

High Surge Suppression Varistors



The encapsulation is made of flammable resistant epoxy in accordance with UL94V-0.

QUICK REFERENCE DATA		
PARAMETER	VALUE	UNIT
Maximum continuous voltage:		
RMS	11 to 680	V
DC	14 to 895	V
Maximum non-repetitive transient current I_{NRP} (8 x 20 μ s)	250 to 10 000	A
Robustness of terminations	10	N
Drop test:		
Height of fall	1	m
Detailed specification	based on CECC 42000	
Storage temperature	- 40 to + 150	°C
Operating temperature	- 40 to + 125	°C

ORDERING INFORMATION

The varistors are available in a number of packaging options:

- Bulk
- On tape on reel
- On tape in ammpack

The basic ordering code for each option is given in tables titled Varistors on Tape on Reel, Varistors on Tape in Ammpack and Varistors in Bulk. To complete the catalog number and to determine the required operating parameters, see Electrical Data and Ordering Information table.

FEATURES

- Zinc oxide disc, epoxy coated
- Straight or kinked leads
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC
- Certified according to UL1449, VDE/IEC 61051 and CSA

RoHS
COMPLIANT

APPLICATION

- Supression of transients

DESCRIPTION

The varistors consist of a disc of low- β ceramic material with two tinned solid copper leads. They are coated with a layer of ochre coloured epoxy, which provides electrical, mechanical and climatic protection. The encapsulation is resistant to all cleaning solvents in accordance with "IEC 60068-2-45".

MOUNTING

The varistors are suitable for processing on automatic insertion and cutting and bending equipment.

Typical Soldering

235 °C, duration: 5 s (Pb-bearing)
245 °C, duration: 5 s (Lead (Pb)-free)

Resistance to soldering heat

260 °C; duration: 10 s max.

MARKING

The varistors are marked with the following information:

- Maximum continuous RMS voltage
- Series number (582, 583, 584, 585 or 586)
- Manufacture logo
- Date of manufacture (YYWW)

INFLAMMABILITY

The varistors are non-flammable.

ELECTRICAL DATA AND ORDERING INFORMATION										
MAXIMUM CONTINUOUS VOLTAGE		VOLTAGE ⁽³⁾ at 1 mA		MAXIMUM VOLTAGE at STATED CURRENT		MAXIMUM ENERGY ⁽⁴⁾ (10 x 1000 μ s)	MAXIMUM NON-REP. TRANSIENT CURRENT ⁽⁵⁾ I_{NRP} (8 x 20 μ s)	TYPICAL CAPACITANCE at 1 kHz	CATALOG NUMBERS ⁽¹⁾	
RMS ⁽²⁾ (V)	DC (V)	(V)	V (V)	I (A)	(J)	(A)	(pF)	12 NC ⁽⁶⁾	SAP ⁽⁷⁾	
11	14	18	40	1.0	0.7	250	1600	2381 582 x110y	VDRH05B011xyE	
			36	2.5	1.5	500	3600	2381 583 x110y	VDRH07D011xyE	
			36	5.0	2.6	1000	8000	2381 584 x110y	VDRH10G011xyE	
			36	10.0	5.2	2000	20 000	2381 585 x110y	VDRH14M011xyE	
			36	20.0	13.0	3000	40 000	2381 586 x110y	VDRH20R011ByE	



