

# Trimmer Capacitors, Varactors, and Microwave Tuning Elements



## SILICON TUNING VARACTORS

- High Q  
Superior linear performance  
Super Hyperabrupt
- UHF - Wireless (4V, 6V, 8V)
  - VHF - Wireless (10V)
- Hyperabrupt
- VHF/UHF (20V, 25V)
  - Microwave (20V)
- Abrupt (20V)  
Economical SOT-23 and High Performance Surface Mount Packages

*For more information, ask for data.*



## CERAMIC DIELECTRIC

- 5 mm Rugged:**
- Operating temp: -55° to +125°C
  - Cap ranges: 1.5-5.5 pF to 15.0-90.0 pF
- 5 mm Economy:**
- Operating temp: -25° to +85°C
  - Cap ranges: 1.0-3.0 pF to 14.0-70.0 pF
- 7 mm Economy:**
- Operating temp: -25° to +85°C
  - Cap ranges: 2.0-5.0 pF to 14.0-108.0 pF
- Miniature types suitable for hybrids**
- Operating temp: -25° to +85°C
  - 2 series: 2.0 x 1.2 mm; 3.0 x 1.5 mm
  - Cap ranges: 1.0-3.0 pF to 6.0-40.0 pF
- Plastic encased 4x4.5mm and 6mm types**
- Designed for volume applications
  - SMT and printed-thru-hole models
  - Cap ranges: 1.0-3.0 pF to 20.0-90.0 pF

*For more information, ask for Bulletin SG-305.*



## AIRTRIM® MULTITURN AIR DIELECTRIC

- Q: > 5000 at 100 MHz
- 14 mounting styles including surface mount
- Designed to meet MIL-C-14409D
- Operating temp: -65° to +125°C
- Standard cap ranges: 0.35 to 3.5 pF; 0.6 to 6 pF; 0.8 to 10 pF; 1.0 to 14 pF
- Multiturn resolution
- Extremely stable over temperature, frequency, voltage, etc.
- Rated voltage: 250 VDC
- Self-resonant frequency: > 6 GHz
- Insulation resistance: >10<sup>6</sup> MΩ

*For more information, ask for Bulletin SG-660.*



## SURFTRIM® SURFACE MOUNT

- 4 sizes:
  - 2.2 x 3.1 x 1.2 mm
  - 3.2 x 4.5 x 1.8 mm
  - 4.0 x 4.5 x 2.7 mm (sealed)
  - 5.2 x 4.3 x 3.2 mm (sealed split star)
- 6 mounting configurations
- Carrier and reel or bulk pack
- 0.4-2.0 pF to 8.5-50.0 pF in 21 cap ranges
- Operates to 85°C
- Q to 450 at 100 MHz

*For more information, ask for Bulletins SG-305 and SG-310.*



## MICROWAVE TUNERS

- Metallic tuning elements**
- 4 to 33 GHz
  - For waveguide filters, attenuators
- Dielectric tuning elements**
- Alumina, quartz, sapphire
  - 8 to 100 GHz
  - For IMPATT, Gunn devices
- Dielectric resonator tuners**
- 2 to 18 GHz
  - For filters, oscillators
- LC tuning elements**
- 2 to 60 GHz
  - High Q wideband tuning
- Resistive tuning elements**
- 1 to 18 GHz
  - Trim amplifier, oscillator power

*For more information, ask for Bulletin SG-670.*



## SAPPHIRE PISTONCAP®

- Q to 4000 at 250 MHz
- 2 configurations and 6 mounting styles suitable for all RF structures
- Designed to meet MIL-C-14409D
- Operating temp: -55° to +125°C
- Cap ranges: 0.3-1.2 pF to 0.8-8.0 pF
- Subminiature size
- Multiturn resolution
- Extremely stable over temperature, frequency, voltage, etc.

