



### 05D 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 <sub>1.0mA</sub>	VC	IP	Standard	High Surge	Standard	High Surge	(W)	@1KHz		
Standard	High Surge	(V)			(V)	(A)	(A)		(JOULE)					
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						

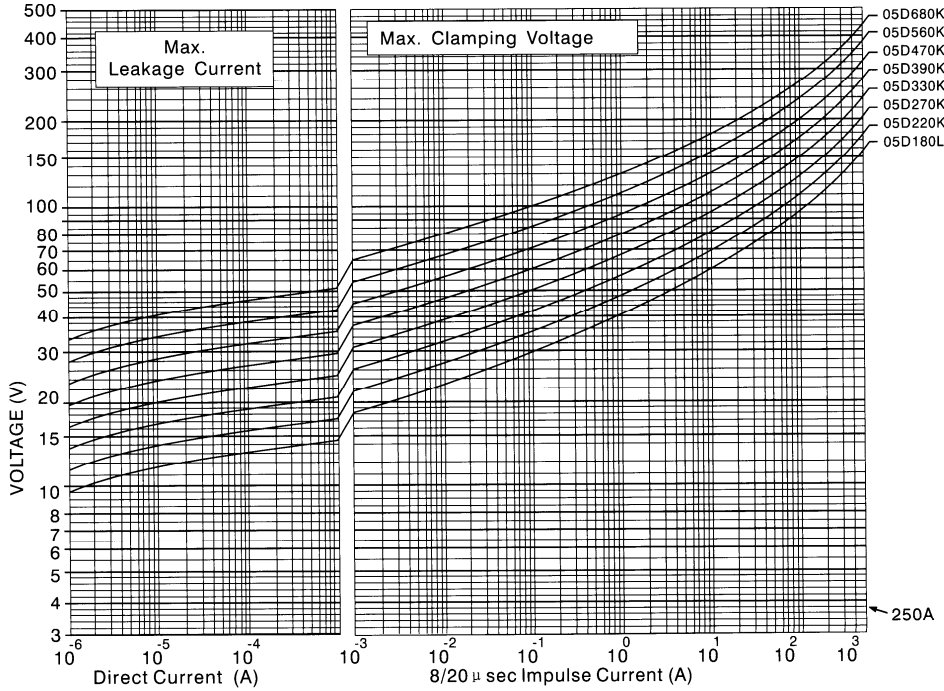
Operating temperature range: - 40°C TO +105°C

