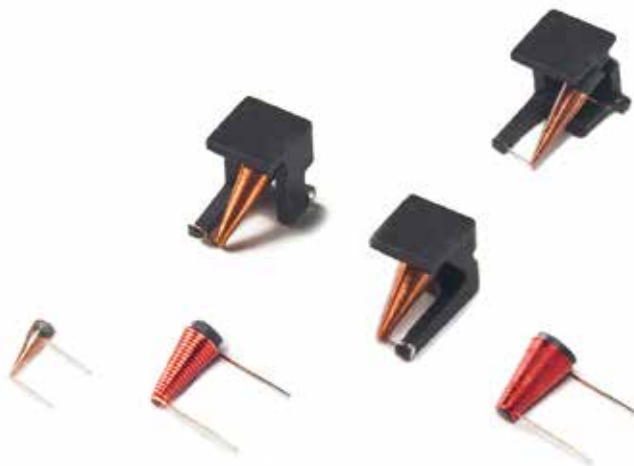




E L E C T R O N I C S

Predictable & Precise High Frequency

BROADBAND CONICAL INDUCTORS



ESTABLISHED IN 1963



IN-HOUSE TESTING



MICROWAVE EXPERTS

- 40 MHz to 50+ GHz Operation
- <1% Total Mass Loss per ASTM E595 Outgas Testing
- Current Ratings now up to 10 Amps - ask about our new Conicals!

**Current Ratings
now up to
10 Amps!**



AS 9100



ISO 13485



ISO 9001

BROADBAND CONICALS

Inductor Solutions for High Frequency Applications

Gowanda's flying lead (thru-hole) and SMT (surface mount) broadband conical inductors offer predictable frequency response and repeatable performance from 40 MHz to 50+ GHz with current ratings up to 10 Amps and <1% TML & <0.1 CVCM per ASTM E595 outgassing test. These conicals are specifically designed for high frequency applications where ultra-low insertion loss & return loss are design requirements. Their unique construction helps to limit the effects caused by stray capacitance. Reliability to M83446D, upscreening capability to MIL-STD-981, unique footprints and both standard & custom design options enhance utility. For assistance please call +1-716-532-2234 or email sales@gowanda.com.



RF Flying Lead - wirewound, conical, powdered iron core

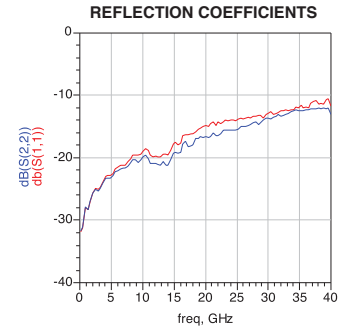
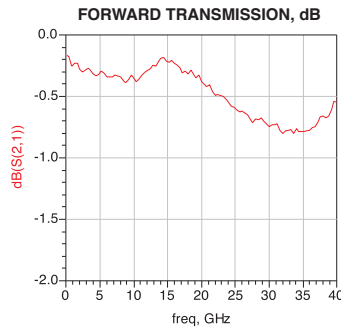
PART NUMBER	L _p H @10 MHz	TURNS	DCR OHMS NOM	CURRENT RATING mA DC	WIRE SIZE AWG	WIRE TYPE
SERIES C050FL						
C050FL2144G6	0.28	21	0.45	280	44	Copper
C050FL2947G6	0.47	29	0.87	204	47	Copper

SERIES C100FL						
C100FL1938G6	0.26	19	0.10	573	38	Copper
C100FL2540G6	0.37	25	0.21	396	40	Copper
C100FL3142G6	0.58	31	0.47	264	42	Copper
C100FL3944G6	1.00	39	0.74	211	44	Copper
C100FL4947G6	1.54	49	1.70	140	47	Copper

GOWANDA C100FL3944C6
S-Parameters as measured by Modelithics
on 5 mil thick alumina microstrip fixtures



www.modelithics.com/mvp/GOWANDA/



SERIES C102FL						
C102FL2238G6	0.47	22	0.19	815	38	Copper
C102FL2740G6	0.70	27	0.32	619	40	Copper
C102FL3442G6	1.1	34	0.64	438	42	Copper
C102FL4544G6	2.0	45	1.60	277	44	Copper
C102FL6047G6	3.8	60	3.70	182	47	Copper

