

# METAL OXIDE VARISTOR

**Suntan®**

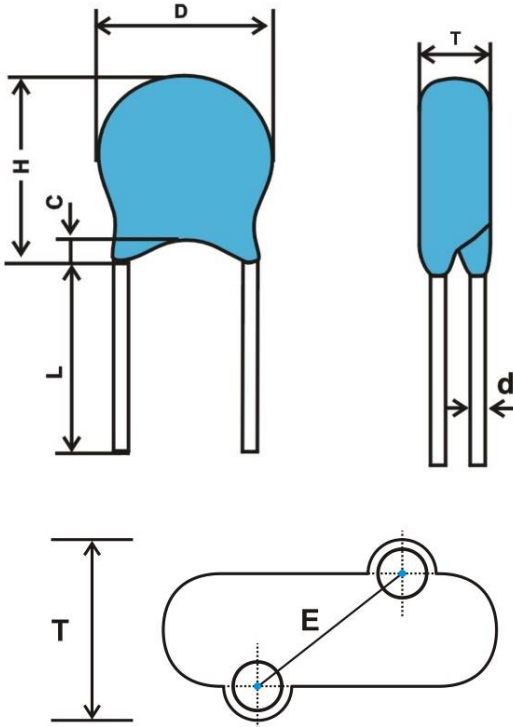
# TSVG

## FEATURES

- Operating Temperature Range: -40°C~+105°C
- Body Diameters Range From 5D to 20D
- Wide Operating Voltage from 18V to 1800V
- Full compliance with RoHS and REACH



## DIMENSION



**L: 16mm min**

## Thickness (max.)

Part Code	D05	D07	D10	D14	D20
162K	--	--	--	9.5	10.5
152K	--	--	--	9.5	10.0
142K				9.0	9.5
122K				8.0	9.0
112K	--	--	8.0	8.0	8.5
102K	--	--	7.5	7.5	8.5
911K	--	--	7.0	7.0	8.0
821K	--	--	6.5	6.5	7.5
781K	--	--	6.5	6.5	7.5
751K	--	6.0	6.5	6.5	7.5
681K	5.5	5.5	6.0	6.0	7.0
621K	5.5	5.5	6.0	6.0	7.0
561K	5.0	5.0	5.5	5.5	6.5
511K	5.0	5.0	5.5	5.5	6.5
471K	5.0	5.0	5.5	5.5	6.0
431K	4.5	4.5	5.0	5.0	6.0
391K	4.5	4.5	5.0	5.0	6.0
361K	4.5	4.5	5.0	5.0	6.0
331K	4.5	4.5	5.0	5.0	5.5
301K	4.0	4.0	4.5	4.5	5.5
271K	4.0	4.0	4.5	4.5	5.5
241K	4.0	4.0	4.5	4.5	5.5
221K	4.0	4.0	4.5	4.5	5.0
201K	4.0	4.0	4.5	4.5	5.0
181K	4.5	4.5	5.0	5.0	5.5
151K	4.5	4.5	5.0	5.0	5.5
121K	4.5	4.5	5.0	5.0	5.5
101K	4.5	4.5	5.0	5.0	5.5
820K	4.5	4.5	5.0	5.0	5.0
680K	5.0	5.0	5.5	5.5	6.0
560K	4.5	4.5	5.0	5.0	5.5
470K	4.5	4.5	5.0	5.0	5.5
390K	4.5	4.5	5.0	5.0	5.5
330K	4.5	4.5	5.0	5.0	5.5
270K	4.5	4.5	5.0	5.0	5.5
220K	4.5	4.5	4.5	4.5	5.0
180K	4.0	4.5	4.5	4.5	5.0

SIZE	D MAX	H MAX	d+/-0.05	E	c max
D05	8	11	0.5	5±0.8	2.5
D07	10	12.5	0.5	5±0.8	2.5
D10	13.5	16	0.7	7.5±0.8	2.5
D14	17.5	20	0.7 / 0.8	7.5±0.8	2.5
D20	24	26.5	1.0	10±1.0	2.5

