

### INTRODUCTION

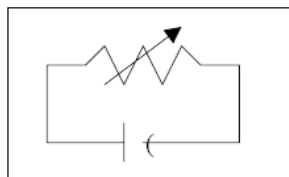
Metal Oxide based chip varistors (JMV's) are used for transient voltage suppression. JMV's have non-linear voltage-current behavior, which is similar to that of Zener Diode. Each grain in JMV exhibits small p-n junction and has much better electrical reliability than Zener Diode. JMV's exhibit better electrical properties such as excellent clamping voltage and low leakage current.

### FEATURES

- Small size and SMD compatibility
- Excellent clamping performance
- High transient current capability
- Fastest response time
- Low voltage available

### APPLICATIONS

- IC and transistor protection
- Computer ESD and I/O protection
- Telecommunication transient protection
- Automotive circuitry applications



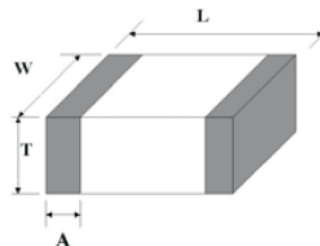
### ELECTRICAL DATA

Item	General Specification
Continuous Rating	Steady State of Applied Voltage: DC Voltage Range (V <sub>woc</sub> ) 5V to 24V
Transient Rating	Non-Repetitive Surge Current (8/20 μs) 20A to 100A Non-Repetitive Energy (10/1000 μs) Waveform (E <sub>r</sub> ) 0.05 J to 12J Operating Ambient Temperature Range -55 °C to 125 °C Storage Temperature Range -55 °C to 150 °C

### DIMENSIONS & CONSTRUCTION

Dimensions mm

Chip Size	L	W	T	A
0402	1.0 ± 0.1	0.5 ± 0.10	0.6 max	0.25 ± 0.15
0603	1.6 ± 0.15	0.8 ± 0.15	0.9 max	0.35 ± 0.15



### PART NUMBER EXAMPLE JMV 0603 C 050 T 150

Multilayer Varistor

Multilayer Varistor Size  
(See Dimension Table)

Multilayer Varistor Series  
C: ESD & EMI Protection

#### Capacitance Value:

Sym.	Cap.	Sym.	Cap.	Sym.	Cap.	Sym.	Cap.
150	15	141	140	351	350	651	650
300	30	181	180	361	360	781	780
900	90	201	200	381	380	102	1000
101	100	231	230	5201	500	132	1300
121	120	281	280	531	530	182	1800

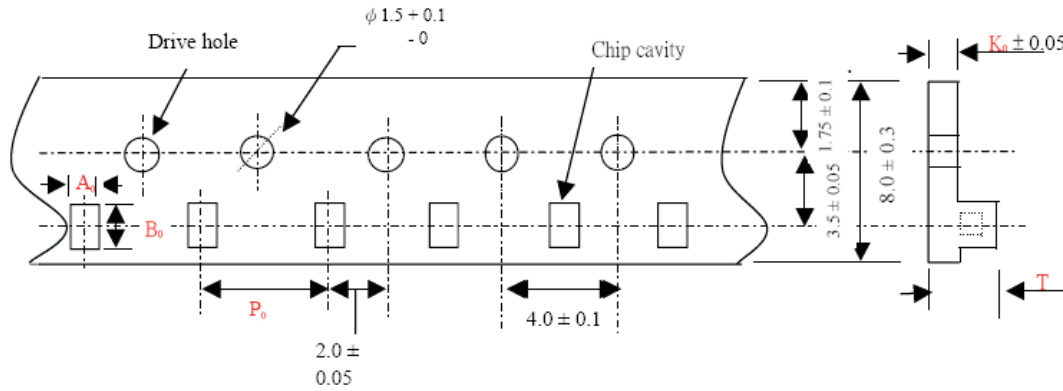
Packaging: T = Tape in Reel  
B = Bulk

#### Working Voltage:

Sym.	Voltage
050	5V
120	12V
240	24V

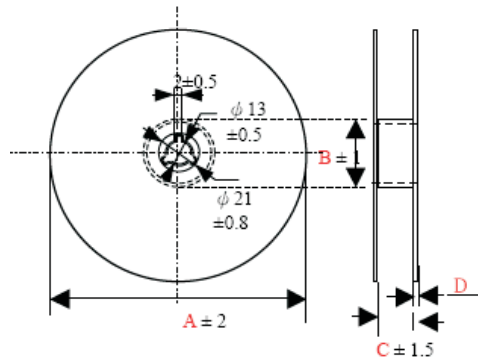
■ **TAPE SPECIFICATIONS**

Dimensions		mm			
Size	A + 0.1	B + 0.1	P + 0.1	K (max)	T (max)
0402	0.6	1.10	2.0	0.2	1.0
0603	1.1	1.75	4.0	0.2	1.15
0805	1.5	2.30	4.0	0.2	2.5



