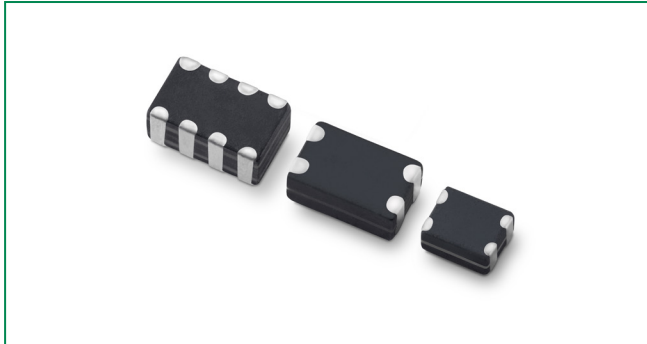


LCFA Series

RoHS



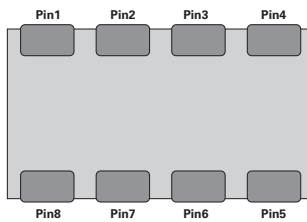
Pinout

LCFA121002A900TG, LCFA121002B900TG, and LCFA201202A900TG



| Item | Description | Source | Equipment |
|--------------|----------------------------------|----------------|------------------|
| Rdc | Pin 1-3, 2-4 | 10mA DC Source | Source Meter |
| CM Impedance | Pin 1-2(Short) to Pin 3-4(Short) | | LCR Meter (3GHz) |

LCFA201204A101TG



| Item | Description | Source | Equipment |
|--------------|--|----------------|------------------|
| Rdc | Pin 1-8, 2-7 3-6, 4-5 | 10mA DC Source | Source Meter |
| CM Impedance | Pin 1-2(Short) to Pin 8-7(Short) Pin 3-4(Short) to Pin 6-5(Short) | | LCR Meter (3GHz) |

Description

LCFA Series cover the engineering requirements of Common Mode Noise Filter (CMF) for high speed differential serial interfaces, such as USB 3.1, USB 2.0, MIPI D-PHY/HDMI and RGB line, and LVDS line. This AEC-Q200 qualified common mode noise filter will help to choke and attenuate the noise of the growing number of electronic applications in modern vehicles.

Features

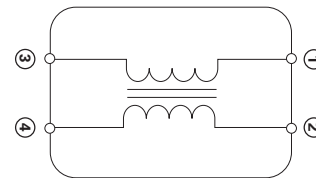
- AEC-Q200 qualified
- Effective for suppressing common mode noise and almost no effect for high speed differential data line
- Differential mode cut-off frequency up to 4.65GHz at -3dB
- Low profile package
- Ceramic multilayer type SMD component
- Non-polarized product
- Conforming to RoHS directive
- High temperature soldering guaranteed: 260°C/10 seconds

Applications

- Automotive Infotainment: Display, Car Navigation, Head Unit, USB Jack
- ADAS: Car Camera System
- Automotive Telematics Control Unit, E-Call system, and Smart Keyless Entry system
- Automotive RGB line, LVDS line, HDMI for AVN, and High-speed CAN BUS line
- PDP, LCD TV, DVD Player, PC, Audio player, DSC, Set top box, Laptop, SSD, and Home Automation
- Portable/Wearable Devices
- Mobile phone, Tablet, Game console, POS, VR, and Dongle

