

05D Specification

Put "J" in Free Code Stands For High Surge Series

VCR		Maximum Allowable Voltage		Varistor Voltage	Clampin g Voltage (Max.)	Maximum Peak Current (8/20μs)	Maximum Energy (10/1000μs)	RATED POWER	Typical Capacitance (Reference)					
P/N		AC.rms	DC	V _{1.0mA}	VC	IP	Standard	High Surge	Standard	High Surge	(W)	@1KHz		
Standard	High Surge	(V)		(V)	(V)	(A)	(A)		(JOULE)			(pf)		
05D180L	J	11	14	18(15-21)	40	1	100	250	0.4	0.6	0.01	1400	*	*
05D220K	J	14	18	22(20-24)	48				0.5	0.7		1150	*	*
05D270K	J	17	22	27(24-30)	60				0.6	0.9		930	*	*
05D330K	J	20	26	33(30-36)	73				0.8	1.1		760	*	*
05D390K	J	25	31	39(35-43)	80				0.9	1.2		640	*	*
05D470K	J	30	38	47(42-52)	104				1.1	1.5		530	*	*
05D560K	J	35	45	56(50-62)	123				1.3	1.8		450	*	*
05D680K	J	40	56	68(61-75)	150				1.6	2.2		370	*	*
05D820K	J	50	65	82(74-90)	146	5	400	800	2.5	4.0	0.10	300	*	*
05D101K	J	60	85	100(90-110)	175				3.0	4.1		250	*	*
05D121K	J	75	100	120(108-132)	210				4.0	4.9		210	*	*
05D151K	J	95	125	150(135-165)	260				4.8	6.5		165	*	*
05D181K	J	115	150	180(162-198)	320				5.9	7.5		140	*	*
05D201K	J	130	170	200(185-225)	355				6.5	8.5		125	*	*
05D221K	J	140	180	220(198-242)	380				7.0	9.0		110	*	*
05D241K	J	150	200	240(216-264)	410				8.0	10.5		100	*	*
05D271K	J	175	225	270(243-297)	475				8.5	11.0		95	*	*
05D301K	J	190	250	300(270-330)	520				9.0	12.0		85	*	*
05D331K	J	210	275	330(297-363)	570				9.5	13.0		75	*	*
05D361K	J	230	300	360(324-396)	620				10.0	16.0		70	*	*
05D391K	J	250	320	390(351-429)	675				12.0	17.0		65	*	*
05D431K	J	275	350	430(387-473)	745				13.0	20.0		60	*	*
05D471K	J	300	385	470(423-517)	810				15.0	21.0		55	*	*
05D511K	J	320	415	510(459-561)	845				16.0	22.5		50	*	
05D561K	J	350	460	560(504-616)	920				16.0	24.0		45	*	
05D621K	J	385	505	620(558-682)	1025				17.7	25.0		40		
05D681K	J	420	560	680(612-748)	1120				21.0	29.0		35		
05D751K	J	460	615	750(675-825)	1240				22.4	32.0		30		

