Surge Protective Device

Features

- Epoxy resin coating
- High peak surge current, 8/20μs, 20KA~70KA
- Strap terminal
- Approved to UL1449

Applications

- Protection of Communication against lightning
- Industral Power distributors
- Railway, Highway and Air-signal
- Building Power distributors input against lightning

Explanations of Part Numbers

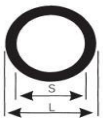
	D		C	P	D
Nominal Disc Dimension 25: 25mm 32: 32mm 40: 40mm 53: 53mm	Disc Shape D: Circle LS: Square	Max Allowable AC Voltage 130: 130Vac 385: 385Vac 680: 680Vac	Enclosure C: Epoxy	Tab Style P: Plane L: L Shape	Disc Ase. Qty D: Double Disc

Surge Protective Device

Features

- Unpackaged discs for unique packing by customers
- Solderable electrode finish or pressure contact
- Wide operating voltage (AC 130V~680V)
- High surge current and energy capability

Dimensions



Model	L	S
25D	25 ± 0.5	22 ± 0.5
32D	32 ± 0.5	28.5 ± 0.5
40D	40 ± 0.5	36 ± 0.5
53D	53 ± 1.0	46 ± 0.7

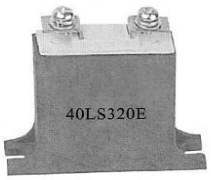
Model	L	S
40LS	33.4 ± 0.5	30.5 ± 0.5

Explanations of Part Numbers

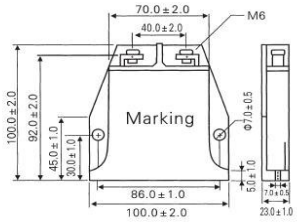
	D		A
Nominal Disc Dimension 25: 25mm 32: 32mm 40: 40mm 53: 53mm	Disc Shape D: Circle LS: Square	Max Allowable AC Voltage 130: 130Vac 385: 385Vac 680: 680Vac	Electrode A: Silver

Explanations of Part Numbers

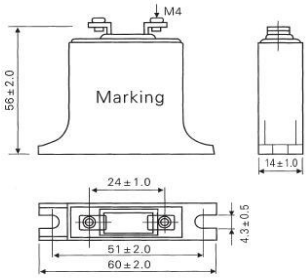
	D		E
Nominal Disc Dimension 25: 25mm 32: 32mm 40: 40mm 53: 53mm	Disc Shape D: Circle LS: Square	Max Allowable AC Voltage 130: 130Vac 385: 385Vac 680: 680Vac	Enclosure E: Plastic case



53D E Type



25D.32D.40LS E Type



UNIT: mm

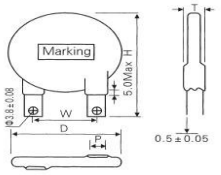
Dimensions

Model / Symbol	25D	32D	40D	53D	40LS	40LS CPD
D(max.)	30.0	37.0	45.0	58.0	40.0	40.0
H(max.)	45.0	50.0	60.0	80.0	56.0	56.0
W(±1.0)	20.0	25.4	25.4	25.4	25.4	25.4
P(±0.2)	7.0	7.0	7.0	9.5	7.0	7.0

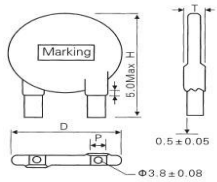
Tmax

Model / Symbol	25D	32D	40D	53D	40LS	40LS CPD
130C	9.0	9.0	9.0	9.0	9.0	10.5
140C	9.0	9.0	9.0	9.0	9.0	10.5
150C	9.2	9.2	9.2	9.2	9.2	11.0
175C	9.5	9.5	9.5	9.5	9.5	11.5
195C	9.5	9.5	9.5	9.5	9.5	11.5
210C	9.7	9.7	9.7	9.7	9.7	12.0
230C	9.7	9.7	9.7	9.7	9.7	12.0
250C	10.3	10.3	10.3	10.3	10.3	12.5
275C	10.6	10.6	10.6	10.6	10.6	13.0
300C	10.6	10.6	10.6	10.6	10.6	13.0
320C	11.2	11.2	11.2	11.2	11.2	14.0
345C	11.2	11.2	11.2	11.2	11.2	14.0
385C	11.6	11.6	11.6	11.6	11.6	15.0
420C	11.6	11.6	11.6	11.6	11.6	15.0
460C	11.8	11.8	11.8	11.8	11.8	15.5
485C	11.8	11.8	11.8	11.8	11.8	15.5
510C	11.8	11.8	11.8	11.8	11.8	16.0
550C	12.0	12.0	12.0	12.0	12.0	17.0
625C	12.6	12.6	12.6	12.6	12.6	17.0
680C	13.2	13.2	13.2	13.2	13.2	18.0