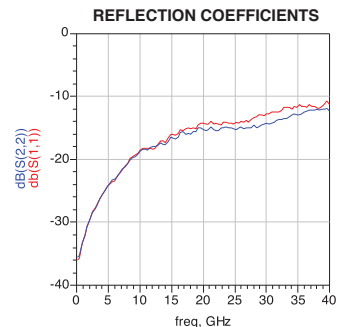
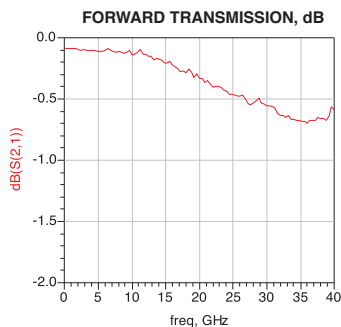
SERIES C182FL						
C182FL3638G6	1.47	36	0.33	694	38	Copper
C182FL4840G6	2.0	48	0.65	494	40	Copper
C182FL6042G6	3.3	60	1.29	350	42	Copper
C182FL7844G6	6.0	78	2.85	236	44	Copper
C182FL11047G6	10.7	110	7.10	150	47	Copper

SERIES C225FL						
C225FL2935G6	0.60	29	0.16	562	35	Copper
C225FL3536G6	0.89	35	0.39	360	36	Copper
C225FL4338G6	1.30	43	0.47	328	38	Copper
C225FL5740G6	2.40	57	0.80	251	40	Copper
C225FL7042G6	3.80	70	1.50	184	42	Copper
C225FL8544G6	5.10	85	2.60	139	44	Copper
C225FL11047G6	8.00	110	6.40	89	47	Copper

GOWANDA C225FL11047C6
S-Parameters as measured by Modelithics
on 5 mil thick alumina microstrip fixtures



www.modelithics.com/mvp/GOWANDA/



S-Parameter data was generated on C6 parts that utilize tinned copper wire; parts are now built with gold-over-nickel wire (G6). Additional information available at www.modelithics.com/mvp/GOWANDA/

www.gowanda.com

RF Surface Mount - wirewound, conical, powdered iron core

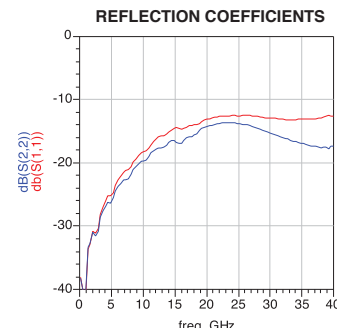
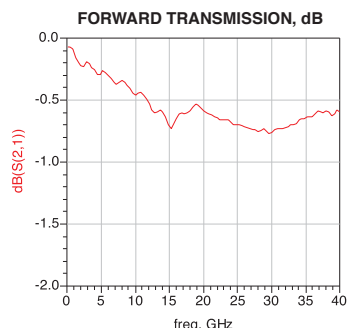


PART NUMBER	L _p H @10 MHz	TURNS	DCR OHMS NOM	CURRENT RATING mA DC	WIRE SIZE AWG	WIRE TYPE
SERIES C100SMNL						
C100SMNL1938G6	0.20	19	0.10	655	38	Copper
C100SMNL2540G6	0.44	25	0.21	452	40	Copper
C100SMNL3142G6	0.58	31	0.47	302	42	Copper
C100SMNL3944G6	1.00	39	0.74	241	44	Copper
C100SMNL4947G6	1.54	49	1.70	140	47	Copper

GOWANDA C100SMNL3142C6
S-Parameters as measured by Modelithics
on 5 mil thick alumina microstrip fixtures



www.modelithics.com/mvp/GOWANDA/

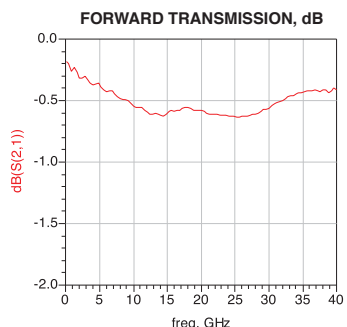


SERIES C100SMNR						
C100SMNR1938G6	0.20	19	0.10	655	38	Copper
C100SMNR2540G6	0.44	25	0.21	452	40	Copper
C100SMNR3142G6	0.58	31	0.47	302	42	Copper
C100SMNR3944G6	1.00	39	0.74	241	44	Copper
C100SMNR4947G6	1.54	49	1.70	140	47	Copper