# TSVG

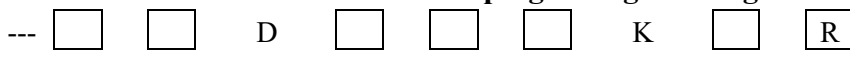
METAL OXIDE VARISTOR 5D Series

SPECIFICATION

Part No	Maximum allowable Voltage		Maximum Energy (10/1000µs) (J)	Maximum Peak Current (8/20µs)	Rated Power (W)	Varistor Voltage V <sub>1.0mA</sub> (V)	Clamping Voltage (Max.)		Typical Capacitance (reference) @1KHz (pF)
	AC rms (V)	DC rms (V)					VC (V)	Ip (A)	
TSVG05D681K	420	560	19.4	400 / 200x2	0.1	680(612-748)	1120	5	38
TSVG05D621K	385	505	17.7			620(558-682)	1025		40
TSVG05D561K	350	460	16.8			560(504-616)	920		45
TSVG05D511K	320	415	16.0			510(459-561)	845		50
TSVG05D471K	300	385	15.0			470(423-517)	810		55
TSVG05D431K	275	350	13.0			430(387-473)	745		60
TSVG05D391K	250	320	12.0			390(351-429)	675		65
TSVG05D361K	230	300	10.0			360(324-396)	620		70
TSVG05D331K	210	275	9.5			330(297-363)	570		75
TSVG05D301K	190	250	9.0			300(270-330)	520		85
TSVG05D271K	175	225	8.5			270(243-297)	475		95
TSVG05D241K	150	200	8.0			240(216-264)	415		100
TSVG05D221K	140	180	7.0			220(198-242)	380		110
TSVG05D201K	130	170	6.5			200(180-220)	355		125
TSVG05D181K	115	150	5.9			180(162-198)	320		140
TSVG05D151K	95	125	4.8			150(135-165)	260		165
TSVG05D121K	75	100	4.0			120(108-132)	210		210
TSVG05D101K	60	85	3.0			100(90-110)	175		250
TSVG05D820K	50	65	2.5			82(73.8-90.2)	150		300
TSVG05D680K	40	56	1.6			100 / 50x2	0.01		68(61.2-74.8)
TSVG05D560K	35	45	1.3	56(50.4-61.6)	123			450	
TSVG05D470K	30	38	1.1	47(42.3-51.7)	104			530	
TSVG05D390K	25	31	0.9	39(35.1-42.9)	80			640	
TSVG05D330K	20	26	0.8	33(29.7-36.3)	73			760	
TSVG05D270K	17	22	0.6	27(24.3-29.7)	60			930	
TSVG05D220K	14	18	0.5	22(19.8-24.2)	48			1150	
TSVG05D180K	11	14	0.4	18(16.2-19.8)	40			1400	

#680K—180K Max. Clamping Voltage Testing Current 1A.

