

# RF Ceramic Component Proto-Typing Kits

Johanson Technology's engineering prototype kits provide RF designers with a broad selection of high frequency ceramic components. Each kit contains a selection of components as well as the latest product data on Johanson's full line of "High Frequency Ceramic Solutions". The selections listed below represents typical kit contents. Johanson reserves the right to make limited value/tolerance substitutions when necessary. Please advise any critical values at time of order.



## Capacitor and Inductor Design Kits

### 0201 L-Series Capacitors & Ceramic Inductors (Values {pF or nH} & tolerances)

P/N : L/C-201DL

50 PCS. EA. MLCC (pF): 0.3 B, 0.5 B, 0.7 B, 0.9 B, 1.0 B, 1.2 B, 1.5 B, 1.8 B, 2.2 B, 2.7 B, 3.0 B, 3.3 B, 3.6 B, 3.9 B, 4.3 B, 4.7 B, 5.1 C, 5.6 C, 6.8 C, 8.2 C, 9.1 C, 10 J, 12 J, 15 J, 18 J, 22 J, 27 J, 33 J  
50 PCS. EA. MLCI (nH): 0.6 C, 0.8 C, 1.0 S, 1.2 S, 1.5 S, 1.8 S, 2.2 S, 2.4 S, 2.7 S, 3.0 S, 3.3 S, 3.7 S, 3.9 S, 4.7 S, 5.1 S, 5.6 S, 6.8 J, 8.2 J, 10 J, 12 J, 13 J, 15 J, 18 J, 20 J, 22 J, 27 J, 33 J, 39 J

### 0402 S-Series Capacitors & Ceramic Inductors (Values {pF or nH} & tolerances)

P/N : L/C-402DS

50 PCS. EA. MLCC (pF): 0.2 B, 0.3 B, 0.5 B, 0.7 B, 0.9 B, 1.0 B, 1.2 B, 1.5 B, 1.8 B, 2.0 B, 2.2 B, 2.4 B, 2.7 B, 3.0 B, 3.6 B, 4.3 B, 4.7 B, 5.6 C, 6.8 C, 7.5 C, 8.2 C, 9.1 C, 10 J, 12 J, 15 J, 22 J, 27 J, 30 J  
50 PCS. EA. MLCI (nH): 1.0 S, 1.2 S, 1.5 S, 1.8 S, 2.2 S, 2.4 S, 2.7 S, 3.0 S, 3.3 S, 3.9 S, 4.3 S, 4.7 S, 5.1 S, 5.6 S, 6.8 J, 7.5 J, 8.2 J, 10 J, 12 J, 15 J, 18 J, 22 J, 27 J, 33 J, 39 J, 47 J, 68 J, 100 J

### 0603 S-Series Capacitors & Ceramic Inductors (Values {pF or nH} & tolerances)

P/N : L/C-603DS

50 PCS. EA. MLCC (pF): 0.2 B, 0.3 B, 0.5 B, 0.8 B, 1.0 B, 1.2 B, 1.5 B, 1.8 B, 2.2 B, 2.7 B, 3.3 B, 3.6 B, 3.9 B, 4.7 B, 5.6 C, 6.8 C, 8.2 C, 10 J, 12 J, 15 J, 18 J, 20 J, 24 J, 27 J, 33 J, 39 J, 47 J, 68 J, 82 J  
50 PCS. EA. MLCI (nH): 1.0 S, 1.5 S, 1.8 S, 2.2 S, 2.7 S, 3.3 S, 3.9 S, 4.7 S, 5.6 S, 6.8 J, 8.2 J, 10 J, 12 J, 15 J, 18 J, 22 J, 27 J, 33 J, 39 J, 47 J, 56 J, 68 J, 82 J, 100 J, 120 J, 150 J, 180 J, 220 J

### 0805 S-Series Capacitors & WireWound High Q Chip Inductors (Values {pF or nH} & tolerances)

P/N : L/C-805DS

50 PCS. EA. MLCC (pF): 4.7 B, 5.6 C, 6.8 C, 7.5 C, 8.2 C, 9.1 C, 10 J, 12 J, 15 J, 18 J, 20 J, 22 J, 24 J, 27 J, 30 J, 33 J, 36 J, 39 J, 43 J, 47 J, 56 J, 68 J, 82 J, 100 J, 120 J, 150 J, 180 J, 220 J  
20 PCS. EA. (nH): 2.7 C, 3.9 C, 5.6 C, 6.8 J, 8.2 J, 12 J, 16 J, 20 J, 27 J, 33 J, 39 J, 47 J, 56 J, 68 J, 82 J, 100 J, 120 J, 150 J, 180 J, 220 J, 270 J, 330 J, 390 J, 560 J, 1000 J, 2200 J, 6800 J, 10000 J