GOWANDA C100SMNR3944C6
S-Parameters as measured by Modelithics
on 5 mil thick alumina microstrip fixtures



www.modelithics.com/mvp/GOWANDA/



SERIES C102SM						
C102SM2238G6	0.47	22	0.19	815	38	Copper
C102SM2740G6	0.70	27	0.32	619	40	Copper
C102SM3442G6	1.1	34	0.64	438	42	Copper
C102SM4544G6	2.0	45	1.60	277	44	Copper
C102SM6047G6	3.8	60	3.70	182	47	Copper

SERIES C182SM						
C182SM3638G6	1.47	36	0.33	694	38	Copper
C182SM4840G6	2.0	48	0.65	494	40	Copper
C182SM6042G6	3.3	60	1.29	350	42	Copper
C182SM7844G6	6.0	78	2.85	236	44	Copper
C182SM11047G6	10.7	110	7.10	150	47	Copper

SERIES C225SM						
C225SM2432G6	0.45	24	0.07	1100	32	Copper
C225SM2935G6	0.60	29	0.16	733	35	Copper
C225SM3536G6	0.89	35	0.39	469	36	Copper
C225SM4338G6	1.30	43	0.47	428	38	Copper
C225SM5740G6	2.40	57	0.80	328	40	Copper
C225SM7042G6	3.60	70	1.50	239	42	Copper
C225SM8544G6	5.10	85	2.60	182	44	Copper
C225SM11047G6	8.00	110	6.40	116	47	Copper

General Notes for Series on p.2 and p.3:

- Operating Temperature Range: -55°C to +125°C
- Current Rating is based on a 100°C temperature rise at an ambient temperature of 25°C for C102FL, C182FL, C102SM and C182SM series; for all other series it is based on a 35°C temperature rise at an ambient temperature of 90°C
- All non-tolerance and electrical data are reference only and based on nominal data
- Terminations are gold and RoHS compliant
- Meets a TML (Total Mass Loss) requirement of 1.0% maximum when tested in accordance with ASTM E595; this calculation does not include WVR (Water Vapor Recovered)

Notes for Surface Mount only:

- Terminal is elongated to allow for soldering close to the tip of the coil
- Recommended that component is epoxied to substrate before reflow soldering

Conicals with Current Ratings up to 10 Amps

Gowanda's Design Provides Highest DC Current Handling Capability in the Industry

Gowanda Electronics recently introduced new flying lead broadband conical inductors with up to 10 Amps of DC current handling - the highest level in the industry - and low insertion loss. The four new series - C305FL, C550FL, C750FL and C1000FL - were developed to address market needs and industry trends calling for ever-increasing performance from broadband conical components. Gowanda's new series will be utilized in communication applications for bias T's (filter signals, remove noise), broadband chip manufacturing, communication platforms, high frequency, microwave circuitry, RF test set-ups, test & measurement, test gear, test instrumentation and transmission amplifiers.

As with Gowanda's previously introduced conicals, these new series offer excellent robust construction to assure predictable frequency response and repeatable RF performance. The unique broadband response of the coil is attributed to its precision winding, wire selection and coil configuration.



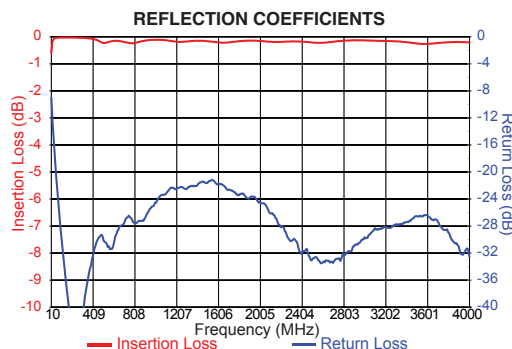
New High Current Flying Lead - wirewound, conical, powdered iron core