■ **REEL SPECIFICATIONS**

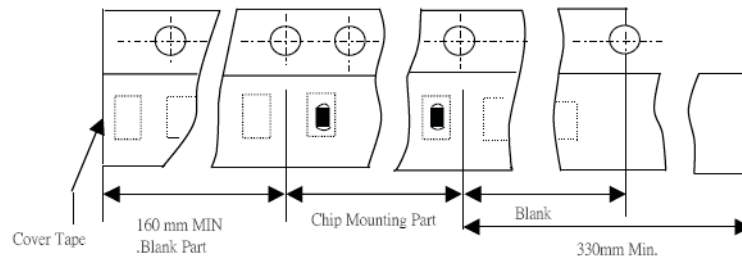
Dimensions		mm			
Size	A	B	C	D	
0402	178	60	10	2	
0603	178	60	10	2	
0805	178	60	10	2	



■ **PACKAGING**

Size	Pcs/RL
0402	10000
0603	4000

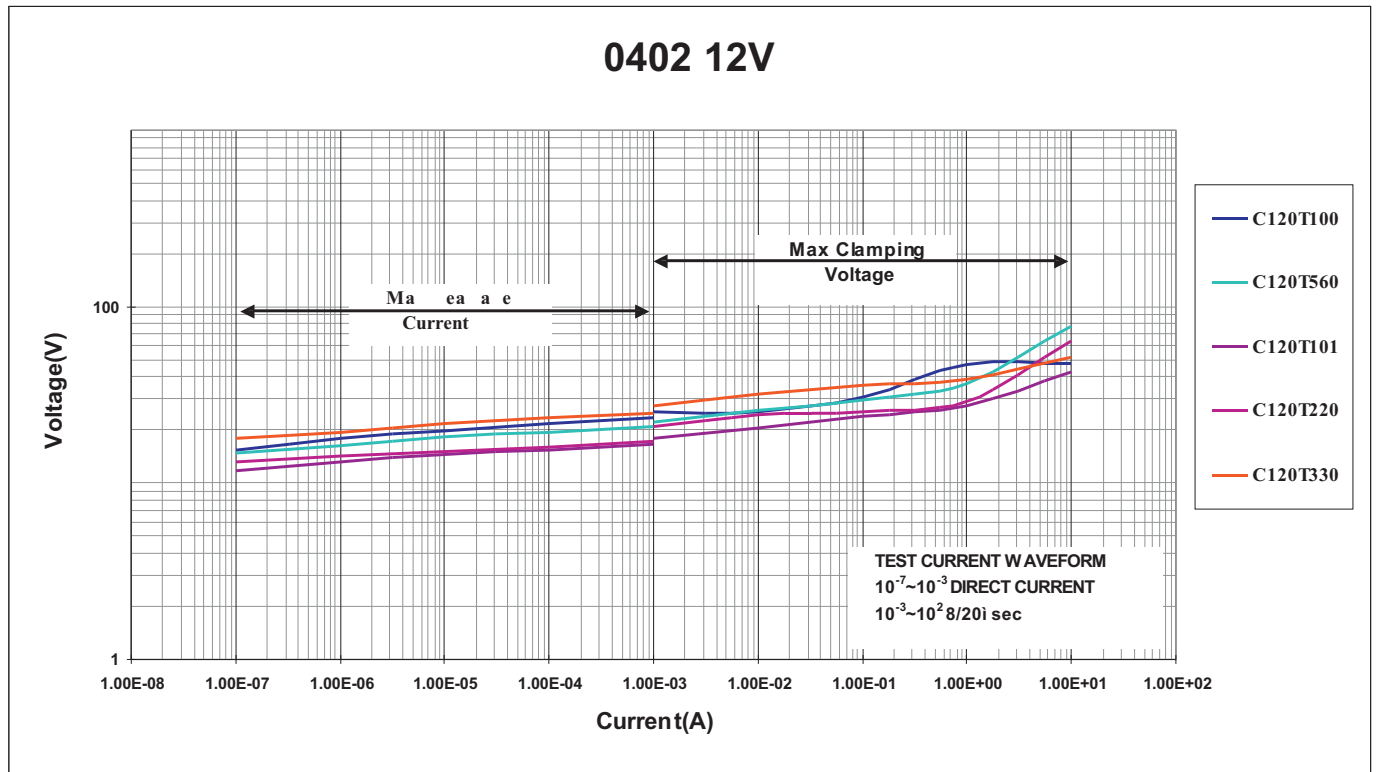
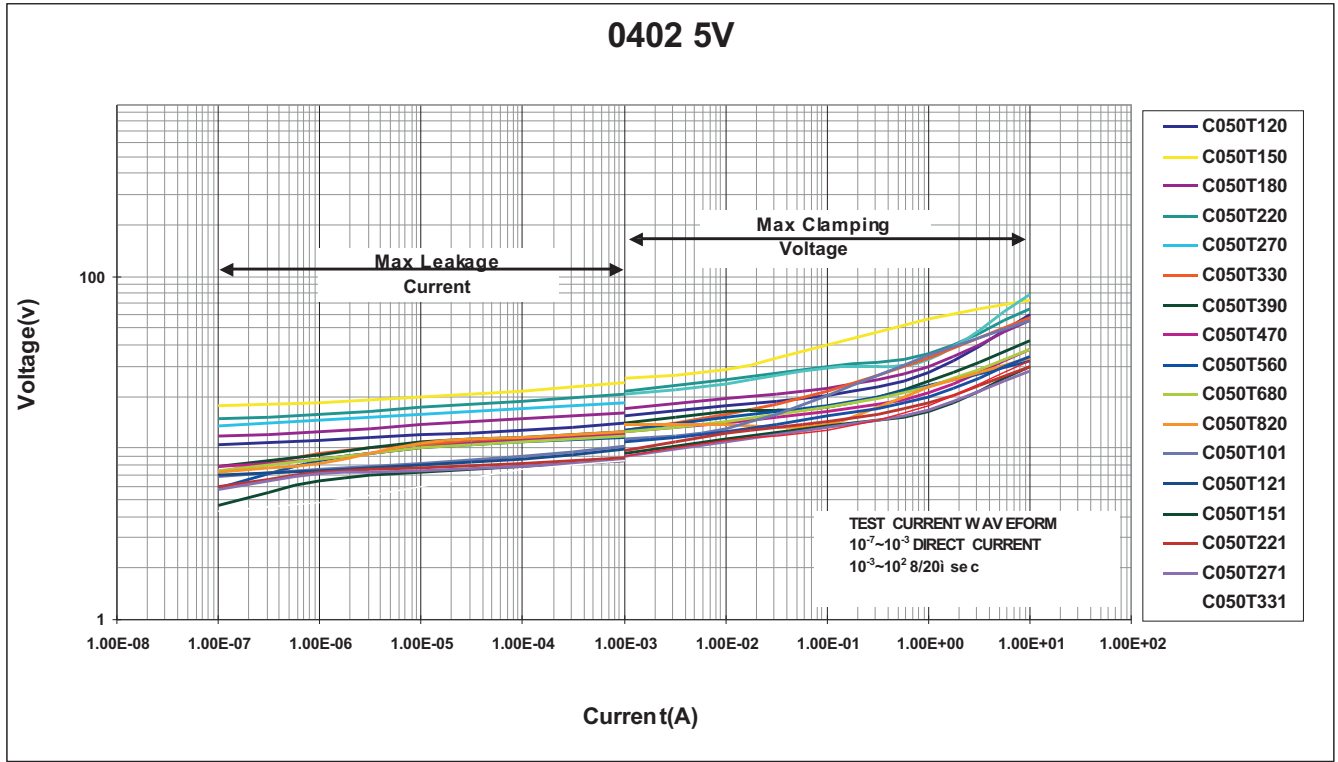
Carrier Tape: Polystyrene  
Cover Tape: Polystyrene



