



# Zinc Oxide Varistor

## SPECIFICATION

### ■ TVM-A Series (Surface Mount Device for ESD Suppressor )

#### ● Features

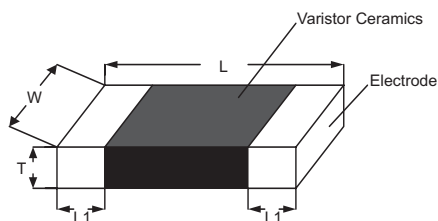
1. EIA size 0402, 0603, 0805
2. Working voltage: 5.5 ~ 18 Vdc
3. -40 ~ +125°C operating temperature range
4. Bidirectional and symmetrical V/I characteristics
5. Multilayer ceramic construction technology
6. Rate for ESD protection
7. Cost effective



#### ● Recommended Applications

1. Cellular phones
2. Flash Card
3. I/O port for mother board
4. Handheld devices
5. Data line (USB, RS232...)
6. PDA

#### ● Dimensions



(Unit:mm)

Part No	Size	L	W	T	L1
TVM0	0402	1.00 ±0.15	0.50 ±0.10	0.60max	0.20±0.10
TVM1	0603	1.60 ±0.15	0.80 ±0.15	0.95max	0.25±0.15
TVM2	0805	2.00 ±0.20	1.25 ±0.20	1.20max	0.40±0.20

#### ● Characteristics

Part No.	Varistor Voltage		Max. Allowable Voltage		Max. Clamping Voltage (8/20 μs)		Max. Surge Current (8/20 μs)	Max. Energy (10/1000 μs)	Rated Power	Reference Capacitance @1KHz
	V <sub>1mA</sub> (V)	△ V <sub>1mA</sub> (±%)	V <sub>AC(rms)</sub> (V)	V <sub>Dc</sub> (V)	V <sub>p</sub> (V)	I <sub>p</sub> (A)	I <sub>max</sub> (A)	W <sub>max</sub> (J)	P(W)	C(PF)
TVM0A080M350	8	20	2.5	3.3	40	1	2.5	0.05	0.003	35
TVM0A080M171	8	20	2.5	3.3	32	1	10	0.05	0.003	170
TVM0A080M231	8	20	2.5	3.3	32	1	10	0.05	0.003	230
TVM0A080M351	8	20	2.5	3.3	31	1	10	0.05	0.003	350
TVM1A080M220	8	20	2.5	3.3	42	1	1	0.01	0.003	22
TVM1A080M141	8	20	2.5	3.3	28	1	10	0.05	0.003	140
TVM1A080M351	8	20	2.5	3.3	31	1	10	0.05	0.003	350
TVM1A080M651	8	20	2.5	3.3	29	1	10	0.05	0.003	650
TVM2A080M122	8	20	2.5	3.3	23	1	10	0.05	0.005	1200
TVM1A090M600	9	20	3.5	4.5	48	1	5	0.05	0.003	60
TVM1A090M151	9	20	3.5	4.5	30	1	10	0.05	0.003	150
TVM0A110M160	11	20	4	5.5	50	1	1	0.01	0.003	16
TVM0A110M101	11	20	4	5.5	50	1	10	0.05	0.003	100
TVM0A110M221	11	20	4	5.5	36	1	10	0.05	0.003	220
TVM1A110M100	11	20	4	5.5	51	1	1	0.01	0.003	10



Part No.	Varistor Voltage		Max. Allowable Voltage		Max. Clamping Voltage (8/20 $\mu$ s)		Max. Surge Current (8/20 $\mu$ s)	Max. Energy (10/1000 $\mu$ s)	Rated Power	Reference Capacitance @1KHz
	V <sub>1mA</sub> (V)	$\Delta$ V <sub>1mA</sub> ( $\pm$ %)	V <sub>AC(rms)</sub> (V)	V <sub>DC</sub> (V)	V <sub>P</sub> (V)	I <sub>P</sub> (A)	I <sub>max</sub> (A)	W <sub>max</sub> (J)	P(W)	C(PF)
TVM1A110M101	11	20	4	5.5	50	1	10	0.05	0.003	100
TVM1A110M141	11	20	4	5.5	37	1	10	0.05	0.003	140
TVM2A110M101	11	20	4	5.5	50	1	10	0.05	0.005	100
TVM2A110M102	11	20	4	5.5	29	1	10	0.05	0.005	1000
TVM0A12RM150	12.5	20	4.5	6.5	54	1	1	0.01	0.003	15
TVM0A12RM121	12.5	20	4.5	6.5	42	1	10	0.05	0.003	120
TVM0A12RM171	12.5	20	4.5	6.5	41	1	10	0.05	0.003	170
TVM0A150L170	15	15	7	8	64	1	1	0.01	0.003	17
TVM0A150L151	15	15	7	8	45	1	10	0.05	0.003	150
TVM1A150L180	15	15	7	8	47	1	1	0.01	0.003	18
TVM1A150L151	15	15	7	8	38	1	10	0.05	0.003	150
TVM2A150L551	15	15	7	8	35	1	10	0.05	0.005	550
TVM2A150L951	15	15	7	8	32	1	10	0.05	0.005	950
TVM0A180K220	18	10	8	11	58	1	1	0.01	0.003	22
TVM0A180K800	18	10	8	11	50	1	5	0.05	0.003	80
TVM0A180K121	18	10	8	11	48	1	10	0.05	0.003	120
TVM1A180K151	18	10	8	11	41	1	10	0.05	0.003	150
TVM2A180K800	18	10	8	11	42	1	5	0.05	0.005	80
TVM2A180K541	18	10	8	11	41	1	10	0.05	0.005	540
TVM2A180K671	18	10	8	11	37	1	10	0.05	0.005	670
TVM0A220K120	22	10	11	14	70	1	1	0.01	0.003	12
TVM0A220K500	22	10	11	14	70	1	10	0.05	0.003	50
TVM1A220K100	22	10	11	14	78	1	1	0.01	0.003	10
TVM1A220K500	22	10	11	14	70	1	10	0.05	0.003	50
TVM1A220K141	22	10	11	14	48	1	10	0.05	0.003	140
TVM1A220K301	22	10	11	14	42	1	10	0.05	0.003	300
TVM2A220K600	22	10	11	14	52	1	5	0.05	0.005	60
TVM2A220K541	22	10	11	14	50	1	10	0.05	0.005	540
TVM0A270K120	27	10	14	18	73	1	1	0.01	0.003	12
TVM0A270K400	27	10	14	18	75	1	10	0.05	0.003	40
TVM1A270K070	27	10	14	18	85	1	1	0.01	0.003	7
TVM1A270K400	27	10	14	18	75	1	10	0.05	0.003	40
TVM2A270K500	27	10	14	18	58	1	5	0.05	0.005	50
TVM1A330K050	33	10	17	22	93	1	1	0.01	0.003	5
TVM1A330K350	33	10	17	22	67	1	2.5	0.05	0.003	35
TVM1A330K151	33	10	17	22	70	1	10	0.05	0.003	150
TVM1A390K101	39	10	20	26	80	1	10	0.05	0.003	100
TVM2A470K121	47	10	25	31	83	1	10	0.05	0.005	120
TVM1A560K060	56	10	30	38	132	1	1	0.01	0.003	6
TVM2A560K111	56	10	30	38	107	1	10	0.05	0.005	110
TVM2A680K101	68	10	35	45	117	1	10	0.05	0.005	100