TSVG



- RoHS
- PACKING\*
- TOLERANCE
- VARISTOR VOLTAGE
- DISC TYPE
- ELEMENT DIA. CODE
- PRODUCTION TYPE

\*B for Bulk ; A for Ammo ; T for Tape & Reel

# TSVG

METAL OXIDE VARISTOR 7D Series

SPECIFICATION

Part No	Maximum allowable Voltage		Maximum Energy (10/1000µs) (J)	Maximum Peak Current (8/20µs)	Rated Power (W)	Varistor Voltage V <sub>1.0mA</sub> (V)	Clamping Voltage (Max.)		Typical Capacitance (reference) @1KHz (pF)
	AC rms (V)	DC rms (V)					VC (V)	I <sub>p</sub> (A)	
TSVG07D911K	550	745	57.0	1200 / 600x2	0.25	910(819-1001)	1500	10	55
TSVG07D821K	510	670	52.0			820(738-902)	1355		60
TSVG07D781K	485	640	48.0			780(702-858)	1290		65
TSVG07D751K	460	615	45.0			750(675-825)	1240		70
TSVG07D681K	420	560	42.0			680(612-748)	1120		75
TSVG07D621K	385	505	38.0			620(558-682)	1025		80
TSVG07D561K	350	460	35.0			560(504-616)	925		90
TSVG07D511K	320	415	31.0			510(459-561)	845		100
TSVG07D471K	300	385	29.0			470(423-517)	775		105
TSVG07D431K	275	350	28.0			430(387-473)	710		115
TSVG07D391K	250	320	26.0			390(351-429)	650		130
TSVG07D361K	230	300	24.0			360(324-396)	595		140
TSVG07D331K	210	275	23.0			330(297-363)	550		150
TSVG07D301K	190	250	20.0			300(270-330)	500		165
TSVG07D271K	175	225	18.0			270(243-297)	455		185
TSVG07D241K	150	200	15.0			240(216-264)	395		210
TSVG07D221K	140	180	14.0			220(198-242)	360		230
TSVG07D201K	130	170	13.0			200(180-220)	340		250
TSVG07D181K	115	150	11.7			180(162-198)	300		280
TSVG07D151K	95	125	9.7			150(135-165)	250		330
TSVG07D121K	75	100	7.8	120(108-132)	200	420			
TSVG07D101K	60	85	6.5	100(90-110)	165	500			
TSVG07D820K	50	65	5.5	82(73.8-90.2)	135	600			
TSVG07D680K	40	56	3.6	250 / 125x2	0.02	68(61.2-74.8)	135	2.5	740
TSVG07D560K	35	45	3.1			56(50.4-61.6)	110		890
TSVG07D470K	30	38	2.5			47(42.3-51.7)	93		1100
TSVG07D390K	25	31	2.1			39(35.1-42.9)	77		1300
TSVG07D330K	20	26	1.7			33(29.7-36.3)	65		1500
TSVG07D270K	17	22	1.4			27(24.3-29.7)	53		1800
TSVG07D220K	14	18	1.1			22(19.8-24.2)	43		2300
TSVG07D180K	11	14	0.9			18(16.2-19.8)	36		2800

#680K—180K Max. Clamping Voltage Testing Current 2.5A.

# TSVG

METAL OXIDE VARISTOR 10D Series

SPECIFICATION

Part No	Maximum allowable Voltage		Maximum Energy (10/1000µs) (J)	Maximum Peak Current (8/20µs)	Rated Power (W)	Varistor Voltage V <sub>1.0mA</sub> (V)	Clamping Voltage (Max.)		Typical Capacitance (reference) @1KHz (pF)
	AC rms (V)	DC rms (V)					V <sub>c</sub> (V)	I <sub>p</sub> (A)	
TSVG10D112K	680	895	115.0	2500 / 1250x2	0.4	1100(990-1210)	1815	25	90
TSVG10D102K	625	825	102.0			1000(900-1100)	1650		100
TSVG10D911K	550	745	93.0			910(819-1001)	1500		110
TSVG10D821K	510	670	85.0			820(738-902)	1355		120
TSVG10D781K	485	640	80.0			780(702-858)	1290		125
TSVG10D751K	460	615	77.0			750(675-825)	1240		130
TSVG10D681K	420	560	75.0			680(612-748)	1120		150
TSVG10D621K	385	505	72.0			620(558-682)	1025		160
TSVG10D561K	350	460	70.0			560(504-616)	925		180
TSVG10D511K	320	415	69.0			510(459-561)	845		200
TSVG10D471K	300	385	67.0			470(423-517)	775		210
TSVG10D431K	275	350	65.0			430(387-473)	710		230
TSVG10D391K	250	320	60.0			390(351-429)	650		260
TSVG10D361K	230	300	47.0			360(324-396)	595		280
TSVG10D331K	210	275	43.0			330(297-363)	550		300
TSVG10D301K	190	250	40.0			300(270-330)	500		330
TSVG10D271K	175	225	37.0			270(243-297)	455		370
TSVG10D241K	150	200	35.0			240(216-264)	395		420
TSVG10D221K	140	180	32.0			220(198-242)	360		450
TSVG10D201K	130	170	30.0			200(180-220)	340		500
TSVG10D181K	115	150	27.0			180(162-198)	300		560
TSVG10D151K	95	125	22.0			150(135-165)	250		670
TSVG10D121K	75	100	18.0			120(108-132)	200		830
TSVG10D101K	60	85	15.0	100(90-110)	165	1000			
TSVG10D820K	50	65	12.0	82(73.8-90.2)	135	1200			
TSVG10D680K	40	56	8.2	500 / 250x2	0.05	68(61.2-74.8)	135	5	1500
TSVG10D560K	35	45	7.0			56(50.4-61.6)	110		1800
TSVG10D470K	30	38	5.5			47(42.3-51.7)	93		2100
TSVG10D390K	25	31	4.6			39(35.1-42.9)	77		2400
TSVG10D330K	20	26	4.0			33(29.7-36.3)	65		3000
TSVG10D270K	17	22	3.0			27(24.3-29.7)	53		3700
TSVG10D220K	14	18	2.5			22(19.8-24.2)	43		4500
TSVG10D180K	11	14	2.1			18(16.2-19.8)	36		5600

