

Data Sheet

Customer :

Product : Metal Oxide Varistor - VD Series

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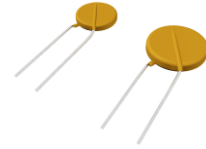
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Metal Oxide Varistor (VD Series)

■ Features

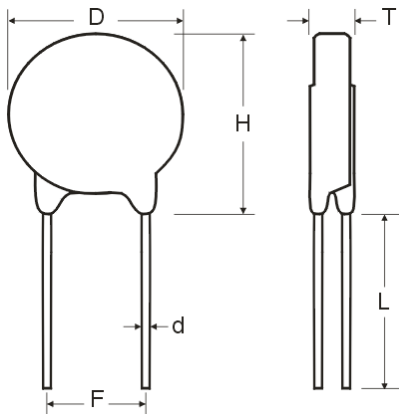
- Wide operating voltage ranging from 5Vrms to 1000Vrms(6Vdc to 1465Vdc)
- Fast response time of less than 25nS, instantly clamping the transient over voltage
- High surge current handling capability
- High energy protection capability
- Low clamping voltages, providing better surge
- Low capacitance values, providing digital switching circuitry protection
- High insulation resistance, preventing electric arcing to the adjacent devices or circuits



■ Applications

- Transistor, Diode, IC, Thyristor or Triac Semiconductor
- Surge Protection In Consumer Electronics
- Surge Protection In Industrial Electronics
- Surge Protection In Electronics Home Appliances, Gas And Petroleum Appliances
- Relay And Electromagnetic Valve Surge Absorption

■ Dimensions



Unit: mm

Type	D Max.	H Max.	d	F	T	L Min
VD05	7	10	0.6±0.05	5±0.8	By each codes	20
VD07	9	12	0.6±0.05	5±0.8		20
VD10	13	16	0.8±0.05	5±0.8		20
				7.5±0.8		
VD14	17	20	0.8±0.05	7.5±0.8		20
				10±0.8		
VD20	23	27	1.0±0.05	10±0.8		20
VD25	28	31	1.0±0.05	12.5±0.8	20	

Part Numbering

VD	14	D	T	180	M	S	J
Product Type	Diameter	Element Type	Packaging Code	Varistor Voltage	Tolerance	Lead Type	Design Code
	05Φ: 0.5mm 07Φ: 0.7mm 10Φ: 10mm 14Φ: 14mm 20Φ: 20mm	D: Round Disk	T: Taping Reel B: Bulk A: Ammo	180: 18V 101: 100V 102: 1000V	K: ±10% L: ±15% M: ±20%	S: Straight Lead	: Standard J: High Surge & High Energy

Standard Electrical Specifications

VD05 / Standard Type

Codes	Maximum Allowable Voltage		Energy (10/100 μs) (J)	Withstanding Surge Current (8/20 μs) (A)		Rated Wattage (W)	Varistor Voltage @ 0.1mA (V)	Maximum Clamping Voltage (V)		T max mm
	ACrms (V)	DC (V)		1 time	2 times			@ 1A	@ 5A	
180L	10	14	0.4	100	50	0.01	18(15-21)	38	-	4.5
220K	14	18	0.6				22(20-24)	43	-	4.5
270K	17	22	0.7				27(24-30)	53	-	4.5
330K	20	26	0.8				33(30-36)	65	-	4.5
390K	25	31	1.1				39(35-43)	77	-	4.5
470K	30	38	1.4				47(42-52)	93	-	4.5
560K	35	45	1.5				56(50-62)	110	-	4.5
680K	40	56	1.8				68(61-75)	135	-	4.5
820K	50	65	2.8				82(74-90)	-	135	4.1
101K	60	85	2.8	100(90-110)	-	165	4.3			
121K	75	100	4.2	120(108-132)	-	200	4.5			
151K	95	125	4.2	150(135-165)	-	250	4.8			
181K	115	150	5.6	180(162-198)	-	300	4.1			
201K	130	170	7.7	200(185-225)	-	330	4.1			
221K	140	180	8.8	220(198-242)	-	360	4.2			
241K	150	200	9.8	240(216-264)	-	395	4.3			
251K	160	205	10.0	250(225-275)	-	415	4.4			
271K	175	225	10.5	270(243-297)	-	455	4.5			
301K	190	250	11.8	400	200	0.1	300(270-330)	-	505	4.7
331K	210	275	14.0				330(297-363)	-	550	4.8
361K	230	300	14.0				360(324-396)	-	595	5.0
391K	250	320	15.4				390(351-429)	-	650	5.1
431K	275	350	16.8				430(387-473)	-	710	5.3
471K	300	385	18.2				470(423-517)	-	775	5.6
511K	320	415	19.6				510(459-561)	-	845	5.8
561K	350	460	19.6				560(504-616)	-	920	6.2
621K	385	505	21.0				620(558-682)	-	1025	6.4
681K	420	560	21.0				680(612-748)	-	1120	6.4
751K	460	615	22.4				750(675-825)	-	1240	6.5