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

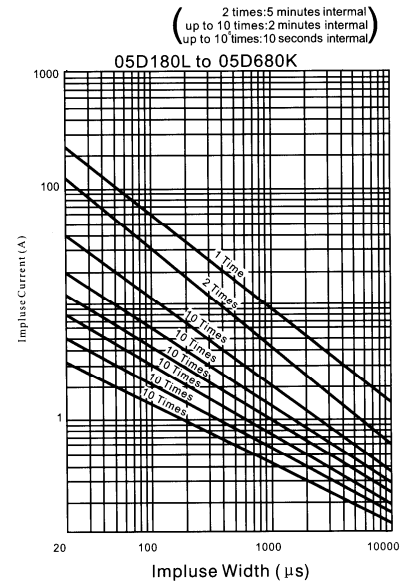
### 05D SERIES

V-I curve

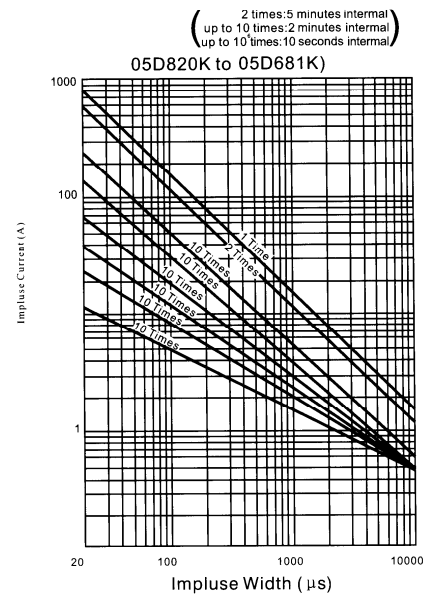
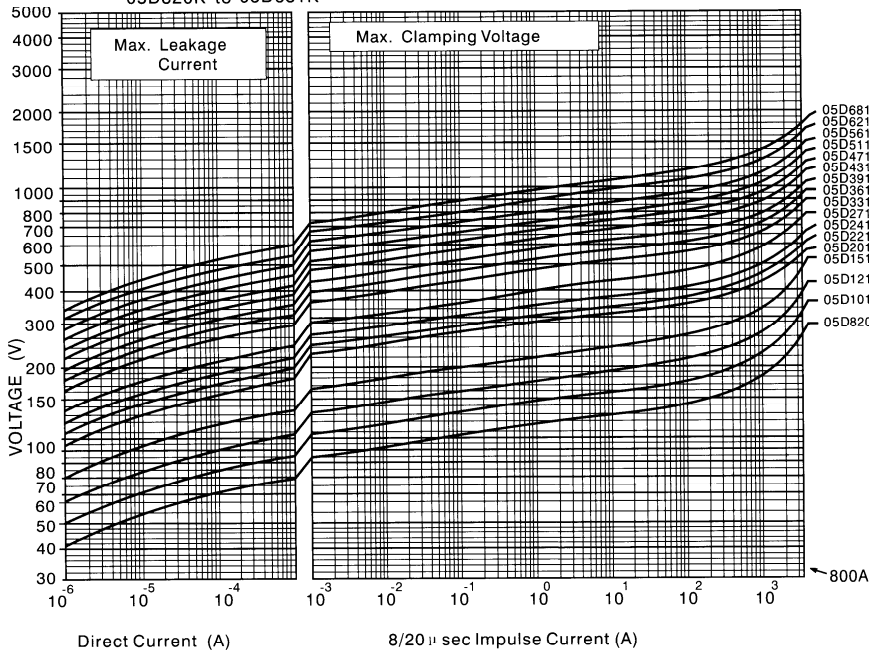
VCR-05D180L to VCR-05D680K



Impulse Lifetime Ratings





05D820K to 05D681K



### 07D Specification

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

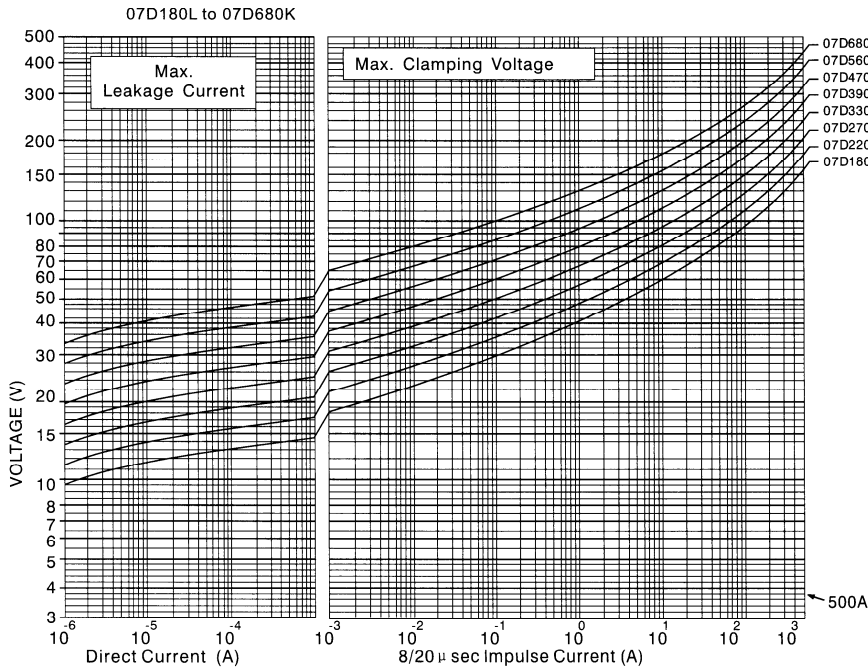
VCR		Maximum Allowable Voltage		Varistor Voltage	Clamping Voltage (Max.)		Maximum Peak Current (8/20 $\mu$ s)		Maximum Energy (10/1000 $\mu$ s)		RATED POWER	Typical Capacitance (Reference)		
P/N		AC.rms	DC	$V_{1.0mA}$	VC	IP	Standard	High Surge	Standard	High Surge	(W)	@1KHz		
Standard	High Surge	(V)			(V)	(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				5.5	10		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