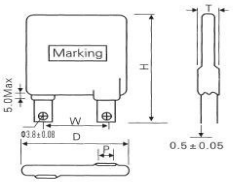
25D,32D,40D,53D CP Series



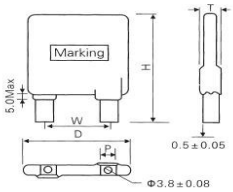
25D,32D,40D,53D CL Series



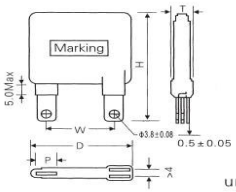
40LS CP Series



40LS CL Series



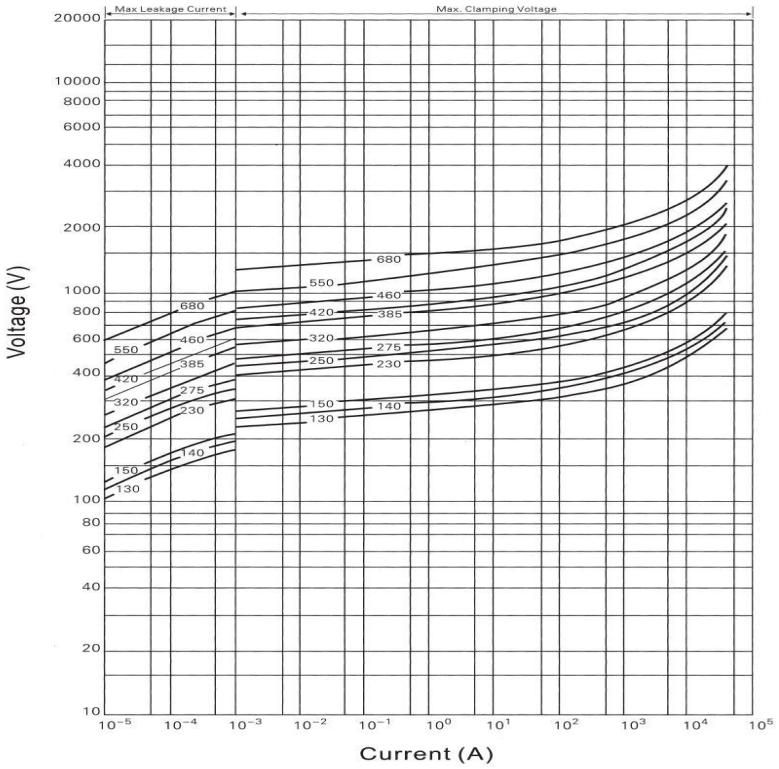
40LS CPD Series (double disc)



unit: mm

Surge Protective Device

V-I Curve (25D130C to 53D680C)