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ELECTRICAL DATA AND ORDERING INFORMATION										
MAXIMUM CONTINUOUS VOLTAGE		VOLTAGE ⁽³⁾ at 1 mA		MAXIMUM VOLTAGE at STATED CURRENT		MAXIMUM ENERGY ⁽⁴⁾ (10 x 1000 µs)	MAXIMUM NON-REP. TRANSIENT CURRENT ⁽⁵⁾ I _{NRP} (8 x 20 µs)	TYPICAL CAPACITANCE at 1 kHz	CATALOG NUMBERS ⁽¹⁾	
RMS ⁽²⁾ (V)	DC (V)	(V)	V (V)	I (A)	(J)	(A)	(pF)	12 NC ⁽⁶⁾	SAP ⁽⁷⁾	
14	18	22	48	1.0	0.8	250	1300	2381 582 x140y	VDRH05B014xyE	
			43	2.5	1.7	500	2800	2381 583 x140y	VDRH07D014xyE	
			43	5.0	3.2	1000	6000	2381 584 x140y	VDRH10G014xyE	
			43	10.0	6.3	2000	15 000	2381 585 x140y	VDRH14M014xyE	
			43	20.0	16.0	3000	30 000	2381 586 x140y	VDRH20R014ByE	
17	22	27	60	1.0	1.1	250	1050	2381 582 x170y	VDRH05B017xyE	
			53	2.5	2.1	500	2000	2381 583 x170y	VDRH07D017xyE	
			53	5.0	3.9	1000	4000	2381 584 x170y	VDRH10G017xyE	
			53	10.0	7.8	2000	10 000	2381 585 x170y	VDRH14M017xyE	
			53	20.0	19.0	3000	20 000	2381 586 x170y	VDRH20R017ByE	
20	26	33	73	1.0	1.3	250	900	2381 582 x200y	VDRH05B020xyE	
			65	2.5	2.8	500	1500	2381 583 x200y	VDRH07D020xyE	
			65	5.0	4.8	1000	3000	2381 584 x200y	VDRH10G020xyE	
			65	10.0	9.5	2000	7500	2381 585 x200y	VDRH14M020xyE	
			65	20.0	24.0	3000	15 000	2381 586 x200y	VDRH20R020ByE	
25	31	39	86	1.0	1.5	250	500	2381 582 x250y	VDRH05B025xyE	
			77	2.5	3.0	500	1350	2381 583 x250y	VDRH07D025xyE	
			77	5.0	5.6	1000	2600	2381 584 x250y	VDRH10G025xyE	
			77	10.0	11.0	2000	6500	2381 585 x250y	VDRH14M025xyE	
			77	20.0	28.0	3000	13 000	2381 586 x250y	VDRH20R025ByE	
30	38	47	104	1.0	1.8	250	700	2381 582 x300y	VDRH05B030xyE	
			93	2.5	3.8	500	1600	2381 583 x300y	VDRH07D030xyE	
			93	5.0	6.8	1000	2700	2381 584 x300y	VDRH10G030xyE	
			93	10.0	14.0	2000	6000	2381 585 x300y	VDRH14M030xyE	
			93	20.0	34.0	3000	12 000	2381 586 x300y	VDRH20R030ByE	
35	45	56	123	1.0	2.2	250	560	2381 582 x350y	VDRH05B035xyE	
			110	2.5	4.4	500	1300	2381 583 x350y	VDRH07D035xyE	
			110	5.0	8.1	1000	2200	2381 584 x350y	VDRH10G035xyE	
			110	10.0	16.0	2000	4800	2381 585 x350y	VDRH14M035xyE	
			110	20.0	41.0	3000	9600	2381 586 x350y	VDRH20R035ByE	
40	56	68	150	1.0	2.6	250	460	2381 582 x400y	VDRH05B040xyE	
			135	2.5	5.4	500	1000	2381 583 x400y	VDRH07D040xyE	
			135	5.0	9.8	1000	1800	2381 584 x400y	VDRH10G040xyE	
			135	10.0	20.0	2000	3800	2381 585 x400y	VDRH14M040xyE	
			135	20.0	49.0	3000	7600	2381 586 x400y	VDRH20R040ByE	
50	65	82	145	5.0	3.5	800	370	2381 582 x500y	VDRH05E050xyE	
			135	10.0	7.0	1750	900	2381 583 x500y	VDRH07K050xyE	
			135	25.0	14.0	3500	1500	2381 584 x500y	VDRH10S050xyE	
			135	50.0	28.0	6000	3100	2381 585 x500y	VDRH14V050xyE	
60	85	100	175	5.0	4.5	800	290	2381 582 x600y	VDRH05E060xyE	
			165	10.0	9.0	1750	700	2381 583 x600y	VDRH07K060xyE	
			165	25.0	18.0	3500	1200	2381 584 x600y	VDRH10S060xyE	
			165	50.0	36.0	6000	2300	2381 585 x600y	VDRH14V060xyE	
			165	100.0	72.0	10 000	4600	2381 586 x600y	VDRH20X060ByE	