VD07 / Standard Type

Codes	Maximum Allowable Voltage		Energy (10/100 μ s) (J)	Withstanding Surge Current (8/20 μ s) (A)		Rated Wattage (W)	Varistor Voltage @ 0.1mA (V)	Maximum Clamping Voltage (V)		T max mm			
	ACrms (v)	DC (V)		1 time	2 times			@ 2.5A	@ 10A				
180L	10	14	2.1	250	125	0.02	18(15-21)	38	-	4.5			
220K	14	18	2.4				22(20-24)	43	-	4.6			
270K	17	22	2.8				27(24-30)	53	-	4.7			
330K	20	26	3.5				33(30-36)	65	-	4.9			
390K	25	31	4.2				39(35-43)	77	-	4.8			
470K	30	38	5.0				47(42-52)	93	-	4.9			
560K	35	45	6.2				56(50-62)	110	-	5.0			
680K	40	56	7.3				68(61-75)	135	-	5.2			
820K	50	65	9.8				1200	600	0.25	82(74-90)	-	135	4.1
101K	60	85	11.6							100(90-110)	-	165	4.3
121K	75	100	14.0	120(108-132)	-	200				4.5			
151K	95	125	16.8	150(135-165)	-	250				4.8			
181K	115	150	18.2	180(162-198)	-	300				4.1			
201K	130	170	25.2	200(185-225)	-	330				4.1			
221K	140	180	28.0	220(198-242)	-	360				4.2			
241K	150	200	28.0	240(216-264)	-	395				4.3			
251K	160	205	30.0	250(225-275)	-	415				4.4			
271K	175	225	32.2	270(243-297)	-	455				4.5			
301K	190	250	35.0	300(270-330)	-	505				4.7			
331K	210	275	37.8	330(297-363)	-	550				4.8			
361K	230	300	42.0	360(324-396)	-	595				5.0			
391K	250	320	46.2	390(351-429)	-	650				5.1			
431K	275	350	50.4	430(387-473)	-	710				5.3			
471K	300	385	56.0	470(423-517)	-	775				5.6			
511K	320	415	57.0	510(459-561)	-	845				5.8			
561K	350	460	58.0	560(504-616)	-	920				6.2			
621K	385	505	61.6	620(558-682)	-	1025				6.4			
681K	420	560	62.5	680(612-748)	-	1120				6.4			
751K	460	615	67.2	750(675-825)	-	1240	6.5						
781K	485	640	69.0	780(702-858)	-	1290	6.7						
821K	510	670	72.0	820(738-902)	-	1355	6.9						

