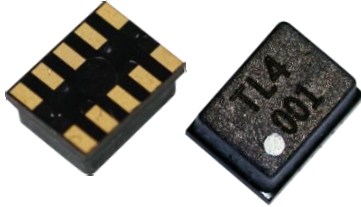


Applications

- DMI Gen2 & DMI Gen3 in ATE

Features

- Small footprint and integrated loopback circuit with 4 inductors
 - > Inductor is manufactured by MEMS (Micro Electro Mechanical Systems)
 - > Inductor is designed specifically for broadband applications : up to 7GHz
- Surface mounted component with high reliability
- Package size : 3.45 x 4.55 x 2.30mm (W x L x H mm)
- Package cap is hermetically sealed and protects MEMS inductors



| Electrical Specification | | Environmental Specification | |
|--|----------------------------------|------------------------------------|------------------------------|
| Inductance*1 (Tolerance : ±5%) | 59.9nH @ 5MHz 58.1nH @ 100MHz | Thermal Shock | 200 cycles, -65 °C ~ +150 °C |
| SRF*2 (Typ.) | 7.05GHz | Pressure Cooker Test | +130 °C, 85% RH, 96Hrs |
| Idc*3 (Max) | 300mA | Operating Temperature Range | -55 °C ~ +85 °C |
| DCR *4 | 1.97±0.1Ω | | |

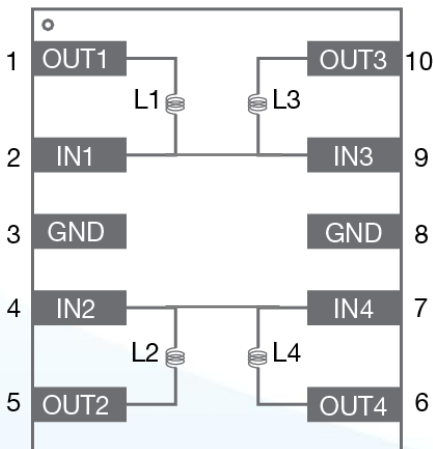
*1. Measurement Instrument : Impedance Analyzer Agilent 4294 & 42941A(Probe Kit)

*2. Measurement Instrument : VNA Agilent 8720ES

*3. Idc Measurement Condition : The DC resistance changes were observed by supplying 5V and maintaining 300mA current for 30 minutes at room temperature

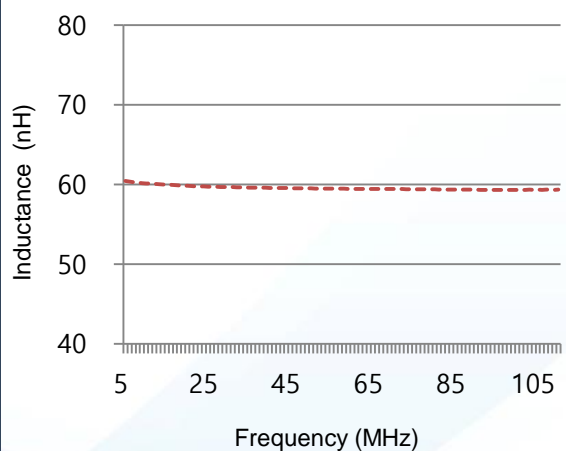
*4. Measurement Instrument : Keithley 2000