ELECTRICAL DATA AND ORDERING INFORMATION									
MAXIMUM CONTINUOUS VOLTAGE		VOLTAGE ⁽³⁾ at 1 mA	MAXIMUM VOLTAGE at STATED CURRENT		MAXIMUM ENERGY ⁽⁴⁾ (10 x 1000 µs)	MAXIMUM NON-REP. TRANSIENT CURRENT ⁽⁵⁾ I _{NRP} (8 x 20 µs)	TYPICAL CAPACITANCE at 1 kHz	CATALOG NUMBERS ⁽¹⁾	
RMS ⁽²⁾ (V)	DC (V)	(V)	V (V)	I (A)	(J)	(A)	(pF)	12 NC ⁽⁶⁾	SAP ⁽⁷⁾
75	100	120	210	5.0	5.5	800	240	2381 582 x750y	VDRH05E075xyE
			200	10.0	11.0	1750	530	2381 583 x750y	VDRH07K075xyE
			200	25.0	22.0	3500	1000	2381 584 x750y	VDRH10S075xyE
			200	50.0	44.0	6000	1900	2381 585 x750y	VDRH14V075xyE
			200	100.0	88.0	10 000	3800	2381 586 x750y	VDRH20X075ByE
95	125	150	260	5.0	6.5	800	180	2381 582 x950y	VDRH05E095xyE
			250	10.0	13.0	1750	450	2381 583 x950y	VDRH07K095xyE
			250	25.0	25.0	3500	800	2381 584 x950y	VDRH10S095xyE
			250	50.0	53.0	6000	1500	2381 585 x950y	VDRH14V095xyE
			250	100.0	106.0	10 000	3000	2381 586 x950y	VDRH20X095ByE
115	150	180	320	5.0	8.0	800	150	2381 582 x111y	VDRH05E115xyE
			300	10.0	16.0	1750	390	2381 583 x111y	VDRH07K115xyE
			300	25.0	32.0	3500	680	2381 584 x111y	VDRH10S115xyE
			300	50.0	65.0	6000	1320	2381 585 x111y	VDRH14V115xyE
			300	100.0	130.0	10 000	2640	2381 586 x111y	VDRH20X115ByE
130	170	205	355	5.0	8.5	800	130	2381 582 x131y	VDRH05E130xyE
			340	10.0	17.5	1750	320	2381 583 x131y	VDRH07K130xyE
			340	25.0	35.0	3500	580	2381 584 x131y	VDRH10S130xyE
			340	50.0	70.0	6000	1050	2381 585 x131y	VDRH14V130xyE
			340	100.0	140.0	10 000	2100	2381 586 x131y	VDRH20X130ByE
140	180	220	380	5.0	9.0	800	120	2381 582 x141y	VDRH05E140xyE
			360	10.0	19.0	1750	290	2381 583 x141y	VDRH07K140xyE
			360	25.0	39.0	3500	540	2381 584 x141y	VDRH10S140xyE
			360	50.0	78.0	6000	950	2381 585 x141y	VDRH14V140xyE
			360	100.0	155.0	10 000	1900	2381 586 x141y	VDRH20X140ByE
150	200	240	415	5.0	10.5	800	110	2381 582 x151y	VDRH05E150xyE
			395	10.0	21.0	1750	270	2381 583 x151y	VDRH07K150xyE
			395	25.0	42.0	3500	490	2381 584 x151y	VDRH10S150xyE
			395	50.0	84.0	6000	850	2381 585 x151y	VDRH14V150xyE
			395	100.0	168.0	10 000	1700	2381 586 x151y	VDRH20X150ByE
175	225	275	475	5.0	11.0	800	90	2381 582 x171y	VDRH05E175xyE
			455	10.0	24.0	1750	230	2381 583 x171y	VDRH07K175xyE
			455	25.0	49.0	3500	430	2381 584 x171y	VDRH10S175xyE
			455	50.0	99.0	6000	750	2381 585 x171y	VDRH14V175xyE
			455	100.0	190.0	10 000	1500	2381 586 x171y	VDRH20X175ByE
195	250	300	525	5.0	12.0	800	80	2381 582 x191y	VDRH05E195xyE
			455	10.0	26.0	1750	210	2381 583 x191y	VDRH07K195xyE
			455	25.0	52.0	3500	380	2381 584 x191y	VDRH10S195xyE
			455	50.0	105.0	6000	690	2381 585 x191y	VDRH14V195xyE
			455	100.0	210.0	10 000	1350	2381 586 x191y	VDRH20X195ByE
210	275	330	575	5.0	13.0	800	75	2381 582 x211y	VDRH05E210xyE
			505	10.0	28.0	1750	190	2381 583 x211y	VDRH07K210xyE
			505	25.0	58.0	3500	350	2381 584 x211y	VDRH10S210xyE
			505	50.0	115.0	6000	610	2381 585 x211y	VDRH14V210xyE
			505	100.0	228.0	10 000	1250	2381 586 x211y	VDRH20X210ByE



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ELECTRICAL DATA AND ORDERING INFORMATION													
MAXIMUM CONTINUOUS VOLTAGE		VOLTAGE ⁽³⁾ at 1 mA		MAXIMUM VOLTAGE at STATED CURRENT		MAXIMUM ENERGY ⁽⁴⁾ (10 x 1000 µs)		MAXIMUM NON-REP. TRANSIENT CURRENT ⁽⁵⁾ I _{NRP} (8 x 20 µs)		TYPICAL CAPACITANCE at 1 kHz		CATALOG NUMBERS ⁽¹⁾	
RMS ⁽²⁾ (V)	DC (V)	(V)		V (V)	I (A)	(J)	(A)	(pF)	12 NC ⁽⁶⁾		SAP ⁽⁷⁾		
230	300	360	620	5.0	16.0	800	70	2381 582 x231y	VDRH05E230xyE				
			595	10.0	32.0	1750	170	2381 583 x231y	VDRH07K230xyE				
			595	25.0	65.0	3500	320	2381 584 x231y	VDRH10S230xyE				
			595	50.0	130.0	6000	540	2381 585 x231y	VDRH14V230xyE				
			595	100.0	255.0	10 000	1100	2381 586 x231y	VDRH20X230ByE				
250	320	390	675	5.0	17.0	800	60	2381 582 x251y	VDRH05E250xyE				
			650	10.0	35.0	1750	160	2381 583 x251y	VDRH07K250xyE				
			650	25.0	70.0	3500	300	2381 584 x251y	VDRH10S250xyE				
			650	50.0	140.0	6000	480	2381 585 x251y	VDRH14V250xyE				
			650	100.0	275.0	10 000	960	2381 586 x251y	VDRH20X250ByE				
275	350	430	745	5.0	20.0	800	55	2381 582 x271y	VDRH05E275xyE				
			710	10.0	40.0	1750	140	2381 583 x271y	VDRH07K275xyE				
			710	25.0	80.0	3500	270	2381 584 x271y	VDRH10S275xyE				
			710	50.0	155.0	6000	440	2381 585 x271y	VDRH14V275xyE				
			710	100.0	303.0	10 000	900	2381 586 x271y	VDRH20X275ByE				
300	385	470	810	5.0	21.0	800	50	2381 582 x301y	VDRH05E300xyE				
			775	10.0	42.0	1750	130	2381 583 x301y	VDRH07K300xyE				
			775	25.0	85.0	3500	240	2381 584 x301y	VDRH10S300xyE				
			775	50.0	175.0	6000	400	2381 585 x301y	VDRH14V300xyE				
			775	100.0	350.0	10 000	810	2381 586 x301y	VDRH20X300ByE				
320	420	510	880	5.0	22.0	800	45	2381 582 x321y	VDRH05E320xyE				
			842	10.0	45.0	1750	120	2381 583 x321y	VDRH07K320xyE				
			842	25.0	92.0	3500	220	2381 584 x321y	VDRH10S320xyE				
			842	50.0	190.0	6000	370	2381 585 x321y	VDRH14V320xyE				
			842	100.0	382.0	10 000	750	2381 586 x321y	VDRH20X320ByE				
350	460	560	940	5.0	25.0	800	42	2381 582 x351y	VDRH05E350xyE				
			920	10.0	51.0	1750	110	2381 583 x351y	VDRH07K350xyE				
			920	25.0	102.0	3500	200	2381 584 x351y	VDRH10S350xyE				
			920	50.0	205.0	6000	320	2381 585 x351y	VDRH14V350xyE				
			920	100.0	410.0	10 000	650	2381 586 x351y	VDRH20X350ByE				
385	505	620	1050	5.0	27.0	800	40	2381 582 x381y	VDRH05E385xyE				
			1025	10.0	54.0	1750	95	2381 583 x381y	VDRH07K385xyE				
			1025	25.0	107.0	3500	180	2381 584 x381y	VDRH10S385xyE				
			1025	50.0	215.0	6000	280	2381 585 x381y	VDRH14V385xyE				
			1025	100.0	420.0	10 000	570	2381 586 x381y	VDRH20X385ByE				
420	560	680	1150	5.0	28.0	800	35	2381 582 x421y	VDRH05E420xyE				
			1120	10.0	56.0	1750	85	2381 583 x421y	VDRH07K420xyE				
			1120	25.0	112.0	3500	165	2381 584 x421y	VDRH10S420xyE				
			1120	50.0	225.0	6000	250	2381 585 x421y	VDRH14V420xyE				
			1120	100.0	430.0	10 000	510	2381 586 x421y	VDRH20X420ByE				
460	615	750	1290	5.0	29.0	800	30	2381 582 x461y	VDRH05E460xyE				
			1240	10.0	58.0	1750	75	2381 583 x461y	VDRH07K460xyE				
			1240	25.0	115.0	3500	150	2381 584 x461y	VDRH10S460xyE				
			1240	50.0	230.0	6000	225	2381 585 x461y	VDRH14V460xyE				
			1240	100.0	440.0	10 000	450	2381 586 x461y	VDRH20X460ByE				