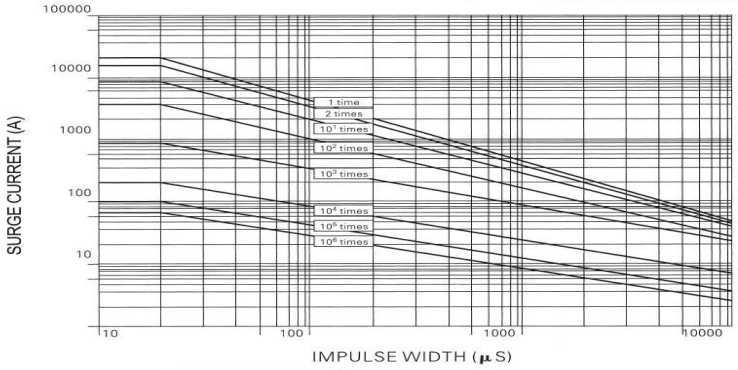
Surge Protective Device

2 times: 5 minutes interval

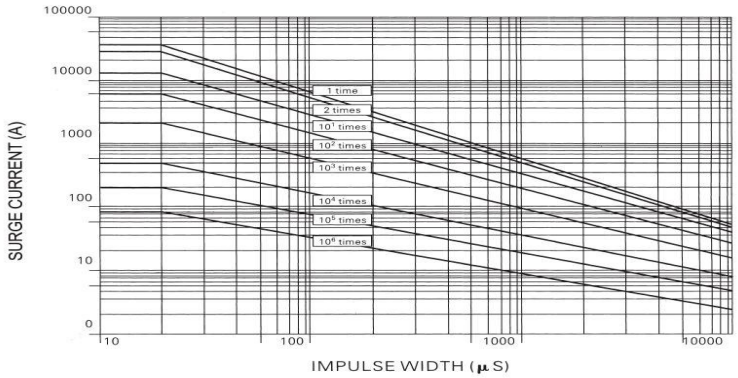
up to 10 times: 2 minutes interval

up to 10^6 times: 10 seconds interval

25mm Series



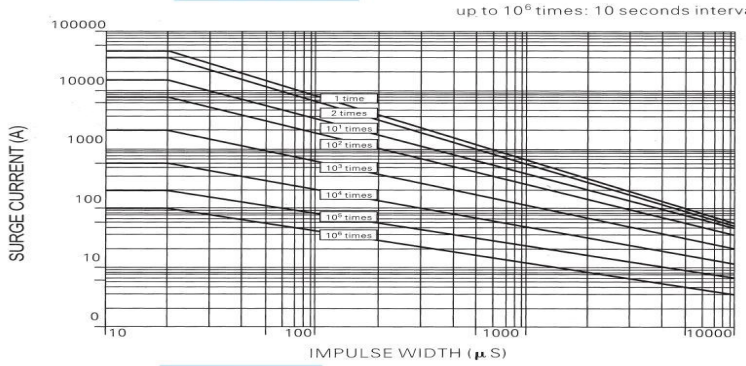
32mm Series



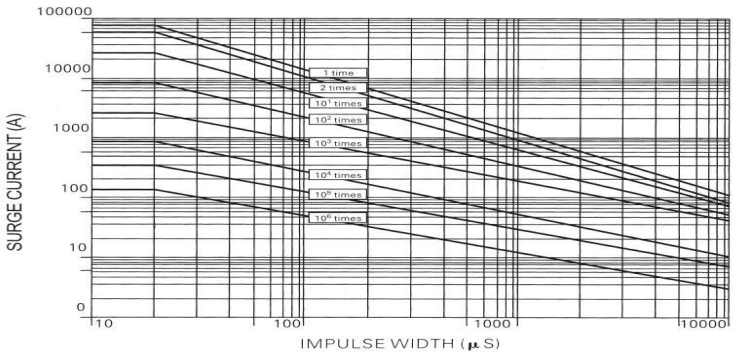
Surge Protective Device

2 times: 5 minutes interval
up to 10 times: 2 minutes interval
up to 10^6 times: 10 seconds interval

40D,40LS Series



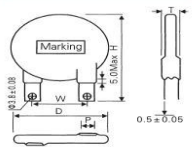
53mm Series



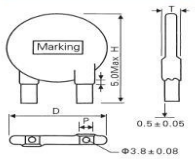
Surge Protective Device

25MM(25D CP,CL,E Series)

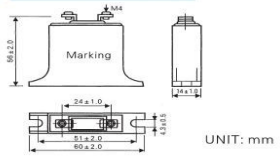
CP Series



CL Series



E Series



UNIT: mm

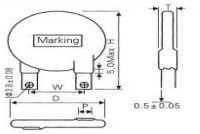
Device Ratings and Characteristics

Part No.		Max Allowable Voltage		Varistor Voltage (@1mA)		Clamping Voltage @ Test Current (8/20μs)		Max Energy (2ms)	Max Peak Current (8/20μs)	Rated Power	Typical Capacitance (@1KHz)
		ACrms(V)	DC(V)	Min.	Max.	Vc(V)	Ip(A)	(J)	(A)	(W)	(pF)
25D/32D 130C	210KD25/32	130	170	185	225	340		125/210			5200/5980
25D/32D 140C	221KD25/32	140	180	198	242	360		130/225			4700/5405
25D32D 150C	241KD25/32	150	200	216	264	395		145/240			4400/5060
25D/32D 175C	271KD25/32	175	225	247	303	455		170/255			4000/4600
25D/32D 195C	301KD25/32	195	250	270	330	505		175/280			3800/4370
25D/32D 210C	331KD25/32	210	275	297	363	550		180/305			3000/3450
25D/32D 230C	361KD25/32	230	300	324	396	595		190/325			2600/2990
25D/32D 250C	391KD25/32	250	320	351	429	650		210/350			2500/2875
25D/32D 275C	431KD25/32	275	350	387	473	710	150/200	220/400	20000/30000	1.0/1.2	2200/2530
25D/32D 300C	511KD25/32	300	385	423	517	775		225/405			2100/2415
25D/32D 320C	561KD25/32	320	410	459	561	845		230/430			1900/2185
25D/32D 345C	621KD25/32	345	460	504	616	925		235/470			1800/2070
25D/32D 385C	681KD25/32	385	505	558	682	1025		240/550			1700/1955
25D/32D 420C	751KD25/32	420	560	612	748	1120		250/600			1600/1840
25D/32D 460C	751KD25/32	460	615	675	825	1240		275/610			1500/1725
25D/32D 485C	784KD25/32	485	640	702	858	1290		290/620			1300/1495
25D/32D 510C	821KD25/32	510	670	738	902	1355		300/630			1200/1380
25D/32D 550C	911KD25/32	550	745	819	1001	1500		340/650			1100/1265
25D/32D 625C	102KD25/32	625	825	900	1100	1650		375/680			990/1139
25D/32D 680C	112KD25/32	680	895	990	1210	1815		390/760			920/1058

