

# Silicon Hyperabrupt Tuning Varactors: VHF/UHF



Plastic SMT

- Superior Performance in Highly Stable Oscillator Designs
- Uniform Capacitance / Temperature Coefficient
- Highly Reproducible Ion Implanted Structure

| Model           | C <sub>T</sub><br>pF |      | C <sub>T</sub><br>RATIO                     |     | C <sub>T</sub><br>RATIO                   |     | Q                       |
|-----------------|----------------------|------|---------------------------------------------|-----|-------------------------------------------|-----|-------------------------|
|                 | MIN                  | MAX  | MIN                                         | MAX | MIN                                       | MAX | MIN                     |
| SMV20422        | 18.0                 | 27.0 | 1.8                                         | 2.5 | 1.8                                       | 2.5 | 150                     |
| SMV20423        | 9.0                  | 13.0 | 1.8                                         | 2.5 | 1.8                                       | 2.5 | 200                     |
| SMV20424        | 6.0                  | 8.0  | 1.8                                         | 2.5 | 1.8                                       | 2.5 | 300                     |
| SMV20425        | 4.2                  | 5.6  | 1.8                                         | 2.5 | 1.8                                       | 2.5 | 350                     |
| Test Conditions | @ 2.5 Vdc, F = 1 MHz |      | C <sub>T</sub> @ 1 V / C <sub>T</sub> 2.5 V |     | C <sub>T</sub> 2.5 V / C <sub>T</sub> 4 V |     | @ -4 Vdc,<br>F = 50 MHz |

| Model           | C <sub>T</sub><br>pF |       | C <sub>T</sub><br>pF  |      | C <sub>T</sub><br>pF |      | Q                       |
|-----------------|----------------------|-------|-----------------------|------|----------------------|------|-------------------------|
|                 | MIN                  | TYP   | MIN                   | MAX  | TYP                  | MAX  | MIN                     |
| SMV20411        | 95.0                 | 100.0 | 40.0                  | 65   | 20.0                 | 25.0 | 80                      |
| SMV20412        | 42.0                 | 54.0  | 18.0                  | 27   | 8.7                  | 12.0 | 150                     |
| SMV20413        | 17.0                 | 22.0  | 8.5                   | 10.5 | 4.0                  | 5.5  | 200                     |
| SMV20414        | 14.5                 | 16.0  | 6.5                   | 7.8  | 3.0                  | 4.8  | 300                     |
| SMV20415        | 8.7                  | 11.3  | 4.3                   | 5.5  | 2.2                  | 2.9  | 350                     |
| Test Conditions | @ -1 Vdc, F = 1 MHz  |       | @ -2.5 Vdc, F = 1 MHz |      | @ -4 Vdc, F = 1 MHz  |      | @ -4 Vdc,<br>F = 50 MHz |

| Maximum Ratings | Parameters                  | Value              | Rating      |
|-----------------|-----------------------------|--------------------|-------------|
|                 | Reverse Breakdown Voltage   | 10 $\mu$ Adc       | 12 Volt Min |
|                 | Max Reverse Leakage Current | Vr = 8 Volts       | 20 nAdc     |
|                 | Power Dissipation           | @ Ta = 25° C       | 250 mW      |
|                 | Junction Temperature        | 125° C             |             |
|                 | Operating Temperature       | -55° to + 125° C   |             |
|                 | Storage Temperature         | -65° C to + 150° C |             |