*For more information, ask for Bulletin SG-207.*

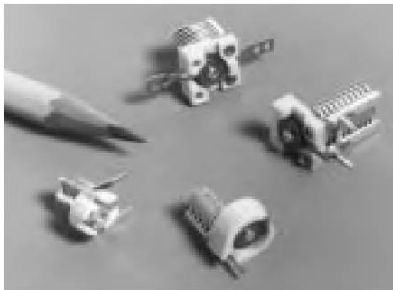
# Trimmer Capacitors and Tuning Tools



## GLASS AND QUARTZ PISTONCAP®

- Designed to meet MIL-C-14409D
- QPL models
- Extremely stable over temperature, frequency, voltage, etc.
- Cap ranges: 0.5-3.0 pF to 1.0-120 pF
- Zero backlash multiturn adjust mechanism
- Operating temp: -55° to +125°C (models to +200°C)
- Q to 1500 at 20 MHz
- Wide variety of configurations for PC, panel and surface mounting
- Voltage ratings from 500 to 5000 V

*For more information, ask for Bulletin SG-205.*



## AIRTRIM® SINGLE TURN AIR DIELECTRIC

- Cap Ranges: 1.1-3.3 pF to 2.9-24.0 pF
- Q typically 8000 at 1 MHz; 4000 at 100 MHz; 1500 at 200 MHz
- Operating temp: -55° to +85°C
- Temp coefficient as low as 10 ±10 ppm/°C
- 2 sizes and 10 mounting configurations for printed circuit and panel mounting
- Machined from solid brass

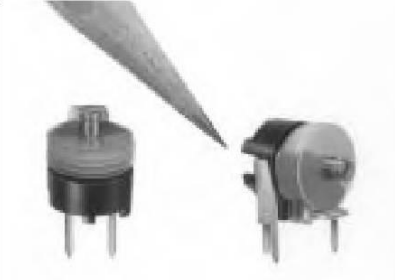
*For more information, ask for Bulletin SG-600.*



## MULTITURN PLASTIC

- Cap range: 0.25-1.5 pF
- 5 models
- Rated working voltage to 1700V
- Multiturn resolution at low cost
- Q typically > 2000 to VHF
- Temp coefficient of capacitance: 50 ± 50 ppm/°C
- Operating temp: -55° to +125°C

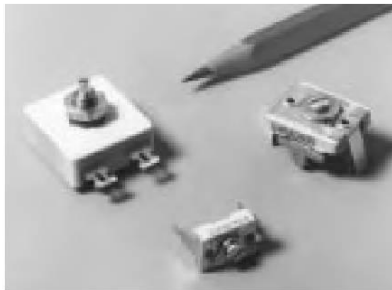
*For more information, ask for Bulletin SG-401.*



## FILMTRIM® SINGLE TURN PLASTIC

- Cap ranges: 1.0-3.5 pF to 25-600 pF
- Q to 5000 at 1 MHz
- Operating temp: PTFE, Polycarbonate, Polyimide: -40° to +85°C Polypropylene: -40° to +70°C High temp PTFE: -40° to +125°C
- 6 sizes from 5 mm to 16 mm
- More stable with temperature than other single turn trimmers

*For more information, ask for Bulletin SG-402.*



## MICA COMPRESSION

- Cap ranges: 2.5-7.0 pF to 1400-3055 pF
- Q to 600 at 1 MHz
- Rated working voltage to 2000 V
- Can handle higher RF currents
- Operating temp: -35° to +85°C
- 8 mounting styles for PC, panel, and bracket mounting

*For more information, ask for Bulletin SG-500.*



## TUNING TOOLS

- Tools for all adjustable models
  - Plastic or plated hardened steel tips
  - Nylon and antistatic bodies
  - Models for laboratory and production needs

*For more information, ask for Bulletin SG-206.*

# Inductors and Transformers



## SURFACOIL® SMT CHIP INDUCTORS

- Inductance from 2.2 nH to 1 mH
  - 13 model series in 6 sizes:
    - 1.0 x 0.5 x 0.5 mm (0402)
    - 1.6 x 0.8 x 0.8 mm (0603)
    - 2.00 x 1.25 x 1.25 mm (0805)
    - 2.5 x 2.0 x 1.6 mm (1008)
    - 3.2 x 2.5 x 2.2 mm (1210)
    - 4.5 x 3.2 x 3.2 mm (1812)
  - Shielded, unshielded, ferrite core and nonmagnetic models
  - Operating temp: -40° to +85°C
  - Carrier and reel standard
- For more information, ask for Bulletin SG-800.*

