



# Zinc Oxide Varistor

## SPECIFICATION

### ■ TVM-B Series (Surface Mount Device for Surge Suppressor)

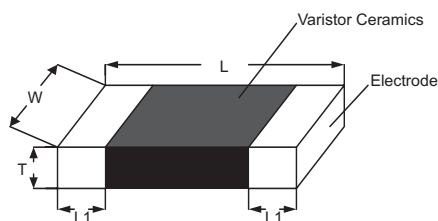
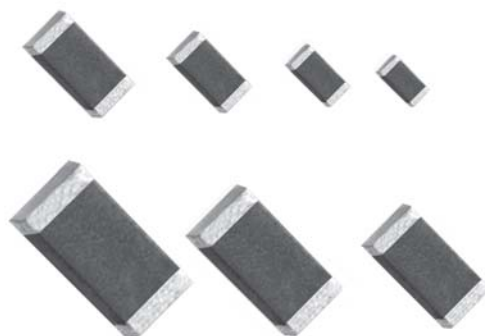
#### ● Features

1. EIA size 0402 ~ 2220
2. Working voltage: 5.5 ~ 85 Vdc
3. -40 ~ +125°C operating temperature range
4. Bidirectional and symmetrical V/I characteristics
5. Multilayer ceramic construction technology
6. Cost effective

#### ● Recommended Applications

1. Cellular phones
2. Mother board / notebook
3. Scanner
4. Handheld devices
5. Digital video
6. Set-top box

#### ● 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
TVM3	1206	3.20 ± 0.30	1.60 ± 0.20	1.50max	0.50 ± 0.20
TVM4	1210	3.20 ± 0.30	2.50 ± 0.25	1.50max	0.50 ± 0.20
TVM5	1812	4.50 ± 0.40	3.20 ± 0.30	1.50max	0.60 ± 0.30
TVM6	2220	5.70 ± 0.40	5.00 ± 0.30	2.00max	0.60 ± 0.30

#### ● 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)	Δ V <sub>1mA</sub> (±%)	V <sub>AC</sub> (rms)(V)	V <sub>DC</sub> (V)	V <sub>P</sub> (V)	I <sub>P</sub> (A)				
TVM0B080M231	8	20	4	5.5	19	1	10	0.05	0.003	230
TVM1B080M951	8	20	4	5.5	19	1	30	0.1	0.003	950
TVM2B080M152	8	20	4	5.5	19	1	60	0.1	0.005	1500
TVM3B080M482	8	20	4	5.5	17	1	150	0.3	0.008	4800
TVM4B080M822	8	20	4	5.5	17	2.5	250	0.4	0.01	8200
TVM5B080M183	8	20	4	5.5	17	5	500	0.8	0.015	18000
TVM6B080M293	8	20	4	5.5	17	10	1000	1.4	0.02	29000
TVM0B110M161	11	20	6	8	27	1	10	0.05	0.003	160
TVM1B110M601	11	20	6	8	27	1	30	0.1	0.003	600
TVM2B110M142	11	20	6	8	27	1	60	0.2	0.005	1400
TVM3B110M392	11	20	6	8	25	1	200	0.4	0.008	3900
TVM4B110M752	11	20	6	8	25	2.5	300	0.7	0.01	7500
TVM5B110M153	11	20	6	8	25	5	500	1	0.015	15000
TVM6B110M253	11	20	6	8	25	10	1200	3.6	0.02	25000
TVM0B12RM141	12.5	20	7	9	30	1	10	0.05	0.003	140
TVM1B12RM571	12.5	20	7	9	30	1	30	0.1	0.003	570
TVM2B12RM112	12.5	20	7	9	29	1	60	0.2	0.005	1100