#680K—180K Max. Clamping Voltage Testing Current 5A.

# TSVG

## METAL OXIDE VARISTOR 14D Series

### SPECIFICATION

Part No	Maximum allowable Voltage		Maximum Energy (10/1000µs) (J)	Maximum Peak Current (8/20µs)	Rated Power (W)	Varistor Voltage V <sub>1.0mA</sub> (V)	Clamping Voltage (Max.)		Typical Capacitance (reference) @1KHz (pF)
	AC rms (V)	DC rms (V)					V <sub>c</sub> (V)	I <sub>p</sub> (A)	
TSVG14D162K	1000	1280	243	4500 / 2500x2	0.6	1600(1440-1760)	2640	50	140
TSVG14D152K	930	1200	240			1500(1350-1650)	2475		145
TSVG14D142K	880	1140	238			1400(1260-1540)	2310		150
TSVG14D122K	750	990	232			1200(1080-1320)	1980		160
TSVG14D112K	680	895	213			1100(990-1210)	1815		180
TSVG14D102K	625	825	190			1000(900-1100)	1650		200
TSVG14D911K	550	745	175			910(819-1001)	1500		220
TSVG14D821K	510	670	157			820(738-902)	1355		240
TSVG14D781K	485	640	148			780(702-858)	1290		260
TSVG14D751K	460	615	143			750(675-825)	1240		270
TSVG14D681K	420	560	130			680(612-748)	1120		290
TSVG14D621K	385	505	128			620(558-682)	1025		320
TSVG14D561K	350	460	125			560(504-616)	925		360
TSVG14D511K	320	415	121			510(459-561)	845		390
TSVG14D471K	300	385	118			470(423-517)	775		430
TSVG14D431K	275	350	115			430(387-473)	710		460
TSVG14D391K	250	320	100			390(351-429)	650		510
TSVG14D361K	230	300	93.0			360(324-396)	595		560
TSVG14D331K	210	275	85.0			330(297-363)	550		610
TSVG14D301K	190	250	77.0			300(270-330)	500		670
TSVG14D271K	175	225	70.0			270(243-297)	455		740
TSVG14D241K	150	200	63.0			240(216-264)	395		830
TSVG14D221K	140	180	60.0			220(198-242)	360		900
TSVG14D201K	130	170	57.0			200(180-220)	340		1000
TSVG14D181K	115	150	50.0			180(162-198)	300		1100
TSVG14D151K	95	125	40.0			150(135-165)	250		1300
TSVG14D121K	75	100	32.0	120(108-132)	200	1700			
TSVG14D101K	60	85	28.0	100(90-110)	165	2000			
TSVG14D820K	50	65	22.0	82(73.8-90.2)	135	2400			
TSVG14D680K	40	56	14.0	68(61.2-74.8)	135	2900			
TSVG14D560K	35	45	11.0	56(50.4-61.6)	110	3600			
TSVG14D470K	30	38	10.0	47(42.3-51.7)	93	4300			
TSVG14D390K	25	31	8.6	39(35.1-42.9)	77	5100			
TSVG14D330K	20	26	7.5	33(29.7-36.3)	65	6100			
TSVG14D270K	17	22	6.0	27(24.3-29.7)	53	7400			
TSVG14D220K	14	18	5.0	22(19.8-24.2)	43	9100			
TSVG14D180K	11	14	4.0	18(16.2-19.8)	36	11100			