## Tuning Capacitor Kits

### 0201 L-Series Capacitors (Values {pF} & tolerances)

P/N: S201TL

50 PCS. EACH (pF): 0.2 A, 0.3 A, 0.4 A, 0.5 B, 0.6 B, 0.7 B, 0.8 B, 0.9 B, 1.0 B, 1.1 B, 1.2 B, 1.3 B, 1.5 B, 1.8 B, 2.0 B, 2.2 B, 2.4 B, 2.7 B, 3.0 B, 3.3 B, 3.6 B, 3.9 B, 4.3 B, 4.7 B, 5.1 C, 5.6 C, 6.2 C, 6.8 C

### 0402 S-Series Capacitors (Values {pF} & tolerances)

P/N: S402TS

50 PCS. EACH (pF): 0.2 A, 0.3 A, 0.4 A, 0.5 B, 0.6 B, 0.7 B, 0.8 B, 0.9 B, 1.0 B, 1.1 B, 1.2 B, 1.3 B, 1.5 B, 1.8 B, 2.0 B, 2.2 B, 2.4 B, 2.7 B, 3.0 B, 3.3 B, 3.6 B, 3.9 B, 4.3 B, 4.7 B, 5.1 C, 5.6 C, 6.2 C, 6.8 C

### 0603 S-Series Capacitors (Values {pF} & tolerances)

P/N: S603TS

50 PCS. EACH (pF): 0.2 B, 0.3 B, 0.4 B, 0.5 B, 0.6 B, 0.7 B, 0.8 B, 0.9 B, 1.0 B, 1.1 B, 1.2 B, 1.3 B, 1.5 B, 1.8 B, 2.0 B, 2.2 B, 2.4 B, 2.7 B, 3.0 B, 3.3 B, 3.6 B, 3.9 B, 4.3 B, 4.7 B, 5.1 C, 5.6 C, 6.2 C, 6.8 C

### 0805 S-Series Capacitors (Values {pF} & tolerances)

P/N: S805TS

50 PCS. EACH (pF): 0.3 B, 0.5 B, 0.7 B, 0.9 B, 1.0 B, 1.1 B, 1.2 B, 1.3 B, 1.5 B, 1.8 B, 2.0 B, 2.2 B, 2.4 B, 2.7 B, 3.0 B, 3.3 B, 3.6 B, 3.9 B, 4.3 B, 4.7 B, 5.1 C, 5.6 C, 6.2 C, 6.8 C, 7.5 C, 8.2 C, 9.1 C, 10 J

### 1111 E-Series Capacitors (Values {pF} & tolerances)

P/N: S111TVE

10 PCS. EACH (pF): 0.5 B, 0.6 B, 0.7 B, 0.8 B, 0.9 B, 1.0 B, 1.1 B, 1.2 B, 1.3 B, 1.5 B, 2.0 B, 2.2 B, 2.4 B, 2.7 B, 3.0 B, 3.3 B, 3.6 B, 3.9 B, 4.3 B, 4.7 B, 5.1 C, 5.6 C, 6.2 C, 6.8 C, 7.5 C, 8.2 C, 9.1 C, 10 J

## Single Layer Capacitor Kits

### Broadband Single Layer Capacitors

P/N: GBBL

10 PCS. EACH: V01A151MT, V02A471MT, V02A102MT, V03A102MT, V04A182MT

## WireWound Inductor Kits

### 0402 WireWound High Q Chip Inductors (Values {nH} & tolerances)

P/N: L402W

20 PCS. EACH (nH): 1.0 C, 1.8 C, 2.0 C, 2.7 C, 3.3 C, 3.9 C, 4.7 C, 5.6 C, 6.8 J, 7.5 J, 8.2 J, 9.0 J, 10 J, 12 J, 15 J, 18 J, 20 J, 22 J, 24 J, 27 J, 30 J, 33 J, 39 J, 47 J, 56 J, 82 J, 100 J, 120 J