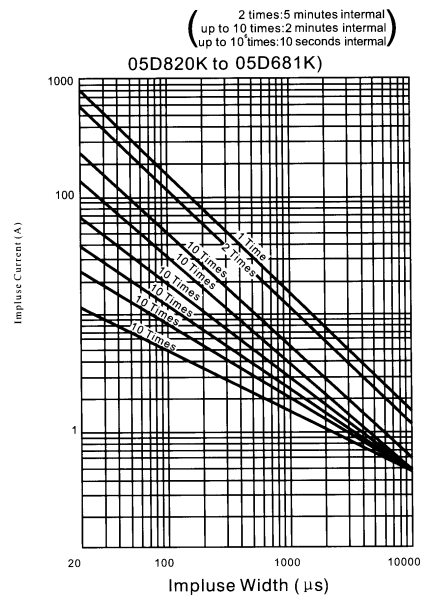
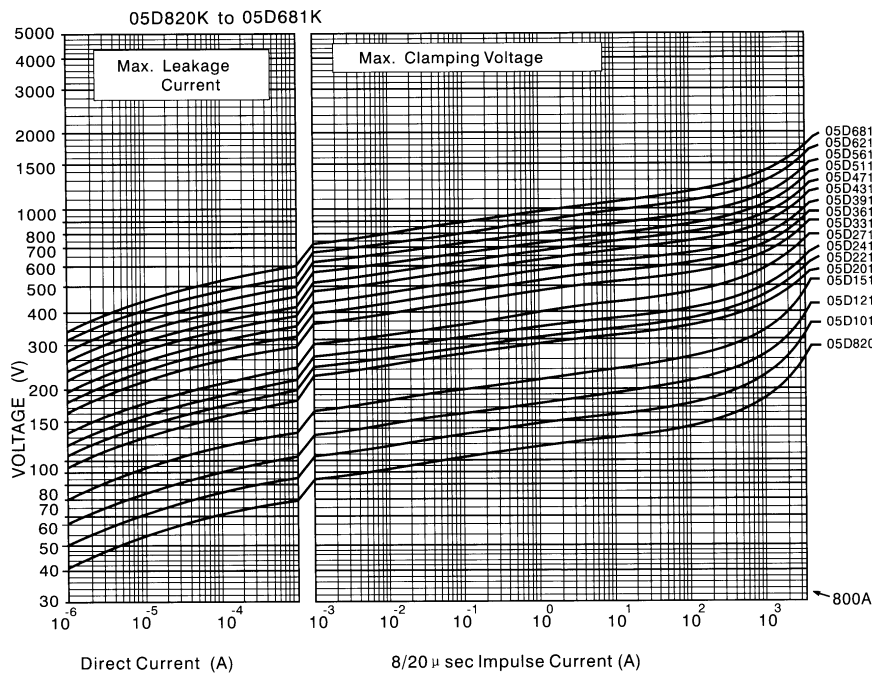
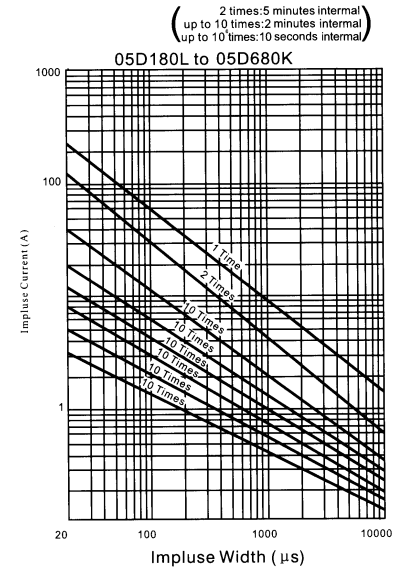
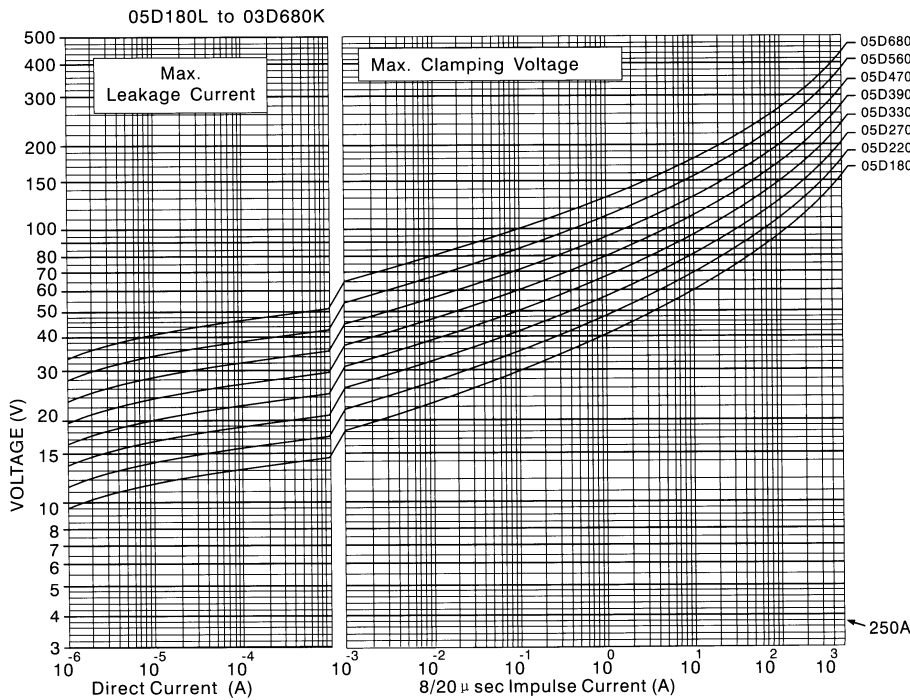
Operating temperature range: - 40°C TO +105°C

