

Data Sheet

- ITEM : ESD FILTER

-PART NO : ICVE10054E250R401FR

1. Scope

- This specification applies to R-varistor for EMI & ESD devices.
- The specification can be modified by documentary agreement between design engineers and customers.

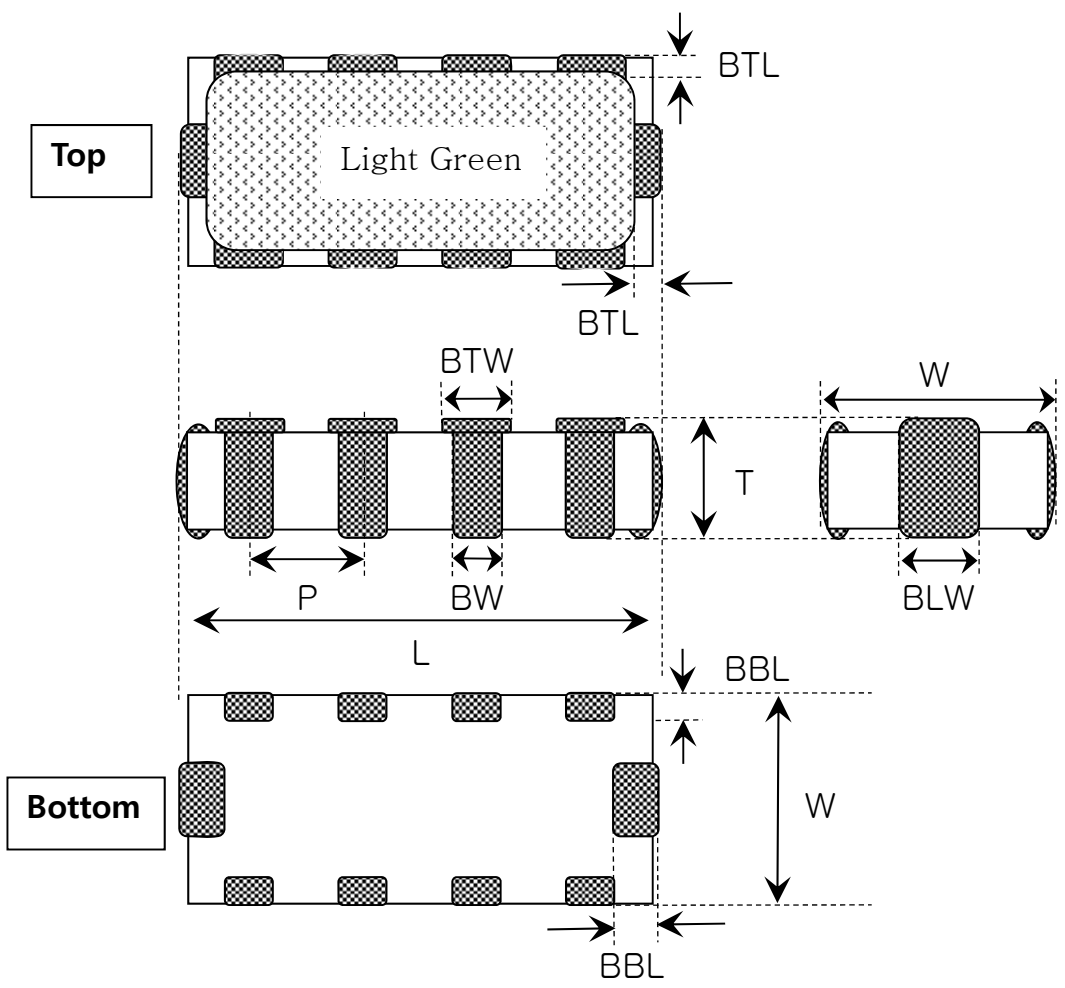
2. Features

- 4 EMI filter lines per device.
- Multilayer chip EMI suppression filter utilizing π -type circuit.
- Very thin (max. 0.50t) and low space consuming(1.6X0.8mm²) size.
- Steep attenuation characteristic plot, Highly effective noise suppression.
- Covers a wide range of frequencies.
- No asymmetrical degradation.
- Simpler fabricating process than diode-type filters.
- Soldering of plating type terminations guarantee high physical and electrical reliability.

