – | 200 | 300 | 22 | 30 | – | – | – | – | 10 | 100 |
| TV2103 | 10.5 | 12.5 | 4.3 | 5.7 | – | – | – | – | 1.9 | 2.7 | 200 | 300 | 15 | 18 | – | – | 50 | 500 | – | – |
| TV2103A | 10.9 | 12.1 | 4.6 | 5.4 | – | – | – | – | 2.0 | 2.6 | 200 | 300 | 15 | 18 | – | – | 50 | 500 | – | – |
| TV2104 | 10.5 | 12.5 | – | – | – | – | – | – | – | – | 100 | 150 | 8 | 12 | 50 | 500 | – | – | – | – |
| TV2801 | 25.0 | 31.0 | 10.0 | 13.5 | 4.5 | 5.1 | 5.2 | 6.1 | – | – | 200 | 250 | 22 | 30 | – | – | – | – | 20 | 100 |
| TV2801A | 26.5 | 29.5 | 11.0 | 13.0 | 4.5 | 5.1 | 5.2 | 6.1 | – | – | 200 | 250 | 22 | 30 | – | – | – | – | 20 | 100 |
| TV2802 | 25.0 | 31.0 | 10.0 | 13.5 | 4.5 | 5.3 | 4.9 | 5.8 | – | – | 150 | 200 | 22 | 30 | – | – | – | – | 20 | 100 |
| TV2802A | 26.5 | 29.5 | 11.0 | 13.0 | 4.5 | 5.3 | 4.9 | 5.8 | – | – | 150 | 200 | 22 | 30 | – | – | – | – | 20 | 100 |
| TV2803 | 25.0 | 31.0 | 10.0 | 13.5 | – | – | – | – | 1.9 | 2.8 | 150 | 200 | 15 | 18 | – | – | 50 | 500 | – | – |
| TV2803A | 26.5 | 29.5 | 11.0 | 13.0 | – | – | – | – | 2.0 | 2.7 | 150 | 200 | 15 | 18 | – | – | 50 | 500 | – | – |
| TV2804 | 25.0 | 31.0 | – | – | – | – | – | – | – | – | 75 | 100 | 8 | 12 | 50 | 500 | – | – | – | – |
| **Test Conds.** | @ -3 Vdc, F = 1 MHz | | @ -8 Vdc, F = 1 MHz | | @ -20 Vdc, F = 1 MHz | | $C_T$ 3 / $C_T$ 20 | | $C_T$ 3 / $C_T$ 8 | | @ -3 Vdc, F = 50 MHz | | @ 10 µA | | @ -6 V | | @ -10 V | | @ -20 V | |

| Maximum Ratings | Parameter | Value |
|---|---|---|
| | **Reverse Voltage** | Same as $V_{BR}$ (Volts) |
| | **Forward Current** | 100 mA |
| | **Power Dissipation** | 250mW |
| | **Operating Temperature** | -55 to + 150 °C |
| | **Storage Temperature** | -65 to + 200 °C |