NCML Series
Surface Mount Common Mode Chip Filters

ISO 9001:2015 CERTIFIED

ROHS/REACH COMPLIANT HALOGEN FREE

NIC Components Corp.

FEATURES
- EFFECTIVE FOR SUPPRESSING COMMON MODE NOISE AT HIGH FREQUENCY
- EXCELLENT SOLDERABILITY CHARACTERISTICS
- SMALL SIZE & LOW PROFILE
- MULTILAYER TYPE SMD COMPONENT BASED ON LTCC TECHNOLOGY

CHARACTERISTICS

Case Size	0706	0907	1007
Impedance Range	12 ~ 90Ω	12Ω ~ 550Ω	30Ω
Current Rating	50 ~ 100mA max.	50 ~ 130mA max.	100mA max.
Insulatons Resistance	100MΩ	10 ~ 100MΩ	100MΩ
Temperature Range	-40°C ~ +85°C		

DIMENSIONS (mm)

Case Size	L	W	T	SL	SW	P	b	Figure
NCML0706	0.65 ± 0.05	0.50 ± 0.05	0.30 ± 0.05	0.12+0.1/-0.05	0.15+0.1/-0.05	0.40 ± 0.10	/	1
NCML0907	0.85 ± 0.05	0.65 ± 0.05	0.40 ± 0.05	0.20+0.05/-0.10	0.27 ± 0.05	0.50 ± 0.05	/	1
NCML1007	0.90 ± 0.05	0.68 ± 0.05	0.40 ± 0.05	0.12 ± 0.10	0.15 ± 0.10	0.35 ± 0.10	0.12 ± 0.10	2

Fig. 1

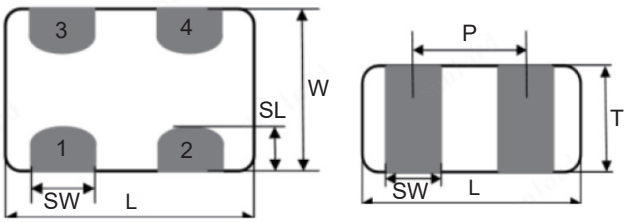
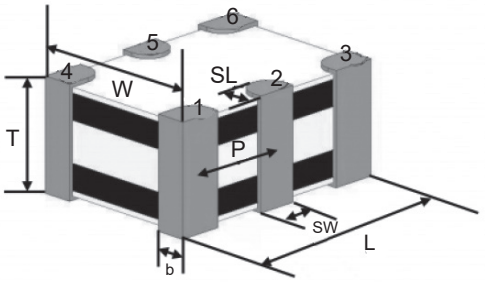
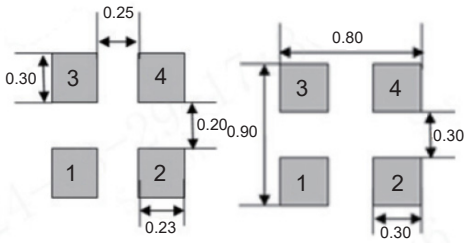


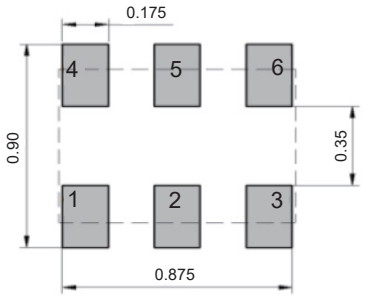
Fig. 2



LAND PATTERN DIMENSIONS (mm)



LAND PATTERN DIMENSIONS (mm)



PART NUMBER SYSTEM

NCML 1007 C 300 H 3 TR F

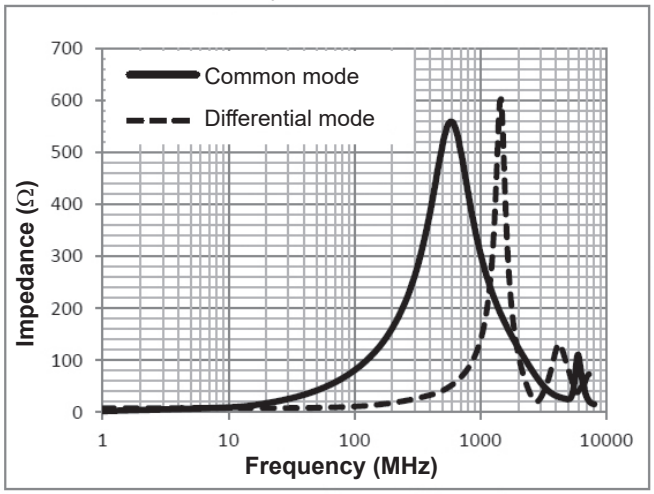
- F = RoHS Compliant
- Packaging: TR = Tape & Reel
- Number of Lines
- F = Standard, H = High Speed, U = Ultra High Speed
- Impedance (First two digits are significant figure, last digit is number of zeros to follow)
- C = Common Mode Choke
- Size Code: 0706, 0907 and 1007
- Series

CASE SIZE 0706 HIGH SPEED

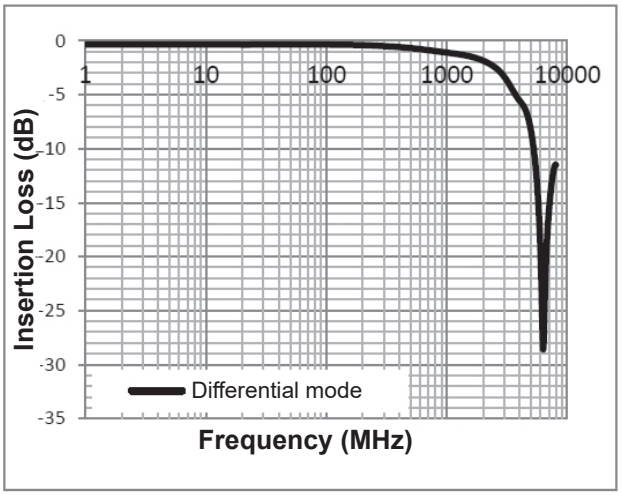
Case Size	Common Mode Impedance @100MHz (Ω)	DCR (Ω) max.	Rated Current (mA) max.	Rated Voltage (VDC) max.	Withstanding Voltage (VDC)	Insulation Resistance (MΩ) min.
NCML0706C900H2TRF	90 ± 20%	5.0	100	5.0	12.5	100