Storage temperature range: - 40°C TO +125°C

05D SERIES

V-I curve

Impluse Lifetime Ratings



07D Specification

Put "J" in Free Code Stands for High Surge series

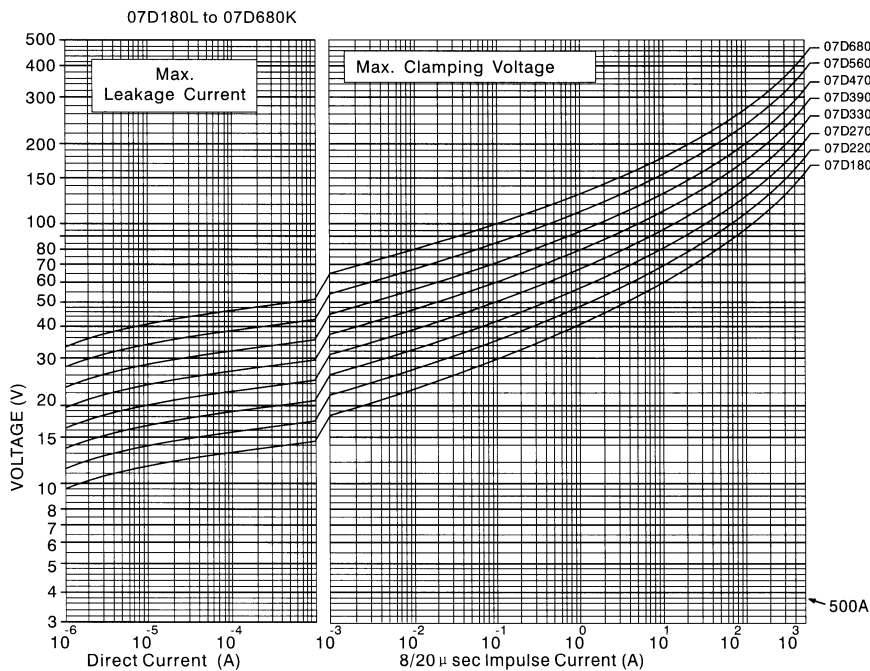
VCR		Maximum Allowable Voltage		Varistor Voltage	Clamping Voltage (Max.)	Maximum Peak Current (8/20μs)		Maximum Energy (10/1000μs)		RATED POWER	Typical Capacitance (Reference)			
P/N		AC.rms	DC	V _{1.0mA}	VC	IP	Standard	High Surge	Standard	High Surge	(W)	@1KHz		
Standard	High Surge	(V)		(V)	(V)	(A)	(A)		(JOULE)			(pf)		
07D180L	J	11	14	18(15-21)	36	2.5	250	500	0.9	2.0	0.02	2800	*	*
07D220K	J	14	18	22(20-24)	43				1.1	2.4		2300	*	*
07D270K	J	17	22	27(24-30)	53				1.4	3.0		1800	*	*
07D330K	J	20	26	33(30-36)	65				1.7	3.5		1500	*	*
07D390K	J	25	31	39(35-43)	77				2.1	4.0		1300	*	*
07D470K	J	30	38	47(42-52)	93				2.5	5.0		1100	*	*
07D560K	J	35	45	56(50-62)	110				3.1	6.0		890	*	*
07D680K	J	40	56	68(61-75)	135				3.6	7.0		740	*	*
07D820K	J	50	65	82(74-90)	135	10	1200	1750	5.5	10	0.25	600	*	*
07D101K	J	60	85	100(90-110)	165				6.5	12		500	*	*
07D121K	J	75	100	120(108-132)	200				7.8	13		420	*	*
07D151K	J	95	125	150(135-165)	250				9.7	13		330	*	*
07D181K	J	115	150	180(162-198)	300				11.7	16		280	*	*
07D201K	J	130	170	200(185-225)	340				13	17		250	*	*
07D221K	J	140	180	220(198-242)	360				14	19		230	*	*
07D241K	J	150	200	240(216-264)	395				15	21		210	*	*
07D271K	J	175	225	270(243-297)	455				18	24		185	*	*
07D301K	J	190	250	300(270-330)	500				20	26		165	*	*
07D331K	J	210	275	330(297-363)	550				23	28		150	*	*
07D361K	J	230	300	360(324-396)	595				25	32		140	*	*
07D391K	J	250	320	390(351-429)	650				25	35		130	*	*
07D431K	J	275	350	430(387-473)	710				28	40		115	*	*
07D471K	J	300	385	470(423-517)	775				30	42		105	*	*
07D511K	J	320	415	510(459-561)	845				30	45		100	*	*
07D561K	J	350	460	560(504-616)	925				30	49		90	*	*
07D621K	J	385	505	620(558-682)	1025				33	55		80	*	
07D681K	J	420	560	680(612-748)	1120				33	60		75	*	

Operating temperature range: - 40°C TO +105°C

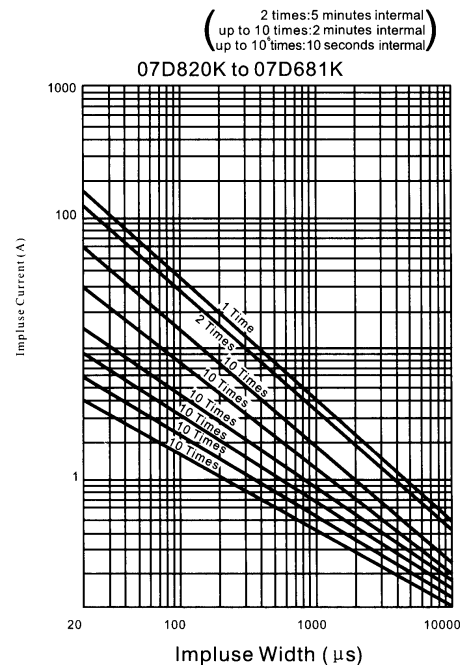
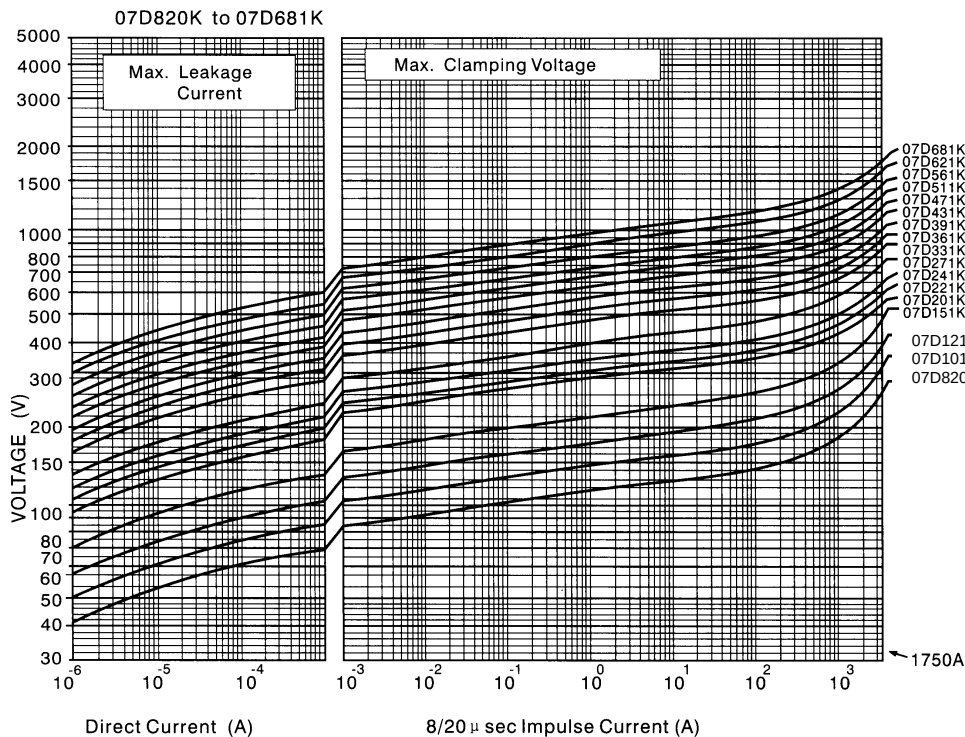
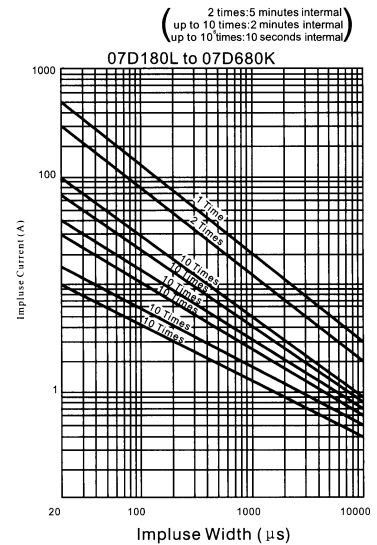
Storage temperature range: - 40°C TO +125°C

