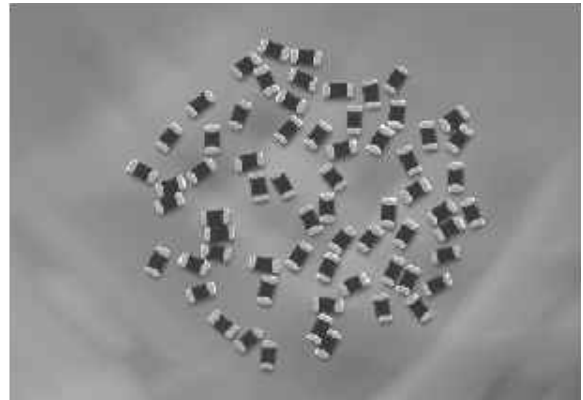


Introduction

Joyin's metal oxide based chip varistors (JMV) are used for transient voltage suppression. JMV has non-linear voltage current behavior which is similar to Zener Diode.

Since each grain in JMV exhibits small p-n-p junction, it has much better electrical reliability than Zener Diode.

Furthermore, JMV also exhibits better electrical properties, such as excellent clamping voltage and low leakage current.

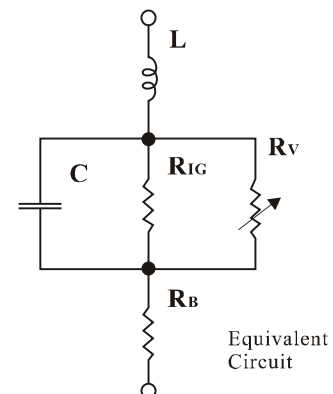


Features

- Small size and SMD capability
- Excellent clamping performance
- High transient current capability
- Fast response time
- Low voltage available
- Comply with RoHS and Halogen-free

Applications

- IC and Transistor Protection
- Power Line and I/O Protection
- Telecommunication Transient Protection
- Automotive Circuit Applications



General Characteristics

JMV S series 、 JMV C series

0402~0805

- Operating ambient temperature range : -55°C ~ 125°C
- Storage temperature range : -55°C ~ 150°C

1206~2220

- Operation ambient temperature range: -55°C ~ 85°C
- Storage temperature range : -55°C ~ 125°C

JMV E series

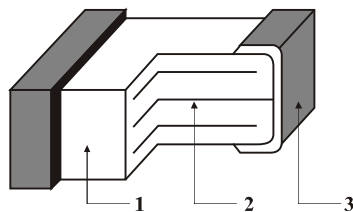
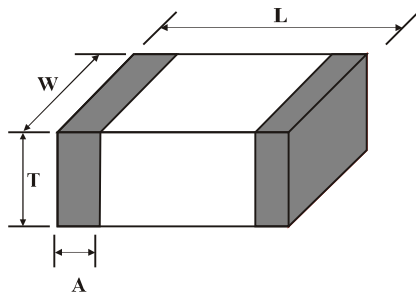
- Operating ambient temperature range : -55°C ~ 85°C
- Storage temperature range : -55°C ~ 125°C

JMV A series

- Operating ambient temperature range : -55°C ~ 125°C
- Storage temperature range : -55°C ~ 150°C



Introduction



Chip Dimensions

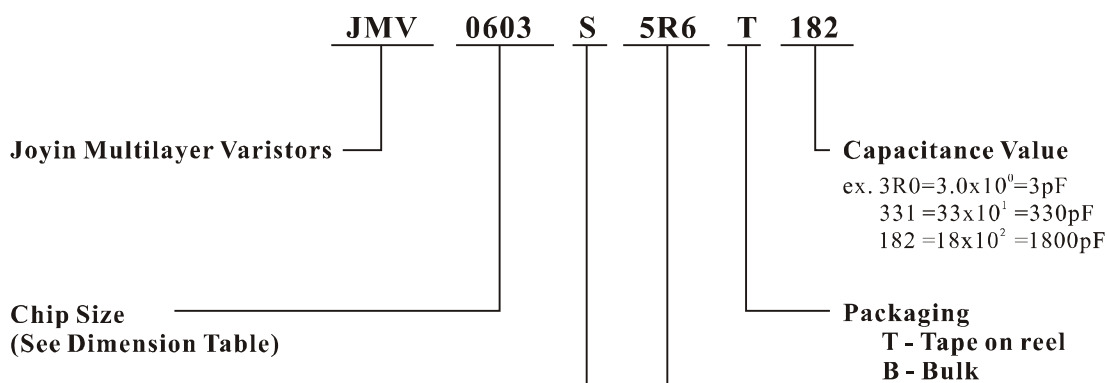
inch (mm)