Pin Assignment

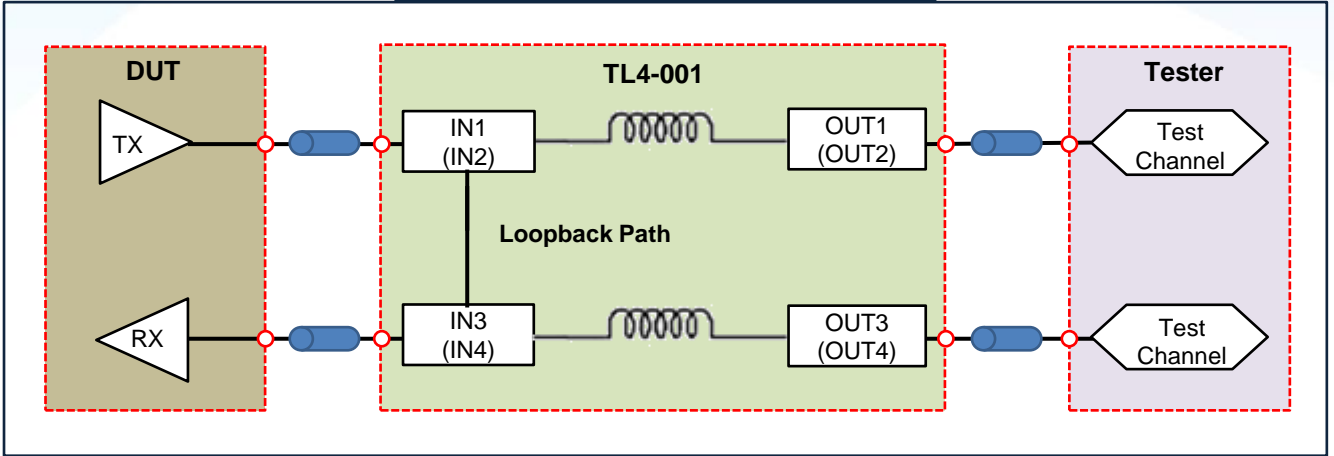


- L1~L4 : MEMS Inductor

Inductance vs Frequency

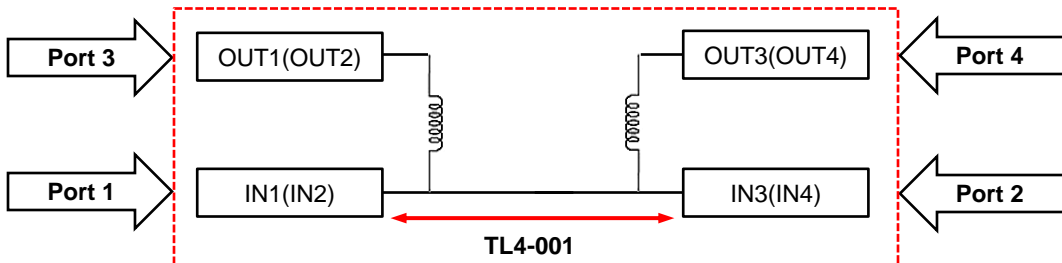


Typical Application

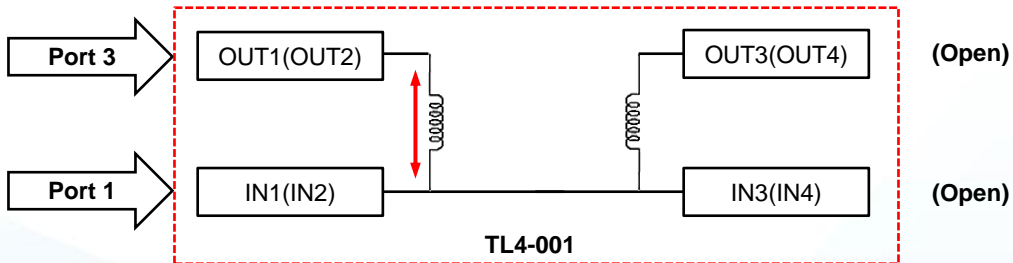


S-Parameter Measurement Set up

- Loopback Path



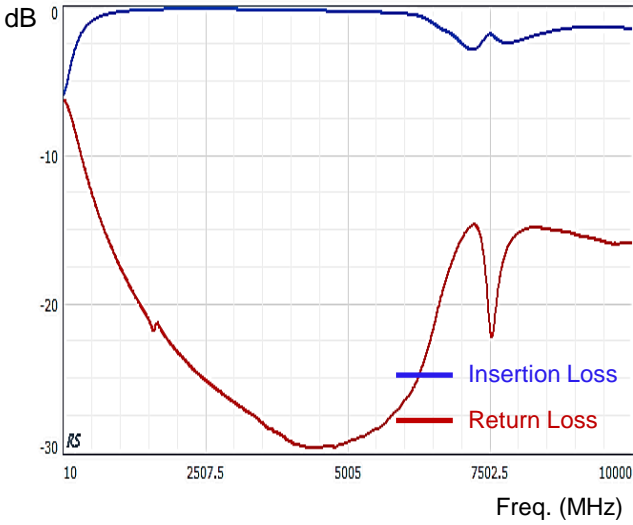
- Inductor Path (Test Channel Connection)



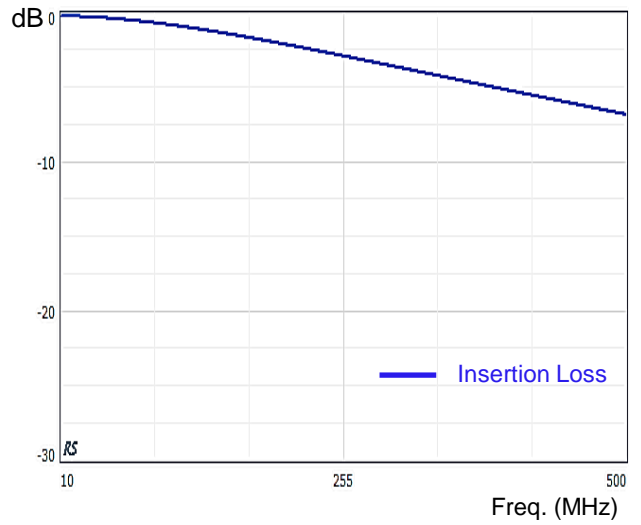
[Note] Other pads are open except probing pads