VD10 / Standard Type

Codes	Maximum Allowable Voltage		Energy (10/100 μ s) (J)	Withstanding Surge Current (8/20 μ s)		Rated Wattage (W)	Varistor Voltage @ 0.1mA (V)	Maximum Clamping Voltage		T max mm
	ACrms (v)	DC (V)		1 time	2 times			@ 5A	@ 25A	
			(A)		(V)					
180L	10	14	2.8	500	250	0.05	18(15-21)	38	-	4.6
220K	14	18	4.5				22(20-24)	43	-	4.7
270K	17	22	6.0				27(24-30)	53	-	4.8
330K	20	26	7.4				33(30-36)	65	-	5.0
390K	25	31	9.1				39(35-43)	77	-	4.9
470K	30	38	10.8				47(42-52)	93	-	5.0
560K	35	45	12.9				56(50-62)	110	-	5.1
680K	40	56	15.4				68(61-75)	135	-	5.3
820K	50	65	16.8				2500	1250	0.4	82(74-90)
101K	60	85	18.2	100(90-110)	-	165				4.7
121K	75	100	21.0	120(108-132)	-	200				4.9
151K	95	125	25.2	150(135-165)	-	250				5.2
181K	115	150	30.8	180(162-198)	-	300				4.5
201K	130	170	42.0	200(185-225)	-	330				4.5
221K	140	180	46.2	220(198-242)	-	360				4.7
241K	150	200	50.4	240(216-264)	-	395				4.8
251K	160	205	52.0	250(225-275)	-	415				4.9
271K	175	225	57.4	270(243-297)	-	455				5.0
301K	190	250	63.0	300(270-330)	-	505				5.1
331K	210	275	68.6	330(297-363)	-	550				5.3
361K	230	300	74.2	360(324-396)	-	595				5.5
391K	250	320	81.2	390(351-429)	-	650				5.7
431K	275	350	88.2	430(387-473)	-	710				5.9
471K	300	385	100	470(423-517)	-	775				6.1
511K	320	415	100	510(459-561)	-	845				6.4
561K	350	460	100	560(504-616)	-	920				6.7
621K	385	505	102	620(558-682)	-	1025				7.1
681K	420	560	102	680(612-748)	-	1120				7.1
751K	460	615	125	750(675-825)	-	1240				7.5
781K	485	640	125	780(702-858)	-	1290				7.7
821K	510	670	125	820(738-902)	-	1355				7.9
911K	550	745	133	910(819-1001)		1500				8.1
102K	625	825	133	1000(900-1100)		1650	8.3			
112K	680	895	133	1100(990-1210)		1815	8.5			

VD14 / Standard Type

Codes	Maximum Allowable Voltage		Energy (10/100 μ s) (J)	Withstanding Surge Current (8/20 μ s)		Rated Wattage (W)	Varistor Voltage @ 0.1mA (V)	Maximum Clamping Voltage		T max mm
	ACrms (v)	DC (V)		1 time	2 times			@ 5A	@ 25A	
			(A)		(V)					
180L	10	14	2.8	1000	500	0.1	18(15-21)	38	-	4.6
220K	14	18	4.5				22(20-24)	43	-	4.7
270K	17	22	6.0				27(24-30)	53	-	4.8
330K	20	26	7.4				33(30-36)	65	-	5.0
390K	25	31	9.1				39(35-43)	77	-	4.9
470K	30	38	10.8				47(42-52)	93	-	5.0
560K	35	45	12.9				56(50-62)	110	-	5.1
680K	40	56	15.4				68(61-75)	135	-	5.3
820K	50	65	16.8				4500	2500	0.6	82(74-90)
101K	60	85	18.2	100(90-110)	-	165				4.7
121K	75	100	21.0	120(108-132)	-	200				4.9
151K	95	125	25.2	150(135-165)	-	250				5.2
181K	115	150	30.8	180(162-198)	-	300				4.5
201K	130	170	42.0	200(185-225)	-	330				4.5
221K	140	180	46.2	220(198-242)	-	360				4.7
241K	150	200	50.4	240(216-264)	-	395				4.8
251K	160	205	52.0	250(225-275)	-	415				4.9
271K	175	225	57.4	270(243-297)	-	455				5.0
301K	190	250	63.0	300(270-330)	-	505				5.1
331K	210	275	68.6	330(297-363)	-	550				5.3
361K	230	300	74.2	360(324-396)	-	595				5.5
391K	250	320	81.2	390(351-429)	-	650				5.7
431K	275	350	88.2	430(387-473)	-	710				5.9
471K	300	385	100	470(423-517)	-	775				6.1
511K	320	415	100	510(459-561)	-	845				6.4
561K	350	460	100	560(504-616)	-	920				6.7
621K	385	505	102	620(558-682)	-	1025				7.1
681K	420	560	102	680(612-748)	-	1120				7.1
751K	460	615	125	750(675-825)	-	1240				7.5
781K	485	640	125	780(702-858)	-	1290				7.7
821K	510	670	125	820(738-902)	-	1355				7.9
911K	550	745	133	910(819-1001)	-	1500				8.1
102K	625	825	133	1000(900-1100)	-	1650				8.3
112K	680	895	133	1100(990-1210)	-	1815				8.5
152K	900	1200	266	1500(1350-1650)	-	2475				11.0
182K	1000	1465	336	1800(1620-1980)	-	2970	12.5			