| Chip Size | L | W | T | A |
|----------------|--|--|--------------------------|--|
| 0402 (1005) | 0.040 ± 0.004 (1.00 ± 0.10) | 0.020 ± 0.004 (0.50 ± 0.10) | 0.024 max. (0.6 max.) | 0.010 ± 0.006 (0.25 ± 0.15) |
| 0603 (1608) | 0.063 ± 0.006 (1.60 ± 0.15) | 0.031 ± 0.006 (0.80 ± 0.15) | 0.035 max. (0.9 max.) | 0.014 ± 0.006 (0.35 ± 0.15) |
| 0805 (2012) | 0.079 ± 0.008 (2.01 ± 0.20) | 0.049 ± 0.008 (1.25 ± 0.20) | 0.04 max. (1.02 max.) | 0.028 max. (0.71 max.) |
| 1206 (3216) | 0.126 ± 0.008 (3.20 ± 0.20) | 0.063 ± 0.008 (1.60 ± 0.20) | 0.071 max. (1.8 max.) | 0.028 max. (0.71 max.) |
| 1210 (3225) | 0.126 ± 0.008 (3.20 ± 0.20) | 0.098 ± 0.01 (2.50 ± 0.25) | 0.071 max. (1.8 max.) | 0.028 max. (0.71 max.) |
| 1812 (4532) | 0.177 ± 0.016 (4.5 ± 0.40) | 0.126 ± 0.016 (3.2 ± 0.40) | 0.098 max. (2.5 max.) | 0.031 max. (0.8 max.) |
| 2220 (5750) | 0.224 ± 0.016 (5.7 ± 0.40) | 0.197 ± 0.016 (5.0 ± 0.50) | 0.098 max. (2.5 max.) | 0.031 max. (0.8 max.) |

Chip Structure

| Symbol | Materials |
|--------|--------------------------------------|
| 1 | Zinc Oxide Ceramics |
| 2 | Metal Inner Electrodes (Ag / Pd) |
| 3 | Metal End Termination (Ag / Ni / Sn) |

Ordering Code



Performance Designator

- S**: Surge Protection and/or ESD Protection
- E**: E Series, for ESD Protection Only
- C**: C Series, for ESD Protection Only
- A**: Surge Protection and/or ESD Protection (Sb free)
- P**: for ESD protection Only (Sb free)

| Symbol | Voltage | Symbol | Voltage |
|--------|---------|--------|---------|
| 5R6 | 5.6 V | 090 | 9.0 V |
| 140 | 14 V | 180 | 18 V |
| 260 | 26 V | 300 | 30 V |