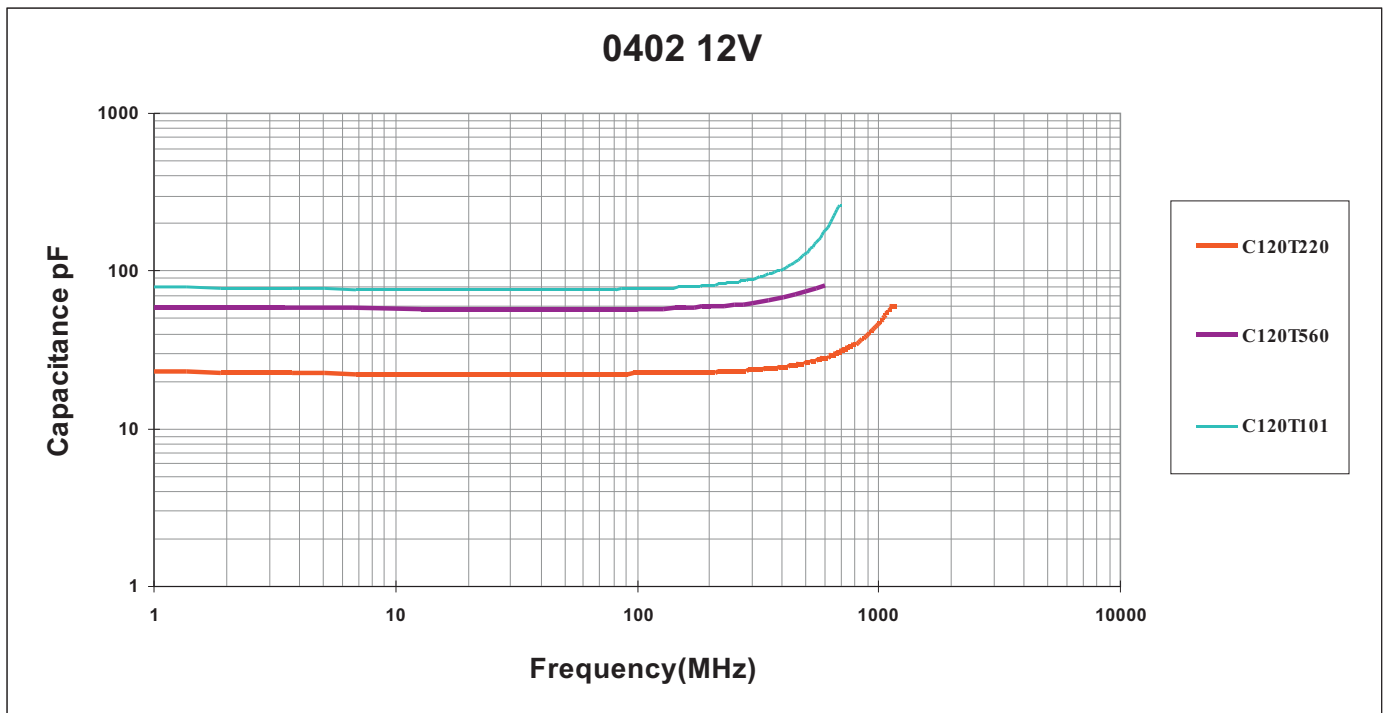
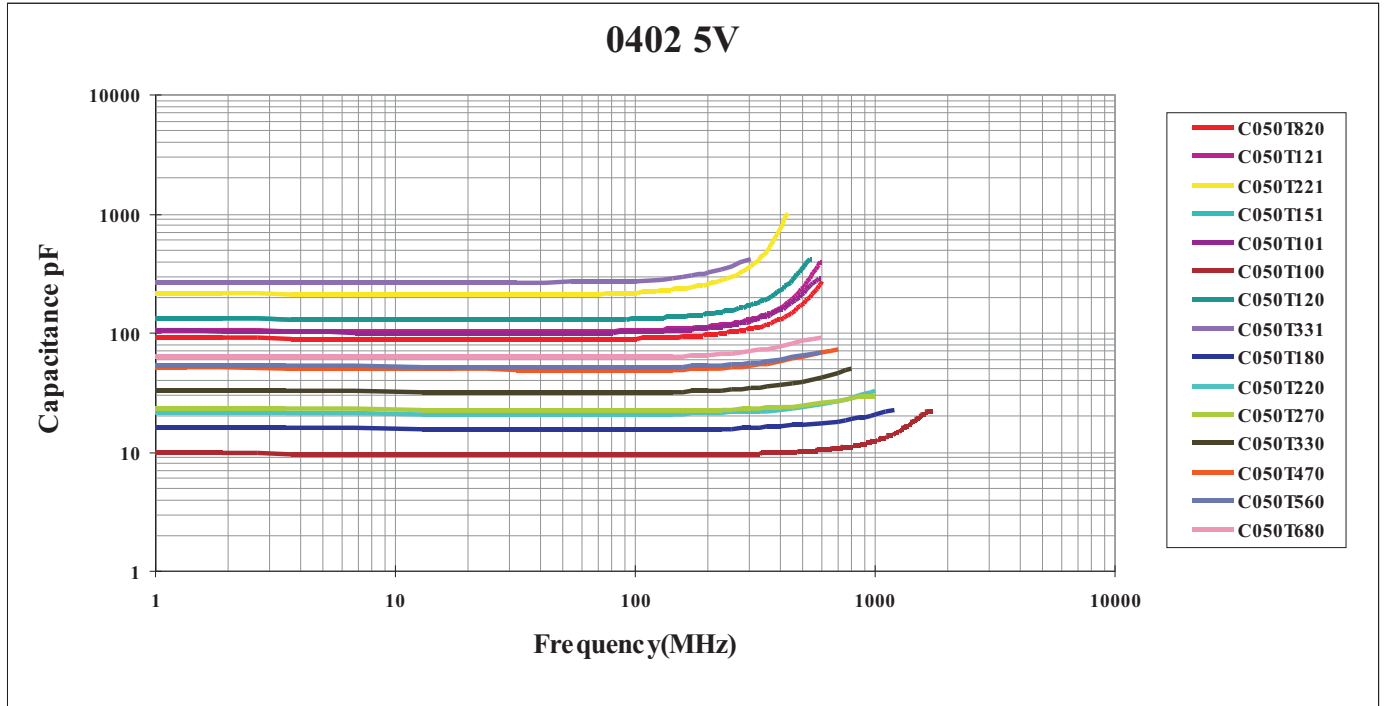
### ■ ELECTRICAL CHARACTERISTICS (0402 SIZE)