07D SERIES

V-I curve



Impulse Lifetime Ratings



10D Specification

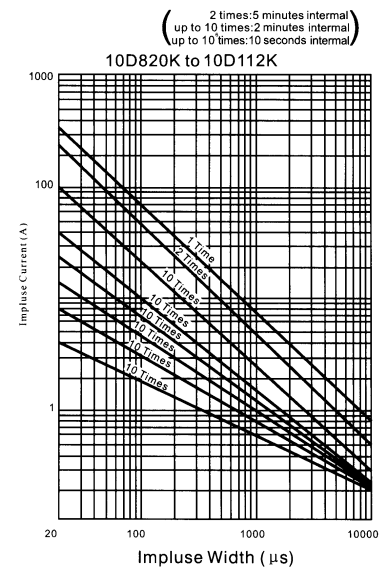
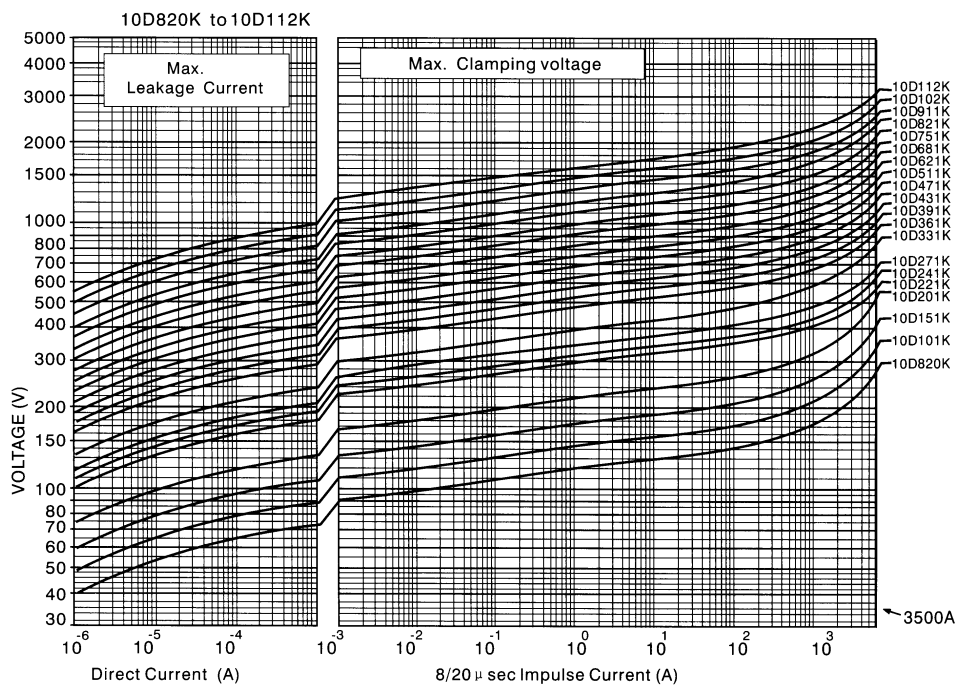
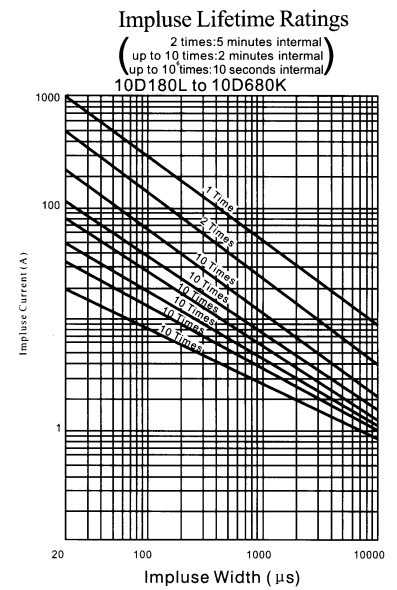
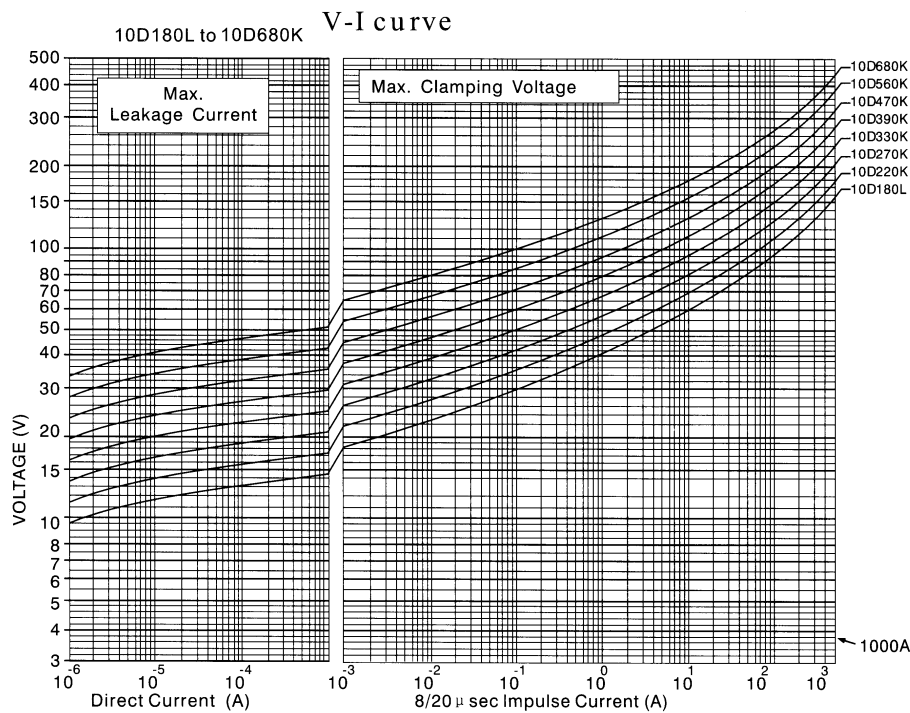
Put "J" in Free Code Stands for High Surge Series