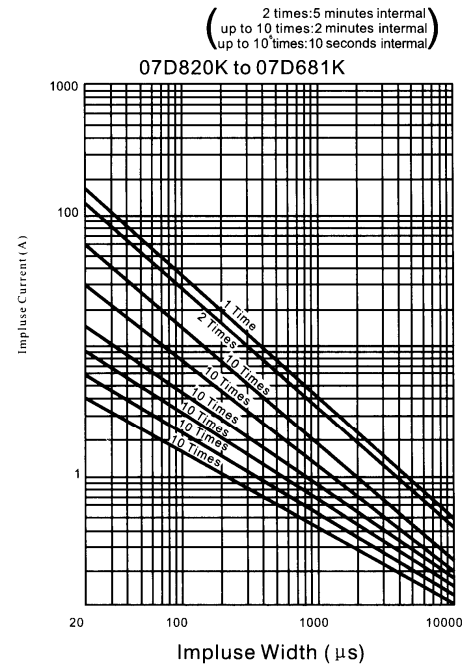
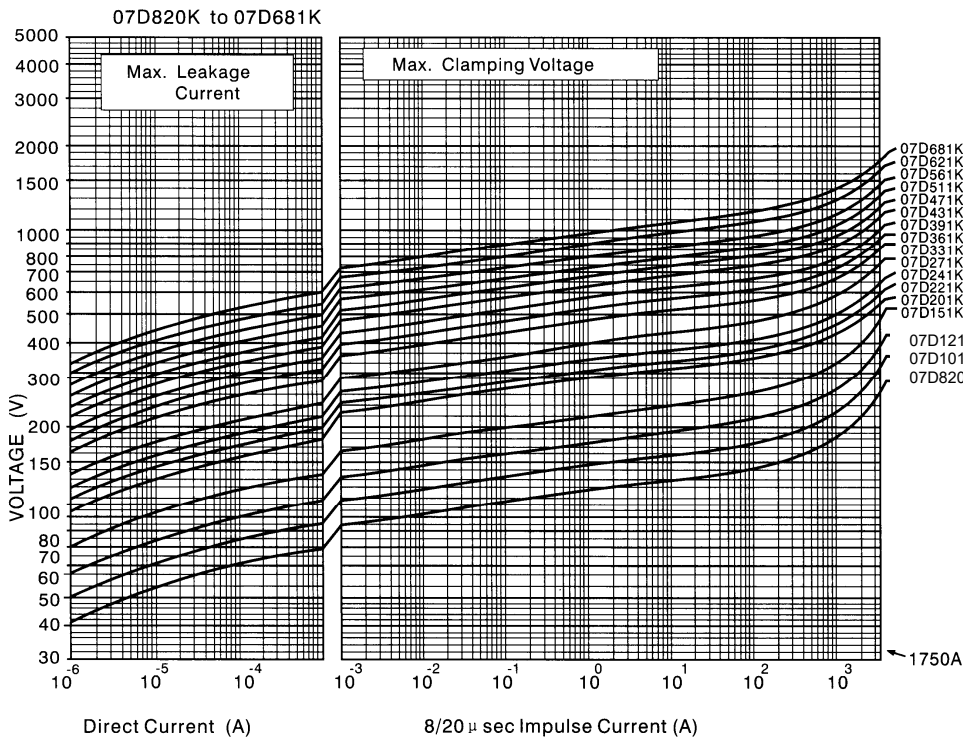
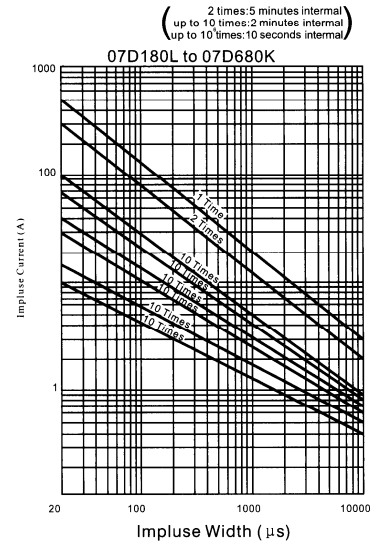
Storage temperature range: - 40°C TO +125°C