NCML0706C900H2TRF

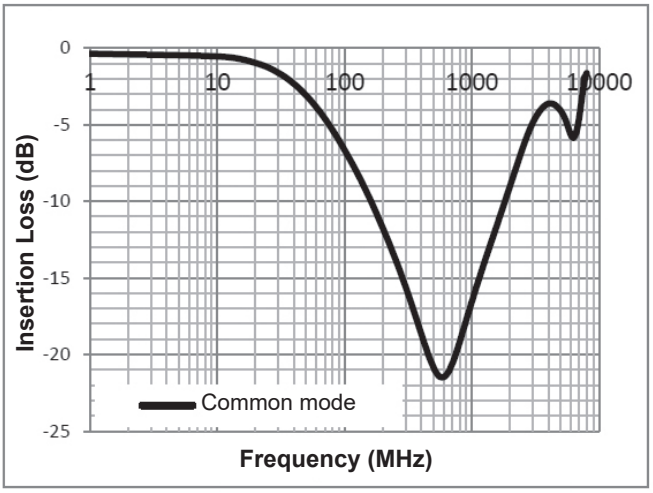
Impedance vs. Frequency



Insertion Loss vs. Frequency



Insertion Loss vs. Frequency

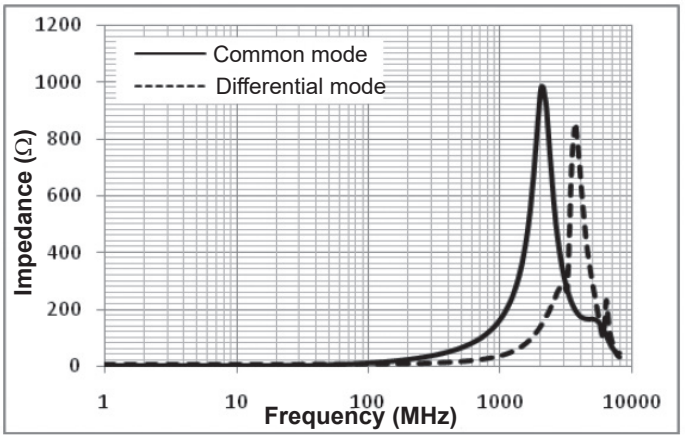


CASE SIZE 0706 ULTRA HIGH SPEED

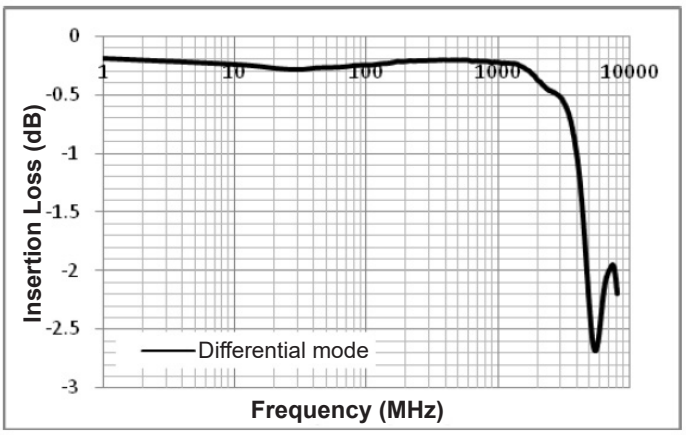
Case Size	Common Mode Impedance @100MHz (Ω)	DCR (Ω) max.	Rated Current (mA) max.	Rated Voltage (VDC) max.	Withstanding Voltage (VDC)	Insulation Resistance (MΩ) min.
NCML0706C120U2TRF	12 ± 5%	2.5	50	5.0	12.5	100

NCML0706C120U2TRF

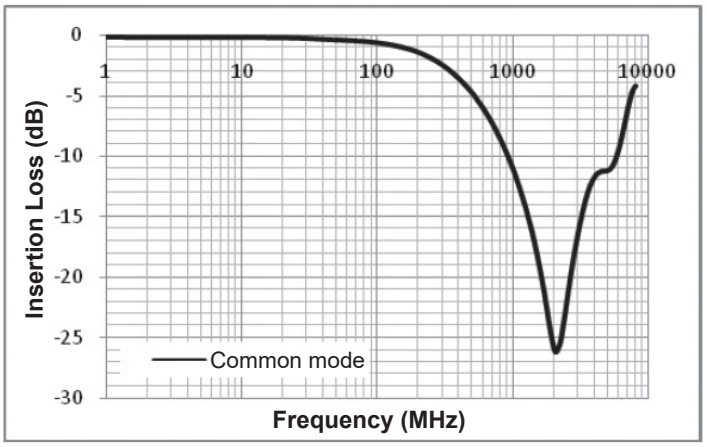
Impedance vs. Frequency



Insertion Loss vs. Frequency



Insertion Loss vs. Frequency

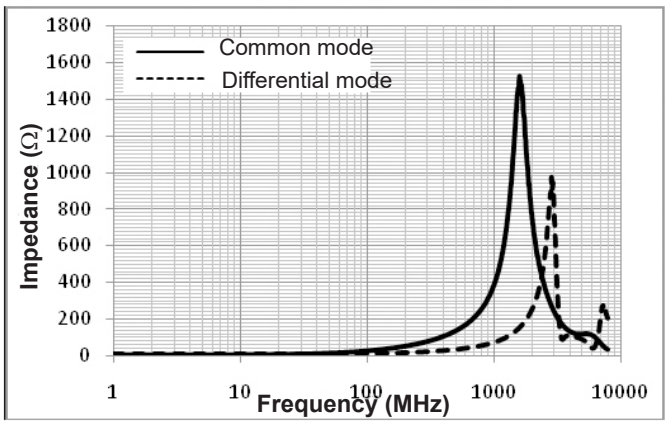


CASE SIZE 0706 ULTRA HIGH SPEED

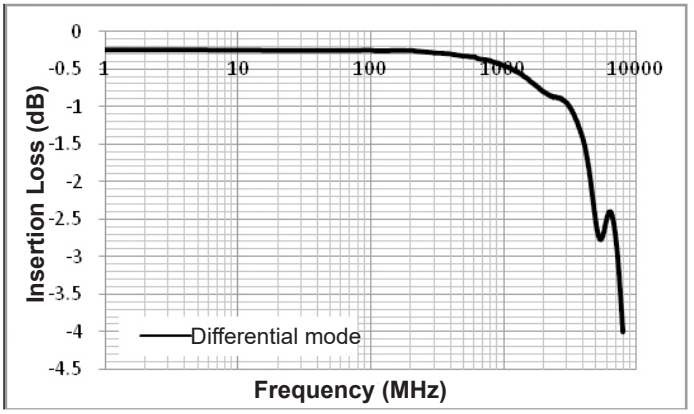
Case Size	Common Mode Impedance @100MHz (Ω)	DCR (Ω) max.	Rated Current (mA) max.	Rated Voltage (VDC) max.	Withstanding Voltage (VDC)	Insulation Resistance (MΩ) min.
NCML0706C250U2TRF	25 ± 20%	3.5	50	5.0	12.5	100

NCML0706C250U2TRF

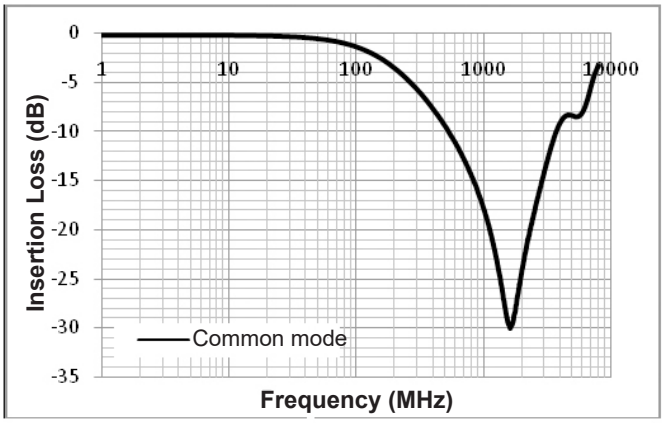
Impedance vs. Frequency



Insertion Loss vs. Frequency



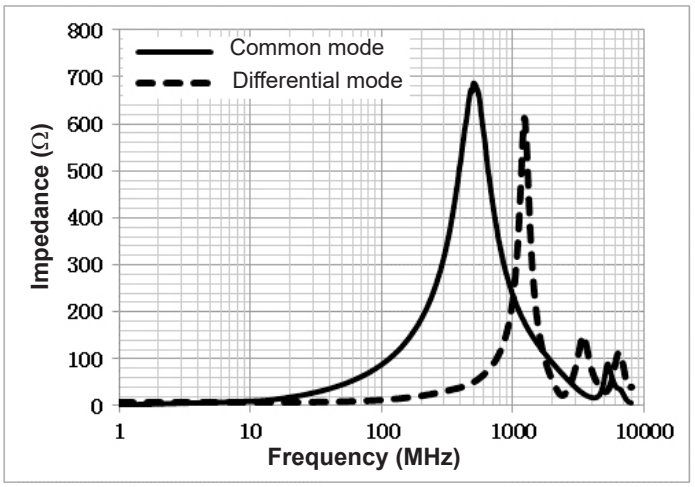
Insertion Loss vs. Frequency



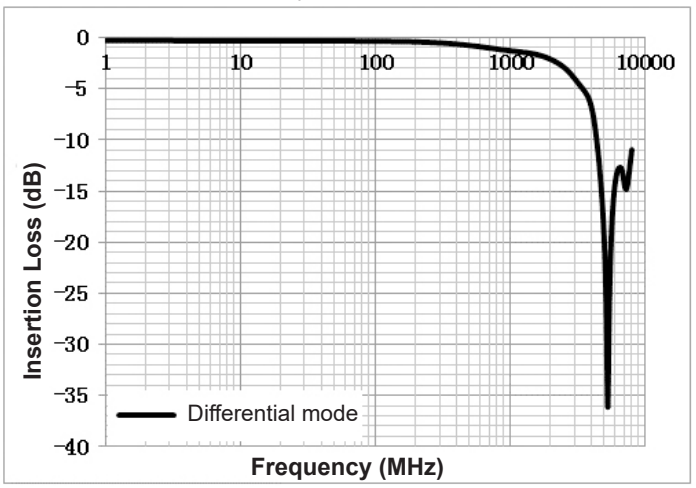
CASE SIZE 0907 STANDARD SPEED

Case Size	Common Mode Impedance @100MHz (Ω)	DCR (Ω) max.	Rated Current (mA) max.	Rated Voltage (VDC) max.	Insulation Resistance (MΩ) min.
NCML0907C900F2TRF	90 ± 20%	4.0	100	5.0	10