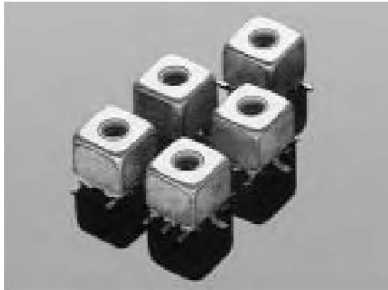
## HIGH CURRENT SMT INDUCTORS

- Inductance from 1 µH to 68 mH
  - Rated current up to 4 A
  - 4 sizes:
    - 4.8 x 4.0 x 5.0 mm
    - 5.6 x 4.0 x 3.1 mm
    - 8.5 x 8.0 x 5.5 mm
    - 11.9 x 9.6 x 5.2 mm
- For more information, ask for Bulletin SG-890.*



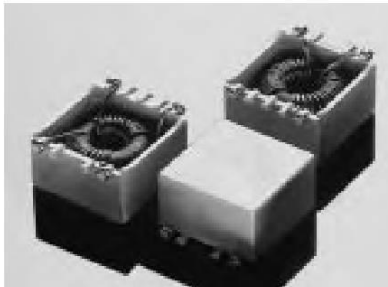
## SMT AIR COIL

- Inductance from 5.3 to 43.0 nH
  - 2 sizes:
    - 3.7 x 4.4 x 3.2 mm
    - 7.1 x 4.4 x 3.2 mm
- For more information, ask for Bulletin SG-890.*



## SMT TUNABLE RF COILS

- Inductance from 14 nH to 680 µH
  - Tuning range up to ±7.5%
  - Five terminal pad layout allows for a variety of inductor and transformer configurations
- For more information, ask for Bulletin SG-890.*



## SMT TOROIDAL CHOKES & TRANSFORMERS

- 2 sizes:
    - 10.8 x 8.8 x 5.5 mm
    - 17.8 x 14.3 x 8.8 mm
  - Transformers with 2 or 3 windings
  - Current compensated chokes for filtering applications
- For more information, ask for Bulletin SG-890.*

## LEAD-THRU-HOLE INDUCTORS

- Inductance from 0.1 µH to 150 mH
  - 6 sizes:
    - 7.5 x 4.6 x 10.5 mm
    - 8.5 x 6.0 x 11.4 mm (shielded)
    - 8.0 x 8.0 x 9.6 mm
    - 12.0 Dia x 13.0 mm
    - 12.0 Dia x 19.0 mm
    - 12.5 Dia x 20.0 mm
- For more information, ask for Bulletin SG-990.*



## METALLIZED INDUCTORS & LC TUNERS

- Metallized Inductors**
- Variables (±10%): overlapping ranges from 0.029 to 1.5 µH
  - Fixed: 0.05 to 2.00 µH
  - Min SRF to 900 MHz, Min. Q to 200
  - Temperature coefficient only ±10 ppm/°C over -55° to +125°C
- LC Tuners**
- Series resonant with SRF from 150 to 725 MHz in 4 ranges
  - Parallel resonant with SRF from 170 to 1000 MHz in 5 ranges
  - Temperature coefficient less than 40 ± 30 ppm/°C over -55° to +125°C
- For more information, ask for Bulletin SG-890.*



## SMT TRANSFORMERS

- Encapsulated 4.5 x 3.4 x 3.1 mm
  - Bobbin wound 4.4 x 4.4 x 3.3 mm
  - Dual Aperture cores
    - Baluns
    - Directional couplers
    - Power splitters
    - 2 windings (with and without tap)
  - 3 sizes: 4.5 x 4.5 x 2.8 mm
    - 5.7 x 5.7 x 4 mm
    - 6.5 x 5.7 x 4 mm
- For more information, ask for Bulletin SG-890.*

**Sprague-Goodman Electronics, Inc.**