VCR		Maximum Allowable Voltage		Varistor Voltage	Clamping Voltage (Max.)		Maximum Peak Current (8/20μs)		Maximum Energy (10/1000μs)		RATED POWER	Typical Capacitance (Reference)		
P/N		AC.rms	DC	V _{1.0mA}	VC	IP	Standard	High Surge	Standard	High Surge	(W)	@1KHz		
Standard	High Surge	(V)		(V)	(V)	(A)	(A)		(JOULE)			(pf)		
10D180L	J	11	14	18(15-21)	36	5.0	500	1000	2.1	3.0	0.05	5600	*	*
10D220K	J	14	18	22(20-24)	43				2.5	5.0		4500	*	*
10D270K	J	17	22	27(24-30)	53				3.0	6.0		3700	*	*
10D330K	J	20	26	33(30-36)	65				4.0	7.0		3000	*	*
10D390K	J	25	31	39(35-43)	77				4.6	9.0		2400	*	*
10D470K	J	30	38	47(42-52)	93				5.5	11		2100	*	*
10D560K	J	35	45	56(50-62)	110				7.0	13		1800	*	*
10D680K	J	40	56	68(61-75)	135				8.2	15		1500	*	*
10D820K	J	50	65	82(74-90)	135	25	2500	3500	12	17	0.40	1200	*	*
10D101K	J	60	85	100(90-110)	165				15	18		1000	*	*
10D121K	J	75	100	120(108-132)	200				18	21		830	*	*
10D151K	J	95	125	150(135-165)	250				22	25		670	*	*
10D181K	J	115	150	180(162-198)	300				27	30		560	*	*
10D201K	J	130	170	200(185-225)	340				30	35		500	*	*
10D221K	J	140	180	220(198-242)	360				32	39		450	*	*
10D241K	J	150	200	240(216-264)	395				35	42		420	*	*
10D271K	J	175	225	270(243-297)	455				40	49		370	*	*
10D301K	J	190	250	300(270-330)	500				40	54		330	*	*
10D331K	J	210	275	330(297-363)	550				43	58		300	*	*
10D361K	J	230	300	360(324-396)	595				47	65		280	*	*
10D391K	J	250	320	390(351-429)	650				60	70		260	*	*
10D431K	J	275	350	430(387-473)	710				65	80		230	*	*
10D471K	J	300	385	470(423-517)	775				70	85		210	*	*
10D511K	J	320	415	510(459-561)	845				70	90		200	*	*
10D561K	J	350	460	560(504-616)	925				70	92		180	*	*
10D621K	J	385	505	620(558-682)	1025				70	95		160	*	*
10D681K	J	420	560	680(612-748)	1120				70	98		150	*	*
10D751K	J	460	615	750(675-825)	1240				75	100		130	*	*
10D781K	J	485	640	780(702-858)	1290				80	105		130	*	*
10D821K	J	510	670	820(738-902)	1355				85	110		120	*	*
10D911K	J	550	745	910(819-1001)	1500				93	130		110	*	*
10D102K	J	625	825	1000(900-1100)	1650				102	140		100	*	*
10D112K	J	680	895	1100(990-1210)	1815				115	155		90	*	*