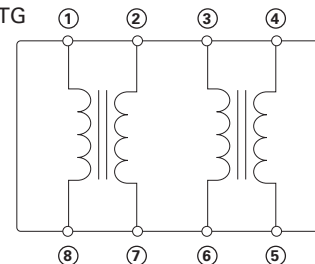
Functional Block Diagram

LCFA121002A900TG, LCFA121002B900TG, and LCFA201202A900TG



①~④: Data Line

LCFA201204A101TG



①~⑧: Data Line

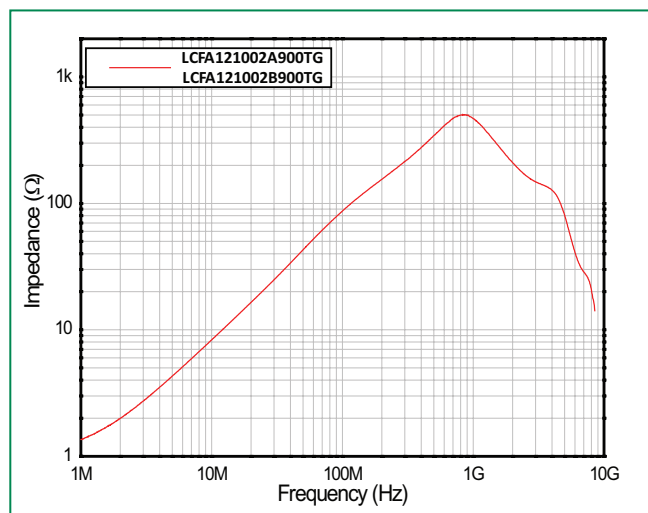
Electrical Characteristics

| Part Number | Size (mm) | Size (inch) | Common Mode Impedance (Ω) | Rated Current (mA) Max. | Cut-off Freq/ GHz | DC Resistance (Ω) Max. | Number of Lines | Leakage Current (μ A) Max. | Insulation Resistance ($M\Omega$) Min. |
|------------------|-----------|-------------|------------------------------------|-------------------------|-------------------|---------------------------------|-----------------|---------------------------------|--|
| LCFA121002A900TG | 1210 | 0504 | 90(\pm 25%) | 100 | 4.65 | 4.0 | 2 | 1.0 | 10 |
| LCFA121002B900TG | 1210 | 0504 | 90(\pm 25%) | 150 | 4.65 | 4.0 | 2 | 1.0 | 10 |
| LCFA201202A900TG | 2012 | 0805 | 90(\pm 25%) | 100 | 3.89 | 4.0 | 2 | 1.0 | 10 |
| LCFA201204A101TG | 2012 | 0805 | 100(\pm 25%) | 100 | 2.92 | 4.0 | 4 | 1.0 | 10 |

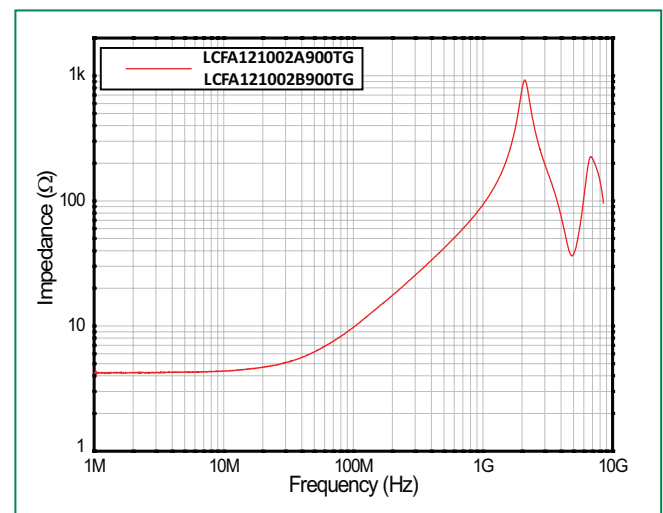
Test Conditions

- Common Mode Impedance (Ω): @100MHz
- DC Resistance (Ω): 25°C \pm 2°C
- Leakage Current (μ A): 5V
- Insulation Resistance (Max. $M\Omega$): 5V
- Rated Current (mA): 25°C \pm 2°C