| Part No. | Working Voltage (V _w) | Breakdown Voltage (V _b) | Clamping Voltage 8/20μS | | Peak Current (I _p) | Transient Energy (E _t) | Typical Capacitance (C) | |
|-----------------|-----------------------------------|-------------------------------------|-------------------------|----------------|--------------------------------|------------------------------------|-------------------------|------|
| | Volt | Volt | Volt | Amp | Amp | Joule | pF | |
| | <50 μ | 1 mA (DC) | V _c | I _c | 8/20μS | 10/1000μS | 1KHz | 1MHz |
| 0402 | | | | | | | | |
| JMV0402◇5R6T301 | 5.6 | 7.0~10.0 | 22.0 | 1.0 | 20 | 0.05 | — | 300 |
| JMV0402◇090T201 | 9.0 | 10.0~15.0 | 32.0 | 1.0 | 20 | 0.05 | — | 200 |
| JMV0402◇140T850 | 14.0 | 16.2~19.8 | 38.0 | 1.0 | 20 | 0.05 | — | 85 |
| JMV0402◇180T550 | 18.0 | 21.6~26 | 45.0 | 1.0 | 20 | 0.05 | — | 55 |
| 0603 | | | | | | | | |
| JMV0603◇5R6T102 | 5.6 | 7.0~10.0 | 22.0 | 1.0 | 30 | 0.1 | 1000 | — |
| JMV0603◇5R6T351 | 5.6 | 7.0~10.0 | 22.0 | 1.0 | 30 | 0.1 | 350 | — |
| JMV0603◇090T651 | 9.0 | 10.0~15.0 | 30.0 | 1.0 | 30 | 0.1 | 650 | — |
| JMV0603◇090T331 | 9.0 | 10.0~15.0 | 30.0 | 1.0 | 30 | 0.1 | 330 | — |
| JMV0603◇140T451 | 14.0 | 16.2~19.8 | 37.0 | 1.0 | 30 | 0.1 | 450 | — |
| JMV0603◇140T181 | 14.0 | 16.2~19.8 | 37.0 | 1.0 | 30 | 0.1 | 180 | — |
| JMV0603◇180T281 | 18.0 | 21.6~26.0 | 48.0 | 1.0 | 30 | 0.1 | 280 | — |
| JMV0603◇180T111 | 18.0 | 21.6~26.0 | 48.0 | 1.0 | 30 | 0.1 | 110 | — |
| JMV0603◇260T151 | 26.0 | 31.0~38.0 | 62.0 | 1.0 | 30 | 0.1 | 150 | — |
| JMV0603◇260T800 | 26.0 | 31.0~38.0 | 62.0 | 1.0 | 30 | 0.1 | 80 | — |
| JMV0603◇300T101 | 30.0 | 37.0~46.0 | 73.0 | 1.0 | 30 | 0.1 | 100 | — |
| 0805 | | | | | | | | |
| JMV0805◇5R6T132 | 5.6 | 7.0~10.0 | 22.0 | 1.0 | 80 | 0.1 | 1300 | — |
| JMV0805◇5R6T451 | 5.6 | 7.0~10.0 | 22.0 | 1.0 | 40 | 0.1 | 450 | — |
| JMV0805◇5R6T661 | 5.6 | 7.0~10.0 | 22.0 | 1.0 | 40 | 0.1 | 660 | — |
| JMV0805◇090T781 | 9.0 | 10.0~15.0 | 27.0 | 1.0 | 40 | 0.1 | 780 | — |
| JMV0805◇090T271 | 9.0 | 10.0~15.0 | 27.0 | 1.0 | 40 | 0.1 | 270 | — |
| JMV0805◇120T531 | 12.0 | 14.0~18.3 | 34.0 | 1.0 | 40 | 0.1 | 530 | — |
| JMV0805◇120T431 | 12.0 | 14.0~18.3 | 34.0 | 1.0 | 40 | 0.1 | 430 | — |
| JMV0805◇120T251 | 12.0 | 14.0~18.3 | 34.0 | 1.0 | 40 | 0.1 | 250 | — |
| JMV0805◇140T381 | 14.0 | 16.2~19.8 | 37.0 | 1.0 | 40 | 0.1 | 380 | — |
| JMV0805◇140T201 | 14.0 | 16.2~19.8 | 37.0 | 1.0 | 40 | 0.1 | 200 | — |
| JMV0805◇180T351 | 18.0 | 21.6~26.0 | 48.0 | 1.0 | 40 | 0.1 | 350 | — |
| JMV0805◇180T111 | 18.0 | 21.6~26.0 | 48.0 | 1.0 | 40 | 0.1 | 110 | — |
| JMV0805◇260T161 | 26.0 | 31.0~38.0 | 62.0 | 1.0 | 40 | 0.1 | 160 | — |
| JMV0805◇260T101 | 26.0 | 31.0~38.0 | 62.0 | 1.0 | 40 | 0.1 | 100 | — |
| JMV0805◇300T101 | 30.0 | 37.0~46.0 | 73.0 | 1.0 | 40 | 0.1 | 100 | — |
| JMV0805◇300T311 | 30.0 | 37.0~46.0 | 73.0 | 1.0 | 100 | 0.3 | 310 | — |

◇: S=JMV S series , A=JMV A series

V_w - The max. steady state DC operating voltage of which varistor could maintain also not exceeding 50 μA leakage current.

V_b - The voltage acrossed the device measured at 1mA DC current.

V_c - The peak voltage acrossed the varistor measured at a specified pulse current and waveform.

I_p - The max. peak current applied with specified waveform without any possibility of device fail.

E_t - The max. energy which dissipated with the specified waveform without any possibility of device fail.

C - The device capacitance measured with zero volt bias, 1.0 Vrms and 1 KHz / 0.5 Vrms and 1 MHz.