Operating temperature range: - 40°C TO +105°C

Storage temperature range: - 40°C TO +125°C

10D SERIES



14D Specification

Put "J" in Free Code Stands for High Surge Series

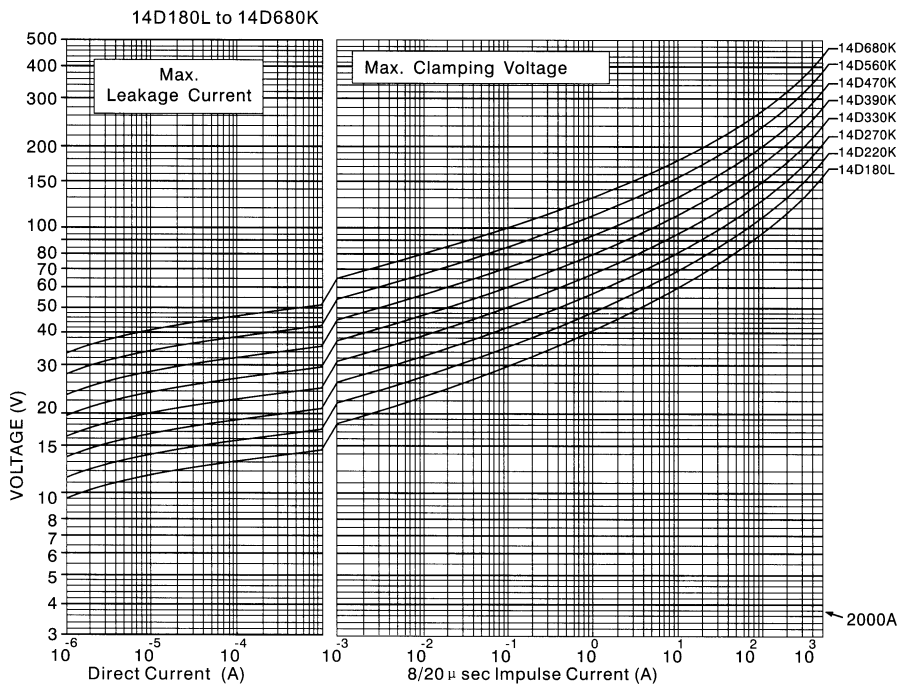
VCR		Maximum Allowable Voltage		Varistor Voltage	Clamping Voltage (Max.)		Maximum Peak Current (8/20μs)		Maximum Energy (10/1000μs)		RATED POWER	Typical Capacitance (Reference)		
P/N		AC.rms	DC	V _{1.0mA}	VC	IP	Standard	High Surge	Standard	High Surge	(W)	@1KHz		
Standard	High Surge	(V)		(V)	(V)	(A)	(A)		(JOULE)			(pf)		
14D180L	J	11	14	18(15-21)	36	10	1000	2000	4.0	7.0	0.1	11100	*	
14D220K	J	14	18	22(20-24)	43				5.0	8.0		9100	*	
14D270K	J	17	22	27(24-30)	53				6.0	10.0		7400	*	*
14D330K	J	20	26	33(30-36)	65				7.5	12		6100	*	*
14D390K	J	25	31	39(35-43)	77				8.6	13		5100	*	*
14D470K	J	30	38	47(42-52)	93				10	17		4300	*	*
14D560K	J	35	45	56(50-62)	110				11	20		3600	*	*
14D680K	J	40	56	68(61-75)	135				14	24		2900	*	*
14D820K	J	50	65	82(74-90)	135	50	4500	6000	22	27	1	2400	*	*
14D101K	J	60	85	100(90-110)	165				28	33		2000	*	*
14D121K	J	75	100	120(108-132)	200				32	40		1700	*	*
14D151K	J	95	125	150(135-165)	250				40	53		1300	*	*
14D181K	J	115	150	180(162-198)	300				50	60		1100	*	*
14D201K	J	130	170	200(185-225)	340				57	70		1000	*	*
14D221K	J	140	180	220(198-242)	360				60	78		900	*	*
14D241K	J	150	200	240(216-264)	395				63	84		830	*	*
14D271K	J	175	225	270(243-297)	455				70	99		740	*	*
14D301K	J	190	250	300(270-330)	500				77	108		670	*	*
14D331K	J	210	275	330(297-363)	550				85	115		610	*	*
14D361K	J	230	300	360(324-396)	595				93	130		560	*	*
14D391K	J	250	320	390(351-429)	650				100	140		510	*	*
14D431K	J	275	350	430(387-473)	710				115	155		460	*	*
14D471K	J	300	385	470(423-517)	775				125	175		430	*	*
14D511K	J	320	415	510(459-561)	845				125	180		390	*	*
14D561K	J	350	460	560(504-616)	925				125	185		360	*	*
14D621K	J	385	505	620(558-682)	1025				125	190		320	*	*
14D681K	J	420	560	680(612-748)	1120				130	200		290	*	*
14D751K	J	460	615	750(675-825)	1240				143	210		270	*	*
14D781K	J	485	640	780(702-858)	1290				148	220		260	*	
14D821K	J	510	670	820(738-902)	1355				157	235		240	*	
14D911K	J	550	745	910(819-1001)	1500				176	255		220	*	
14D102K	J	625	825	1000(900-1100)	1650				190	280		200	*	
14D112K	J	680	895	1100(990-1210)	1815				213	310		180	*	
14D122K	J	700	990	1200(1080-1320)	1880				213	310		150	*	
14D182K	J	1100	1465	1800(1620-1980)	2970			5000	250	335		130	*	