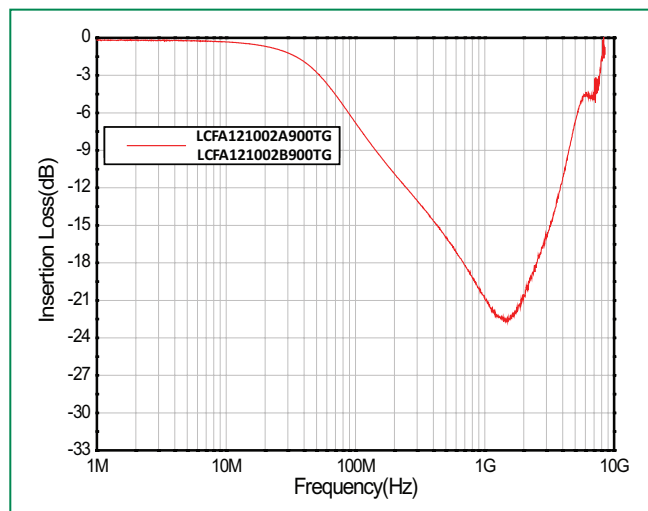
Impedance Curves Common Mode



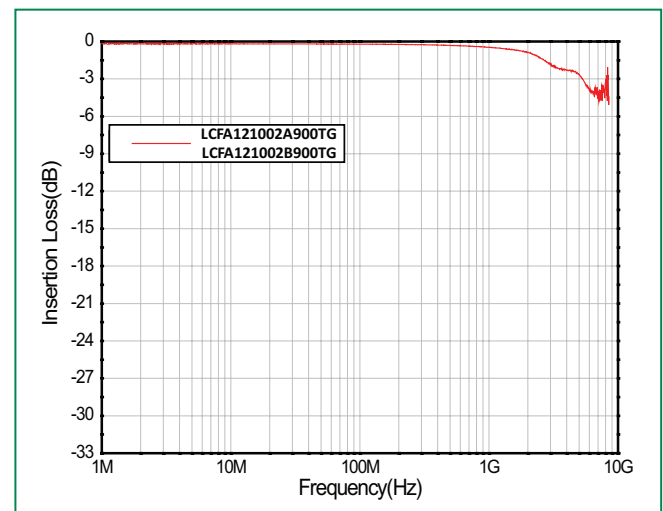
Differential Mode



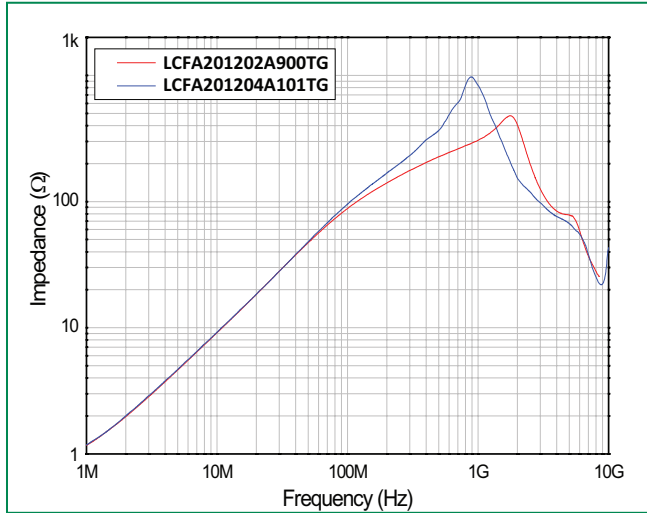
Transmission Characteristics (S-parameter) Common Mode S21