### 07D SERIES

V-I curve





Impulse Lifetime Ratings



### 10D Specification

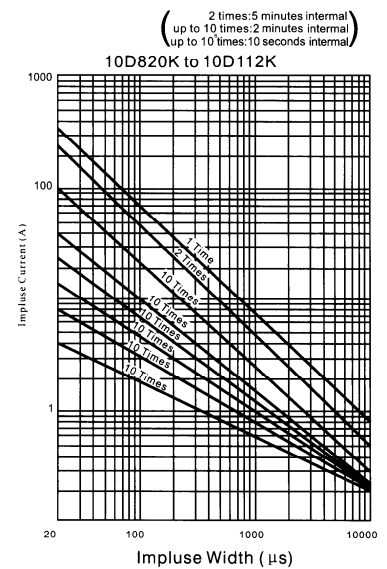
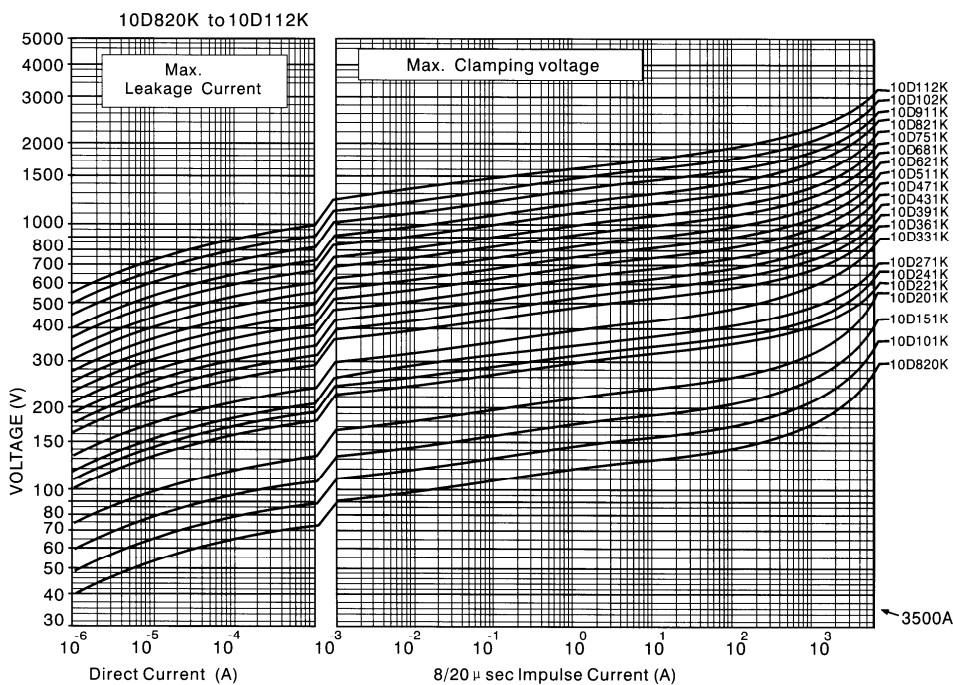
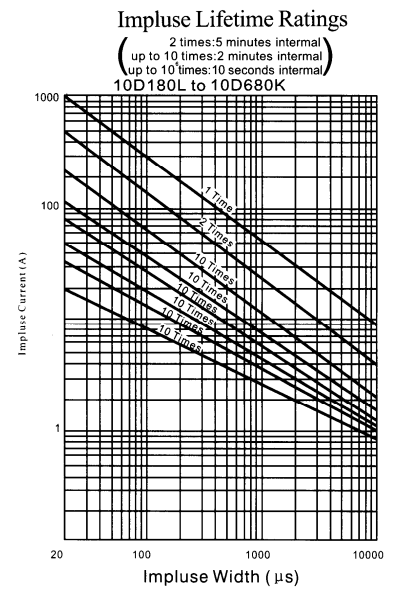
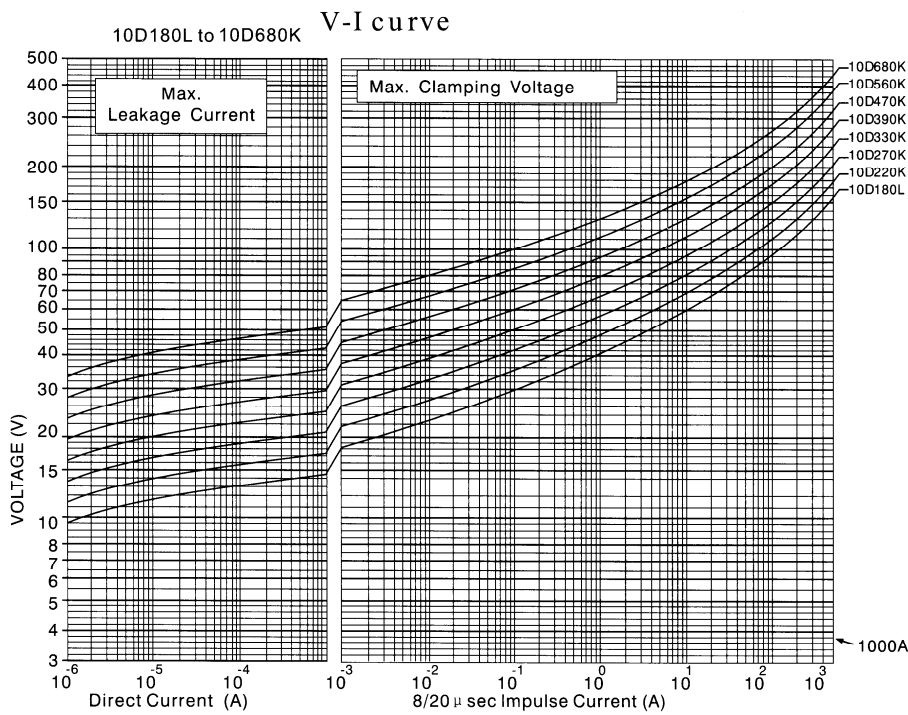
#### Put "J" in Free Code Stands for High Surge Series