S-Parameter

- Loopback Path S-Parameter



- Inductor Path S-Parameter (Test Channel Connection)



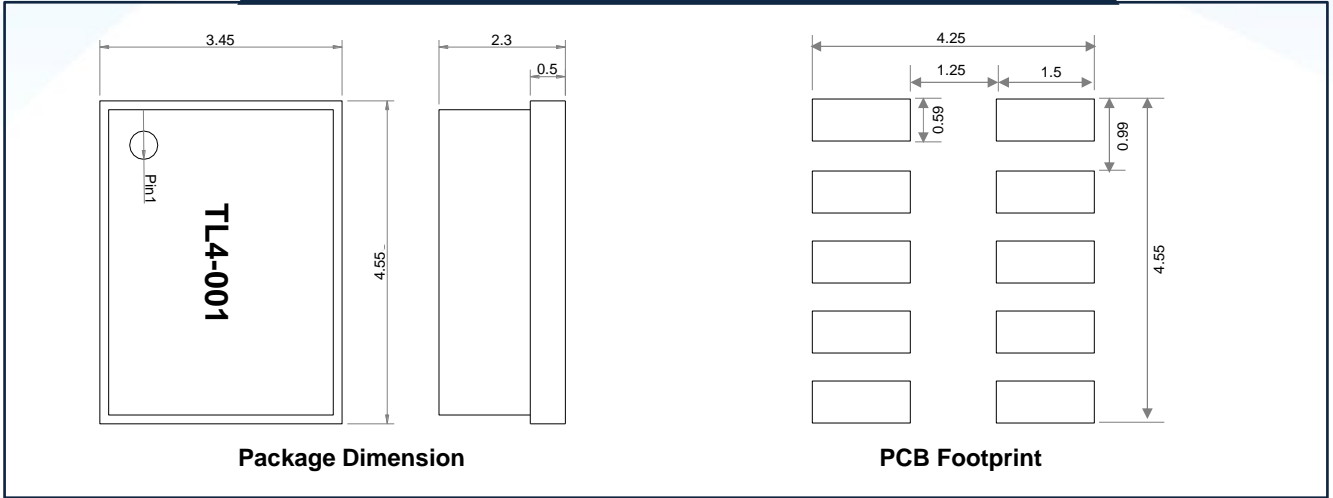
- Loopback Path S-Parameter

| Frequency | Insertion Loss(dB) | Return Loss(dB) |
|-----------|--------------------|-----------------|
| 0.5 GHz | -0.906 | -12.30 |
| 1.0 GHz | -0.272 | -17.40 |
| 2.0 GHz | -0.083 | -23.10 |
| 3.0 GHz | -0.101 | -26.50 |
| 4.0 GHz | -0.171 | -29.20 |
| 5.0 GHz | -0.247 | -29.20 |
| 6.0 GHz | -0.399 | -26.50 |
| 7.0 GHz | -2.350 | -15.60 |

- Inductor Path (Test Channel Connection) S-Parameter

| Frequency | Insertion Loss(dB) |
|-----------|--------------------|
| 100 MHz | -0.719 |
| 200 MHz | -2.010 |
| 300 MHz | -3.580 |
| 400 MHz | -5.190 |

PKG Dimension & PCB Footprint (Unit : mm)



SMT Reflow Profile (for Lead Free)

| Parameter | Specification |
|---|------------------------------------|
| Preheat and Soak [Temperature min (T _{smin}) Temperature max (T _{smax}) Time (T _{smin} to T _{smax}) | 150 °C 200 °C 60~120 seconds |
| Average ramp-up rate (T _{smax} to T _p) | 3 °C/second maximum |
| Liquidous temperature (T _L) Time at liquidous (t _L) | 217 °C 60~150 seconds |
| Peak temperature in reflow (T _p) | 260 °C (+0/-5 °C) |
| Time(t _p) within 5 °C of the specified classification temperature (T _c) | 20 seconds |
| Average ramp-down rate (T _p to T _{smax}) | 6 °C/second max |
| Time 25 °C to peak temperature | 8 minutes max |

[Note] Prior to SMT, bake TL4-001 for 1.5hour at 120 °C if it was stored over 3days at room temperature after unpacking