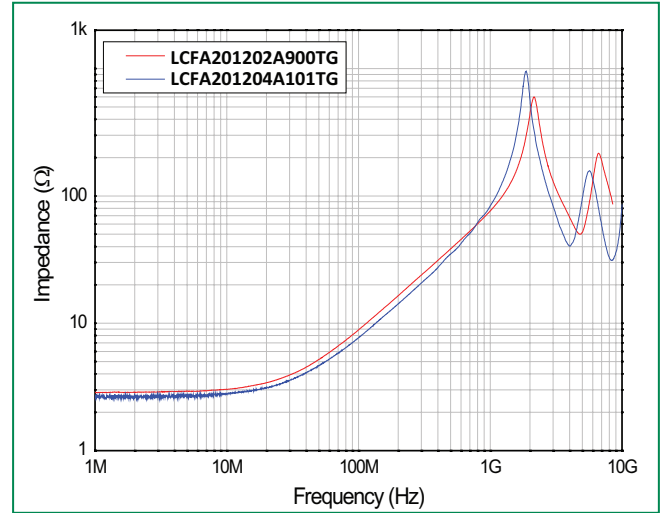
Differential Mode S21



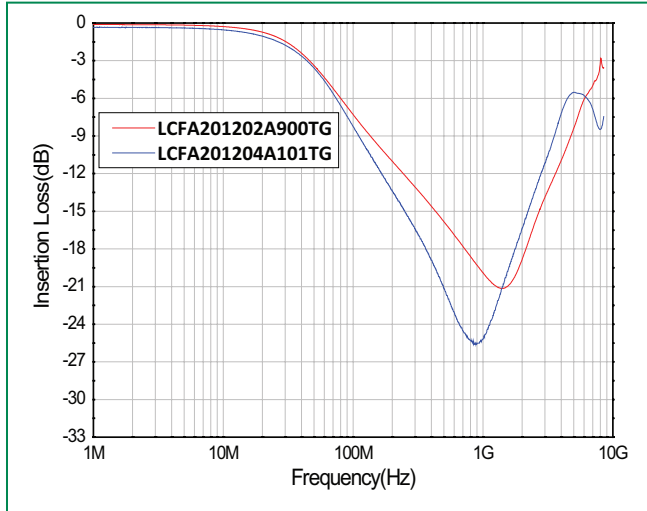
Impedance Curves
Common Mode



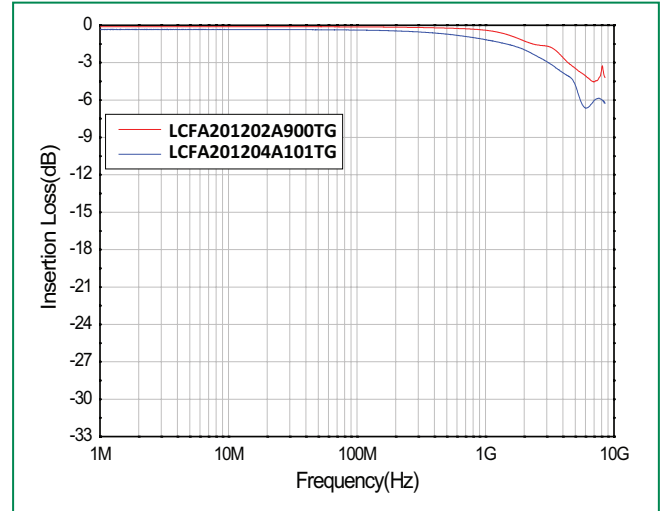
Differential Mode



Transmission Characteristics (S-parameter)
Common Mode S21

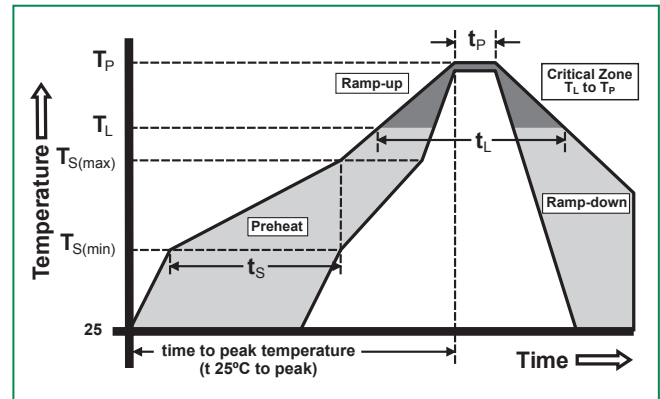


Differential Mode S21



Soldering Parameters

| | | |
|--|------------------------------------|-------------------|
| Reflow Condition | Pb-free assembly | |
| Pre Heat | - Temperature Min ($T_{s(min)}$) | 160°C |
| | - Temperature Max ($T_{s(max)}$) | 185°C |
| | - Time (Min to Max) (t_s) | 100 – 120 seconds |
| Average Ramp-up Rate (Liquidus Temp (T_L) to peak) | 1°C/second max | |
| $T_{s(max)}$ to T_L - Ramp-up Rate | 1°C/second max | |
| Reflow | - Temperature (T_L) (Liquidus) | 220°C |
| | - Temperature (t_L) | 30 – 50 seconds |
| Peak Temperature (T_P) | 260 ^{+0/-5} °C | |
| Time within 5°C of actual peak Temperature (t_p) | 5 – 10 seconds | |
| Ramp-down Rate | 2°C/second max | |
| Time 25°C to Peak Temperature (T_P) | 4 minutes max | |
| Do not exceed | 260°C | |
| Wave Soldering | 260°C, 10 sec. max | |