3. Applications

- Where EMI filtering in ESD sensitive equipment is required.
- Mobile Phones
- Computers and Printers
- Communication Systems
- Internet Appliances
- PDAs
- Laptop Computers

4. Configuration and Dimensions



Unit : mm

| Symbol | Dimensions | Symbol | Dimensions |
|--------|------------|--------|------------|
| L | 1.60±0.10 | BTL | 0.08±0.03 |
| W | 0.80±0.10 | BBL | 0.10±0.03 |
| T | 0.50max | BTW | 0.22±0.05 |
| P | 0.40±0.05 | BLW | 0.23±0.05 |
| BW | 0.20±0.05 | | |

5. Part Number Code

ICVE 10 05 4E 250 R401 F R
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧

① SERIES NAME

| CODE | PRODUCT NAME |
|------|--------------------------------|
| ICVE | EMI Filter Array chip Varistor |

② SIZE DESIGNATOR

| CODE | SIZE(mm) |
|------|-----------|
| 10 | 1.6 × 0.8 |

③ WORKING VOLTAGE

| CODE | VOLTAGE(VDC) |
|------|--------------|
| 05 | 5.6 |
| 09 | 9 |
| 14 | 14 |
| 18 | 18 |

④ NUMBER OF ELEMENT

| CODE | NUMBER OF ELEMENT |
|------|-------------------|
| 4E | 4 Element |

⑤ C line CAPACITANCE

| CODE | CAPACITANCE@1MHz(pF) |
|------|----------------------|
| 050 | 5 |
| 070 | 7.5 |
| 150 | 15 |
| 250 | 25 |
| 300 | 30 |
| 500 | 50 |

⑥ RESISTANCE

| CODE | RESISTANCE(Ω) |
|------|---------------|
| R100 | 10 |
| R500 | 50 |
| R101 | 100 |
| R201 | 200 |
| R401 | 400 |

⑦ TERMINATION

| CODE | TYPE |
|------|------------------------|
| F | Electroplate (Pb-free) |

⑧ PACKING TYPE

| CODE | TYPE |
|------|------------------|
| R | Tape & Reel pack |

6. Nominal Specifications

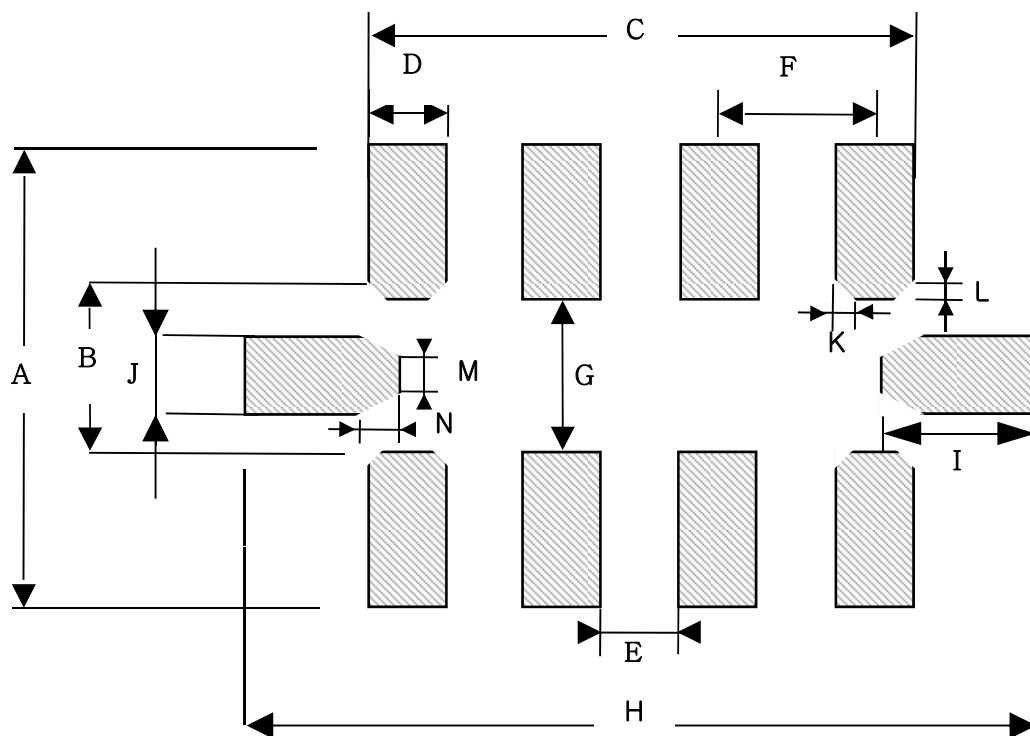
| Chip Size | ICT Part Number | Leakage Current | Varistor Voltage | Clamping Voltage | Peak Current | Resistance | Capacitance |
|-----------|-------------------|-----------------|------------------|-------------------|--------------|-----------------|----------------|
| | symbol | I_L | V_B | V_C | I_{peak} | R | C line |
| | Units | Amp (max.) | volts | volts (typ.) | Amp (max.) | Ohm (max.) | pF (typ.) |
| | Test Condition | 5.6V | 1mA DC | 8/20 μ s @ 1A | 8/20 μ s | 25°C | 0.5Vrms @1MHz |
| 1608 | ICVE10054E250R401 | <20 μ A | 15-25 | 65 | 5 | 400(\pm 20%) | 25(\pm 20%) |