VD20 / Standard Type

Codes	Maximum Allowable Voltage		Energy (10/100 μ s)	Withstanding Surge Current (8/20 μ s)		Rated Wattage	Varistor Voltage	Maximum Clamping Voltage		T max mm
	ACrms (v)	DC (V)	(J)	1 time	2 times	(W)	@ 0.1mA (V)	@ 5A	@ 25A	
				(A)				(V)		
180L	10	14	2.8	2000	1000	0.2	18(15-21)	38	-	5.1
220K	14	18	4.5				22(20-24)	43	-	5.2
270K	17	22	6.0				27(24-30)	53	-	5.3
330K	20	26	7.4				33(30-36)	65	-	5.4
390K	25	31	9.1				39(35-43)	77	-	5.5
470K	30	38	10.8				47(42-52)	93	-	5.6
560K	35	45	12.9				56(50-62)	110	-	5.7
680K	40	56	15.4				68(61-75)	135	-	5.8
820K	50	65	16.8				6500	4000	1.0	82(74-90)
101K	60	85	18.2	100(90-110)	-	165				5.1
121K	75	100	21.0	120(108-132)	-	200				5.3
151K	95	125	25.2	150(135-165)	-	250				5.6
181K	115	150	30.8	180(162-198)	-	300				5.0
201K	130	170	42.0	200(185-225)	-	330				5.0
221K	140	180	46.2	220(198-242)	-	360				5.3
241K	150	200	50.4	240(216-264)	-	395				5.4
251K	160	205	52.0	250(225-275)	-	415				5.5
271K	175	225	57.4	270(243-297)	-	455				5.6
301K	190	250	63.0	300(270-330)	-	505				5.7
331K	210	275	68.6	330(297-363)	-	550				5.9
361K	230	300	74.2	360(324-396)	-	595				6.2
391K	250	320	81.2	390(351-429)	-	650				6.2
431K	275	350	88.2	430(387-473)	-	710				6.4
471K	300	385	100	470(423-517)	-	775				6.6
511K	320	415	100	510(459-561)	-	845				6.8
561K	350	460	100	560(504-616)	-	920				7.0
621K	385	505	102	620(558-682)	-	1025				7.5
681K	420	560	102	680(612-748)	-	1120				7.8
751K	460	615	125	750(675-825)	-	1240				8.2
781K	485	640	125	780(702-858)	-	1290	8.4			
821K	510	670	125	820(738-902)	-	1355	8.5			
911K	550	745	133	910(819-1001)	-	1500	9.0			
102K	625	825	133	1000(900-1100)	-	1650	9.5			
112K	680	895	133	1100(990-1210)	-	1815	10.1			
152K	900	1200	266	1500(1350-1650)	-	2475	13.2			
182K	1000	1465	336	1800(1620-1980)	-	2970	15.6			