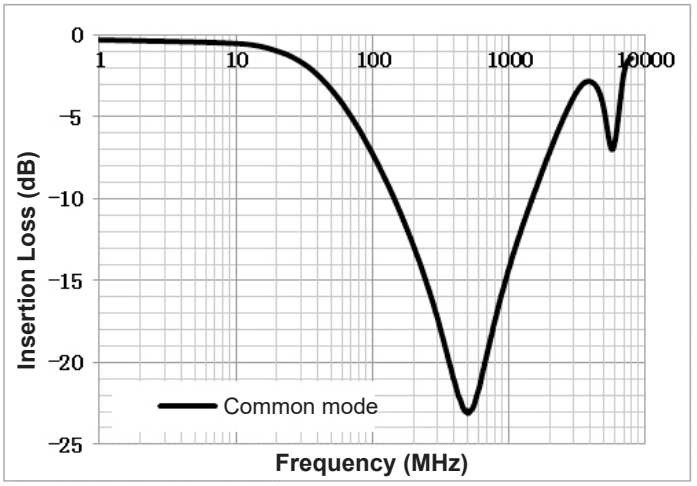
Impedance vs. Frequency



Insertion Loss vs. Frequency



Insertion Loss vs. Frequency

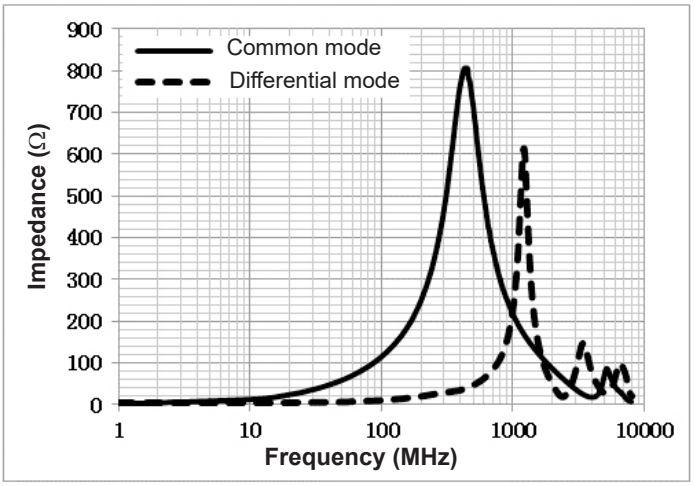


IDC: ΔL≤30% ΔT≤40°C

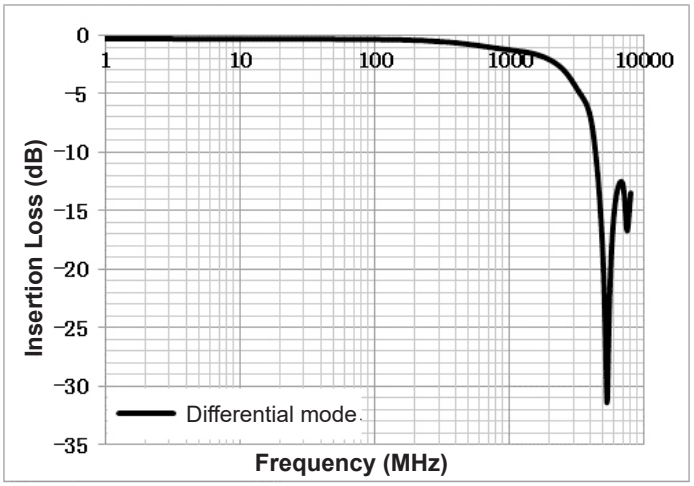
CASE SIZE 0907 STANDARD SPEED

Case Size	Common Mode Impedance @100MHz (Ω)	DCR (Ω) max.	Rated Current (mA) max.	Rated Voltage (VDC) max.	Insulation Resistance (MΩ) min.
NCML0907C121F2TRF	120 ± 20%	4.0	100	5.0	10

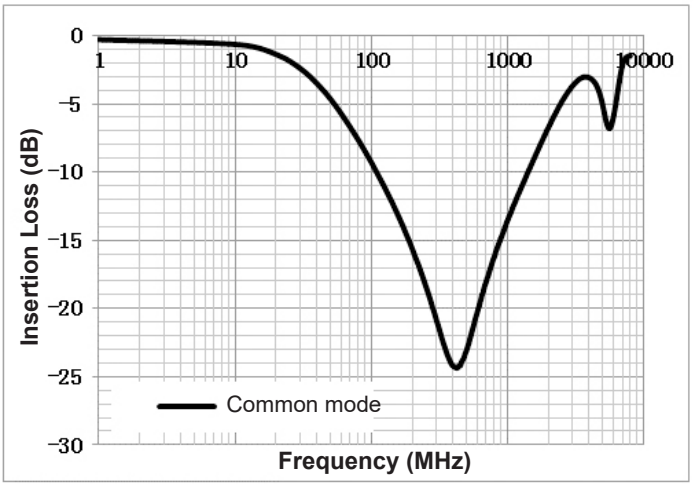
Impedance vs. Frequency



Insertion Loss vs. Frequency



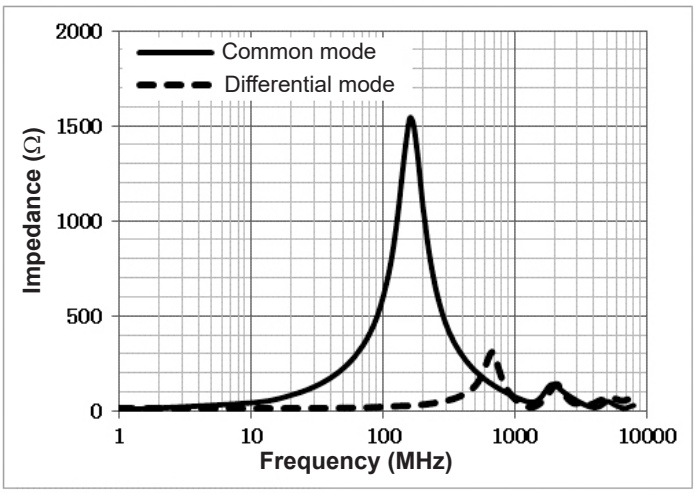
Insertion Loss vs. Frequency



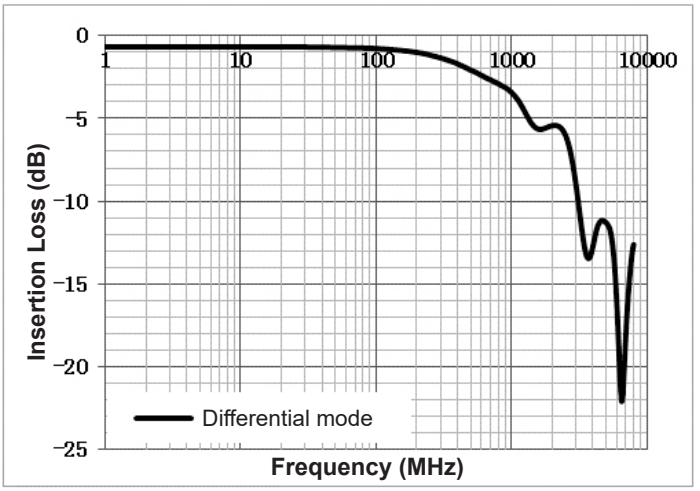
CASE SIZE 0907 STANDARD SPEED

Case Size	Common Mode Impedance @100MHz (Ω)	DCR (Ω) max.	Rated Current (mA) max.	Rated Voltage (VDC) max.	Insulation Resistance (MΩ) min.
NCML0907C551F2TRF	550 ± 20%	10	50	5.0	10