#680K—180K Max. Clamping Voltage Testing Current 10A.

# TSVG

## METAL OXIDE VARISTOR 20D Series

### SPECIFICATION

Part No	Maximum allowable Voltage		Maximum Energy (10/1000µs) (J)	Maximum Peak Current (8/20µs)	Rated Power  (W)	Varistor Voltage  V <sub>1.0mA</sub> (V)	Clamping Voltage Voltage (Max.)		Typical Capacitance (reference)  @1KHz (pF)
	AC rms (V)	DC rms (V)					V <sub>c</sub> (V)	I <sub>p</sub> (A)	
TSVG20D162K	1000	1280	606	6500 / 4500x2	1.0	1600(1440-1760)	2640	100	330
TSVG20D152K	930	1200	569			1500(1350-1650)	2475		335
TSVG20D142K	880	1140	532			1400(1260-1540)	2310		340
TSVG20D122K	750	990	408			1200(1080-1320)	1980		350
TSVG20D112K	680	895	383			1100(990-1210)	1815		360
TSVG20D102K	625	825	342			1000(900-1100)	1650		400
TSVG20D911K	550	745	310			910(819-1001)	1500		440
TSVG20D821K	510	670	282			820(738-902)	1355		500
TSVG20D781K	485	640	265			780(702-858)	1290		510
TSVG20D751K	460	615	255			750(675-825)	1240		530
TSVG20D681K	420	560	230			680(612-748)	1120		600
TSVG20D621K	385	505	224			620(558-682)	1025		650
TSVG20D561K	350	460	215			560(504-616)	925		710
TSVG20D511K	320	415	210			510(459-561)	845		780
TSVG20D471K	300	385	204			470(423-517)	775		850
TSVG20D431K	275	350	190			430(387-473)	710		930
TSVG20D391K	250	320	180			390(351-429)	650		1000
TSVG20D361K	230	300	163			360(324-396)	595		1100
TSVG20D331K	210	275	150			330(297-363)	550		1200
TSVG20D301K	190	250	136			300(270-330)	500		1300
TSVG20D271K	175	225	127			270(243-297)	455		1500
TSVG20D241K	150	200	108			240(216-264)	395		1650
TSVG20D221K	140	180	100			220(198-242)	360		1800
TSVG20D201K	130	170	95			200(180-220)	340		2000
TSVG20D181K	115	150	85			180(162-198)	300		2200
TSVG20D151K	95	125	70			150(135-165)	250		2700
TSVG20D121K	75	100	55			120(108-132)	200		3300
TSVG20D101K	60	85	50			100(90-110)	165		4000
TSVG20D820K	50	65	45			82(73.8-90.2)	135		4900
TSVG20D680K	40	56	41			68(61.2-74.8)	135		5800
TSVG20D560K	35	45	38			56(50.4-61.6)	110		6500
TSVG20D470K	30	38	30			47(42.3-51.7)	93		7400
TSVG20D390K	25	31	26			39(35.1-42.9)	77		8500
TSVG20D330K	20	26	23	33(29.7-36.3)	65	11500			
TSVG20D270K	17	22	16	27(24.3-29.7)	53	13000			
TSVG20D220K	14	18	14	22(19.8-24.2)	43	18500			
TSVG20D180K	11	14	11	18(16.2-19.8)	36	28500			

#680K—180K Max. Clamping Voltage Testing Current 20A.

Note: Specifications are subject to change without notice. For more detail and update, please visit our website.