***Any special design or request is welcomed. Please contact our e-mail address: sales@joyin.com.tw**



| Part No. | Working Voltage (V _w) | Breakdown Voltage (V _b) | Clamping Voltage 8/20μS | | Peak Current (I _p) | Transient Energy (E _t) | Typical Capacitance (C) | |
|-----------------|-----------------------------------|-------------------------------------|-------------------------|----------------|--------------------------------|------------------------------------|-------------------------|------|
| | Volt | Volt | Volt | Amp | Amp | Joule | pF | |
| | <50 μA | 1 mA (DC) | V _c | I _c | 8/20μS | 10/1000μS | 1KHz | 1MHz |
| 1206 | | | | | | | | |
| JMV1206◇5R6T152 | 5.6 | 7.0~10.0 | 22.0 | 1.0 | 150 | 1.0 | 1500 | — |
| JMV1206◇120T801 | 12.0 | 14.0~18.3 | 34.0 | 1.0 | 150 | 0.6 | 800 | — |
| JMV1206◇140T401 | 14.0 | 16.2~19.8 | 37.0 | 1.0 | 100 | 0.3 | 400 | — |
| JMV1206◇140T801 | 14.0 | 16.2~19.8 | 37.0 | 1.0 | 200 | 0.5 | 800 | — |
| JMV1206◇160T132 | 16.0 | 19.8~24.2 | 40.0 | 1.0 | 200 | 1.0 | 1300 | — |
| JMV1206◇180T132 | 18.0 | 21.6~26.0 | 48.0 | 1.0 | 200 | 1.0 | 1300 | — |
| JMV1206◇180T901 | 18.0 | 21.6~26.0 | 48.0 | 1.0 | 100 | 0.3 | 900 | — |
| JMV1206◇260T901 | 26.0 | 31.0~38.0 | 62.0 | 1.0 | 200 | 1.0 | 900 | — |
| JMV1206◇300T201 | 30.0 | 37.0~46.0 | 73.0 | 1.0 | 100 | 0.3 | 200 | — |
| JMV1206◇300T401 | 30.0 | 37.0~46.0 | 73.0 | 1.0 | 100 | 0.3 | 400 | — |
| JMV1206◇300T551 | 30.0 | 37.0~46.0 | 73.0 | 1.0 | 200 | 1.0 | 550 | — |
| JMV1206◇330T551 | 33.0 | 39.0~47.0 | 75.0 | 1.0 | 180 | 1.0 | 550 | — |
| JMV1206◇380T501 | 38.0 | 42.3~51.7 | 88.0 | 1.0 | 200 | 1.1 | 500 | — |
| JMV1206◇450T551 | 45.0 | 50.4~61.6 | 95.0 | 1.0 | 180 | 0.8 | 550 | — |
| JMV1206◇480T251 | 48.0 | 55.8~68.2 | 100.0 | 1.0 | 100 | 0.8 | 250 | — |
| JMV1206◇560T101 | 56.0 | 61.0~77.0 | 120.0 | 1.0 | 100 | 0.3 | 100 | — |
| JMV1206◇560T381 | 56.0 | 61.0~77.0 | 120.0 | 1.0 | 180 | 1.0 | 380 | — |
| JMV1206◇650T241 | 65.0 | 73.8~90.2 | 135.0 | 1.0 | 100 | 0.6 | 240 | — |
| 1210 | | | | | | | | |
| JMV1210◇5R6T502 | 5.6 | 7.0~10.0 | 22.0 | 2.5 | 250 | 0.4 | 5000 | — |
| JMV1210◇180T202 | 18.0 | 21.6~26.0 | 48.0 | 2.5 | 400 | 1.5 | 2000 | — |
| JMV1210◇220T182 | 22.0 | 24.3~29.7 | 52.0 | 2.5 | 400 | 1.7 | 1800 | — |
| JMV1210◇260T112 | 26.0 | 31.0~38.0 | 62.0 | 2.5 | 250 | 1.2 | 1100 | — |
| JMV1210◇260T152 | 26.0 | 31.0~38.0 | 62.0 | 2.5 | 400 | 1.9 | 1500 | — |
| JMV1210◇300T901 | 30.0 | 37.0~46.0 | 77.0 | 2.5 | 250 | 1.7 | 900 | — |
| JMV1210◇300T122 | 30.0 | 37.0~46.0 | 77.0 | 2.5 | 400 | 1.9 | 1200 | — |
| JMV1210◇450T951 | 45.0 | 50.4~61.6 | 95.0 | 2.5 | 250 | 2.2 | 950 | — |
| 1812 | | | | | | | | |
| JMV1812◇180T452 | 18.0 | 21.6~26.0 | 48.0 | 5 | 800 | 2.3 | 4500 | — |
| JMV1812◇220T352 | 22.0 | 24.3~29.7 | 52.0 | 5 | 500 | 2.0 | 3500 | — |
| JMV1812◇220T402 | 22.0 | 24.3~29.7 | 52.0 | 5 | 800 | 2.7 | 4000 | — |
| JMV1812◇260T282 | 26.0 | 31.0~38.0 | 65.0 | 5 | 500 | 2.5 | 2800 | — |
| JMV1812◇260T302 | 26.0 | 31.0~38.0 | 65.0 | 5 | 800 | 3.0 | 3000 | — |
| JMV1812◇300T252 | 30.0 | 37.0~46.0 | 78.0 | 5 | 800 | 3.7 | 2500 | — |
| JMV1812◇380T202 | 38.0 | 42.3~51.7 | 88.0 | 5 | 800 | 4.2 | 2000 | — |
| 2220 | | | | | | | | |
| JMV2220◇5R6T203 | 5.6 | 7.0~10.0 | 19.0 | 10 | 1200 | 1.4 | 20000 | — |
| JMV2220◇180T153 | 18.0 | 22.0~27.0 | 56.0 | 10 | 1200 | 5.8 | 15000 | — |
| JMV2220◇300T502 | 30.0 | 37.0~46.0 | 85.0 | 10 | 1200 | 9.6 | 5000 | — |
| JMV2220◇380T402 | 38.0 | 42.3~51.7 | 88.0 | 10 | 1200 | 12.0 | 4000 | — |