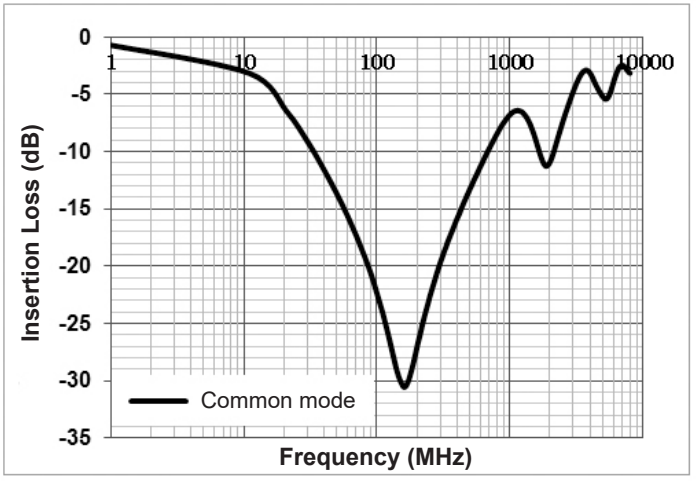
Impedance vs. Frequency



Insertion Loss vs. Frequency



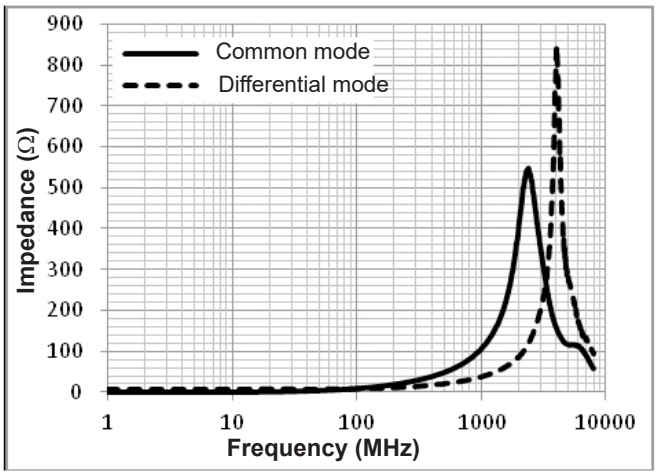
Insertion Loss vs. Frequency



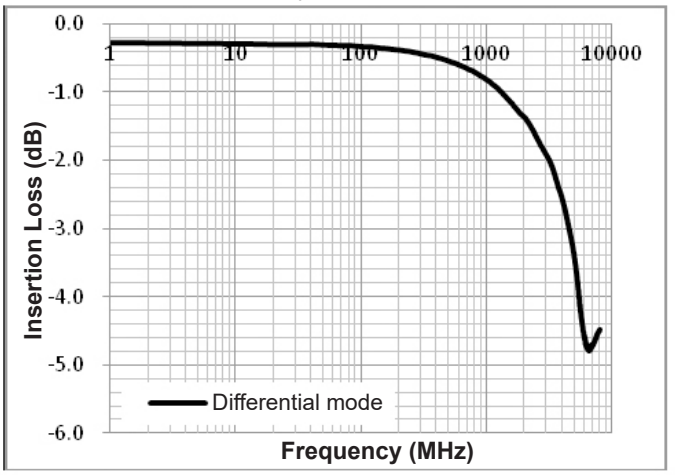
CASE SIZE 0907 HIGH SPEED

Case Size	Common Mode Impedance @100MHz (Ω)	DCR (Ω) max.	Rated Current (mA) max.	Withstanding Voltage (VDC)	Insulation Resistance (MΩ) min.
NCML0907C120H2TRF	12 ± 5%	2.5	130	12.5	100

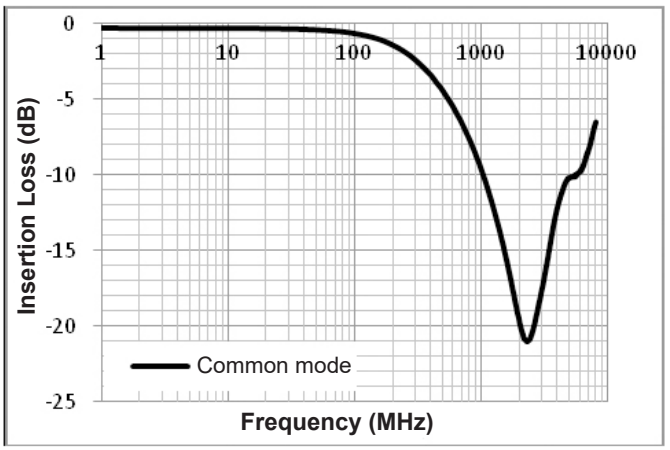
Impedance vs. Frequency



Insertion Loss vs. Frequency



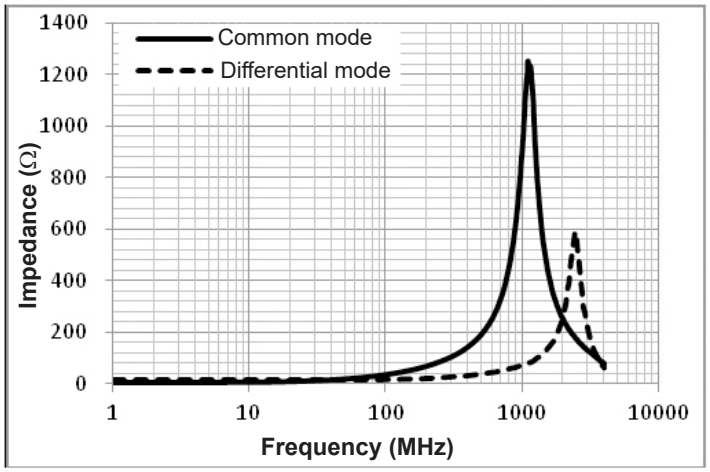
Insertion Loss vs. Frequency



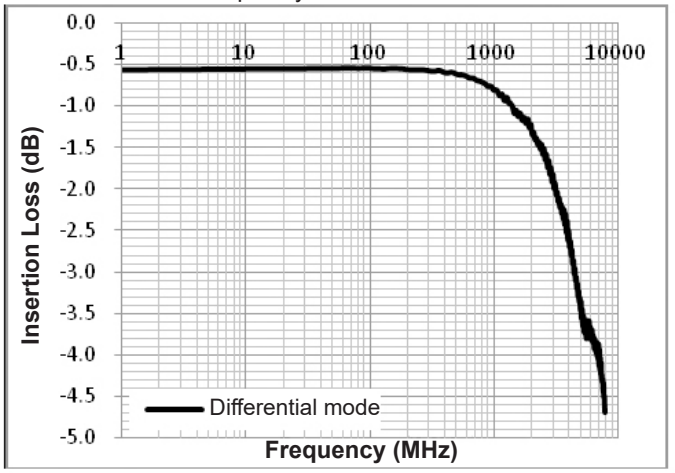
CASE SIZE 0907 HIGH SPEED

Case Size	Common Mode Impedance @100MHz (Ω)	DCR (Ω) max.	Rated Current (mA) max.	Withstanding Voltage (VDC)	Insulation Resistance (MΩ) min.
NCML0907C350H2TRF	35 ± 20%	3.0	100	12.5	100