Recommended Soldering Profile (Lead free condition)

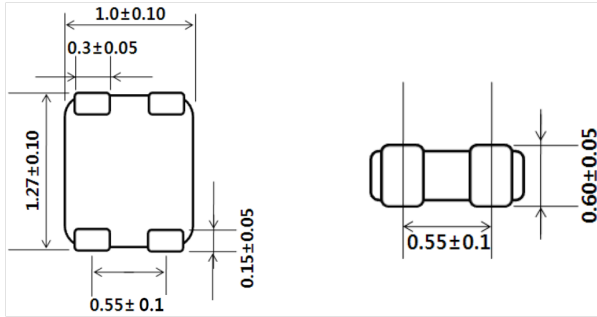
Product Characteristics

| | |
|----------------------------------|--|
| Lead Pull Strength | 5N |
| Solderability | 260°C, ≤10s (Reflow), Max 380°C, ≤5s (Soldering iron) |
| Soldering Heat Resistance | Max 260°C 10sec (Wave), Max Temperature: Max 380°C (Max 5sec) |

| | |
|------------------------------|---|
| Operating Temperature | -40°C to +125°C (consider re-rating) |
| Climatic Category | -40°C + 85°C/8 days |
| Stock Conditions | -10°C + 40°C RH , ≤ 70% |
| Vibration Resistance | 5 g's for 20 minutes, 12 cycles each of three orientations |

Dimensions

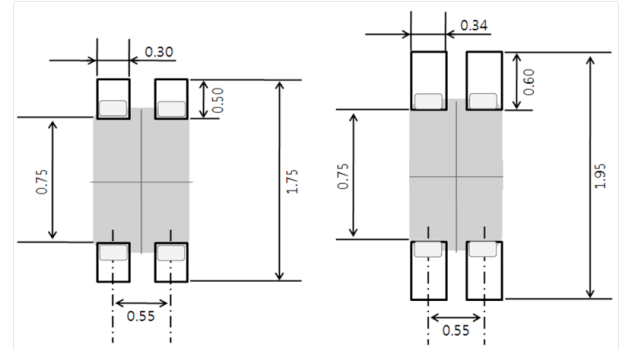
LCFA121002A900TG, LCFA121002B900TG



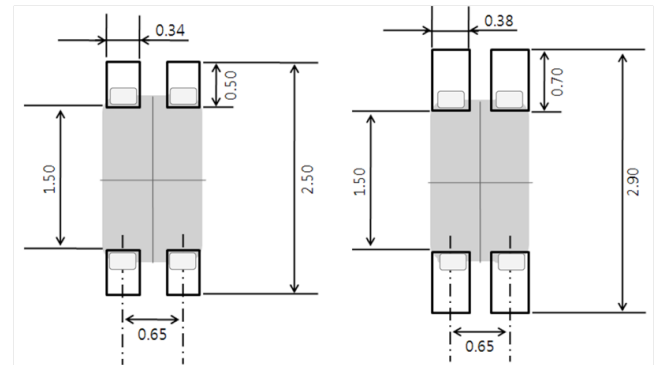
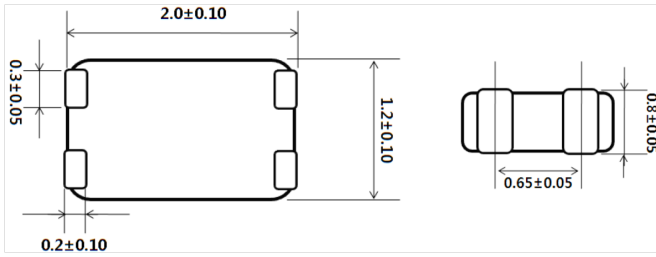
Recommended Footprint and Stencil Mask