| ICT Part Number | Frequency(MHz) | Attenuation(dB) | Cut-off Frequency(MHz) |
|-------------------|----------------|-----------------|------------------------|
| ICVE10054E250R401 | 800-2,000 | minimum | Typical(-3dB) |
| | | -20 | 110 |

■ TERMINOLOGY

- I_L : Maximum steady state DC operating voltage the varistor can maintain and not exceed 20 μ A leakage current.
- V_B : Voltage across the device measured at 1mA DC current
- V_C : Maximum peak voltage across the varistor measured at a specified pulse and waveform
Pulse Current : 1A , Waveform : 8/20 μ s
- I_{peak} : Maximum peak current which may be applied with the specified waveform without device failure
- C : Device capacitance measured with zero volt bias 0.5Vrms and 1MHz

7. LAND PATTERN

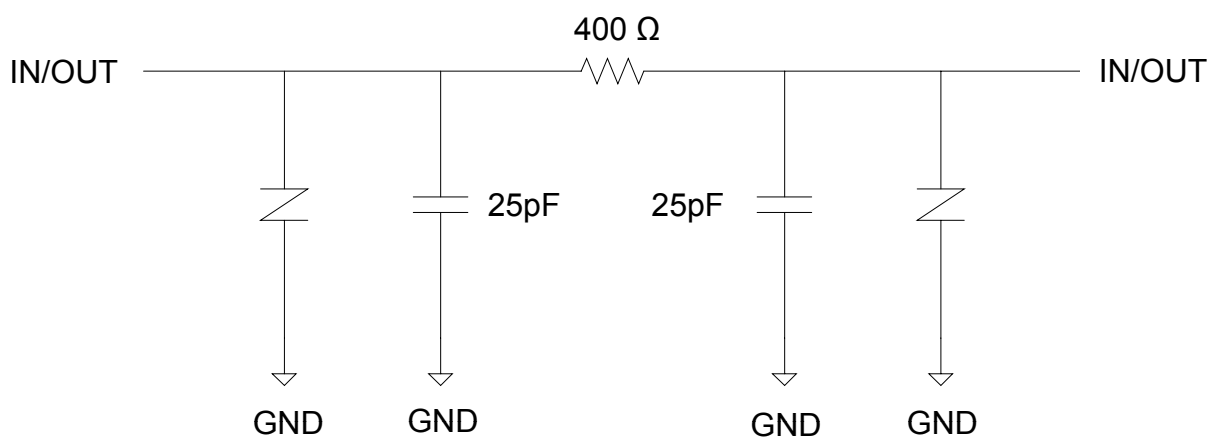
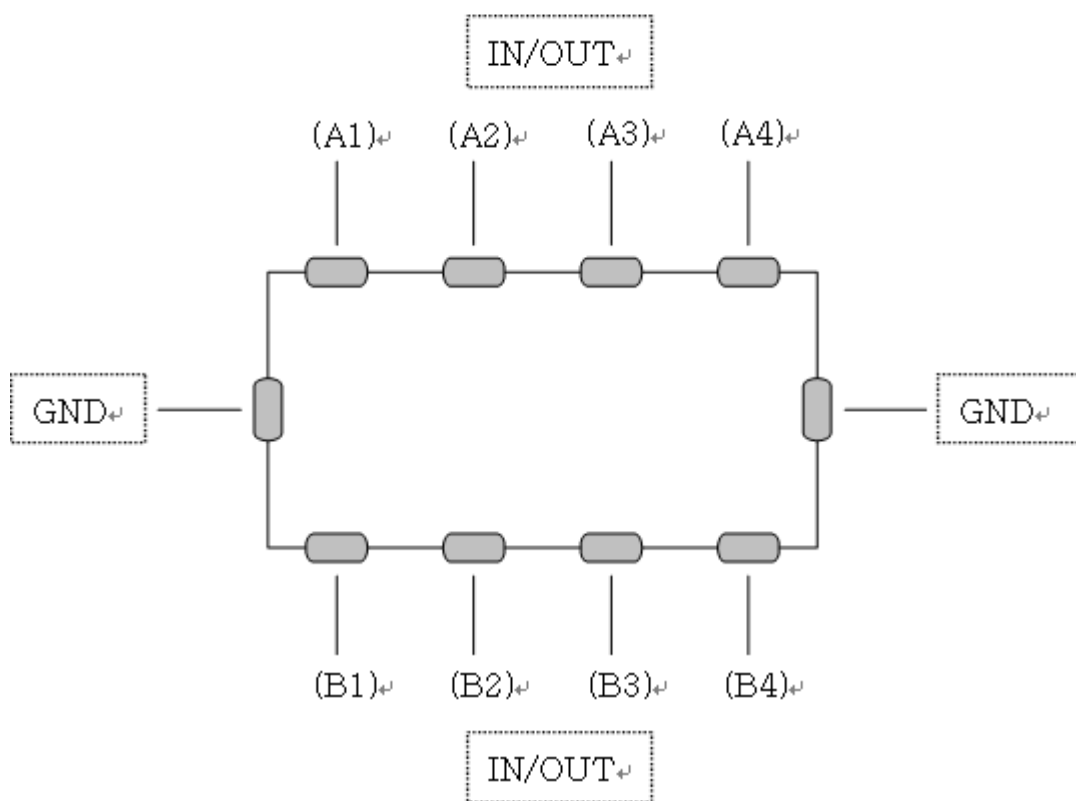