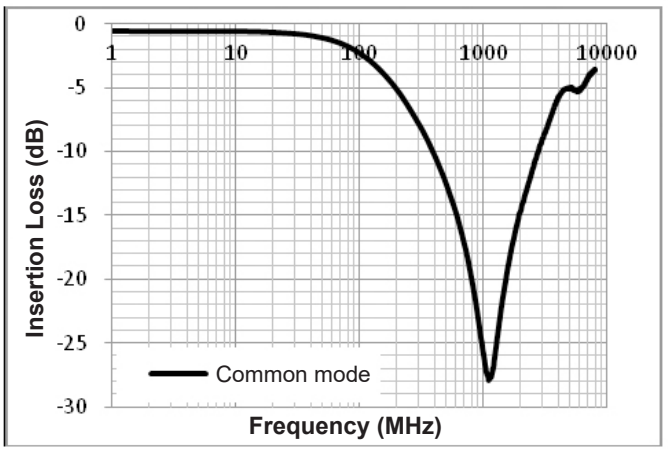
Impedance vs. Frequency



Insertion Loss vs. Frequency



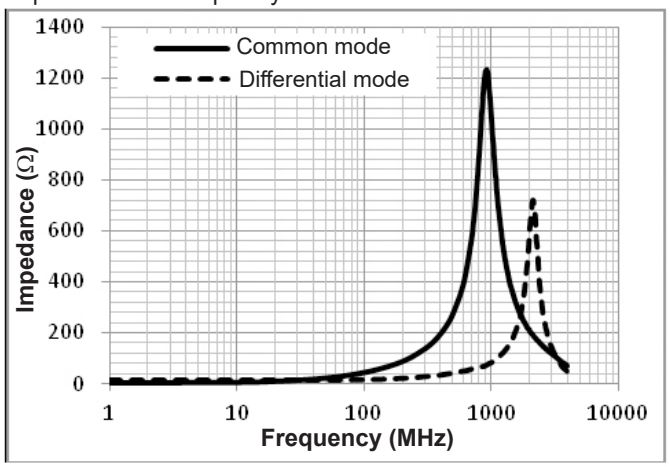
Insertion Loss vs. Frequency



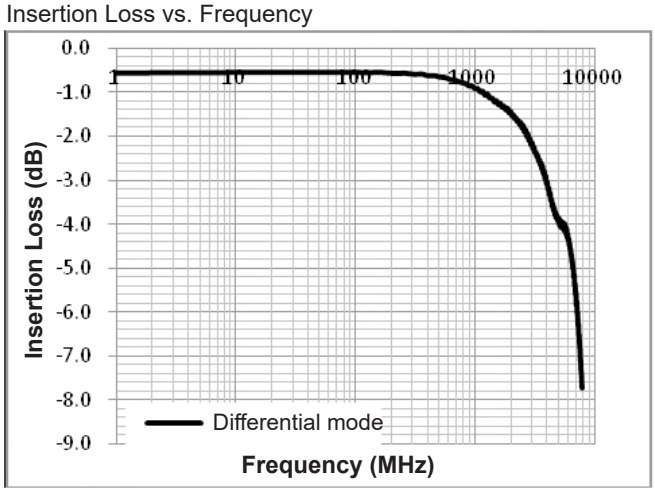
CASE SIZE 0907 HIGH SPEED

Case Size	Common Mode Impedance @100MHz (Ω)	DCR (Ω) max.	Rated Current (mA) max.	Withstanding Voltage (VDC)	Insulation Resistance (MΩ) min.
NCML0907C470H2TRF	47 ± 20%	3.5	100	12.5	100

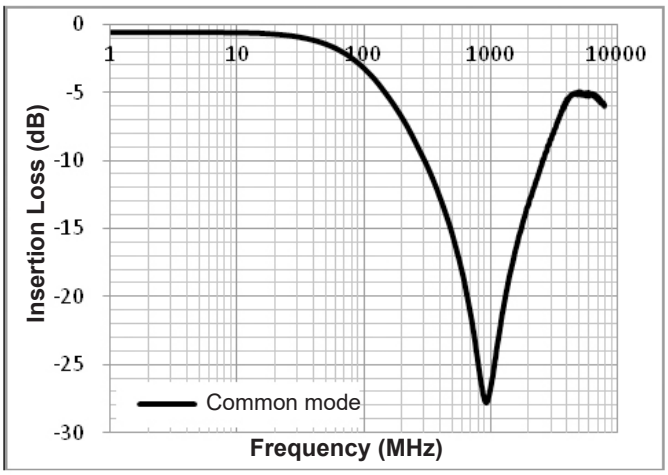
Impedance vs. Frequency



Insertion Loss vs. Frequency



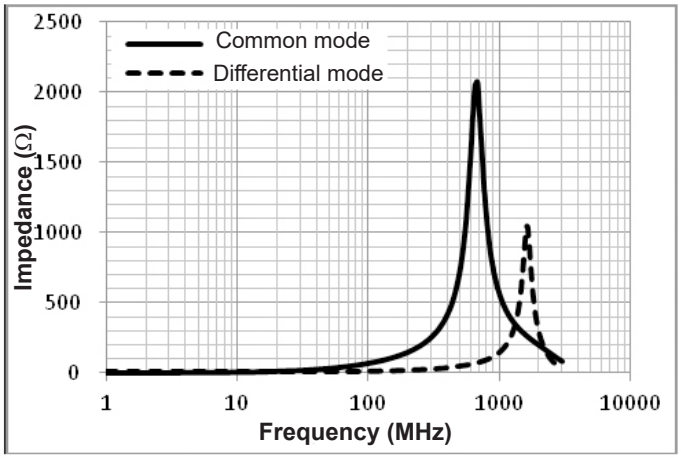
Insertion Loss vs. Frequency



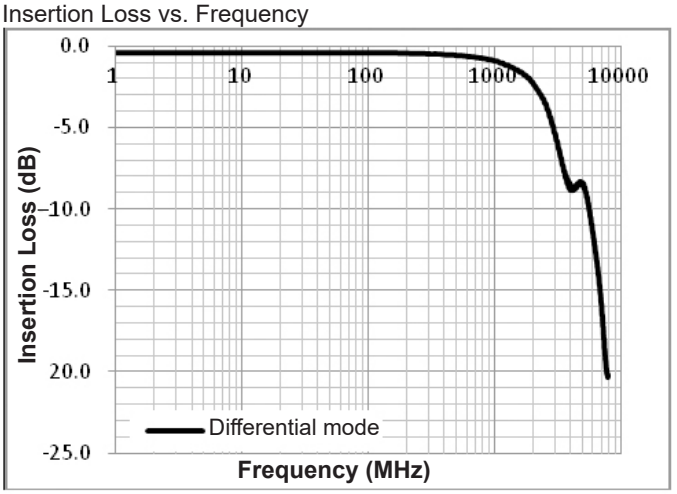
CASE SIZE 0907 HIGH SPEED

Case Size	Common Mode Impedance @100MHz (Ω)	DCR (Ω) max.	Rated Current (mA) max.	Withstanding Voltage (VDC)	Insulation Resistance (MΩ) min.
NCML0907C900H2TRF	90 ± 20%	4.0	100	12.5	100