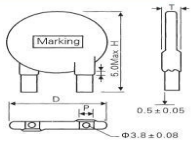
Surge Protective Device

53MM(53D CP,CL Series)

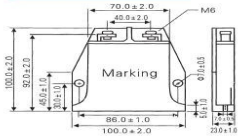
CP Series



CL Series



E Series



UNIT: mm

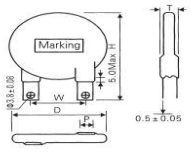
Device Ratings and Characteristics

Part No.		Max Allowable Voltage		Varistor Voltage (@1mA)		Clamping Voltage @ Test Current (8/20μs)		Max Energy (2ms)	Max Peak Current (8/20μs)	Rated Power	Typical Capacitance (@1KHz)
		ACrms(V)	DC(V)	Min.	Max.	Vc(V)	Ip(A)	(J)	(A)	(W)	(pF)
53D 130C	201KD53	130	170	185	225	340		490			13800
53D 140C	221KD53	140	180	198	242	360		530			13200
53D 150C	241KD53	150	200	216	264	395		570			13000
53D 175C	271KD53	175	225	247	303	455		630			12600
53D 195C	301KD53	195	250	270	330	505		650			11500
53D 210C	331KD53	210	275	297	363	550		680			10500
53D 230C	361KD53	230	300	324	396	595		730			10200
53D 250C	391KD53	250	320	351	429	650		880			8400
53D 275C	431KD53	275	350	387	473	710	500	950	70000	1.5	8100
53D 300C	511KD53	300	385	423	517	775		1000			7200
53D 320C	561KD53	320	410	459	561	845		1100			6300
53D 345C	621KD53	345	460	504	616	925		1200			5100
53D 385C	681KD53	385	505	558	682	1025		1300			3400
53D 420C	751KD53	420	560	612	748	1120		1500			3300
53D 460C	751KD53	460	615	675	825	1240		1600			3180
53D 485C	781KD53	485	640	702	858	1290		1650			3000
53D 510C	821KD53	510	670	738	902	1355		1800			3000
53D 550C	911KD53	550	745	819	1001	1500		2000			2880
53D 625C	102KD53	625	825	900	1100	1650		2200			2760
53D 680C	112KD53	680	895	990	1210	1815		2500			2400

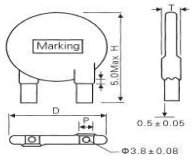
Surge Protective Device

40MM(40D CP,CL Series)

CP Series



CL Series



UNIT: mm

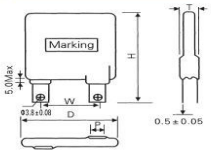
Device Ratings and Characteristics

Part No.		Max Allowable Voltage		Varistor Voltage (@1mA)		Clamping Voltage @ Test Current (8/20μs)		Max Energy (2ms)	Max Peak Current (8/20μs)	Rated Power	Typical Capacitance (@1KHz)
		ACrms(V)	DC(V)	Min.	Max.	Vc(V)	Ip(A)	(J)	(A)	(W)	(pF)
40D 130C	201KD40	130	170	185	225	340		310			8500
40D 140C	221KD40	140	180	198	242	360		330			7800
40D 150C	241KD40	150	200	216	264	395		360			7200
40D 175C	271KD40	175	225	247	303	455		400			6500
40D 195C	301KD40	195	250	270	330	505		410			6200
40D 210C	331KD40	210	275	297	363	550		430			5000
40D 230C	361KD40	230	300	324	396	595		460			4300
40D 250C	391KD40	250	320	351	429	650		490			4200
40D 275C	431KD40	275	350	387	473	710	300	550	40000	1.4	3600
40D 300C	511KD40	300	385	423	517	775		600			3400
40D 320C	561KD40	320	410	459	561	845		640			3200
40D 345C	621KD40	345	460	504	616	925		700			3000
40D 385C	681KD40	385	505	558	682	1025		800			2800
40D 420C	751KD40	420	560	612	748	1120		910			2600
40D 460C	751KD40	460	615	675	825	1240		920			2500
40D 485C	781KD40	485	640	702	858	1290		930			2200
40D 510C	821KD40	510	670	738	902	1355		940			2000
40D 550C	911KD40	550	745	819	1001	1500		960			1800
40D 625C	102KD40	625	825	900	1100	1650		1050			1600
40D 680C	112KD40	680	895	990	1210	1815		1100			1500