Operating temperature range: - 40°C TO +105°C

Storage temperature range: - 40°C TO +125°C

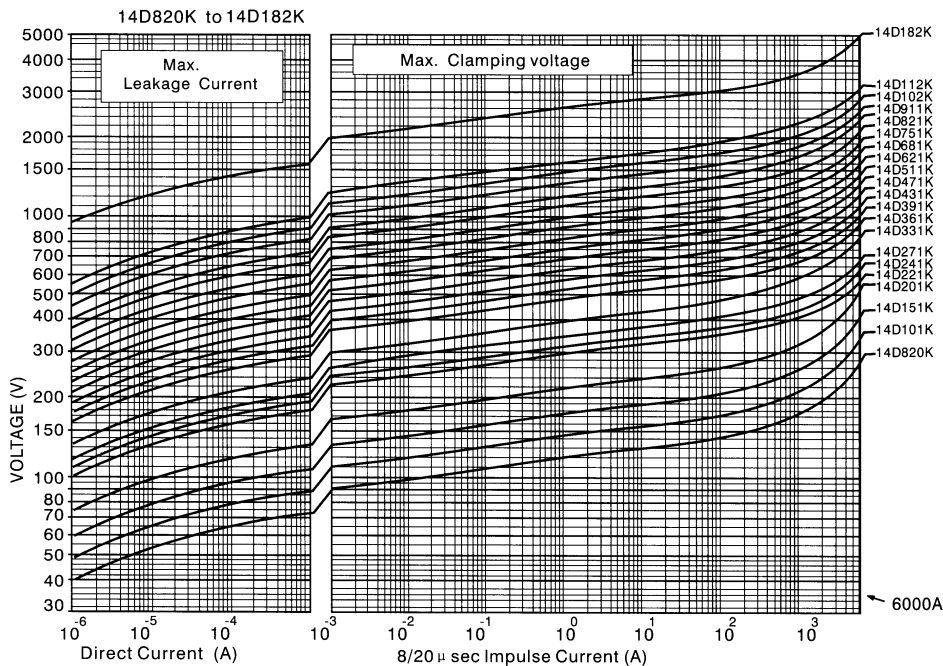
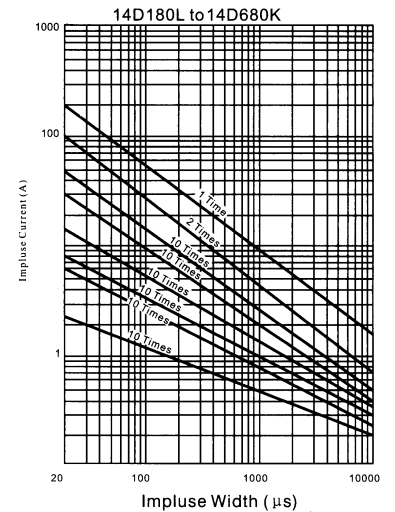
14D SERIES

V-I Curve

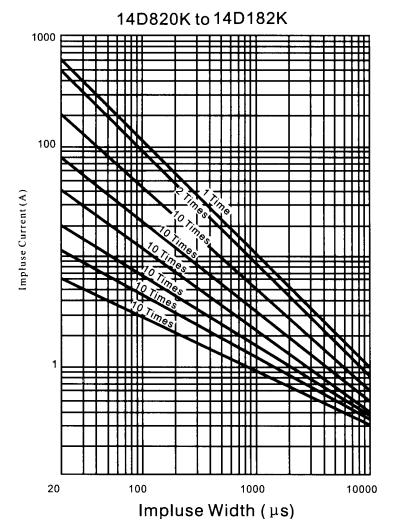


Surge Lifetime Ratings

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



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



20D Specification

Put "J" in Free Code Stands for High Surge Series

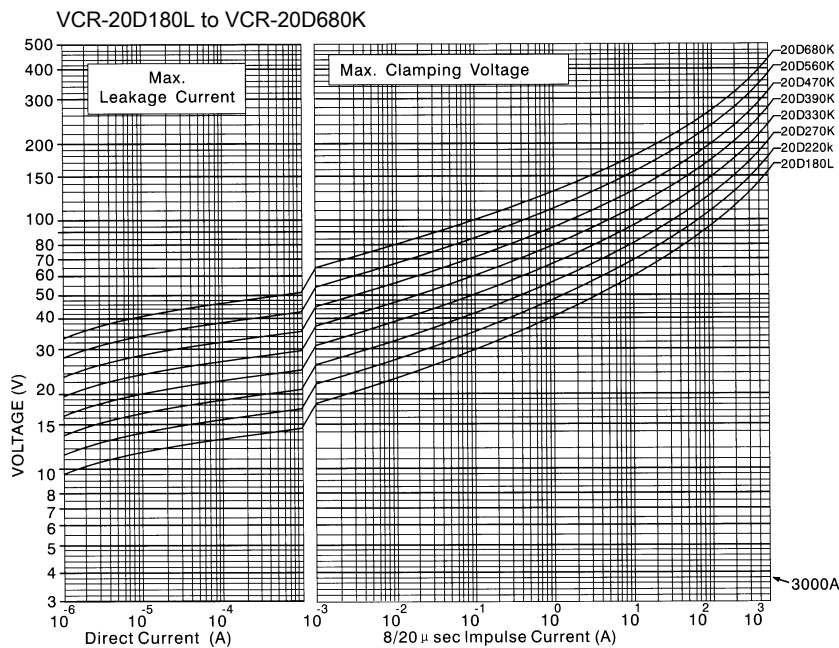
VCR		Maximum Allowable Voltage		Varistor Voltage	Clamping Voltage (Max.)		Maximum Peak Current (8/20μs)		Maximum Energy (10/1000μs)		RATED POWER	Typical Capacitance (Reference)		
P/N		AC.rms	DC	V _{1.0mA}	VC	IP	I _n	I _{Max}	Standard	High Surge	(W)	@1KHz		
Standard	High Surge	(V)		(V)	(V)	(A)	(A)		(JOULE)			(pf)		
20D180L	J	11	14	18(15-21)	36	20	1000	2000	11	13	0.2	28500	*	
20D220K	J	14	18	22(20-24)	43				14	16		18500	*	
20D270K	J	17	22	27(24-30)	53				16	19		13000	*	*
20D330K	J	20	26	33(30-36)	65				23	24		11500	*	*
20D390K	J	25	31	39(35-43)	77				26	28		8500	*	*
20D470K	J	30	38	47(42-52)	93		2000	4000	30	34		7400	*	*
20D560K	J	35	45	56(50-62)	110				41	41		6500	*	*
20D680K	J	40	56	68(61-75)	135				46	49		5800	*	*
20D820K	J	50	65	82(74-90)	135		3000	6000	38	56		4900	*	*
20D101K	J	60	85	100(90-110)	165				45	70		4000	*	*
20D121K	J	75	100	120(108-132)	200				55	85		3300	*	*
20D151K	J	95	125	150(135-165)	250	100	6000	12000	70	106	1.00	2700	*	*
20D181K	J	115	150	180(162-198)	300				85	130		2200	*	*
20D201K	J	130	170	200(185-225)	340				95	140		2000	*	*
20D221K	J	140	180	220(198-242)	360				100	155		1800	*	*
20D241K	J	150	200	240(216-264)	395				108	168		1650	*	*
20D271K	J	175	225	270(243-297)	455				127	190		1500	*	*
20D301K	J	190	250	300(270-330)	500				136	210		1300	*	*
20D331K	J	210	275	330(297-363)	550				150	228		1200	*	*
20D361K	J	230	300	360(324-396)	595				163	255		1100	*	*
20D391K	J	250	320	390(351-429)	650				180	275		1000	*	*
20D431K	J	275	350	430(387-473)	710				190	305		930	*	*
20D471K	J	300	385	470(423-517)	775				220	350		850	*	*
20D511K	J	320	415	510(459-561)	845				220	360		780	*	*
20D561K	J	350	460	560(504-616)	925				220	380		710	*	*
20D621K	J	385	505	620(558-682)	1025				220	390		650	*	*
20D681K	J	420	560	680(612-748)	1120				230	400		600	*	*
20D751K	J	460	615	750(675-825)	1240				255	420		530	*	*
20D781K	J	485	640	780(702-858)	1290				265	440		510	*	
20D821K	J	510	670	820(738-902)	1355				282	460		500	*	*
20D911K	J	550	745	910(819-1001)	1500				310	510		440	*	*
20D102K	J	625	825	1000(900-1100)	1650				342	565		400	*	
20D112K	J	680	895	1100(990-1210)	1815				383	620		360	*	
20D122K	J	750	990	1200(1080-1320)	1980				408	660		320	*	
20D182K	J	1100	1465	1800(1620-1980)	2970				624	660		320	*	