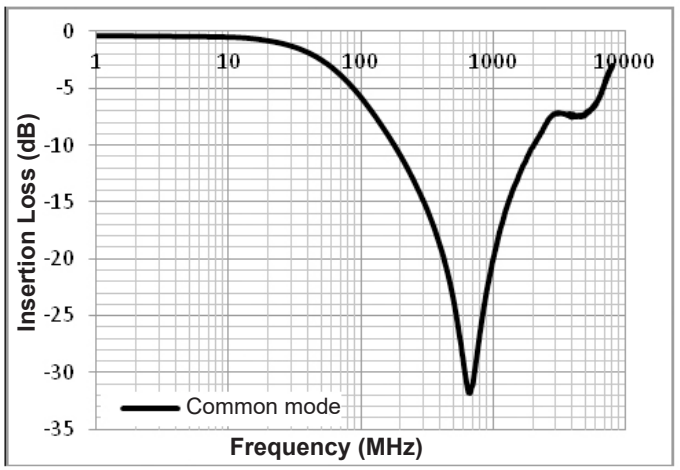
Impedance vs. Frequency



Insertion Loss vs. Frequency



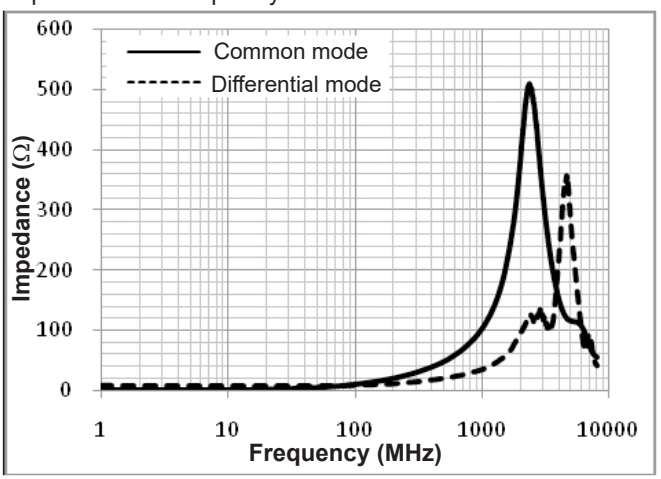
Insertion Loss vs. Frequency



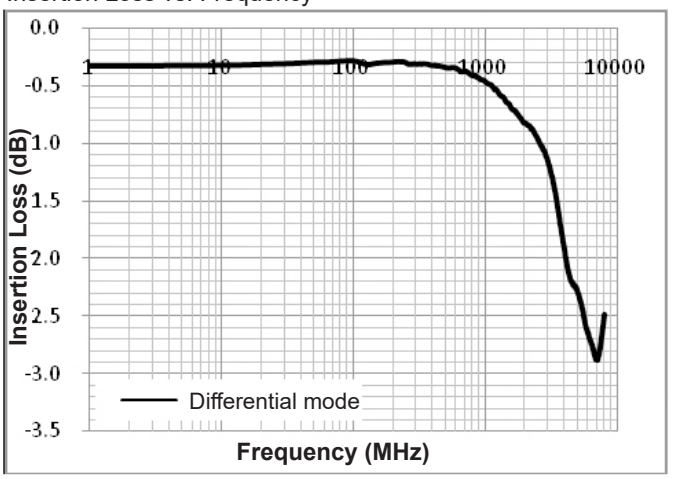
CASE SIZE 0907 ULTRA HIGH SPEED

Case Size	Common Mode Impedance @100MHz (Ω)	DCR (Ω) max.	Rated Current (mA) max.	Cut Off Freq. Typical (GHz)	Insulation Resistance (MΩ) min.
NCML0907C120U2TRF	12 ± 5%	2.5	130	>8	100

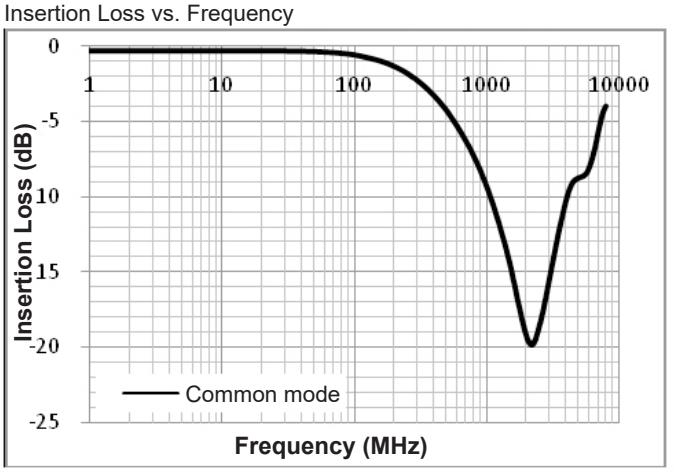
Impedance vs. Frequency



Insertion Loss vs. Frequency



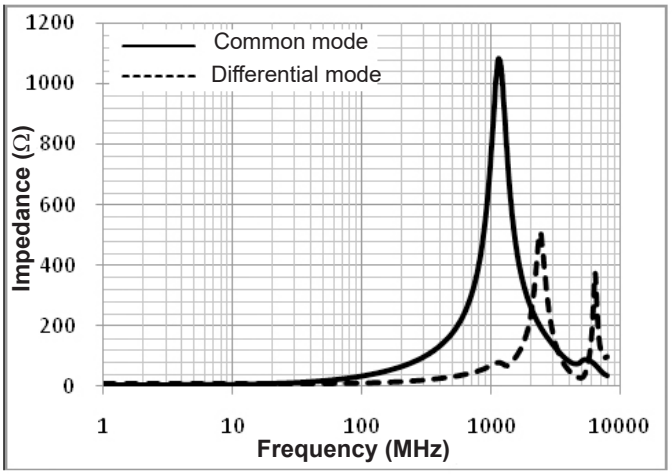
Insertion Loss vs. Frequency



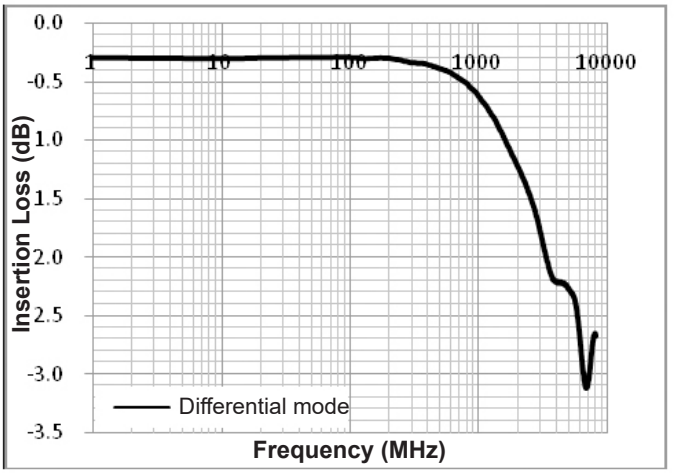
CASE SIZE 0907 ULTRA HIGH SPEED

Case Size	Common Mode Impedance @100MHz (Ω)	DCR (Ω) max.	Rated Current (mA) max.	Cut Off Freq. Typ. (GHz)	Insulation Resistance (MΩ) min.
NCML0907C350U2TRF	35 ± 20%	3.5	100	>6	100