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 <sub>1.0mA</sub>	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				12	17		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

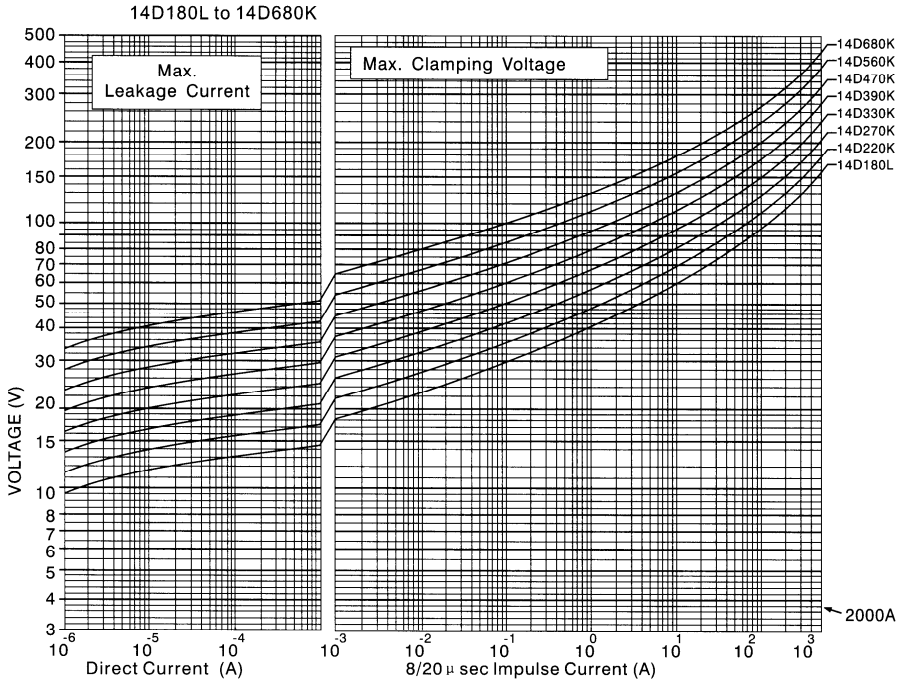
VCR		Maximum Allowable Voltage		Varistor Voltage	Clamping Voltage (Max.)		Maximum Peak Current (8/20 $\mu$ s)		Maximum Energy (10/1000 $\mu$ s)		RATED POWER	Typical Capacitance (Reference)		
P/N		AC.rms	DC	V <sub>1.0mA</sub>	VC	IP	Standard	High Surge	Standard	High Surge	(W)	@1KHz		
Standard	High Surge	(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
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	250	335	130			*			