Operating temperature range: - 40°C TO +105°C

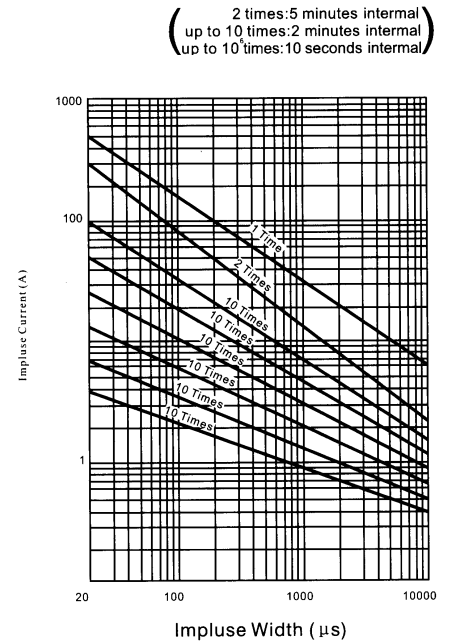
Storage temperature range: - 40°C TO +125°C

20D SERIES

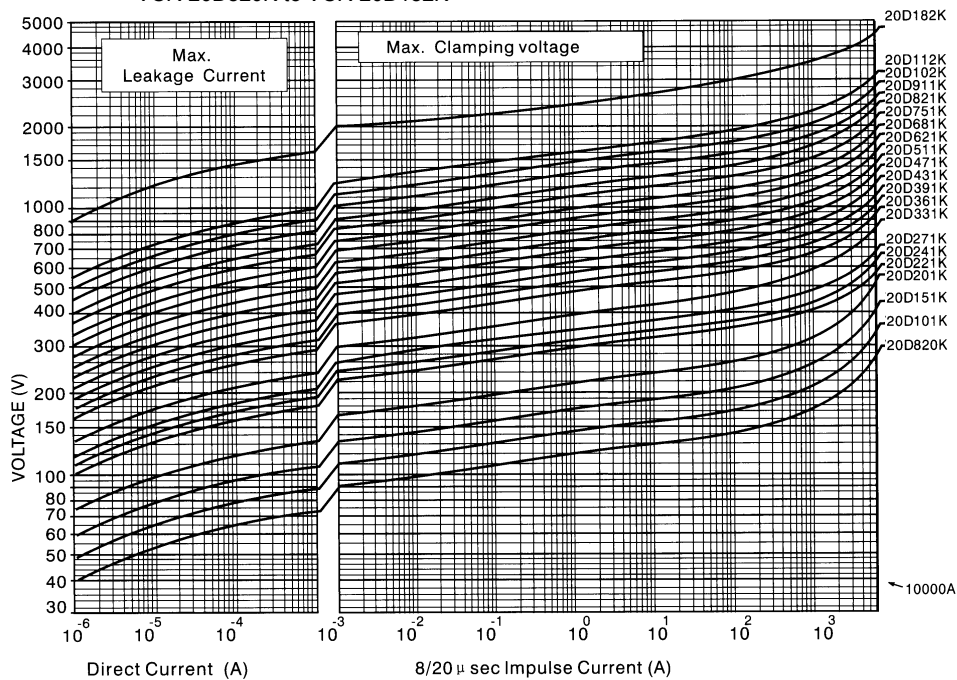
V-I Curve



Impluse Lifetime Ratings



VCR-20D820K to VCR-20D182K



Impluse Lifetime Ratings