High Surge & High Energy Electrical Specifications

VD14 / High Surge & High Energy Type

Codes	Maximum Allowable Voltage		Energy (10/100 μ s) (J)	Withstanding Surge Current (8/20 μ s) (A)		Rated Wattage (W)	Varistor Voltage @ 1mA (V)	Maximum Clamping Voltage (V)		T max mm			
	ACrms (V)	DC (V)		1 time	2 times			@ 10A	@ 50A				
180L	10	14	7.0	2000	1000	0.1	18(15-21)	38	-	4.6			
220K	14	18	8.0				22(20-24)	43	-	4.7			
270K	17	22	10.0				27(24-30)	53	-	4.8			
330K	20	26	12.5				33(30-36)	65	-	5.0			
390K	25	31	13.0				39(35-43)	77	-	4.9			
470K	30	38	17.0				47(42-52)	93	-	5.0			
560K	35	45	20.0				56(50-62)	110	-	5.1			
680K	40	56	24.0				68(61-75)	135	-	5.3			
820K	50	65	30.0				6000	5000	0.6	82(74-90)	-	135	4.5
101K	60	85	35.0							100(90-110)	-	165	4.7
121K	75	100	42.0	120(108-132)	-	200				4.9			
151K	95	125	53.0	150(135-165)	-	250				5.2			
181K	115	150	74.0	180(162-198)	-	300				4.5			
201K	130	170	80.0	200(185-225)	-	330				4.5			
221K	140	180	80.5	220(198-242)	-	360				4.7			
241K	150	200	84.0	240(216-264)	-	395				4.8			
271K	175	225	99.0	270(243-297)	-	455				5.0			
301K	190	250	105	300(270-330)	-	505				5.1			
331K	210	275	115	330(297-363)	-	550				5.3			
361K	230	300	130	360(324-396)	-	595				5.5			
391K	250	320	140	390(351-429)	-	650				5.7			
431K	275	350	155	430(387-473)	-	710				5.9			
471K	300	385	175	470(423-517)	-	775				6.1			
511K	320	415	190	510(459-561)	-	845				6.4			
561K	350	460	190	560(504-616)	-	920				6.7			
621K	385	505	190	620(558-682)	-	1025				7.1			
681K	420	560	191	680(612-748)	-	1120				7.1			
751K	460	615	210	750(675-825)	-	1240				7.5			
781K	485	640	211	780(702-858)	-	1290	7.7						
821K	510	670	235	820(738-902)	-	1355	7.9						
911K	550	745	255	910(819-1001)	-	1500	8.1						
102K	625	825	280	1000(900-1100)	-	1650	8.3						
112K	680	895	310	1100(990-1210)	-	1815	8.5						
152K	900	1200	420	1500(1350-1650)	-	2475	11.0						
182K	1000	1465	510	1800(1620-1980)	-	2970	12.5						

VD20 / High Surge & High Energy Type

Codes	Maximum Allowable Voltage		Energy (10/100 μ s) (J)	Withstanding Surge Current (8/20 μ s)		Rated Wattage (W)	Varistor Voltage @ 1mA (V)	Maximum Clamping Voltage		T max mm
	ACrms (v)	DC (V)		1 time	2 times			@ 20A	@ 100A	
			(A)		(V)					
180L	10	14	13	3000	1000	0.2	18(15-21)	38	-	5.1
220K	14	18	16				22(20-24)	43	-	5.2
270K	17	22	19				27(24-30)	53	-	5.3
330K	20	26	24				33(30-36)	65	-	5.4
390K	25	31	28				39(35-43)	77	-	5.5
470K	30	38	34				47(42-52)	93	-	5.6
560K	35	45	41				56(50-62)	110	-	5.7
680K	40	56	49				68(61-75)	135	-	5.8
820K	50	65	56				10000	7000	1.0	82(74-90)
101K	60	85	70	100(90-110)	-	165				5.1
121K	75	100	85	120(108-132)	-	200				5.3
151K	95	125	106	150(135-165)	-	250				5.6
181K	115	150	130	180(162-198)	-	300				5.0
201K	130	170	140	200(185-225)	-	330				5.0
221K	140	180	155	220(198-242)	-	360				5.3
241K	150	200	168	240(216-264)	-	395				5.4
271K	175	225	190	270(243-297)	-	455				5.6
301K	190	250	210	300(270-330)	-	505				5.7
331K	210	275	228	330(297-363)	-	550				5.9
361K	230	300	255	360(324-396)	-	595				6.2
391K	250	320	275	390(351-429)	-	650				6.2
431K	275	350	305	430(387-473)	-	710				6.4
471K	300	385	350	470(423-517)	-	775				6.6
511K	320	415	380	510(459-561)	-	845				6.8
561K	350	460	380	560(504-616)	-	920				7.0
621K	385	505	381	620(558-682)	-	1025				7.5
681K	420	560	382	680(612-748)	-	1120				7.8
751K	460	615	420	750(675-825)	-	1240				8.2
781K	485	640	421	780(702-858)	-	1290				8.4
821K	510	670	460	820(738-902)	-	1355				8.5
911K	550	745	510	910(819-1001)	-	1500				9.0
102K	625	825	560	1000(900-1100)	-	1650				9.5
112K	680	895	620	1100(990-1210)	-	1815	10.1			
152K	900	1200	780	1500(1350-1650)	-	2475	13.2			
182K	1000	1465	860	1800(1620-1980)	-	2970	15.6			