Unit : mm

| Size | A | B | C | D | E | F | G | H |
|------|------|------|------|------|------|------|------|------|
| | 1.20 | 0.50 | 1.40 | 0.20 | 0.20 | 0.40 | 0.40 | 2.04 |
| | I | J | K | L | M | N | | |
| | 0.40 | 0.17 | 0.05 | 0.05 | 0.07 | 0.10 | | |

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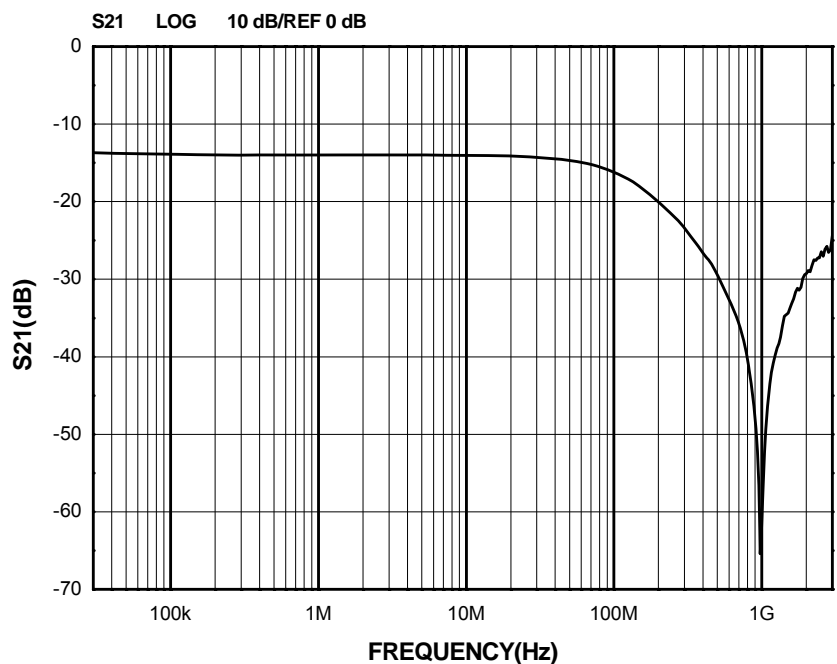
8. ELECTRICAL SCHEMATIC



9. Typical Characteristics

Filter Performance($T_A=25^{\circ}\text{C}$, DC Bias=0V, 50ohm Environment)

1) A1-B1, A2-B2, A3-B3, A4-B4



2) Cross talking(A1-B2, A2-B3, A3-B4)