Unit = mm

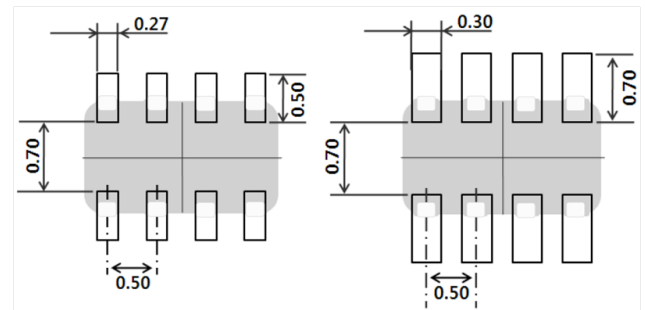
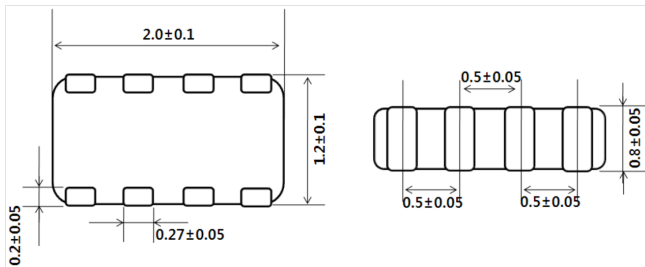
Stencil Mask T = 0.10mm