ELECTRICAL DATA AND ORDERING INFORMATION									
MAXIMUM CONTINUOUS VOLTAGE		VOLTAGE ⁽³⁾ at 1 mA	MAXIMUM VOLTAGE at STATED CURRENT		MAXIMUM ENERGY ⁽⁴⁾ (10 x 1000 µs)	MAXIMUM NON-REP. TRANSIENT CURRENT ⁽⁵⁾ I _{NRP} (8 x 20 µs)	TYPICAL CAPACITANCE at 1 kHz	CATALOG NUMBERS ⁽¹⁾	
RMS ⁽²⁾ (V)	DC (V)	(V)	V (V)	I (A)	(J)	(A)	(pF)	12 NC ⁽⁶⁾	SAP ⁽⁷⁾
485	640	780	1290	10.0	59.0	1750	65	2381 583 x481y	VDRH07K485xyE
			1290	25.0	116.0	3500	145	2381 584 x481y	VDRH10S485xyE
			1290	50.0	233.0	6000	220	2381 585 x481y	VDRH14V485xyE
			1290	100.0	450.0	10 000	400	2381 586 x481y	VDRH20X485ByE
510	670	820	1355	10.0	60.0	1750	62	2381 583 x511y	VDRH07K510xyE
			1355	25.0	118.0	3500	135	2381 584 x511y	VDRH10S510xyE
			1355	50.0	235.0	6000	220	2381 585 x511y	VDRH14V510xyE
			1355	100.0	460.0	10 000	400	2381 586 x511y	VDRH20X510ByE
550	745	910	1500	25.0	127.0	3500	120	2381 584 x551y	VDRH10S550xyE
			1500	50.0	255.0	6000	180	2381 585 x551y	VDRH14V550xyE
			1500	100.0	510.0	10 000	320	2381 586 x551y	VDRH20X550ByE
625	825	1000	1650	25.0	140.0	3500	105	2381 584 x6216	VDRH10S625ByE
			1650	50.0	283.0	6000	165	2381 585 x6216	VDRH14V625ByE
			1650	100.0	566.0	10 000	280	2381 586 x6216	VDRH20X625ByE
680	895	1100	1815	25.0	155.0	3500	80	2381 584 x6816	VDRH10S680ByE
			1815	50.0	310.0	6000	150	2381 585 x6816	VDRH14V680ByE
			1815	100.0	620.0	10 000	250	2381 586 x6816	VDRH20X680ByE