◇: S=JMV S series , A=JMV A series

V_w - The max. steady state DC operating voltage of which varistor could maintain also not exceeding 50 μA leakage current.V_b - The voltage across the device measured at 1mA DC current.V_c - The peak voltage across the varistor measured at a specified pulse current and waveform.I_p - The max. peak current applied with specified waveform without any possibility of device fail.E_t - The max. energy which dissipated with the specified waveform without any possibility of device fail.

C - The device capacitance measured with zero volt bias, 1.0 Vrms and 1 KHz / 0.5 Vrms and 1 MHz.

*Any special design or request is welcomed. Please contact our e-mail address: sales@joyin.com.tw



for ESD protection - C series

| Part Number | Working Voltage (V _w) | Clamping Voltage (V _c) | ESD Withstanding | Capacitance (C) | | Capacitance Tolerance |
|-----------------|-----------------------------------|------------------------------------|------------------|-----------------|-------|-----------------------|
| | Volt | Volt | Time | pF | | % |
| | < 15 μA | 1A,8/20μs | 8KV * | 1 KHz | 1 MHz | |
| 0402 | | | | | | |
| JMV0402C050T4R7 | 5.0 | 50.0 | 1000 | — | 4.7 | -20% ~ +80% |
| JMV0402C050T100 | 5.0 | 50.0 | 1000 | — | 10 | 20% |
| JMV0402C050T120 | 5.0 | 50.0 | 1000 | — | 12 | 20% |
| JMV0402C050T150 | 5.0 | 50.0 | 1000 | — | 15 | 20% |
| JMV0402C050T180 | 5.0 | 50.0 | 1000 | — | 18 | 20% |
| JMV0402C050T220 | 5.0 | 50.0 | 1000 | — | 22 | 20% |
| JMV0402C050T270 | 5.0 | 50.0 | 1000 | — | 27 | 20% |
| JMV0402C050T330 | 5.0 | 50.0 | 1000 | — | 33 | 20% |
| JMV0402C050T390 | 5.0 | 50.0 | 1000 | — | 39 | 20% |
| JMV0402C050T470 | 5.0 | 50.0 | 1000 | — | 47 | 20% |
| JMV0402C050T560 | 5.0 | 50.0 | 1000 | — | 56 | 20% |
| JMV0402C050T680 | 5.0 | 50.0 | 1000 | — | 68 | 20% |
| JMV0402C050T820 | 5.0 | 50.0 | 1000 | — | 82 | 20% |
| JMV0402C050T101 | 5.0 | 30.0 | 1000 | 100 | — | 20% |
| JMV0402C050T121 | 5.0 | 30.0 | 1000 | 120 | — | 20% |
| JMV0402C050T151 | 5.0 | 29.0 | 1000 | 150 | — | 20% |
| JMV0402C050T181 | 5.0 | 29.0 | 1000 | 180 | — | 20% |
| JMV0402C050T221 | 5.0 | 27.0 | 1000 | 220 | — | 20% |
| JMV0402C050T271 | 5.0 | 27.0 | 1000 | 270 | — | 20% |
| JMV0402C050T331 | 5.0 | 26.0 | 1000 | 330 | — | 20% |
| JMV0402C120T4R7 | 12.0 | 80.0 | 1000 | — | 4.7 | -20% ~ +80% |
| JMV0402C120T100 | 12.0 | 60.0 | 1000 | — | 10 | 20% |
| JMV0402C120T220 | 12.0 | 50.0 | 1000 | — | 22 | 20% |
| JMV0402C120T330 | 12.0 | 50.0 | 1000 | — | 33 | 20% |
| JMV0402C120T560 | 12.0 | 50.0 | 1000 | — | 56 | 20% |
| JMV0402C120T820 | 12.0 | 50.0 | 1000 | — | 82 | 20% |
| JMV0402C120T101 | 12.0 | 50.0 | 1000 | 100 | — | 20% |
| JMV0402C240T3R3 | 24.0 | 200.0 | 1000 | — | 3.3 | -20% ~ +80% |
| JMV0402C240T4R7 | 24.0 | 130.0 | 1000 | — | 4.7 | -20%~+80% |

* - In system ESD withstanding pulse per IEC 61000-4-2, 8KV, contact discharge method.