LCFA201202A900TG

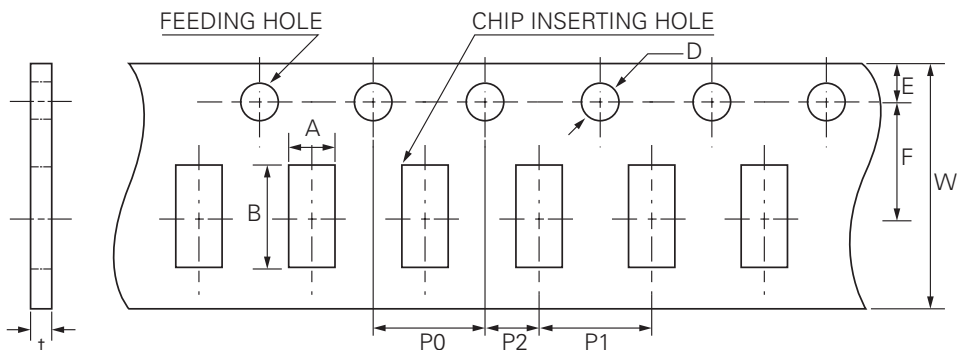


LCFA201204A101TG



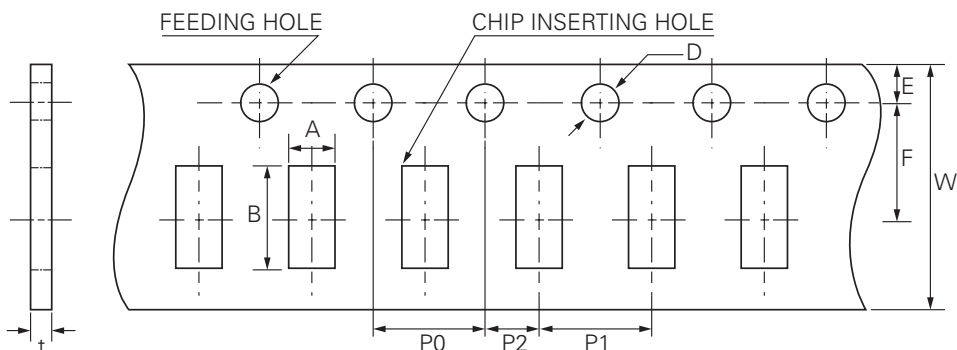
Carrie Tape Dimensions

LCFA121002A900TG, LCFA121002B900TG



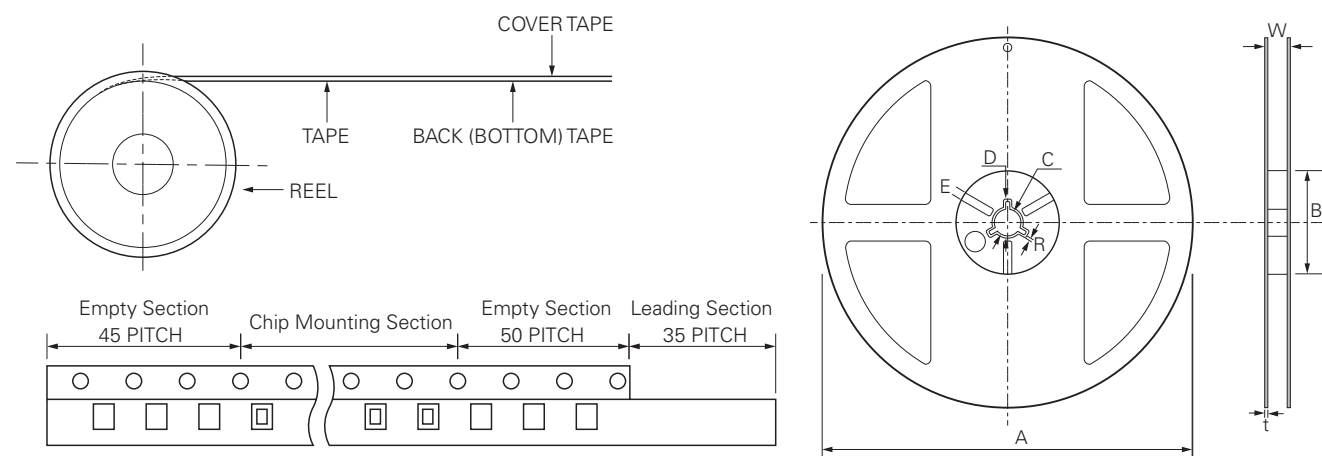
| Symbol | Dimensions |
|--------|-----------------|
| | Millimeters |
| A | 1.15±0.05 |
| B | 1.50±0.05 |
| W | 8.0+0.30, .0.10 |
| F | 3.50±0.05 |
| E | 1.75±0.05 |
| P1 | 4.00±0.10 |
| P2 | 2.00±0.05 |
| P0 | 4.00±0.10 |
| D | 1.55±0.03 |
| T | 0.75±0.05 |

LCFA201202A900TG, LCFA201204A101TG



| Symbol | Dimensions |
|--------|-------------|
| | Millimeters |
| A | 1.55±0.05 |
| B | 2.30±0.05 |
| W | 8.00±0.10 |
| F | 3.50±0.05 |
| E | 1.75±0.05 |
| P1 | 4.00±0.10 |
| P2 | 2.00±0.05 |
| P0 | 4.00±0.10 |
| D | 1.55±0.03 |
| T | 0.95±0.05 |

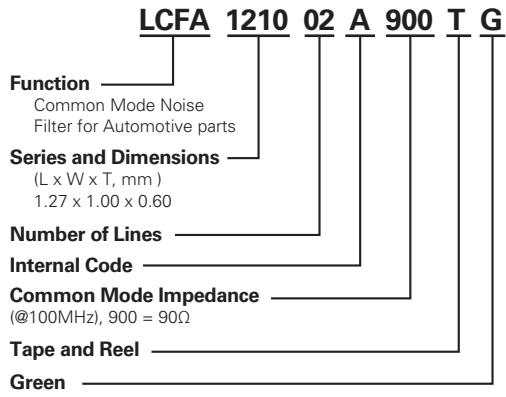
Tape and Reel Dimension



(1) Reel Materials: Polystyrene (2) Label (3) Taping
 - Standard Packing Quantity per Reel (Ø178)
 - PE Tape: 4,000pcs

| Code | A | B | C | D | E | W | T | R |
|-----------|--------|----------|---------|---------|---------|--------|---------|---------|
| Dimension | Ø178±2 | Min. Ø50 | Ø13±0.5 | Ø20±0.8 | 3.0±0.5 | 10±1.5 | 1.3±0.2 | 1.0±0.2 |

Part Numbering System



Ordering Information

| Part Number | Reel Quantity |
|-------------|---------------|
| | 4,000 |
| | |