### 0603 WireWound High Q Chip Inductors (Values {nH} & tolerances)

P/N: L603W

20 PCS. EACH (nH): 1.6 C, 1.8 C, 2.0 C, 3.9 C, 4.7 C, 5.1 C, 5.6 C, 6.8 J, 7.5 J, 8.2 J, 10 J, 12 J, 15 J, 18 J, 22 J, 27 J, 33 J, 39 J, 47 J, 56 J, 68 J, 72 J, 82 J, 100 J, 150 J, 180 J, 270 J, 330 J

### 0805 WireWound High Q Chip Inductors (Values {nH} & tolerances)

P/N: L805W

20 PCS. EACH (nH): 2.7 C, 3.9 C, 5.6 C, 6.8 J, 8.2 J, 12 J, 16 J, 20 J, 27 J, 33 J, 39 J, 47 J, 56 J, 68 J, 82 J, 100 J, 120 J, 150 J, 180 J, 220 J, 270 J, 330 J, 390 J, 560 J, 1000 J, 2200 J, 6800 J, 10000 J

## (Individual) Capacitor, Inductor Designer Kits

### 0201 L-Series Capacitors (Values {pF} & tolerances)

P/N: S201DL

50 PCS. EACH (pF): 0.3 B, 0.5 B, 0.7 B, 0.9 B, 1.0 B, 1.2 B, 1.5 B, 1.8 B, 2.2 B, 2.7 B, 3.0 B, 3.3 B, 3.6 B, 3.9 B, 4.3 B, 4.7 B, 5.1 C, 5.6 C, 6.8 C, 8.2 C, 9.1 C, 10 J, 12 J, 15 J, 18 J, 22 J, 27 J, 33 J

### 0201 Inductors (Values {nH} & tolerances)

P/N: L201DC

50 PCS. EACH (nH): 0.6 C, 0.8 C, 1.0 S, 1.2 S, 1.5 S, 1.8 S, 2.2 S, 2.4 S, 2.7 S, 3.0 S, 3.3 S, 3.7 S, 3.9 S, 4.7 S, 5.1 S, 5.6 S, 6.8 J, 8.2 J, 10 J, 12 J, 13 J, 15 J, 18 J, 20 J, 22 J, 27 J, 33 J, 39 J

### 0402 S-Series Capacitors (Values {pF} & tolerances)

P/N: S402DS

50 PCS. EACH (pF): 0.2 B, 0.3 B, 0.5 B, 0.7 B, 0.9 B, 1.0 B, 1.2 B, 1.5 B, 1.8 B, 2.0 B, 2.2 B, 2.4 B, 2.7 B, 3.0 B, 3.6 B, 4.3 B, 4.7 B, 5.6 C, 6.8 C, 7.5 C, 8.2 C, 9.1 C, 10 J, 12 J, 15 J, 22 J, 27 J, 30 J

### 0402 Inductors (Values {nH} & tolerances)

P/N: L402DC

50 PCS. EACH (nH): 1.0 S, 1.2 S, 1.5 S, 1.8 S, 2.2 S, 2.4 S, 2.7 S, 3.0 S, 3.3 S, 3.9 S, 4.3 S, 4.7 S, 5.1 S, 5.6 S, 6.8 J, 7.5 J, 8.2 J, 10 J, 12 J, 15 J, 18 J, 22 J, 27 J, 33 J, 39 J, 47 J, 68 J, 100 J

### 0603 S-Series Capacitors (Values {pF} & tolerances)

P/N: S603DS

50 PCS. EACH (pF): 0.3 B, 0.5 B, 0.8 B, 1.0 B, 1.2 B, 1.5 B, 1.8 B, 2.2 B, 2.7 B, 3.3 B, 3.6 B, 3.9 B, 4.7 B, 5.6 C, 6.8 C, 8.2 C, 10 J, 12 J, 15 J, 18 J, 20 J, 24 J, 27 J, 33 J, 39 J, 47 J, 68 J, 82 J

### 0603 Inductors (Values {nH} & tolerances)

P/N: L603DC

50 PCS. EACH (nH): 1.0 S, 1.5 S, 1.8 S, 2.2 S, 2.7 S, 3.3 S, 3.9 S, 4.7 S, 5.6 S, 6.8 J, 8.2 J, 10 J, 12 J, 15 J, 18 J, 22 J, 27 J, 33 J, 39 J, 47 J, 56 J, 68 J, 82 J, 100 J, 120 J, 150 J, 180 J, 220 J