PART NUMBER	L _p H @ 10 MHz TYP	TURNS	Q@10 MHz TYP	DCR OHMS MAX	CURRENT RATING A DC	WIRE SIZE AWG	WIRE TYPE
SERIES C305FL							
C305FL1726C6	0.30	17	41	0.020	7.2	26	Copper
C305FL2128C6	0.50	21	40	0.035	3.5	28	Copper
C305FL2830C6	0.90	28	40	0.070	2.0	30	Copper
C305FL3432C6	1.00	34	38	0.125	1.3	32	Copper

GOWANDA C305FL3432C6

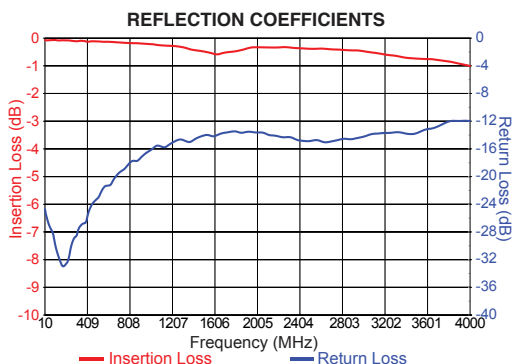
S-Parameters as measured using
5mil thick alumina microstrip fixtures



SERIES C550FL							
C550FL1520C6	1.20	15	66	0.020	10.5	20	Copper
C550FL2524C6	3.10	25	55	0.035	4.5	24	Copper
C550FL3126C6	5.00	31	52	0.070	3.0	26	Copper
C550FL3528C6	6.80	35	47	0.125	2.2	28	Copper

GOWANDA C550FL3126C6

S-Parameters as measured using
5mil thick alumina microstrip fixtures



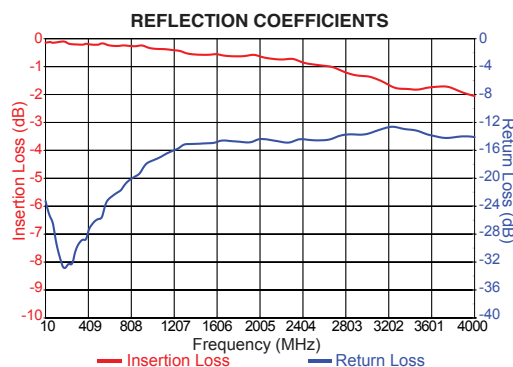


New High Current Flying Lead - wirewound, conical, powdered iron core



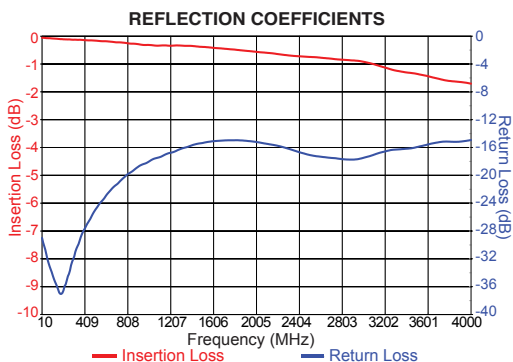
PART NUMBER	L _p H @10 MHz TYP	TURNS	Q@10 MHz TYP	DCR OHMS MAX	CURRENT RATING A DC	WIRE SIZE AWG	WIRE TYPE
SERIES C750FL							
C750FL2220C6	2.5	22	50	0.020	8.1	20	Copper
C750FL3424C6	7.0	34	52	0.070	4.1	24	Copper
C750FL4326C6	12.0	43	47	0.140	3.0	26	Copper
C750FL5328C6	16.0	53	60	0.265	2.2	28	Copper

GOWANDA C750FL2220C6
S-Parameters as measured using
5mil thick alumina microstrip fixtures



SERIES C1000FL							
C1000FL2920C6	5.0	29	48	0.030	7.7	20	Copper
C1000FL4524C6	13.0	45	39	0.110	3.8	24	Copper
C1000FL5726C6	22.0	57	30	0.215	2.7	26	Copper

GOWANDA C1000FL5726C6
S-Parameters as measured using
5mil thick alumina microstrip fixtures



Notes for New High Current Series on p.4 and p.5:

- Operating Temperature Range:
-55°C to +125°C
- Current Rating is based on a 100°C temperature rise at an ambient temperature of 25°C
- All non-tolerance and electrical data are reference only and based on nominal data
- Terminations: standard and gold terminations are RoHS compliant; please contact factory for Pb terminations. When ordering gold terminations change suffix in part number from C to G (eg. C1000FL2920G6)
- Meets a TML (Total Mass Loss) requirement of 1.0% maximum when tested in accordance with ASTM E595; this calculation does not include WVR (Water Vapor Recovered)

Environmental Laboratory

DLA Approved*

As the market leader in providing high reliability components to the electronics OEM marketplace, GCG offers an in-house environmental lab with unmatched capabilities to establish the consistent performance characteristics required to meet the most demanding designs. Gowanda's environmental technical services are also available on a contracted basis.