Part Number	Working Voltage (Vw)	Clamping Voltage (Vc)	ESD Withstanding	Typical Capacitance (C)		Capacitance (C)
	Volt	Volt	Time	pF		%
	<15μA	1A, 8/20μs	8kV*	1kHz	1MHz	
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%

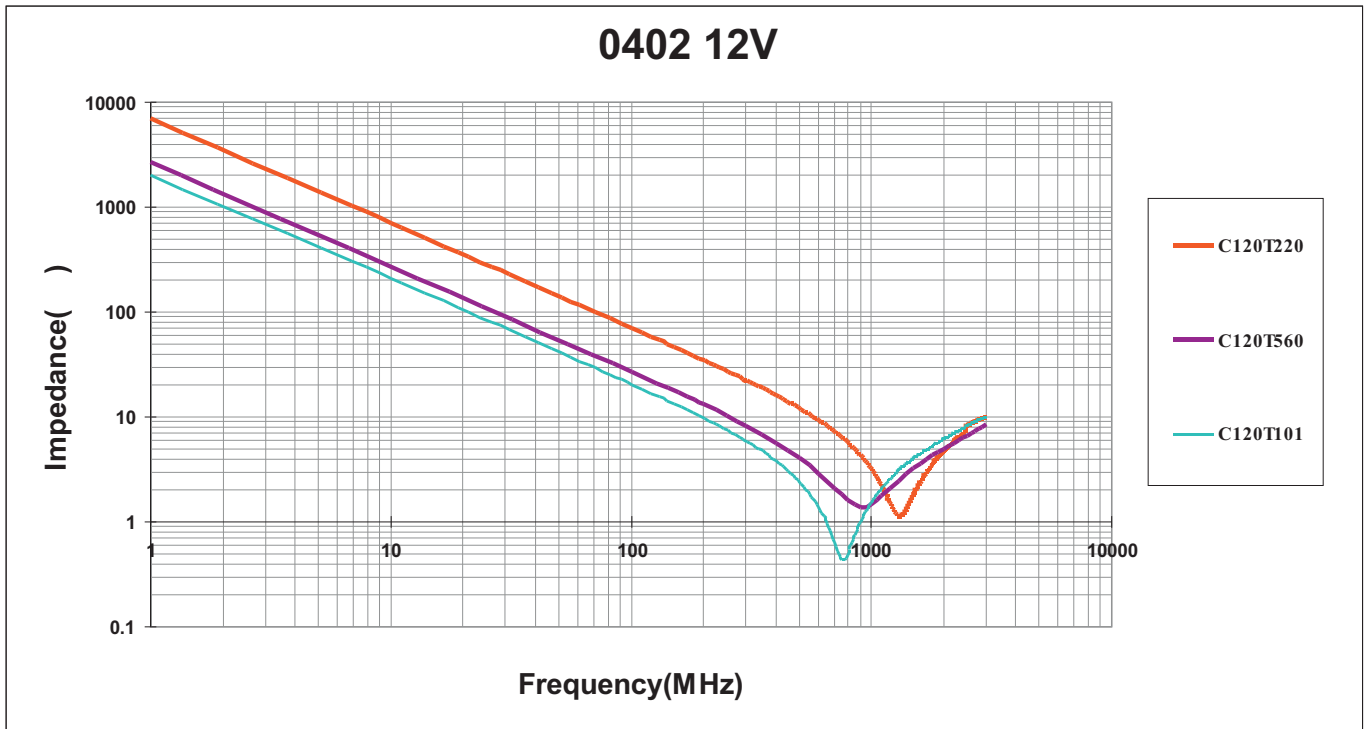
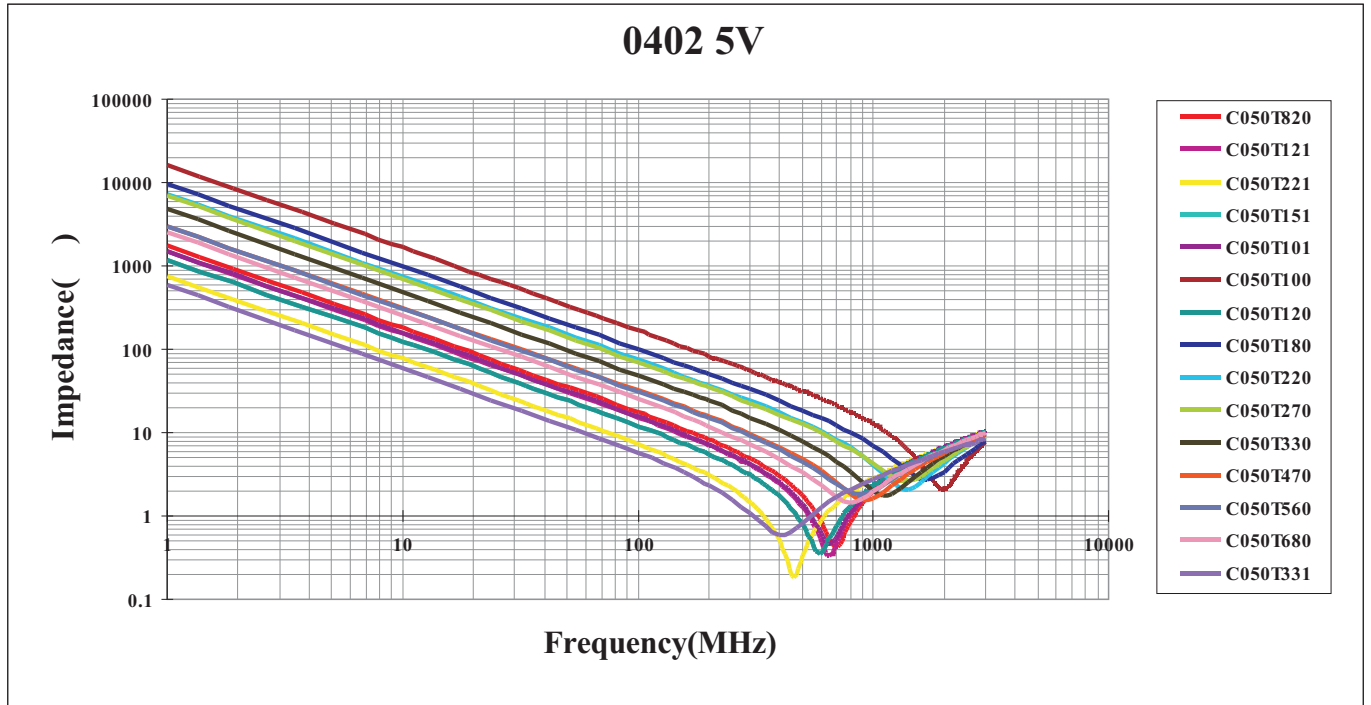
■ ELECTRICAL CHARACTERISTICS, (0402 SIZE)