### 0805 S-Series Capacitors (Values {pF} & tolerances)

P/N: S805DS

50 PCS. EACH (pF): 4.7 B, 5.6 C, 6.8 C, 7.5 C, 8.2 C, 9.1 C, 10 J, 12 J, 15 J, 18 J, 20 J, 22 J, 24 J, 27 J, 30 J, 33 J, 36 J, 39 J, 43 J, 47 J, 56 J, 68 J, 82 J, 100 J, 120 J, 150 J, 180 J, 220 J

### 1111 E-Series Capacitors (Values {pF} & tolerances)

P/N: S111DVE

10 PCS. EACH (pF): 1.0 B, 3.9 B, 4.7 B, 6.8 C, 7.5 C, 8.2 C, 9.1 C, 10 J, 12 J, 15 J, 18 J, 20 J, 27 J, 33 J, 47 J, 56 J, 68 J, 82 J, 100 K, 120 K, 150 K, 180 K, 220 K, 270 K, 390 K, 470 K, 560 K, 1000 K

## 2.45GHz Designer Kit for WLAN, Bluetooth, Zigbee, ISM and 802.11

### 0402 S-Series Capacitors, 0402 Inductors & 2.45 GHz RF Components

P/N: 2450L/C402D

6 PCS. EA. BAND PASS FILTERS: 2450BP07A100, 2450BP14C0100, 2450BP15B100, 2450BP18C100D

6 PCS. EA. CHIP ANTENNA: 2450AT18A100, 2450AT18B100, 2450AT42A100, 2450AT42B100, 2450AT43A100, 2450AT43B100, 2450AT45A100

6 PCS. EA. LOW PASS FILTER: 2450LP14A100, 2450LP14B100, 2450LP15A050 6 PCS. EA. HIGH PASS FILTER: 2450HP14A100

6 PCS. EA. BALUN: 2450BL14C050, 2450BL14C100, 2450BL15B050, 2450BL15B100, 2450BL15B200

6 PCS. EA. FILTER BALUN: 2450FB15A050, 2450FB15K0001, 2450FB39A050 6 PCS. EA. DIPLEXER: 2450DP15A5512, 2450DP15D5400

50 PCS. EA. MLCC (pF): 0.3 B, 0.5 B, 1.0 B, 1.5 B, 1.8 B, 2.2 B, 2.7 B, 3.3 B, 3.9 B, 4.7 B, 5.6 C, 6.8 C, 8.2 C, 10 J

50 PCS. EA. MLCI (nH): 1.0 S, 1.5 S, 1.8 S, 2.2 S, 2.7 S, 3.3 S, 4.7 S, 5.6 S, 6.8 J, 8.2 J, 10 J, 15 J, 18 J, 27 J

### 0603 S-Series Capacitors, 0603 Inductors & 2.45 GHz RF Components

P/N: 2450L/C603D

6 PCS. EA. BAND PASS FILTERS: 2450BP07A100, 2450BP14C0100, 2450BP15B100, 2450BP18C100D

6 PCS. EA. CHIP ANTENNA: 2450AT18A100, 2450AT18B100, 2450AT42A100, 2450AT42B100, 2450AT43A100, 2450AT43B100, 2450AT45A100

