

Features

- Protects through sparking over the porous layer when surge exceeds the spark-over voltage
- Patented construction with reduced costs
- High insulation resistance, low capacitance, and fast response time
- RoHS and REACH compliant

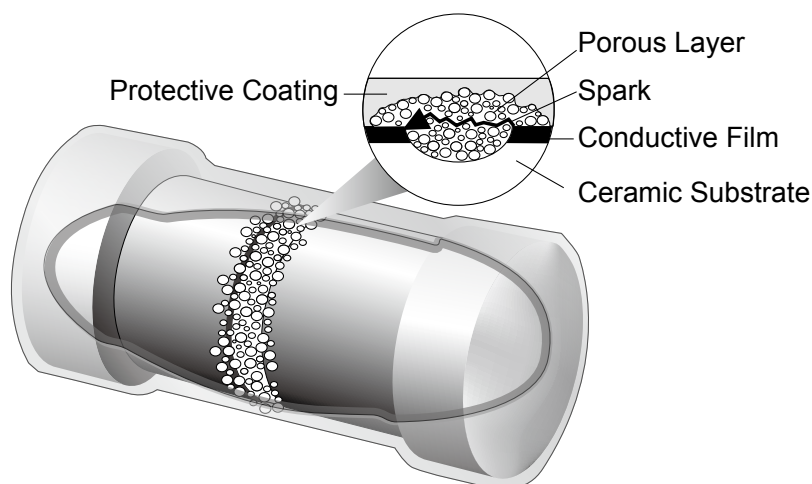
Applications

- Human body model ESD protection
- Telephone/Fax Machine/Modem Protection
- Signal Line Protection
- USB protection
- Ethernet protection
- Low voltage power protection
- Support products to comply with IEC61000-4-2, ISO10605 requirements, etc.

DIMENSIONS

| Type | Body Length (L, mm) | Cap Diameter (D1, mm) | Body Diameter (D2, mm) | Soldering Spot (B, mm) | Net Weight Per 1000 pcs |
|--------|---------------------|-----------------------|------------------------|------------------------|-------------------------|
| ESM204 | 3.52 ± 0.15 | 1.35 ± 0.1 | D1+0.02/-0.15 | 0.6 Min. | 17 grams |

Cross-Section View



Legal disclaimer: This international patent is covered by Paris Convention for the Protection of Industrial Property under World Intellectual Property Organization (WIPO). Plagiarism and imitation shall be severely punished.

GENERAL SPECIFICATIONS

| Series | Type Name | Color Code | DC spark-over voltage |
|--------|-----------|------------|-----------------------|
| ESM | ESM204 | White | 1300V ± 30% |

Special sizes, values, and specifications not listed available on special order.

■ PART NUMBER

Example: ESM204N1300XXXTR3K0

| ESM204 | N | 1300 | XXX | TR3K0 |
|--------|----------------------|---|---|--|
| Type | Tolerance N (30%) | Spark-Over Voltage 1300V 4-character code | TCR 3-character code Parameter Not Applicable | Packaging 5-character code TR = Tape Reel (pieces per reel) 3K0 = 3,000 6K0 = 6,000* 10K = 10,000* |

*upon request

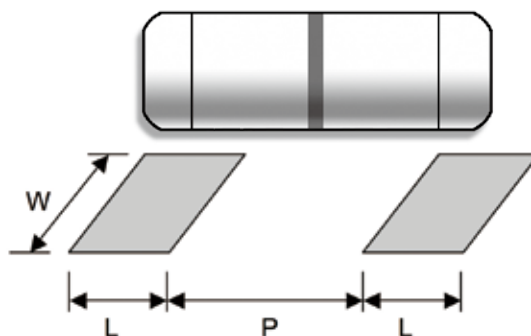
■ TECHNICAL SUMMARY

| Characteristics | Limits |
|---|---------------------------|
| Dielectric Withstanding Voltage, VAC or DC | 500 |
| Surge Current Capacity | 60A @8/20μs (80A @2/10μs) |
| Operating Temperature Range, °C | -55 ~ +155 |
| Insulation Resistance, MΩ (Measured with DC 500V) | > 100 |
| Capacitance | ≤ 1pF |
| Activation time | ≤ 1ns |

■ PERFORMANCE SPECIFICATIONS

| Characteristics | Test Conditions | Limits |
|------------------------------|---|------------------------------|
| Resistance To Soldering Heat | IEC 60115-1 4.18.2 Dip the resistor into a solder bath measured (260±5)°C and hold it for a 10±1 seconds | Rated value 40% |
| Solderability | IEC 60115-1 4.17.2 Solder area covered after (235±3)°C/(2±0.2) seconds with flux applied | 95% min.coverage |
| Vibration | IEC 60115-1 4.22 Six hours in each parallel and axial direction with a simple harmonic motion having an amplitude of 1.52mm and 10 to 2,000 Hz. | Rated values still satisfied |
| Thermal Endurance | IEC 60115-1 4.25.3 1000 hours at 155°C without load | Rated value 40% |
| Thermal Shock | IEC 60115-1 4.19 -55°C 30minutes, +155°C 30minutes, 5 cycles | Rated value 40% |
| Surge Life | 3000pF/ 10KV/ 0ohm, times = 300 | No function failure |