Notes

- (1) The products are certified according to UL (E98144), VDE (40013495) and CSA (219883)
- (2) The sinusoidal voltage is assumed as the normal operating condition. If a non-sinusoidal voltage is present, type selection should be based on multiplying the peak voltage by a factor of 0.707.
- (3) The voltage measured at 1 mA meets the requirements of "paragraph 4.3 of CECC specification 42000".
The tolerance on the voltage at 1 mA is ± 10 %.
- (4) High energy surges are generally of longer duration. The maximum energy for one pulse of 10 x 1000 µs is given as a reference for longer duration pulses. This pulse can be characterised by peak current (I_p) and pulse width t₂ (virtual time of half I_p value, following "IEC 60060-2, section 6"). If V_p is the clamping voltage corresponding to I_p, the energy absorbed in the varistor is determined by the formula:

$$E = K \times V_p \times I_p \times t_2$$
 where:
 a) K is dependant on the value of t₂ when the value of t₁ is between 8 µs and 10 µs; see Peak Current as a Function of Pulse Width drawing
- (5) A current wave of 8 x 20 µs (requirement of "paragraph B.2.10.1 of CECC specification 42000") is used as a standard for pulse current and clamping voltage ratings. The maximum non-repetitive transient current is given for one pulse applied during the life of the component.
- (6) For composition of the 12NC part number replace "x" and "y" by figures from the sections "Varistors in Bulk", "Varistors on Tape in Ammopack" and "Varistors on "Tape on Reel"
- (7) For composition of the SAP part number:
 Replace "x" by B for bulk type
 T for tape and reel
 A for tape and ammopack
 Replace "y" by S for straight leads
 K for kinked leads (bulk only)
 L for kinked leads with H₀ = 16 mm (tape and reel/ammo)
 M for kinked leads with H₀ = 18.25 mm (tape and reel/ammo)

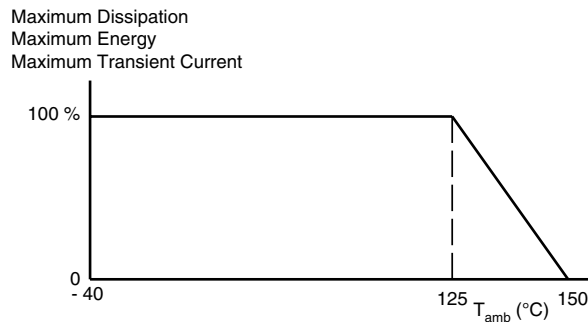


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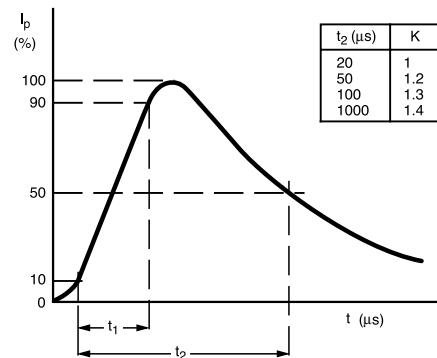
ELECTRICAL CHARACTERISTICS

ELECTRICAL DATA		
PARAMETER	VALUE	UNIT
Maximum continuous voltage:		
RMS	11 to 680	V
DC	14 to 895	V
Maximum non-repetitive transient current (I_{NRP}) (8 x 20 μ s):		
2381 582VDRH05.....E	250 or 800	A
2381 583VDRH07.....E	500 or 1750	A
2381 584VDRH10.....E	1000 or 3500	A
2381 585VDRH14.....E	2000 or 6000	A
2381 586VDRH20.....E	3000 or 10 000	A
Thermal resistance:		
2381 582VDRH05.....E	\approx 80	K/W
2381 583VDRH07.....E	\approx 70	K/W
2381 584VDRH10.....E	\approx 60	K/W
2381 585VDRH14.....E	\approx 50	K/W
2381 586VDRH20.....E	\approx 40	K/W
Maximum dissipation:		
2381 582VDRH05.....E	100	mW
2381 583VDRH07.....E	250	mW
2381 584VDRH10.....E	400	mW
2381 585VDRH14.....E	600	mW
2381 586VDRH20.....E	1000	mW
Temperature coefficient of voltage at 1 mA maximum	\pm 0.05	%/K
Voltage proof between interconnected leads and case	2500	V
Storage temperature	- 40 to + 150	$^{\circ}$ C
Operating temperature	- 40 to + 125	$^{\circ}$ C