6 PCS. EA. LOW PASS FILTER: 2450LP14A100, 2450LP14B100, 2450LP15A050 6 PCS. EA. HIGH PASS FILTER: 2450HP14A100

6 PCS. EA. BALUN: 2450BL14C050, 2450BL14C100, 2450BL15B050, 2450BL15B100, 2450BL15B200

6 PCS. EA. FILTER BALUN: 2450FB15A050, 2450FB15K0001, 2450FB39A050 6 PCS. EA. DIPLEXER: 2450DP15A5512, 2450DP15D5400

50 PCS. EA. MLCC (pF): 0.3 B, 0.5 B, 1.0 B, 1.5 B, 1.8 B, 2.2 B, 2.7 B, 3.3 B, 3.9 B, 4.7 C, 5.6 C, 6.8 C, 8.2 C, 10 J

50 P CS. EA. MLCI (nH): 1.0 S, 1.5 S, 1.8 S, 2.2 S, 2.7 S, 3.3 S, 4.7 S, 5.6 S, 6.8 J, 8.2 J, 10 J, 15 J, 18 J, 27 J



## 5.5GHz Designer Kit for WLAN, Bluetooth, ISM and 802.11

### 0402 S-Series Capacitors, 0402 Inductors & RF Components

P/N: 5500L/C402D

6 PCS. EA. BAND PASS FILTERS: 5515BP15C1020, 5515BP15B725, 5515BP15B730, 5515BP15C975, 5487BP15B675, 5487BP15C675  
 6 PCS. EA. CHIP ANTENNA: 2450AD46A5400, 5250AT43A200, 5400AT18A1000, 5775AT43A100 6 PCS. EA. LOW PASS FILTER 5515LP15A730  
 6 PCS. EA. BALUN: 5400BL15B050, 5400BL15B100, 5400BL15K050, 5512BL15B100, 5800BL15B100  
 6 PCS. EA. DIPLEXER: 2450DP15A5512, 2450DP15B5512, 2450DP15D5400, 2450DP15E5400  
 50 PCS. EA. MLCC (pF): 0.3 B, 0.5 B, 0.8 B, 1.0 B, 1.2 B, 1.5 B, 1.8 B, 2.0 B, 2.2 B, 2.7 B, 3.3 B, 3.9 B, 4.7 B, 5.6 C  
 50 PCS. EA. MLCI (nH): 1.0 S, 1.5 S, 1.8 S, 2.2 S, 2.7 S, 3.3 S, 3.9 S, 4.7 S, 5.6 S, 6.8 J, 8.2 J, 10 J, 12 J, 15 J

### 0603 S-Series Capacitors, 0603 Inductors & RF Components

P/N: 5500L/C603D

6 PCS. EA. BAND PASS FILTERS: 5515BP15C1020, 5515BP15B725, 5515BP15B730, 5515BP15C975, 5487BP15B675, 5487BP15C675  
 6 PCS. EA. CHIP ANTENNA: 2450AD46A5400, 5250AT43A200, 5400AT18A1000, 5775AT43A100 6 PCS. EA. LOW PASS FILTER 5515LP15A730  
 6 PCS. EA. BALUN: 5400BL15B050, 5400BL15B100, 5400BL15K050, 5512BL15B100, 5800BL15B100  
 6 PCS. EA. DIPLEXER: 2450DP15A5512, 2450DP15B5512, 2450DP15D5400, 2450DP15E5400  
 50 PCS. EA. MLCC (pF): 0.3 B, 0.5 B, 0.8 B, 1.0 B, 1.2 B, 1.5 B, 1.8 B, 2.0 B, 2.2 B, 2.7 B, 3.3 B, 3.9 B, 4.7 B, 5.6 C  
 50 PCS. EA. MLCI (nH): 1.0 S, 1.5 S, 1.8 S, 2.2 S, 2.7 S, 3.3 S, 3.9 S, 4.7 S, 5.6 S, 6.8 J, 8.2 J, 10 J, 12 J, 15 J

## Designer Kit for WiMAX & UWB

### 0402 S-Series Capacitors, 0402 Inductors & RF Components

P/N: WUWBL/C402D

6 PCS. EA. CHIP ANTENNA: 2500AT44M0400, 3100AT51A7200 6 PCS. EA. LOW PASS FILTER 3550LP14A300  
 6 PCS. EA. BAND PASS FILTERS: 2500BP15M400, 3600BP15M600, 4000BP15U1800, 5130BP18U4060  
 6 PCS. EA. BALUN: 2500BL14M050, 2450BL14M100, 3600BL14M050, 3600BL14M100, 4000BL14U100  
 6 PCS. EA. FILTER BALUN: 2345FB39A0050, 2595FB39A0050, 3500FB39A0050  
 50 PCS. EA. MLCC (pF): 0.3 B, 0.5 B, 1.0 B, 1.5 B, 1.8 B, 2.2 B, 2.7 B, 3.3 B, 3.9 B, 4.7 B, 5.6 C, 6.8 C, 8.2 C, 10 J  
 50 PCS. EA. MLCI (nH): 1.0 S, 1.5 S, 1.8 S, 2.2 S, 2.7 S, 3.3 S, 4.7 S, 5.6 S, 6.8 J, 8.2 J, 10 J, 15 J, 18 J, 27 J