V_w- The max. steady state DC operating voltage of which varistor could maintain also not exceeding 15 μ A leakage current.

V_c- The peak voltage acrossed the varistor measured at a specified pulse current and waveform.

C - The device capacitance measured with 1.0Vrms, 1KHz / 0.5rms, 1 MHz.

***Any special design or request is welcomed. Please contact our e-mail address: sales@joyin.com.tw**



for ESD protection - C series

| Part Number | Working Voltage (Vw) | Clamping Voltage (Vc) | ESD Withstanding | Capacitance (C) | | Capacitance Tolerance |
|-----------------|----------------------|-----------------------|------------------|-----------------|-------|-----------------------|
| | Volt | Volt | Time | pF | | % |
| | < 15 μ A | 1A,8/20 μ s | 8KV * | 1 KHz | 1 MHz | |
| 0603 | | | | | | |
| JMV0603C050T4R7 | 5.0 | 50.0 | 1000 | — | 4.7 | |
| JMV0603C050T100 | 5.0 | 50.0 | 1000 | — | 10 | 20% |
| JMV0603C050T120 | 5.0 | 50.0 | 1000 | — | 12 | 20% |
| JMV0603C050T150 | 5.0 | 50.0 | 1000 | — | 15 | 20% |
| JMV0603C050T180 | 5.0 | 50.0 | 1000 | — | 18 | 20% |
| JMV0603C050T220 | 5.0 | 50.0 | 1000 | — | 22 | 20% |
| JMV0603C050T270 | 5.0 | 50.0 | 1000 | — | 27 | 20% |
| JMV0603C050T330 | 5.0 | 50.0 | 1000 | — | 33 | 20% |
| JMV0603C050T390 | 5.0 | 50.0 | 1000 | — | 39 | 20% |
| JMV0603C050T470 | 5.0 | 50.0 | 1000 | — | 47 | 20% |
| JMV0603C050T560 | 5.0 | 50.0 | 1000 | — | 56 | 20% |
| JMV0603C050T680 | 5.0 | 50.0 | 1000 | — | 68 | 20% |
| JMV0603C050T820 | 5.0 | 50.0 | 1000 | — | 82 | 20% |
| JMV0603C050T101 | 5.0 | 30.0 | 1000 | 100 | — | 20% |
| JMV0603C050T151 | 5.0 | 29.0 | 1000 | 150 | — | 20% |
| JMV0603C050T181 | 5.0 | 29.0 | 1000 | 180 | — | 20% |
| JMV0603C050T221 | 5.0 | 27.0 | 1000 | 220 | — | 20% |
| JMV0603C050T271 | 5.0 | 27.0 | 1000 | 270 | — | 20% |
| JMV0603C050T331 | 5.0 | 26.0 | 1000 | 330 | — | 20% |
| JMV0603C050T391 | 5.0 | 26.0 | 1000 | 390 | — | 20% |
| JMV0603C050T471 | 5.0 | 26.0 | 1000 | 470 | — | 20% |
| JMV0603C050T102 | 5.0 | 23.0 | 1000 | 1000 | — | 20% |
| JMV0603C120T4R7 | 12.0 | 80.0 | 1000 | — | 4.7 | -20% ~ +80% |
| JMV0603C120T100 | 12.0 | 60.0 | 1000 | — | 10 | 20% |
| JMV0603C120T220 | 12.0 | 50.0 | 1000 | — | 22 | 20% |
| JMV0603C120T330 | 12.0 | 50.0 | 1000 | — | 33 | 20% |
| JMV0603C120T390 | 12.0 | 50.0 | 1000 | — | 39 | 20% |
| JMV0603C120T470 | 12.0 | 50.0 | 1000 | — | 47 | 20% |
| JMV0603C120T560 | 12.0 | 50.0 | 1000 | — | 56 | 20% |
| JMV0603C120T820 | 12.0 | 50.0 | 1000 | — | 82 | 20% |
| JMV0603C120T101 | 12.0 | 50.0 | 1000 | 100 | — | 20% |
| JMV0603C120T151 | 12.0 | 50.0 | 1000 | 150 | — | 20% |
| JMV0603C120T181 | 12.0 | 47.0 | 1000 | 180 | — | 20% |
| JMV0603C120T331 | 12.0 | 46.0 | 1000 | 330 | — | 20% |
| JMV0603C240T3R3 | 24.0 | 200.0 | 1000 | — | 3.3 | -20% ~ +80% |

* - In system ESD withstanding pulse per IEC 61000-4-2, 8KV, contact discharge method.