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

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

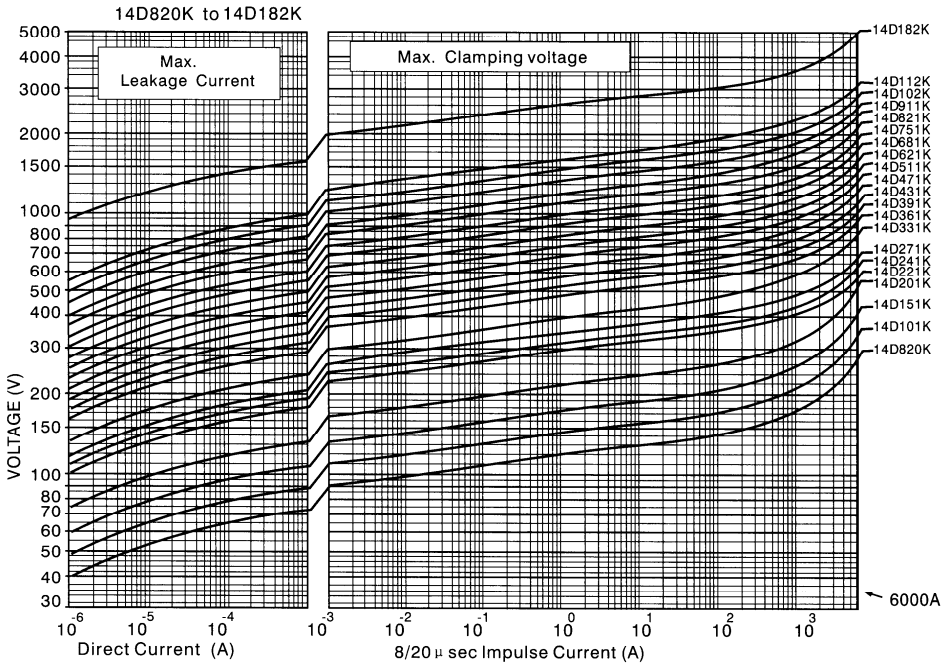
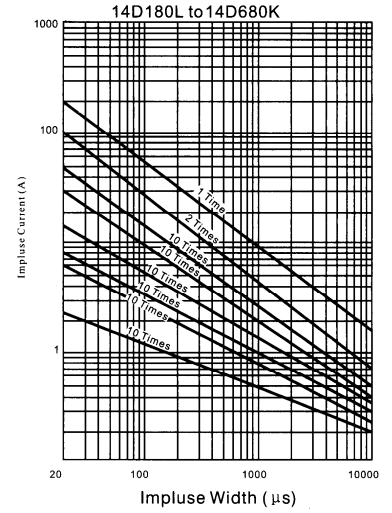
### 14D SERIES

V-I Curve

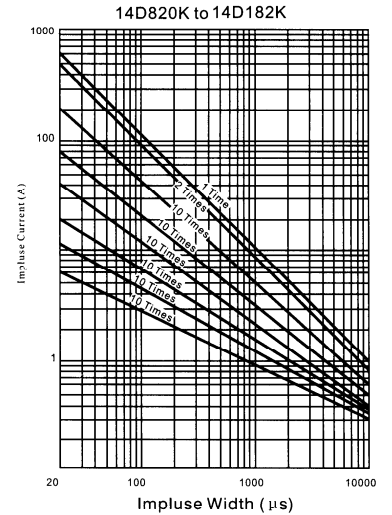


Surge Lifetime Ratings

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





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





### 20D Specification

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

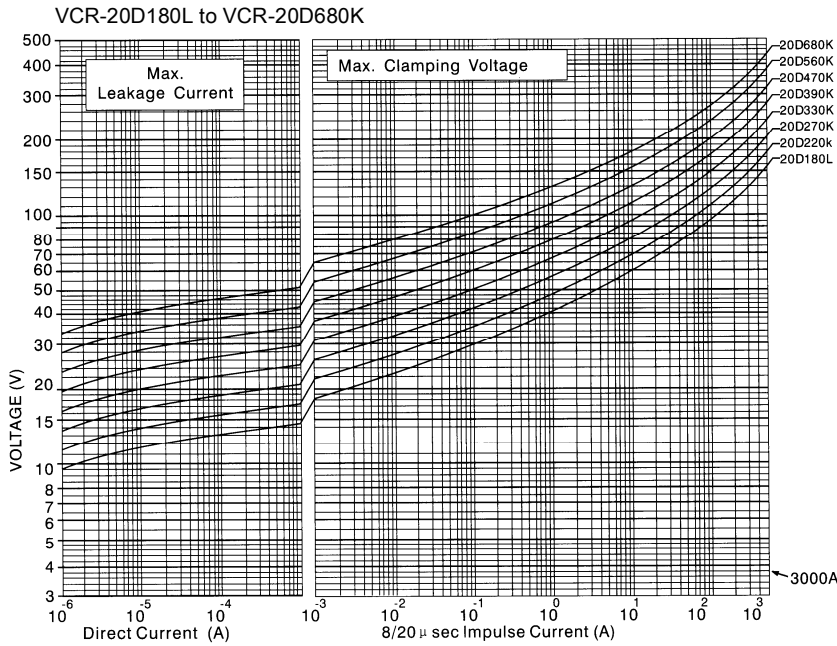
VCR		Maximum Allowable Voltage		Varistor Voltage	Clamping Voltage (Max.)		Maximum Peak Current (8/20μs)		Maximum Energy (10/1000μs)		RATED POWER	Typical Capacitance (Reference)				
P/N		AC.rms	DC	V <sub>1.0mA</sub>	VC	IP	I <sub>n</sub>	I <sub>Max</sub>	Standard	High Surge	(W)	@1KHz				
Standard	High 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	70	106	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	100	6000	12000	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