DERATING CURVE



PEAK CURRENT AS A FUNCTION OF PULSE WIDTH



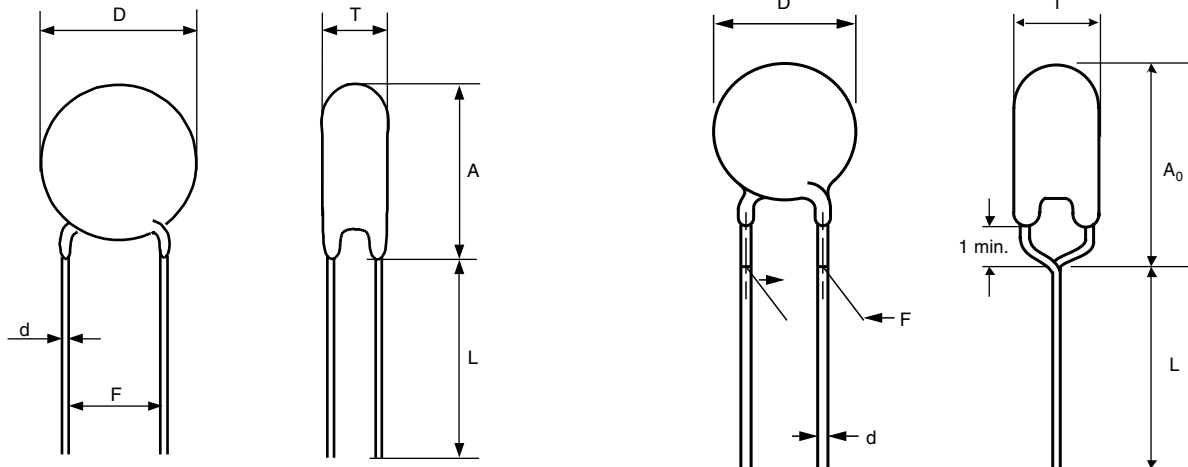
COMPONENT DIMENSIONS (BULK TYPE) in millimeters AND CATALOG NUMBERS								
D NOM.	D MAX.	A MAX.	A ₀ MAX.	L MIN.	T MAX.	d	F	CATALOG NUMBER
5.0	7.0	9.0	11.0	24.0	7	0.6 \pm 0.05	5 \pm 1.0	2381 582VDRH05.....E
7.0	9.0	11.0	13.0	24.0	7	0.6 \pm 0.05	5 \pm 1.0	2381 583VDRH07.....E
10.0	13.5	15.5	18.0	17.0	10	0.8 \pm 0.05	7.5 \pm 1.0	2381 584VDRH10.....E
14.0	17.0	19.0	23.0	16.0	11	0.8 \pm 0.05	7.5 \pm 1.0	2381 585VDRH14.....E
20.0	23.0	25.0	28.0	24.0	11	1.0 \pm 0.05	10 \pm 1.0	2381 586VDRH20.....E

VARISTORS IN BULK					
TYPE	2381 582 Ø 5 mm 11 V to 460 V	2381 583 Ø 7 mm 11 V to 510 V	2381 584 Ø 10 mm 11 V to 680 V	2381 585 Ø 14 mm 11 V to 680 V	2381 586 Ø 20 mm 11 V to 680 V
Straight leads; see Outline of components with straight leads drawing	5...6	5...6	5...6	5...6	5...6
Kinked leads; see Outline of components with kinked leads drawing	6...6	6...6	6...6	6...6	6...6
Packing quantities					
14 V to 95 V	250	250	250	100	50
130 V to 385 V	250	250	250	100	50
420 V to 460 V	250	250	200	100	50
485 V to max. V	-	250	150	100	50

DIMENSIONS in millimeters: see Component Dimensions and Catalog Numbers Table

Outline of component with straight leads

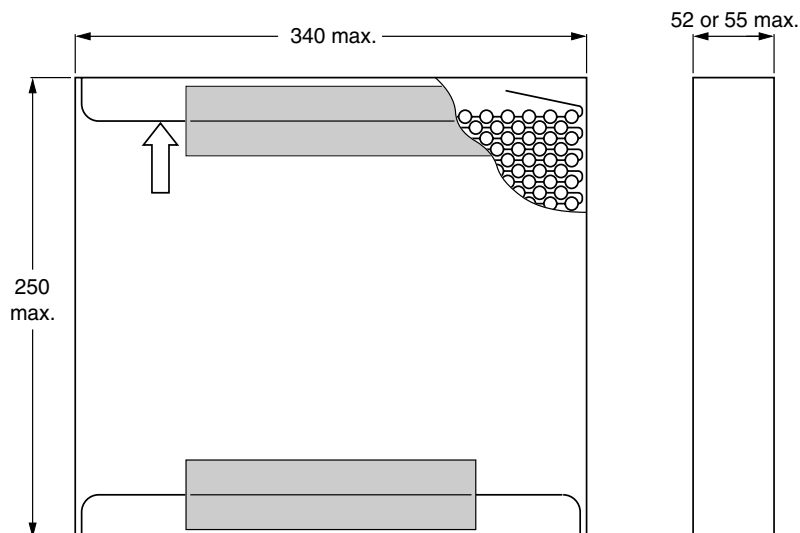
Outline of component with kinked leads



VARISTORS ON TAPE IN AMMOPACK				
TYPE	2381 582 Ø 5 mm 11 V to 460 V	2381 583 Ø 7 mm 11 V to 510 V	2381 584 Ø 10 mm 11 V to 550 V	2381 585 Ø 14 mm 11 V to 550 V
Straight leads				
H = 18 mm	-	-	0...7	0...7
H = 20 mm	0...7	0...7	-	-
See drawing Taped version with straight leads				
Kinked leads				
H ₀ = 18.25 mm	3...7	3...7	3...7	3...7
H ₀ = 16 mm	8...7	8...7	8...7	8...7
See drawing Taped version with kinked leads				
Packing quantities				
14 V to 210 V	1500 ⁽¹⁾	1500 ⁽¹⁾	500	500
230 V to max. V	1000	1000	500	500