V_w - The max. steady state DC operating voltage of which varistor could maintain also not exceeding 15 μ A leakage current.

V_c - The peak voltage acrossed the varistor measured at a specified pulse current and waveform.

C - The device capacitance measured with 1.0Vrms, 1KHz / 0.5rms, 1 MHz.

*Any special design or request is welcomed. Please contact our e-mail address: sales@joyin.com.tw



for ESD protection - E series

| Part No. | Working Voltage (V _w) | Breakdown Voltage (V _b) | Clamping Voltage (V _c) | Peak Current (I _p) | Transient Energy (E _t) | Typical Capacitance (C) | |
|--------------------|-----------------------------------|-------------------------------------|------------------------------------|--------------------------------|------------------------------------|-------------------------|-------|
| | Volt | Volt | Volt | Amp | Joule | pF | |
| | < 15 μ A | 1 mA (DC) | 1A, 8/20 μ S | 8/20 μ S | 10/1000 μ S | 1 KHz | 1 MHz |
| 0402 / 0603 | | | | | | | |
| JMV0402E200T220 | 12.0 | 15.0~25.0 | 50.0 | 1max. | 0.05max. | — | 22 |
| JMV0402E270T150 | 17.0 | 21.6~32.4 | 66.0 | 1max. | 0.05max. | — | 15 |
| JMV0402E270T300 | 17.0 | 21.6~32.4 | 66.0 | 1max. | 0.05max. | — | 30 |
| JMV0402E520T030 | 17.0 | 41.6~56.0 | 130.0 | 1max. | 0.05max. | — | 3.0 |
| JMV0603E270T150 | 17.0 | 21.6~32.4 | 66.0 | 2max. | 0.05max. | — | 15 |
| JMV0603E270T300 | 17.0 | 21.6~32.4 | 66.0 | 2max. | 0.05max. | — | 30 |
| JMV0603E520T030 | 17.0 | 41.6~56.0 | 130.0 | 2max. | 0.05max. | — | 3.0 |
| JMV0603E620T150 | 17.0 | 55.8~68.2 | 120.0 | 2max. | 0.05max. | — | 15 |
| JMV0603E620T300 | 17.0 | 55.8~68.2 | 120.0 | 2max. | 0.05max. | — | 30 |

V_w - The max. steady state DC operating voltage of which varistor could maintain also not exceeding 50 μ A leakage current.

V_b - The voltage across the device measured at 1mA DC current.

V_c - The peak voltage across the varistor measured at a specified pulse current and waveform.

I_p - The max. peak current applied with specified waveform without any possibility of device fail.

E_t - The max. energy which dissipated with the specified waveform without any possibility of device fail.

C - The device capacitance measured with zero volt bias, 1.0 Vrms and 1 KHz / 0.5 Vrms and 1 Mhz.

for ESD Protection - Low capacitance Series

| Part No. | Size (mm) | V _w | Trigger Voltage* (V _t) | Clamping Voltage* (V _c) | ESD | | ESD Pulse Withstand* min. | C _p (1MHz) PF |
|-----------------|-----------|----------------|------------------------------------|-------------------------------------|---------|------|---------------------------|--------------------------|
| | | | | | Contact | Air | | |
| JES0402C5R5T0R1 | 0402 | 5.5 | 500 | 35 | 8KV | 15KV | 500 | 0.1 |
| JES0402C120T0R1 | | 12 | | | | | | |
| JES0603C5R5T0R1 | 0603 | 5.5 | | | | | | |
| JES0603C120T0R1 | | 12 | | | | | | |
| JES0603C240T0R1 | | 24 | | | | | | |