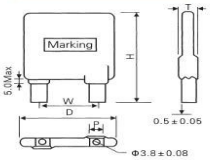
Surge Protective Device

34MM(40LS Square shape CPD, CP, CL, E Series)

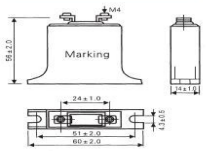
40LS CP Series



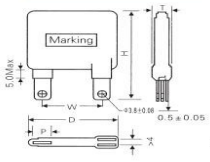
40LS CL Series



E Series



40LS CPD Series



UNIT: mm

Device Ratings and Characteristics

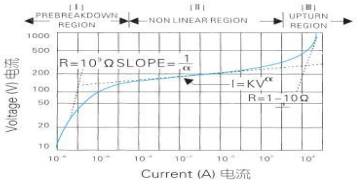
Part No.		Max Allowable Voltage		Varistor Voltage (@1mA)		Clamping Voltage @ Test Current (8/20μs)		Max Energy (2ms)	Max Peak Current (8/20μs)	Rated Power	Typical Capacitance (@1KHz)
		ACrms(V)	DC(V)	Min.	Max.	Vc(V)	Ip(A)	(J)	(A)	(W)	(pF)
40LS 130C/CPD	201KD40	130	170	185	225	340		310			8500
40LS 140C/CPD	221KD40	140	180	198	242	360		330			7800
40LS 150C/CPD	241KD40	150	200	216	264	395		360			7200
40LS 175C/CPD	271KD40	175	225	247	303	455		400			6500
40LS 195C/CPD	301KD40	195	250	270	330	505		410			6200
40LS 210C/CPD	331KD40	210	275	297	363	550		430			5000
40LS 230C/CPD	361KD40	230	300	324	396	595		460			4300
40LS 250C/CPD	391KD40	250	320	351	429	650		490			4200
40LS 275C/CPD	431KD40	275	350	387	473	710	300	550	40000	1.4	3600
40LS 300C/CPD	511KD40	300	385	423	517	775		600			3400
40LS 320C/CPD	561KD40	320	410	459	561	845		640			3200
40LS 345C/CPD	621KD40	345	460	504	616	925		700			3000
40LS 385C/CPD	681KD40	385	505	558	682	1025		800			2800
40LS 420C/CPD	751KD40	420	560	612	748	1120		910			2600
40LS 460C/CPD	751KD40	460	615	675	825	1240		920			2500
40LS 485C/CPD	781KD40	485	640	702	858	1290		930			2200
40LS 510C/CPD	821KD40	510	670	738	902	1355		940			2000
40LS 550C/CPD	911KD40	550	745	819	1001	1500		960			1800
40LS 625C/CPD	102KD40	625	825	900	1100	1650		1050			1600
40LS 680C/CPD	112KD40	680	895	990	1210	1815		1100			1500

Surge Protective Device

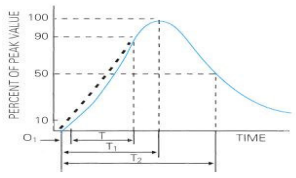
Electrical Characteristics

Characteristics	Marks	Descriptions
Varistor voltage (breakdown voltage)	V1mA	The voltage across the varistor measured at a specified current Ic (1.0mA) of specified duration.
Non linear exponent	α	$\alpha = \frac{\log I_1/I_2}{\log V_1/V_2}$ I_1 and I_2 are the current value corrwesponding to the voltage value V_1 and V_2

V–I Characteristics



Norminal impulse discharge current	8*20μsec	Rated discharge current of 8*20μsec waveform
Norminal impulse discharge current	10*1000μsec	Rated discharge current of 8*20μsec waveform



O_1 – Virtual Origin of Wave
T – Time From 10% to 90% of Peak
T_1 – Virtual Front time = 1.25 · t
T_2 – Virtual Time to Half Value (Impulse Duration)
Example: For an 8/20μs Current Waveform:
8μs – T_1 – Virtual Front Time
20μs –T_2 – Virtual Time to Half Value

Rated powed	W	The maximun power that can be applied within the specified ambient temperature
Capacitance	C	Measured at 1kHz ±100%, 1Vrms max OV bias and 20±2℃