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>F</sub> (V)	I <sub>F</sub> (A)	I <sub>max</sub> (A)	W <sub>max</sub> (J)	P(W)	C(PF)
TVM0B150L121	15	15	8	11	33	1	10	0.05	0.003	120
TVM1B150L521	15	15	8	11	33	1	30	0.1	0.003	520
TVM2B150L951	15	15	8	11	33	1	60	0.2	0.005	950
TVM3B150L252	15	15	8	11	30	1	200	0.5	0.008	2500
TVM4B150L482	15	15	8	11	30	2.5	400	1	0.01	4800
TVM5B150L103	15	15	8	11	30	5	800	1.8	0.015	10000
TVM6B150L183	15	15	8	11	30	10	1200	4.2	0.02	18000
TVM0B180K800	18	10	11	14	35	1	10	0.05	0.003	80
TVM1B180K421	18	10	11	14	35	1	30	0.2	0.003	420
TVM2B180K671	18	10	11	14	35	1	60	0.2	0.005	670
TVM3B180K152	18	10	11	14	33	1	200	0.5	0.008	1500
TVM4B180K292	18	10	11	14	33	2.5	400	1.2	0.01	2900
TVM5B180K552	18	10	11	14	33	5	800	1.9	0.015	5500
TVM6B180K123	18	10	11	14	33	10	1200	5.4	0.02	12000
TVM0B220K600	22	10	14	18	44	1	10	0.05	0.003	60
TVM1B220K301	22	10	14	18	40	1	30	0.2	0.003	300
TVM2B220K431	22	10	14	18	40	1	60	0.3	0.005	430
TVM3B220K122	22	10	14	18	42	1	200	0.5	0.008	1200
TVM4B220K242	22	10	14	18	38	2.5	400	1.5	0.01	2400
TVM5B220K502	22	10	14	18	38	5	800	2.3	0.015	5000
TVM6B220K103	22	10	14	18	38	10	1200	5.8	0.02	10000
TVM0B270K500	27	10	17	22	55	1	10	0.05	0.003	50
TVM1B270K181	27	10	17	22	46	1	30	0.2	0.003	180
TVM2B270K331	27	10	17	22	46	1	60	0.3	0.005	330
TVM3B270K102	27	10	17	22	48	1	200	0.6	0.008	1000
TVM4B270K202	27	10	17	22	44	2.5	400	1.7	0.01	2000
TVM5B270K402	27	10	17	22	44	5	800	2.7	0.015	4000
TVM6B270K772	27	10	17	22	44	10	1200	7.2	0.02	7700
TVM0B330K400	33	10	20	26	63	1	10	0.05	0.003	40
TVM1B330K151	33	10	20	26	56	1	30	0.3	0.003	150
TVM2B330K301	33	10	20	26	56	1	60	0.3	0.005	300
TVM3B330K801	33	10	20	26	54	1	200	0.7	0.008	800
TVM4B330K132	33	10	20	26	54	2.5	400	1.9	0.01	1300
TVM5B330K322	33	10	20	26	54	5	800	3	0.015	3200
TVM6B330K582	33	10	20	26	54	10	1200	7.8	0.02	5800
TVM1B390K101	39	10	25	31	67	1	30	0.3	0.003	100
TVM2B390K181	39	10	25	31	67	1	60	0.3	0.005	180
TVM3B390K651	39	10	25	31	65	1	200	1	0.008	650
TVM4B390K102	39	10	25	31	65	2.5	300	1.7	0.01	1000
TVM5B390K252	39	10	25	31	65	5	800	3.7	0.015	2500
TVM6B390K412	39	10	25	31	65	10	1200	9.6	0.02	4100
TVM2B470K151	47	10	30	38	77	1	60	0.3	0.005	150
TVM3B470K381	47	10	30	38	77	1	200	1.1	0.008	380
TVM4B470K901	47	10	30	38	77	2.5	300	2	0.01	900
TVM5B470K202	47	10	30	38	77	5	800	4.2	0.015	2000
TVM6B470K302	47	10	30	38	77	10	1200	12	0.02	3000
TVM3B560K301	56	10	35	45	90	1	100	0.4	0.008	300
TVM4B560K601	56	10	35	45	90	2.5	250	2	0.01	600
TVM5B560K122	56	10	35	45	90	5	500	4	0.015	1200
TVM6B560K202	56	10	35	45	90	10	1000	7.7	0.02	2000
TVM3B680K251	68	10	40	56	110	1	100	0.5	0.008	250
TVM4B680K451	68	10	40	56	110	2.5	250	2.3	0.01	450
TVM5B680K102	68	10	40	56	110	5	500	4.8	0.015	1000
TVM6B680K152	68	10	40	56	110	10	1000	9	0.02	1500
TVM3B820K181	82	10	50	65	135	1	100	0.6	0.008	180
TVM4B820K301	82	10	50	65	135	2.5	200	1.6	0.01	300
TVM5B820K601	82	10	50	65	135	5	400	4.5	0.015	600
TVM6B820K102	82	10	50	65	135	10	800	5.6	0.02	1000
TVM3B101K151	100	10	60	85	146	1	100	0.7	0.008	150
TVM4B101K161	100	10	60	85	165	2.5	200	2	0.01	160
TVM5B101K301	100	10	60	85	165	5	400	5.8	0.015	300
TVM6B101K601	100	10	60	85	165	10	800	6.8	0.02	600