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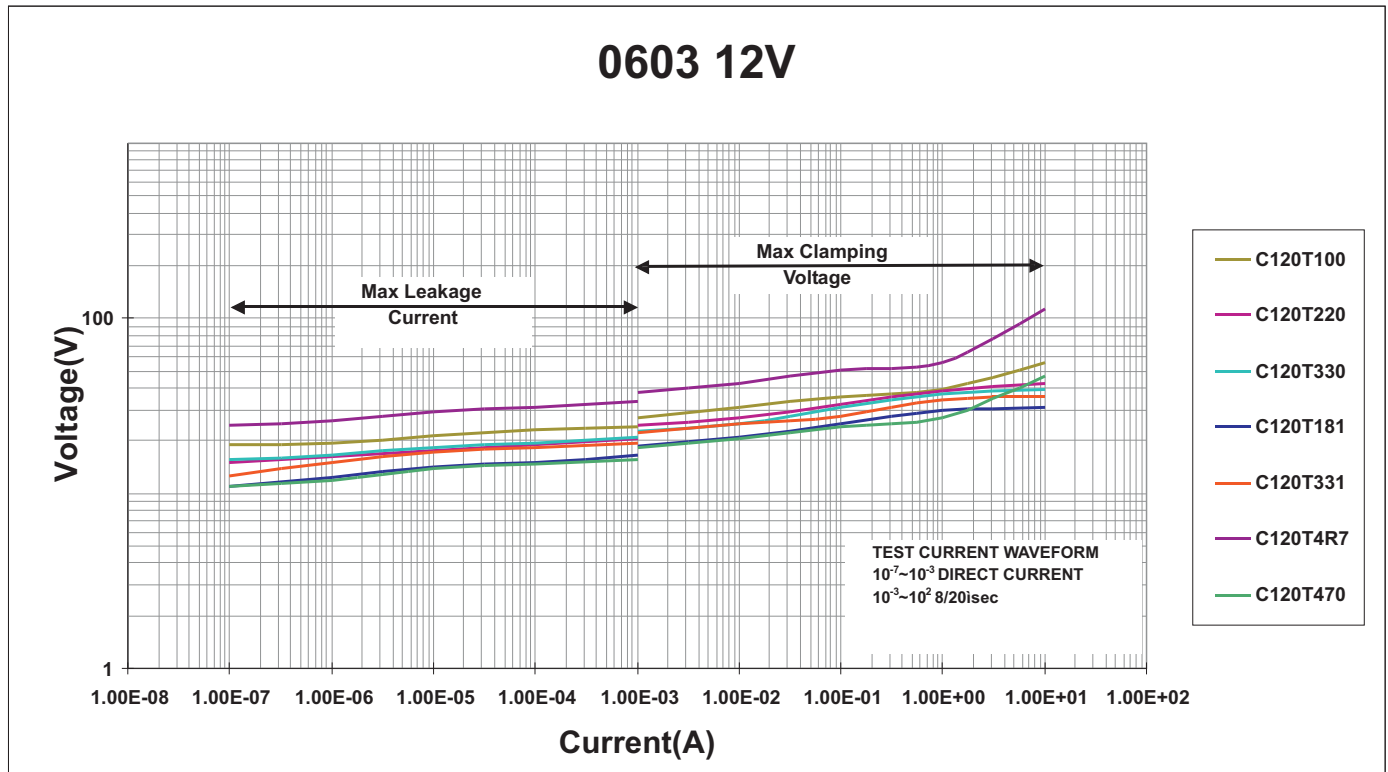
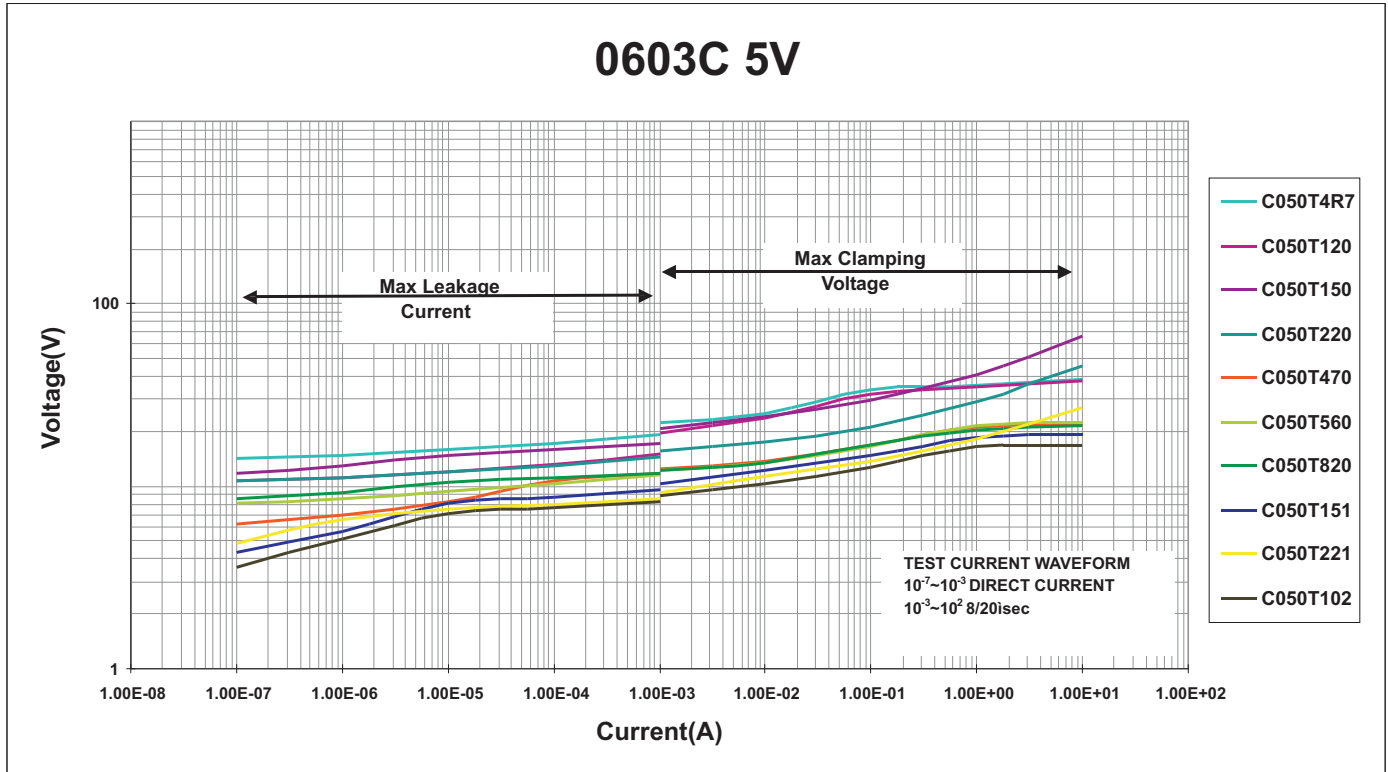
■ ELECTRICAL CHARACTERISTICS, (0402 SIZE)