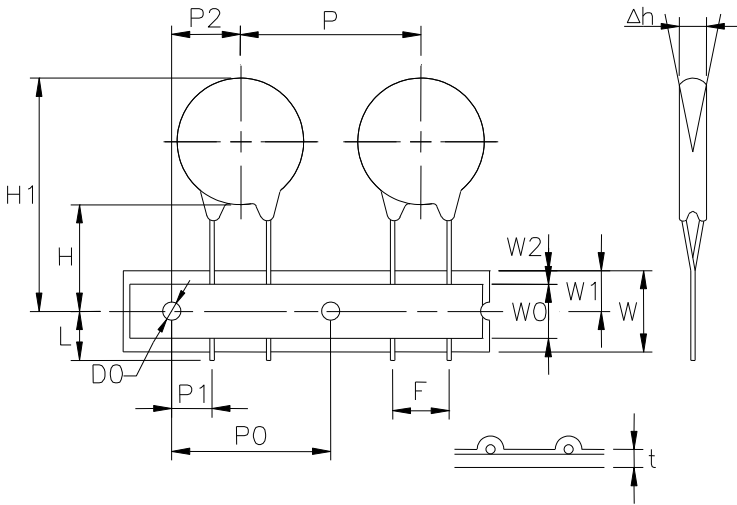
Environmental Characteristics

Item	Requirement	Test Method								
Dry Heat Load	$\Delta V_b/V_b\% \leq \pm 10\%$	125±2°C. Max. allowable voltage for 1000hr with 1.5 hrs "ON" and 0.5 hrs "OFF"								
High Temperature Storage	$\Delta V_b/V_b\% \leq \pm 5\%$	125±2°C , 1000±24hr								
Damp Heat with Load	$\Delta V_b/V_b\% \leq \pm 10\%$	40±2°C, 90~95% R.H. Max. allowable voltage for 1000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF"								
Temperature Cycle	No visible damage $\Delta V_b/V_b\% \leq \pm 10\%$	One Cycle: One Cycle/step1:-55±3°C for 30min step2:25±2°C for 15min step3:125±2°C for 30min step4:25±2°C for 15min Total: 5cycle The change of Vb and mechanical damage shall be examined after 2 hours								
Surge Life Time Rating	No visible damage $\Delta V_b/V_b\% \leq \pm 10\%$	The change of Vb shall be measured after multi-impulses according to the Tables on page 39 ~ 43 with interval of ten seconds at room temperature.								
Energy	No visible damage $\Delta V_b/V_b\% \leq \pm 10\%$	The maximum energy within the varistor voltage change of ±10% when one pulse is applied. Energy=K*Vc*Ip*T Where Ip(Ipeak) is the peak current applied, Vc(Vclamp) is the clamp voltage which results, T is the impulse duration, K is a constant.								
Voltage Proof	No Breakdown	Voltage : 2500VAC Leakage Current ≤ 0.5mA Time : 60 Seconds								
Terminal Bending Strength	No visible damage	The unit shall be secured with its terminal kept vertical and the weight Specified below be applied in the axial direction. The terminal shall gradually be bent by 90° in one direction, then 90° in the opposite direction, and again back to the original position. The damage of the terminal shall be visually examined. <table border="1"> <thead> <tr> <th>Diameter</th> <th>Loading</th> </tr> </thead> <tbody> <tr> <td>0.6 mm</td> <td>0.5 kg</td> </tr> <tr> <td>0.8 mm</td> <td>0.5 kg</td> </tr> <tr> <td>1.0 mm</td> <td>1.0 kg</td> </tr> </tbody> </table>	Diameter	Loading	0.6 mm	0.5 kg	0.8 mm	0.5 kg	1.0 mm	1.0 kg
Diameter	Loading									
0.6 mm	0.5 kg									
0.8 mm	0.5 kg									
1.0 mm	1.0 kg									
Terminal Pull Strength	No visible damage	After gradually applying the load specified below and keeping the unit fixed for ten seconds, the terminal shall be visually examined for any damage. <table border="1"> <thead> <tr> <th>Diameter</th> <th>Loading</th> </tr> </thead> <tbody> <tr> <td>0.6 mm</td> <td>1.0 kg</td> </tr> <tr> <td>0.8 mm</td> <td>1.0 kg</td> </tr> <tr> <td>1.0 mm</td> <td>2.0 kg</td> </tr> </tbody> </table>	Diameter	Loading	0.6 mm	1.0 kg	0.8 mm	1.0 kg	1.0 mm	2.0 kg
Diameter	Loading									
0.6 mm	1.0 kg									
0.8 mm	1.0 kg									
1.0 mm	2.0 kg									
Vibration	No visible damage $\Delta V_b/V_b\% \leq \pm 5\%$	The Specimen shall be vibrated by its lead wires with a total amplitude of 1.5 mm and a varying frequency of 10~55~10HZ(each minutes) for a period of 2 hours respectively in each X, Y and Z directions								
Solderability	Terminations shall be uniformly tinned	After dipping the terminal to a depth of approximately 3 mm in a 235±5°C Soldering bath or Lead Free bath: 260±5°C for 10 ± 1(D5 5±1) seconds. Thereafter the terminal shall be visually examined.								
Resistance to Soldering Heat	No visible damage $\Delta V_b/V_b\% \leq \pm 5\%$	The specimen shall be completely immersed into a soldering bath having a temperature of 260±5°C for 10±1 (D5: 5±1) seconds or lead free product Use temperature of 270±5°C bath for 10±1 (D5 5±1) or iron of 400±5°C for 3±0.5 sec. Thereafter the change of Vb and mechanical damage shall be examined.								