Note

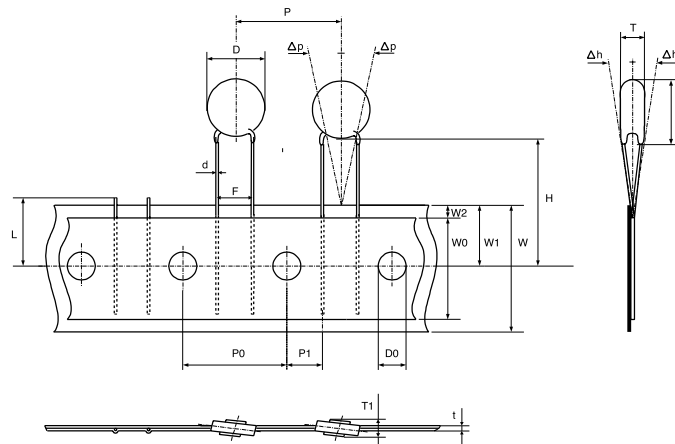
⁽¹⁾ Except for 35 and 40 V = 1000 pieces

DIMENSIONS OF AMMOPACK in millimeters


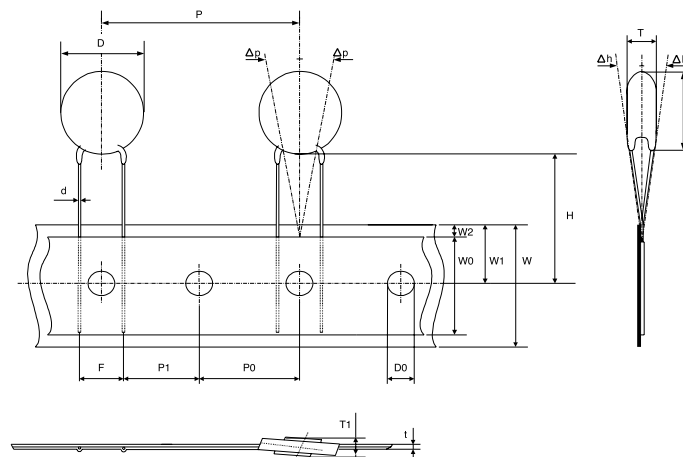
VARISTORS ON TAPE AND REEL				
TYPE	2381 582 Ø 5 mm 11 V to 460 V	2381 583 Ø 7 mm 11 V to 510 V	2381 584 Ø 10 mm 11 V to 550 V	2381 585 Ø 14 mm 11 V to 550 V
Straight leads H = 18 mm H = 20 mm See drawing Taped version with straight leads	- 0...6	- 0...6	0...6 -	0...6 -
Kinked leads H ₀ = 18.25 mm H ₀ = 16 mm See drawing Taped version with kinked leads	3...6 8...6	3...6 8...6	3...6 8...6	3...6 8...6
Packing quantities				
14 V to 250 V	1500	1500	1000	750
275 V to 300 V	1500	1500	750	750
320 V to 350 V	1000	1000	500	500
385 V to max. V	1000	1000	500	500

PACKAGING

TAPED VERSION WITH STRAIGHT LEADS (only for 2381 582VDRH05.....E and 2381 583VDRH07.....E)



TAPED VERSION WITH STRAIGHT LEADS (only for 2381 584VDRH10.....E and 2381 585VDRH14.....E)





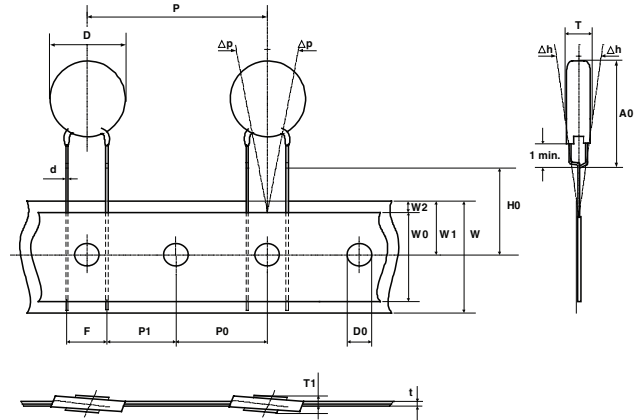
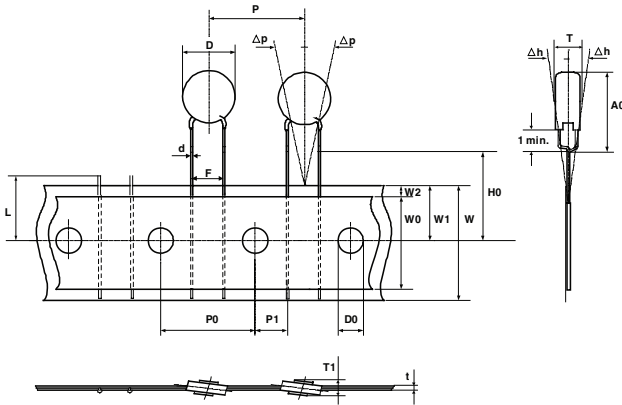
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TAPED VERSION WITH KINKED LEADS