**In support of internal product qualifications*



Capabilities

Temperature Cycling Chamber

- -65°C to +180°C
- Cycling Rates from 5°C to 10°C /min

Thermal Shock Chambers – MIL-STD-202-107

- -65°C to +200°C

Shaker System – mil-spec & custom profiles

- Maximum Sustained Vibration Force: 100g
- Maximum Shock Force: 100g
- Vibration: MIL-STD-202-201, -204 & -214
- Shock: MIL-STD-202-207 & -213

Altitude Chamber – MIL-STD-202-105

- Maximum Altitude: 80,000 Feet
- DWV and IR at Altitude

10 Benchtop Chambers

- -75°C to +200°C
- High Temperature Operation
- Temperature Rise
- Low Temperature Storage

Solderability via Steam Aging Chamber – MIL-STD-202-208

- Up to 99 Hours of Continuous Testing

Force Gauge

- Maximum Force: 50N
- Bond Strength

Life Test Chamber – MIL-STD-202-108

- Maximum Operating Temperature: 260°C
- Cyclic Load Profile

Real-Time X-Ray – MIL-STD-202-209

Humidity Chamber – MIL-STD-202-103

- Steady State
- -75°C to +200°C
- 20% to 90% Relative Humidity

Moisture Resistance – MIL-STD-202-106

- Temperature & Humidity Variability

Salt Spray – MIL-STD-202-101

- Anti-Corrosion Testing

Chemical Resistance – MIL-STD-202-215

- Resistance to Solvents

Terminal Strength – MIL-STD-202-211



Nitron XL2 XRF Analyzer

- Metal Alloy verification
- Non-destructive element analysis
- Tramp & Trace element analysis



Magnetoscope 1.069

- Assures magnetic-free designs
- Measures magnetic flux density, absolute or gradient

Insulation Resistance – MIL-STD-202-302

DWV – MIL-STD-202-301

HiPot Tester

- Maximum AC Voltage: 6kV
- Maximum DC Voltage: 5kV
- Insulation Resistance (IR)
- Dielectric Withstanding Voltage (DWV)

Voltech AT3600 Transformer Tester

- Maximum Test Frequency: 1MHz
- Maximum Test Current: 25A
- Maximum Test Voltage: 3kV
- Fast Testing of Complicated Transformers

High Power AC Testing

- Frequency Range: 0.1Hz to 2MHz
- Maximum Voltage: 400Vp-p
- Maximum Current: 7570mA
- Pulse, Ramp, Sine, Square & Triangle Waves

Pro 1600-EXN Forced Convection Reflow Soldering Oven

- Maximum Temperature: 375°C
- Computer Controlled Thermal Profiles

LabVIEW Monitoring Software

- Provides Data Collection from Test Chambers

Other

- Failure Analysis Reporting and Documentation
- High Frequency Testing Capability to 70GHz



Reliability Testing Data

Reliability testing performed in accordance with MIL-PRF-83446C
Part Tested: Gowanda C100SM3944C6