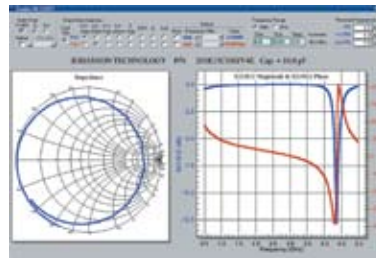
### 0603 S-Series Capacitors, 0603 Inductors & RF Components

P/N: WUWBL/C603D

6 PCS. EA. CHIP ANTENNA: 2500AT44M0400, 3100AT51A7200 6 PCS. EA. LOW PASS FILTER 3550LP14A300  
 6 PCS. EA. BAND PASS FILTERS: 2500BP15M400, 3600BP15M600, 4000BP15U1800, 5130BP18U4060  
 6 PCS. EA. BALUN: 2500BL14M050, 2450BL14M100, 3600BL14M050, 3600BL14M100, 4000BL14U100  
 6 PCS. EA. FILTER BALUN: 2345FB39A0050, 2595FB39A0050, 3500FB39A0050  
 50 PCS. EA. MLCC (pF): 0.3 B, 0.5 B, 1.0 B, 1.5 B, 1.8 B, 2.2 B, 2.7 B, 3.3 B, 3.9 B, 4.7 B, 5.6 C, 6.8 C, 8.2 C, 10 J  
 50 PCS. EA. MLCI (nH): 1.0 S, 1.5 S, 1.8 S, 2.2 S, 2.7 S, 3.3 S, 4.7 S, 5.6 S, 6.8 J, 8.2 J, 10 J, 15 J, 18 J, 27 J

Standard Termination for all kits - 100% Sn. Consult Factory for other termination options

## JTISOFT® CAPACITOR & INDUCTOR MODELING SOFTWARE



| Frequency (MHz) | S11 Magnitude | S11 Phase (deg) | S22 Magnitude | S22 Phase (deg) |
|-----------------|---------------|-----------------|---------------|-----------------|
| 10              | 0.19          | 71.8            | 0.95          | 18.1            |
| 20              | 0.22          | 72.1            | 0.96          | 18.2            |
| 30              | 0.23          | 74.3            | 0.96          | 15.6            |
| 40              | 0.25          | 75.2            | 0.97          | 14.8            |
| 50              | 0.26          | 76.1            | 0.97          | 13.7            |
| 60              | 0.27          | 76.8            | 0.97          | 12.9            |
| 70              | 0.27          | 77.9            | 0.98          | 12.2            |
| 80              | 0.28          | 78.1            | 0.98          | 11.6            |
| 90              | 0.29          | 78.7            | 0.98          | 11.1            |
| 100             | 0.29          | 79.1            | 0.98          | 10.6            |
| 110             | 0.29          | 79.6            | 0.98          | 10.1            |
| 120             | 0.29          | 79.8            | 0.98          | 9.7             |
| 130             | 0.29          | 80.3            | 0.99          | 9.3             |
| 140             | 0.29          | 80.7            | 0.99          | 9.0             |

JTIsoft® consists of two advanced design simulation software programs which offer component modeling from 1 MHz to 20 GHz. MLCsoft® provides S-Parameter and SPICE modeling data for six different size high frequency multi-layer ceramic capacitors (MLCCs) chip sizes while MLIsoft® provides S-Parameter and SPICE modeling on four different size high frequency multi-layer ceramic inductors (MLCIs). The main interface screen displays electrical parameters such as SRF, PRF1, PRF2, ESR, Q, Ceff, Leff, Rdc, and Ldc which are updated dynamically as chip size, value, and frequency parameters are varied by the user. The complete part number is also dynamically displayed for ordering accuracy.

Both programs also provide highly detailed graphical plots of device performance over a user specified frequency range. The chart displays are instantly updated as the user makes component or frequency changes. Smith chart displays of both impedance and S11/S22 are available as point plots, line plots, and line-point plots. Traditional X-Y graphs are available for parameters of S21 and S11 both phase and magnitude, Impedance magnitude, as well as Q, ESR and effective capacitance. Display formats include standard, log Y, and log/log. Chart may be exported in BMP or Metafile format. Numerical S-Parameter data may be displayed and exported as an .S2P format file.

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