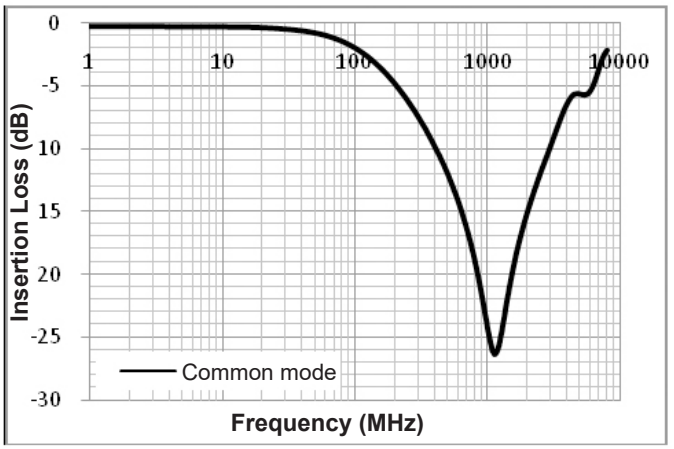
Impedance vs. Frequency



Insertion Loss vs. Frequency



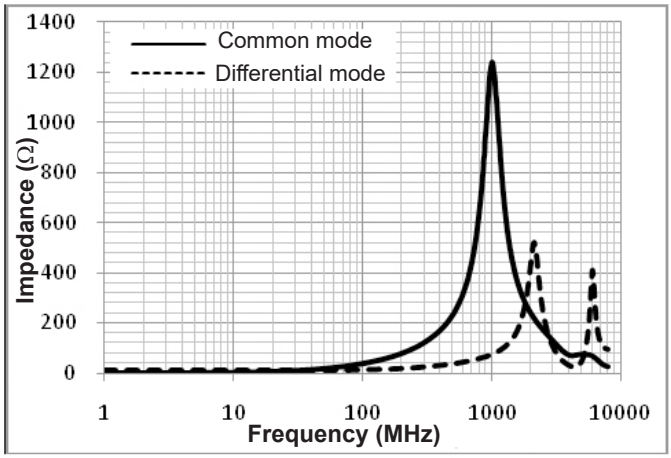
Insertion Loss vs. Frequency



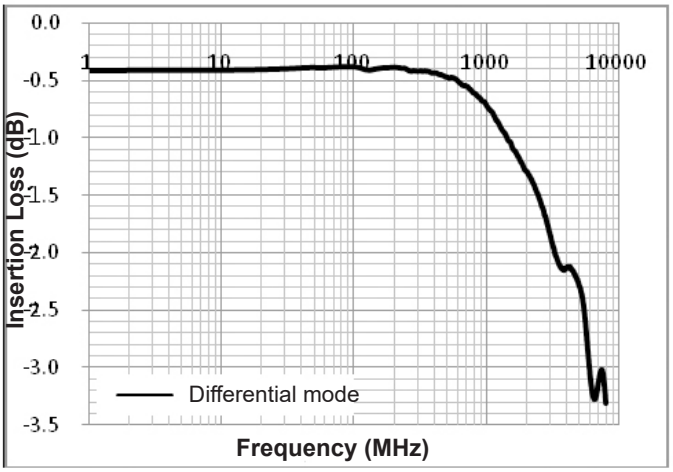
CASE SIZE 0907 ULTRA HIGH SPEED

Case Size	Common Mode Impedance @100MHz (Ω)	DCR (Ω) max.	Rated Current (mA) max.	Cut Off Freq. Typ. (GHz)	Insulation Resistance (MΩ) min.
NCML0907C470U2TRF	47 ± 20%	4.0	100	6	100

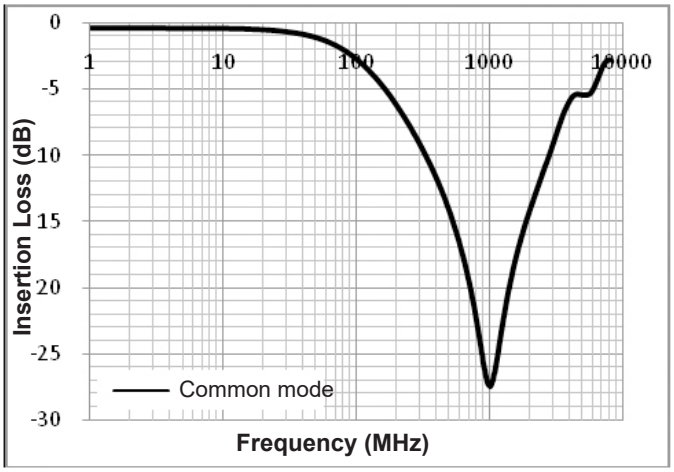
Impedance vs. Frequency



Insertion Loss vs. Frequency



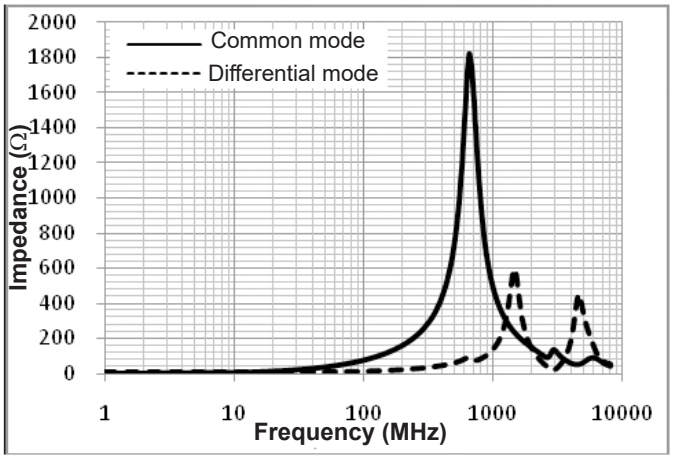
Insertion Loss vs. Frequency



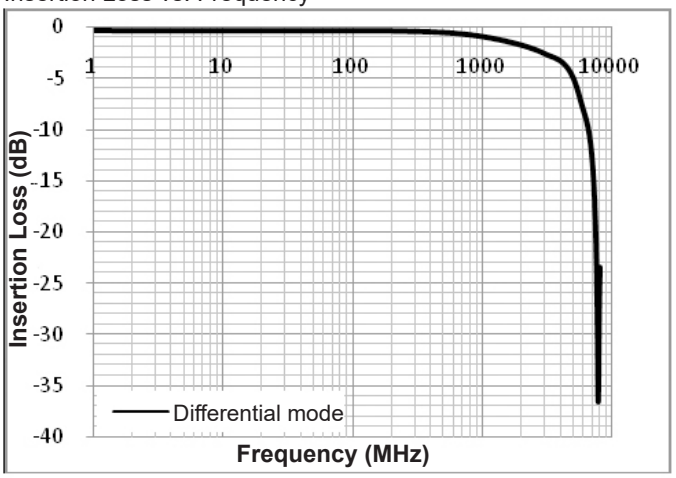
CASE SIZE 0907 ULTRA HIGH SPEED

Case Size	Common Mode Impedance @100MHz (Ω)	DCR (Ω) max.	Rated Current (mA) max.	Cut Off Freq. Typ. (GHz)	Insulation Resistance (MΩ) min.
NCML0907C900U2TRF	90 ± 20%	4.5	100	3.5	100