INSPECTION	METHOD	COMMENTS	QUANTITY TESTED	QUANTITY PASSED	QUANTITY FAILED
GROUP 1					
Read and record L, Q, DCR & SRF for initial values	L, Q & SRF on HP4291A w 16092A fixture L & Q at 10 MHz	Tag with serial number in bag so that individual part correlation can be maintained	14	14	0
Resistance to Soldering Heat	Add a small amount of solder paste and mount each part to a separate TF-001 ceramic substrate fixture; submit each assembly to 3 cycles of convection soldering @ 260°C for 20 to 40 seconds, allowing them to cool to room temperature between cycles	Solder to substrate	14	14	0
		Transfer serial number to ceramic so that individual part correlation can be maintained	14	14	0
Read and record L, Q, DCR & SRF Visual Inspection	L, Q & SRF on HP4291A w 16092A fixture L & Q at 10 MHz	At room temperature calculate change from initial values (delta) for L, Q, SRF & DCR	14	14	0
GROUP 2					
Solderability	MIL-PRF-83446 para 4.6.10	Parts not exposed to any other testing; individual parts not mounted to ceramic substrate	3	3	0
GROUP 3					
Thermal Shock	MIL-PRF-83446 para. 4.6.2 except mounted	3 parts from Group 1	3	3	0
Low Temp. Storage Overload High Temp. Exposure	MIL-PRF-83446 para. 4.6.11 MIL-PRF-83446 para. 4.6.13 MIL-PRF-83446 para. 4.6.14	Same 3 parts for each test, always allow parts to come back to room temperature before continuing with next test (at least 24 hours)	3	3	0
			3	3	0
			3	3	0
Read and record L, Q, DCR & SRF Visual Inspection	L, Q & SRF on HP4291A w 16092A fixture L & Q at 10 MHz	Calculate change from initial values (delta) for L, Q, SRF & DCR	3	3	0
GROUP 4					
Moisture Resistance	MIL-PRF-83446 para. 4.6.15	3 parts from Group 1	3	3	0
Read and record L, Q, DCR & SRF	L, Q & SRF on HP4291A w 16092A fixture L & Q at 10 MHz	Calculate change from initial values (delta) for L, Q, SRF & DCR	3	3	0
GROUP 5					
Vibration Mech. Shock	MIL-STD-202, Method 201 (low freq.) MIL-STD-202, Method 213 (H)	3 parts from Group 1; use same parts for both tests	3	3	0
			3	3	0
Read and record L, Q, DCR & SRF Visual Inspection	L, Q & SRF on HP4291A w 16092A fixture L & Q at 10 MHz	Calculate change from initial values (delta) for L, Q, SRF & DCR	3	3	0
GROUP 6					
Bond Strength	MIL-PRF-83446 para. 4.6.16	3 parts from Group 1; to destruction; record data	3	3	0
Temp. Coefficient of L	-55°C to +125°C	1 part from Group 1	1	1	0
Temp. Rise	MIL-PRF-83446 para. 4.6.12: current required to create a 40°C temp. rise from 25°C ambient	1 part from Group 1	1	1	0

Test data was generated on C6 parts that utilize tinned copper wire; parts are now built with gold-over-nickel wire (G6).

Your Source for Application-Specific Magnetics

For over 50 years, Gowanda Electronics has been providing high quality, high performance component solutions addressing the needs of OEMs in the industrial, communications, military, space, aerospace, medical, and power conversion industries. Gowanda's state-of-the-art 40,000 square foot worldwide headquarters, located in Gowanda, New York, houses administration, engineering, sales, product development and a portion of manufacturing. The relentless pursuit of quality and excellence has permitted Gowanda Electronics to become a leader in the industry. Our knowledge engineers and customer service staff are eager to help find the solution that best suits your needs. Call us at +1-716-532-2234, email us at sales@gowanda.com, or visit our comprehensive website at www.gowanda.com to find the product or capability that will help catalyze your project's success.





GCG designs and manufactures reliable, robust, high-performance electronic components and subassemblies for use in demanding applications in military, aerospace, medical and communication systems around the world. With particular expertise in inductors, magnetics, resistors and filters, GCG has a unique combination of product breadth, custom-design capabilities, proprietary equipment, in-house environmental testing and multiple facilities, all located in the United States. With over 225,000 sq.ft. of manufacturing/engineering space spread out over 8 locations across the country, GCG is disaster-plan qualified. Nearly 8,000 sq.ft. of machining space, including in-house transfer molding capability, provides quick turnaround of prototypes. This combined with other aspects of vertical integration helps GCG to streamline its operations and manage process flow, thereby reducing time to market for its customers.

GCG affiliates include Gowanda Electronics, DYCO Electronics, Butler Winding, Communication Coil, HiSonic, Gowanda REM-tronics, RCD Components, TTE Filters, Microwave Circuits and Instec Filters.



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www.GowandaComponentsGroup.com