■ Storage Temperature: 25±3°C; Humidity < 80%RH

■ Packaging

Taping Specifications



Unit: mm

Codes	05D	07D	10D		14D	20D	
P	12.7±1.0	12.7±1.0	12.7±1.0	25.4±1.0	25.4±1.0	25.4±1.0	
P0	12.7±0.3	12.7±0.3	12.7±0.3		12.7±0.3	12.7±0.3	
P1	3.85±0.7	3.85±0.7	3.85±0.7	8.95±0.7	8.95±0.7	8.95±0.7	7.7±0.7
P2	6.35±1.3	6.35±1.3	6.35±1.3	12.7±1.3	12.7±1.3	12.7±1.3	
F	5.0±0.8	5.0±0.8	5.0±0.8	7.5±0.8	7.5±0.8	7.5±0.8	10±0.8
Δh	0±0.2	0±0.2	0±0.2		0±0.2	0±0.2	
W	18.0±1.0	18.0±1.0	18.0±1.0		18.0±1.0	18.0±1.0	
W0	12.5 max	12.5 max	12.5 max		12.5 max	12.5 max	
W1	9.0±0.5	9.0±0.5	9.0±0.5		9.0±0.5	9.0±0.5	
W2	3.0 max	3.0 max	3.0 max		3.0 max	3.0 max	
H	20.0±2.0	20.0±2.0	20.0±2.0		20.0±2.0	20.0±2.0	
H1	29.0 max	32.0 max	36.0 max		40.0 max	46.5 max	
L	1.0 max	1.0 max	1.0 max		1.0 max	1.0 max	
D0	4.0±0.2	4.0±0.2	4.0±0.2		4.0±0.2	4.0±0.2	
t	0.6±0.3	0.6±0.3	0.6±0.3		0.6±0.3	0.6±0.3	

Packing Quantity

Codes		Bulk Packing	Reel Packing	Ammo Packing
05D	8R0M - 391K	1,000	2,000	2,000
	431K- 751K			1,000
07D	8R0M - 391K	1,000	2,000	2,000
	431K- 821K			1,500
10D	-	500	500	500
14D	120M - 471K	500	500	500
	511K- 182K	250	400	500
20D	180L - 471K	250	400	400
	511K- 182K	125	300	300