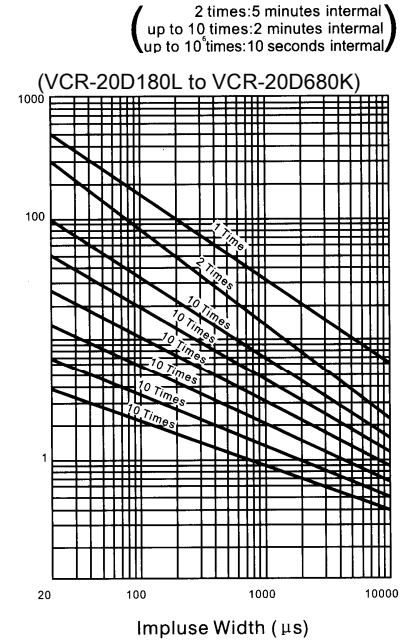
Storage temperature range: - 40°C TO +125°C

### 20D SERIES

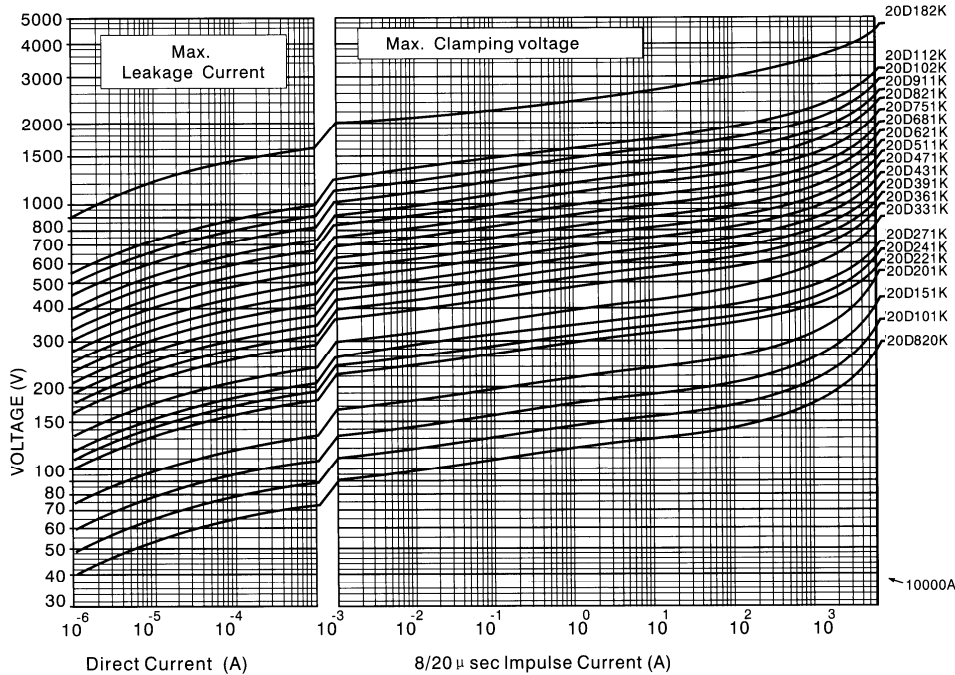
#### V-I Curve



#### Impulse Lifetime Ratings



#### VCR-20D820K to VCR-20D182K



#### Impulse Lifetime Ratings