■ SUGGESTED PAD LAYOUT



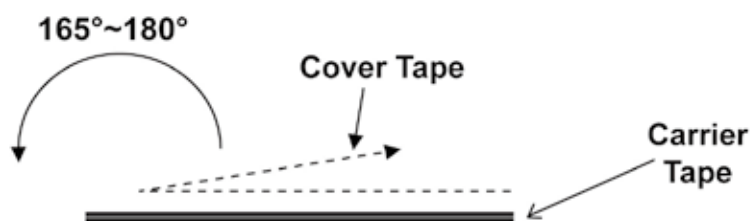
| Type | Soldering mode | Pad Length (L, mm, min.) | Pad Spacing (P, mm) | Pad Width (W, mm, min.) |
|--------|----------------|-----------------------------|------------------------|----------------------------|
| ESM204 | Reflow | 1.3 | 1.6 ± 0.1 | 1.6 |
| | Wave | 1.5 | 1.5 ± 0.1 | 1.8 |

For better heat dissipation / lower heat resistance, increase W & L.

■ COVER TAPE PEELING SPECIFICATION

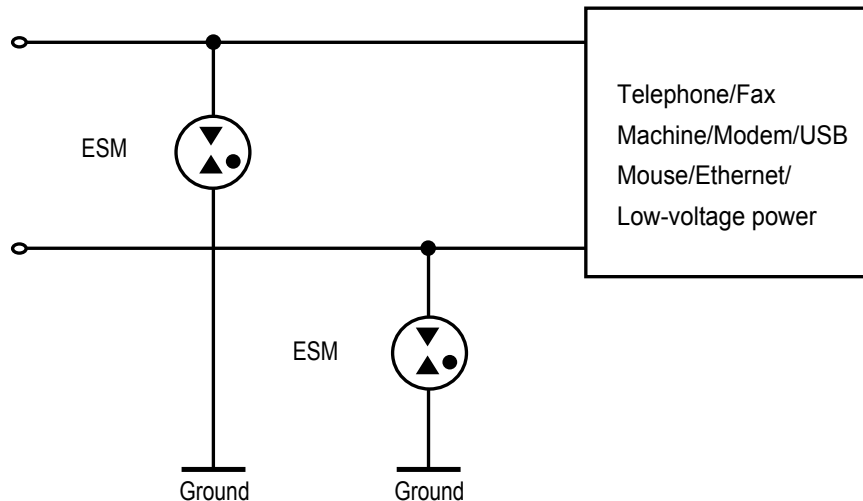
Recommended peeling force:

ESM204: 50 ± 5 gf



■ APPLICATIONS

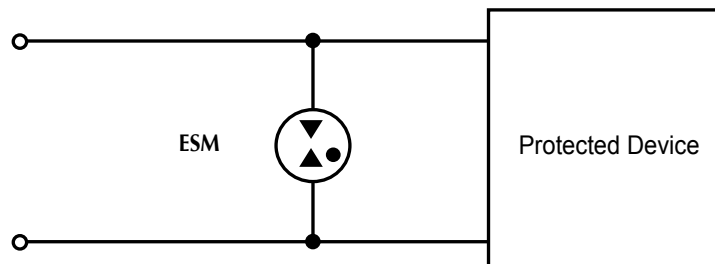
Telephone/Fax Machine/Modem/USB/Mouse/Ethernet/Low-voltage power Protection
(common-mode protection)



ESM

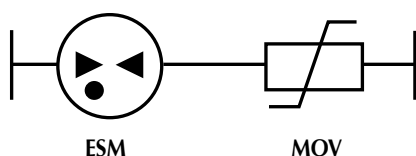
These ESM absorbers protect against common-mode interference voltages, i.e. surge voltages that appear in both exchange lines connecting to the ground. in the event of voltage overload, the ESM protects both exchange lines by conducting the surge current away to the ground.

Signal Line Protection (differential-mode protection)



Signal circuits often run with no ground conductor. A ESM circuit located between the two signal lines offers differential mode protection by preventing the occurrence of large potential difference at the input of the equipment to be protected

Series of ESD Surge MELF Absorber (ESM) and Metal-Oxide Varistor (MOV)



Benefits:

1. Capacitance of this branch circuit would be reduced to pF level.
2. MOV has almost no current leakage.
3. MOV aging-related issue would be greatly improved,, increasing reliability of the circuit.