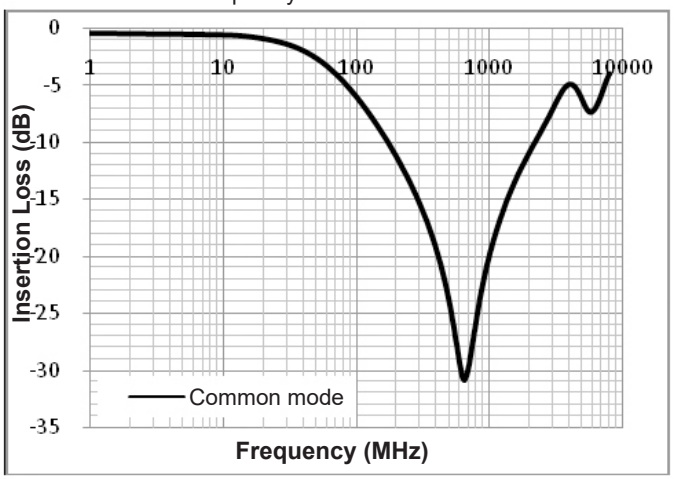
Impedance vs. Frequency



Insertion Loss vs. Frequency



Insertion Loss vs. Frequency

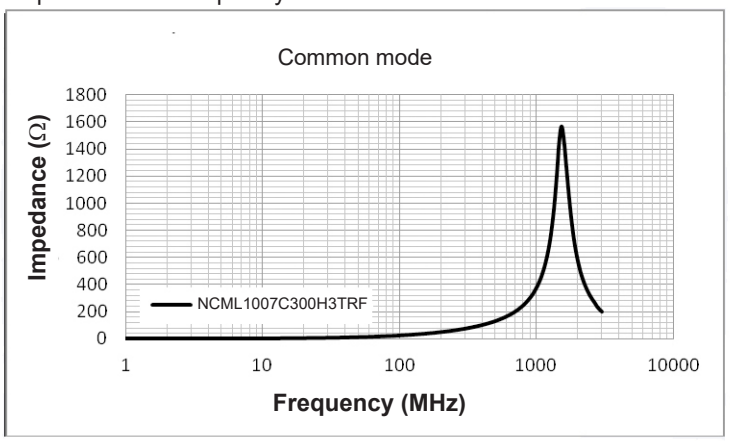


CASE SIZE 1007 HIGH SPEED

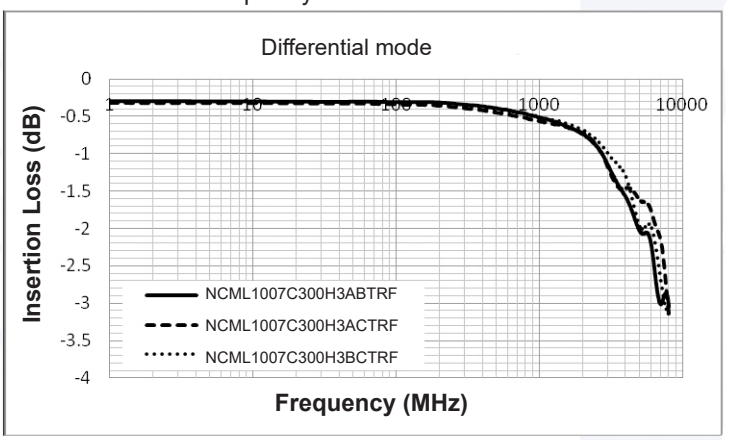
Case Size	Common Mode Impedance @100MHz (Ω)	DCR (Ω) max.	Rated Current (mA) max.	Withstanding Voltage (VDC)	Insulation Resistance (MΩ) min.
NCML1007C300H3TRF	30 ± 20%	4.0	100	12.5	100

Note: Absolute maximum long term direct-current voltage between D+ and D- of differential lines: DC 1.5V

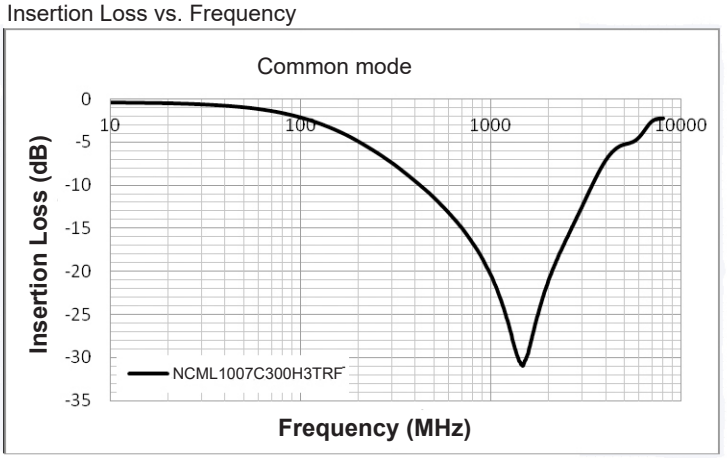
Impedance vs. Frequency



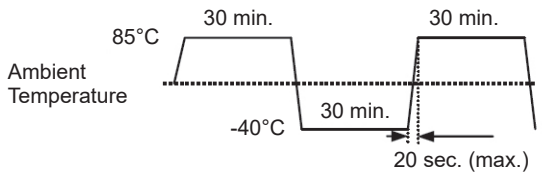
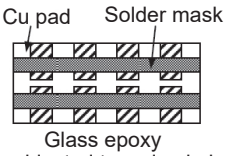
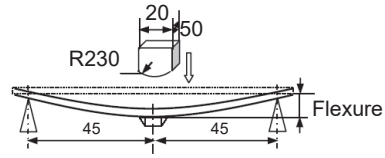
Insertion Loss vs. Frequency

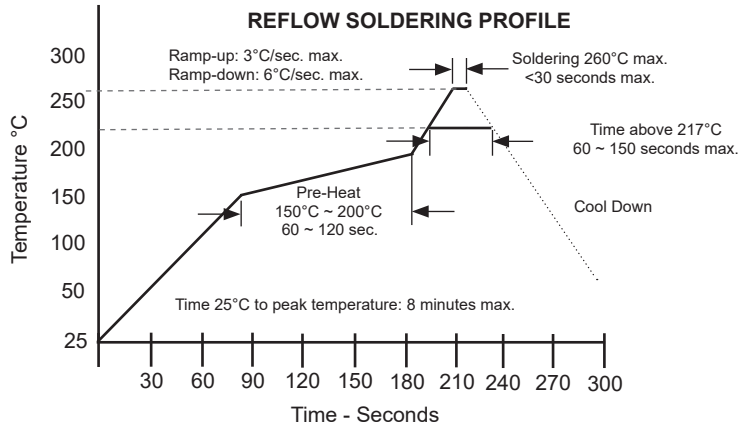


Insertion Loss vs. Frequency

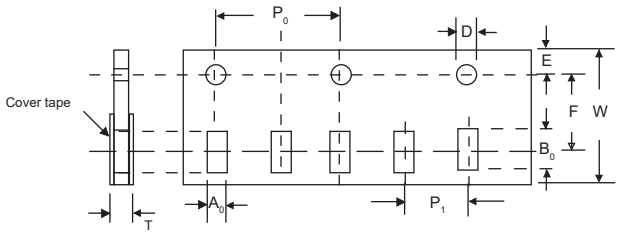


ENVIRONMENTAL CHARACTERISTICS

Item	Performance	Test Condition
Life Test (High Temperature)	Appearance: No damage. Impedance: Within ±20% of initial value Insulation Resistance: 100MΩ min.	1. Temperature: 85±2°C 2. Applied current: Rated current 3. Duration: 1000 ± 12hrs Measured at room temperature after stabliizing for 1 ~ 2 hrs.
Resistance to Low Temperature		1. Temperature: -40±2°C, 2. Duration: 1000 ± 12 hours. Measured at room temperature after stabliizing for 1 ~ 2 hrs.
Damp Heat (Under Load)		1. Humidity: 90% ~ 95% R.H. 2. Applied current: Rated current 3. Temperature: 60°C ±2°C 4. Duration: 1000 ± 12hrs Measured at room temperature after stablizing for 1 ~ 2 hrs.
Damp Heat (Steady State)		1. Humidity: 90% ~ 95% R.H. 2. Temperature: 60°C ±2°C 3. Duration: 1000 ± 12hrs Measured at room temperature after stablizing for 1 ~ 2 hrs.
Thermal Shock		1. Temperature & Time: -40°C for 30±3 min. to +85°C for 30±3 min. 2. Intervale: Maximum 20 seconds 3. Number of Cycles: 100 Measured at room temperature after stablizing for 1 ~ 2 hrs. 
Vibration		1. Solder the chip to the testing jig (glass epoxy board) using eutectic solder.  2. The inductor shall be subjected to a simple harmonic motion having total amplitude of 1.5mm, the frequency being varied uniformly between the approximate limits of 10 and 55 Hz. 3. The frequency range from 10 to 55 Hz and return to 10 Hz shall be traversed in approximately 1 minute. This motion shall be applied for a period of 2 hours in each 3 mutually perpendicular directions (total of 6 hours).
Drop Test		Drop chip inductor 10 times on a concrete floor from a height of 100 cm.
Temperature Test		1. Temperature range: -40°C to +85°C, 2. Reference temperature: 20°C
Resistance to Flexure	No visible mechanical damage	1. Solder the inductor to the 1mm test jig.(glass epoxy board) using a eutectic solder 2. Then apply a force in the direction shown: 3. Flexure: 2mm. 4. Pressurizing Speed: 0.5mm/sec. 5. Keep time: 5 sec. 



Case Size	Reel Qty	CARRIER TAPE DIMENSIONS (mm)								
		W	A_0	B_0	D	E	F	P	P_1	t
NCML0706	10,000	8.0±0.30	0.58±0.05	0.72±0.05	1.5 +0.1/-0.0	1.75±0.10	3.5±0.05	2.0±0.05	4.0±0.10	0.55
NCML0907			0.80±0.05	1.00±0.05						0.55
NCML1007			0.78±0.05	1.03±0.05						0.63



Case Size	Tape Width	REEL DIMENSIONS (mm)			
		A(mm)	B(mm)	C(mm)	D(mm)
NCML0706	8.0	8.4 +1.5/0.0	58 ± 2.0	13.5 ± 0.2	178 ± 0.2
NCML0907					
NCML1007