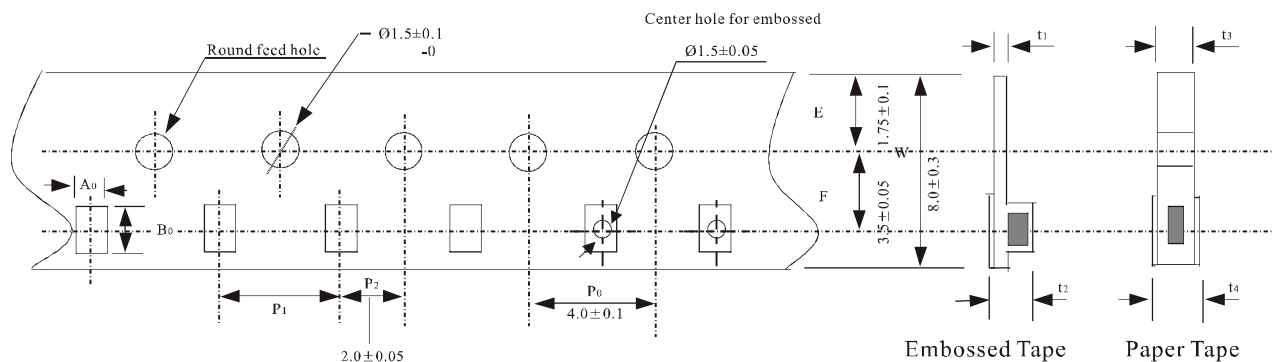
*Per IEC 61000-4-2, 8KV, Clamp measurement made 30ns after initiation of pulse, all test in contact discharge mode.

V_w - The max. steady state DC operating voltage of which varistor could maintain also not exceeding 50 μ A leakage current.

V_c - The peak voltage across the varistor measured at a specified pulse current and waveform.

C - The device capacitance measured with zero volt bias, 1 Mhz.

Carrier Tape Specifications

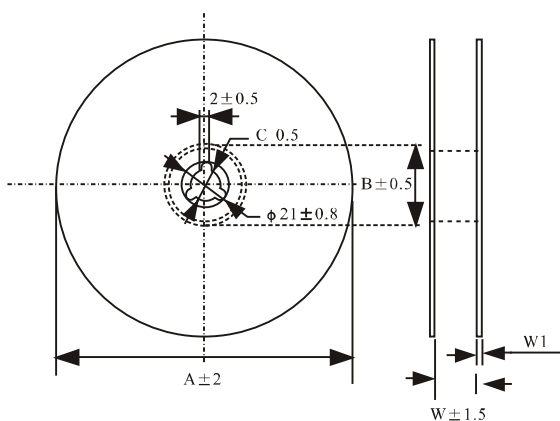


Dimensions of Embossed Tape

| Size | $A_0 \pm 0.1$ (mm) | $B_0 \pm 0.1$ (mm) | $P_1 \pm 0.1$ (mm) | t_1 / t_2 (mm) | t_3 / t_4 (mm) | Quantity / Reel (Pcs) | |
|------|-----------------------|-----------------------|-----------------------|---------------------|---------------------|-----------------------|---------------|
| | | | | | | Paper Tape | Embossed Tape |
| 0402 | 0.62 | 1.10 | 2 | — | 1.0 max / 1.1 max | 10000 | — |
| 0603 | 1.08 | 1.88 | 4 | — | 1.0 max / 1.1 max | 4000 | — |
| 0805 | 1.42 | 2.30 | 4 | 0.6 max / 2.0 max | 1.0 max / 1.1 max | 4000 | 4000 |
| 1206 | 1.88 | 3.50 | 4 | 0.6 max / 2.9 max | — | — | 3000 |
| 1210 | 2.18 | 3.46 | 4 | 0.6 max / 2.9 max | — | — | 2000 |
| 1812 | 3.66 | 4.95 | 8 | 0.6 max / 2.9 max | — | — | 1000 |
| 2220 | 5.10 | 5.97 | 8 | 0.6 max / 2.9 max | — | — | 1000 |

 A_0 : Width of Cavity B_0 : Length of Cavity P_1 : Pitch t_1 : Embossed Tape Thickness t_2 : Height of Embossed Tape t_3 : Paper Tape for Width t_4 : Paper Tape Bottom Width

Reel Specifications



Dimensions

mm

| Size | A | B | C | W | W1 |
|------|-----|----|------|------|-----|
| 0402 | 178 | 60 | 13 | 10 | 1.6 |
| 0603 | 178 | 60 | 13 | 10 | 1.6 |
| 0805 | 178 | 60 | 13 | 10 | 1.6 |
| 1206 | 178 | 60 | 13 | 10 | 1.6 |
| 1210 | 178 | 60 | 13 | 10 | 1.6 |
| 1812 | 178 | 60 | 13.5 | 13.6 | 1.6 |
| 2220 | 178 | 60 | 13.5 | 13.6 | 1.6 |