### ELECTRICAL CHARACTERISTICS, 0603 SIZE

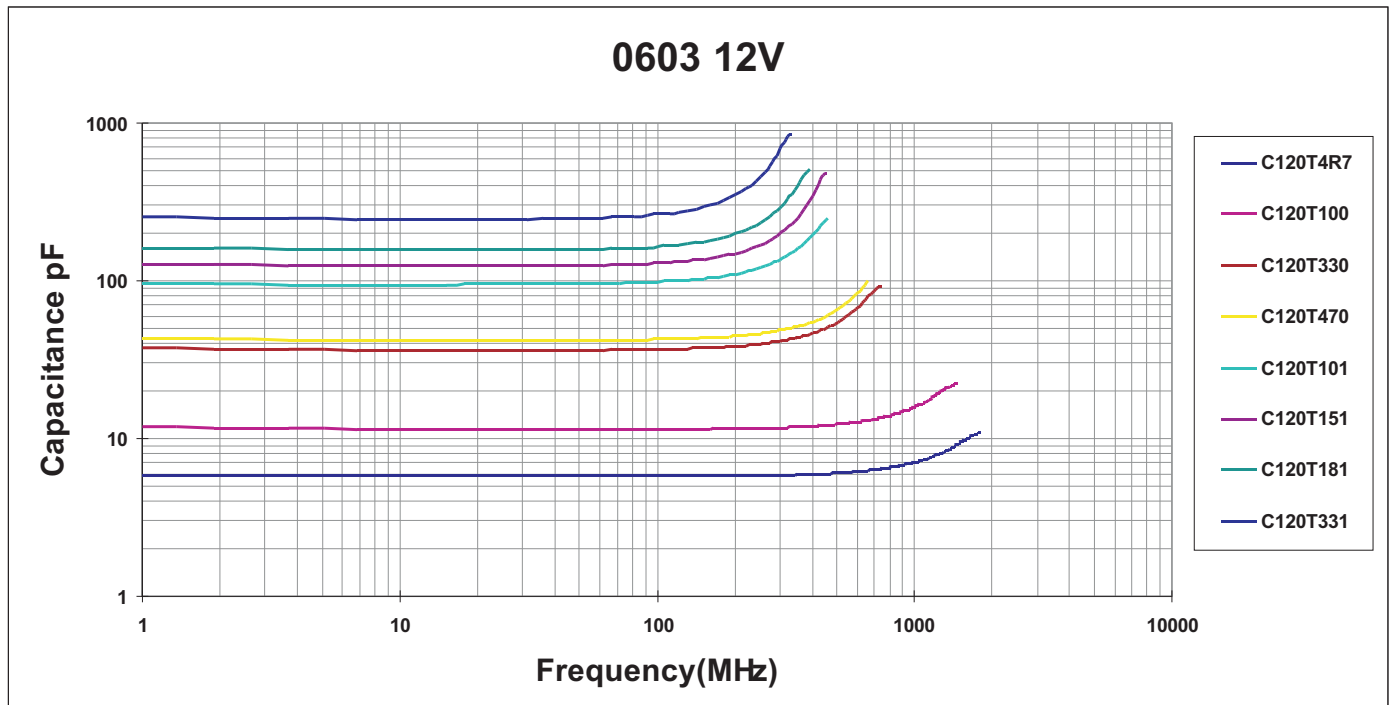
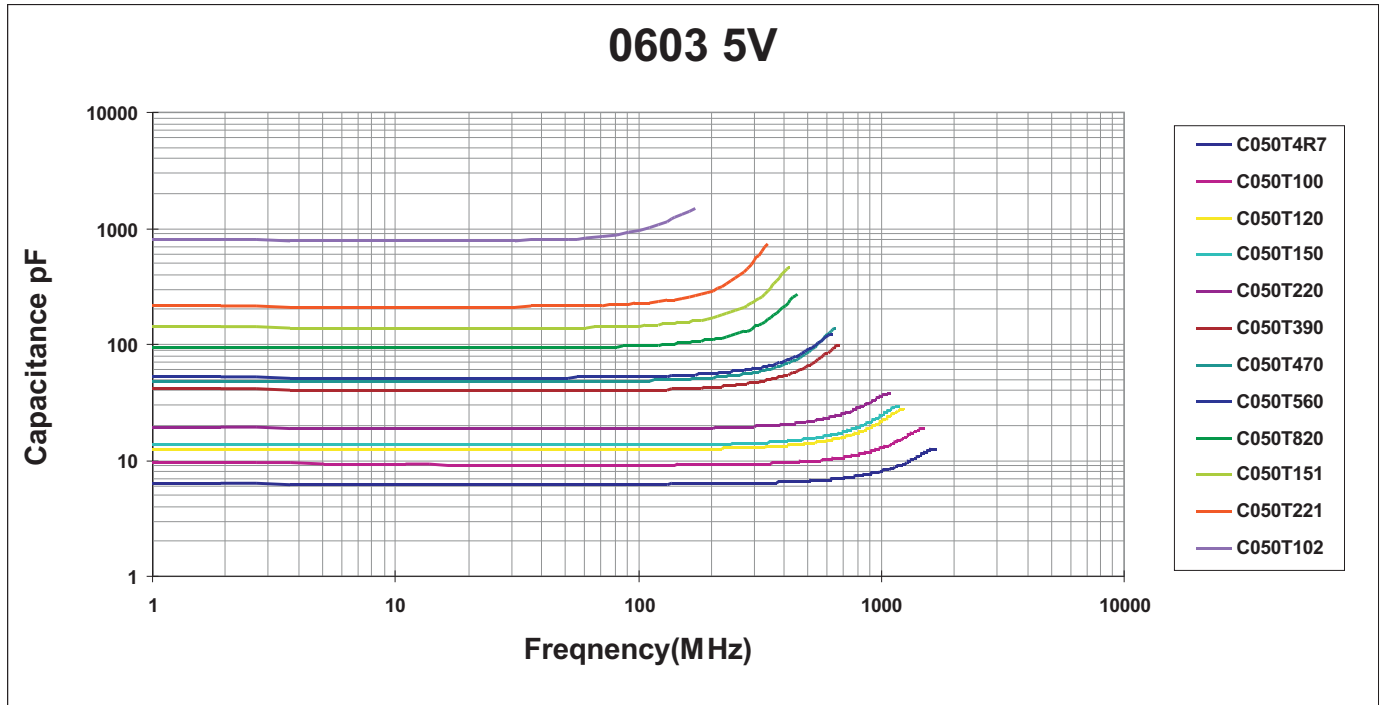
Part Number	Working Voltage (Vw)	Clamping Voltage (Vc)	ESD Withstanding Time	Typical Capacitance (C)		Capacitance (C) %
	Volt	Volt		pF		
	<15μA	1A, 8/20μs	8kV*	1kHz	1MHz	
JMV0603C050T4R7	5.0	50.0	> 1000	-	4.7	-20% ~ +80%
JMV0603C050T100	5.0	50.0	> 1000	-	10	+20%
JMV0603C050T120	5.0	50.0	> 1000	-	12	+20%
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%

■ ELECTRICAL CHARACTERISTICS 0603 SIZE





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