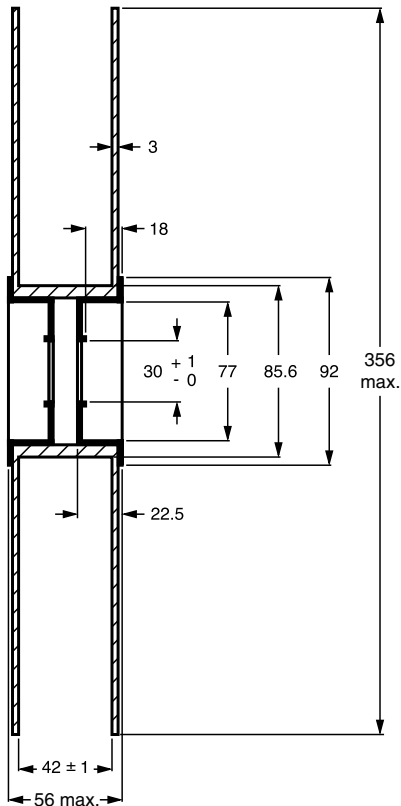
(only for 2381 582VDRH10.....E and 2381 583VDRH07.....E)

TAPED VERSION WITH KINKED LEADS

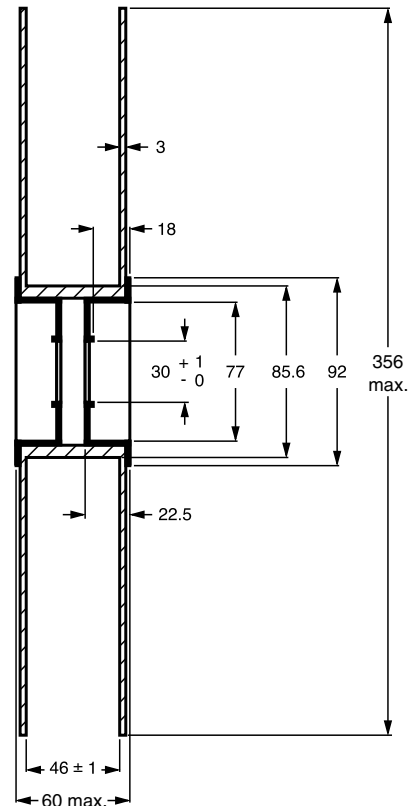
(only for 2381 584VDRH10.....E and 2381 585VDRH14.....E)



DIMENSIONS OF REELS in millimeters



For 2381 582VDRH05.....E and 2381 583VDRH07.....E



For 2381 584VDRH10.....E and 2381 585VDRH14.....E



TAPING DATA (based on "IEC 60286-2")					
SYMBOL	PARAMETER	DIMENSIONS/TOLERANCE			
		582	583	584	585
A	Mounting height	9.0 max.	11.0 max.	15.5 max.	19.0 max.
A ₀	Mounting height	11.0 max.	13.0 max.	18.0 max.	23.0 max.
D	Body diameter	7.0 max.	9.0 max.	13.5 max.	17.0 max.
D ₀	Feed hole diameter	4.0 ± 0.2			
d	Lead wire diameter	0.6 ± 0.05		0.8 ± 0.05	
F	Lead to lead distance ⁽¹⁾	5.0 ± 0.5/- 0.2		7.5 ± 0.8	
H	Distance component to tape center ⁽⁴⁾	20.0 + 2.0/- 0.0		18.0 + 2.0/- 0.0	
H ₀	Lead-wire clinch height	16.0 or 18.25 ± 0.5			
Δh	Component alignment	0.0 ± 2.0			
P	Component pitch	12.7 ± 1.0		25.4 ± 1.0	
P ₀	Feed hole pitch ⁽²⁾	12.7 ± 0.3			
P ₁	Feed hole center to lead center	3.85 ± 0.7		8.95 ± 0.7	
Δp	Component alignment	0.0 ± 1.3			
T	Total thickness	7.0 max.	7.0 max.	10.0 max.	11.0 max.
t	Total tape thickness ⁽³⁾	1.7 max.			
W	Tape width	18.0 + 1.0/- 0.5			
W ₀	Hold down tape width	10 min.			
W ₁	Hole position	9.0 ± 0.5			
W ₂	Hold down tape position	3.0 max.			

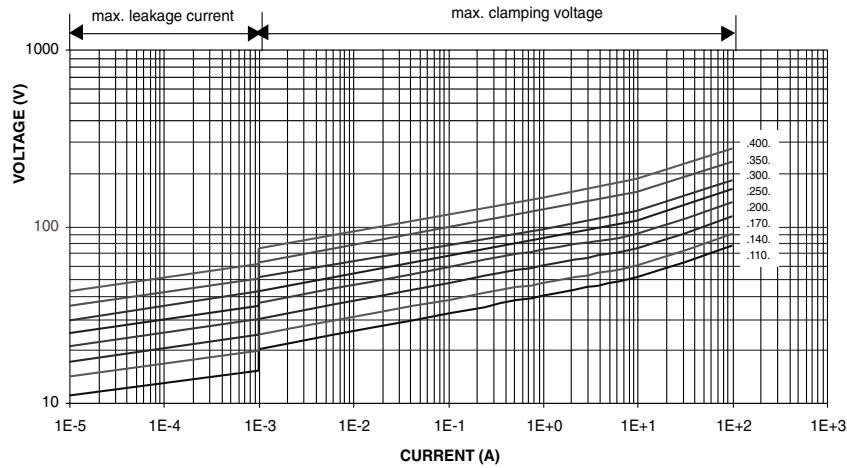
Notes

- (1) Guaranteed between component and tape
(2) Cumulative pitch-error ± 1.0 mm to 20 pitches
(3) With cardboard tape from 0.5 mm ± 0.1
(4) For 2381 585 0511y and 2381 585 0551y: H = 20 ± 0.1 mm

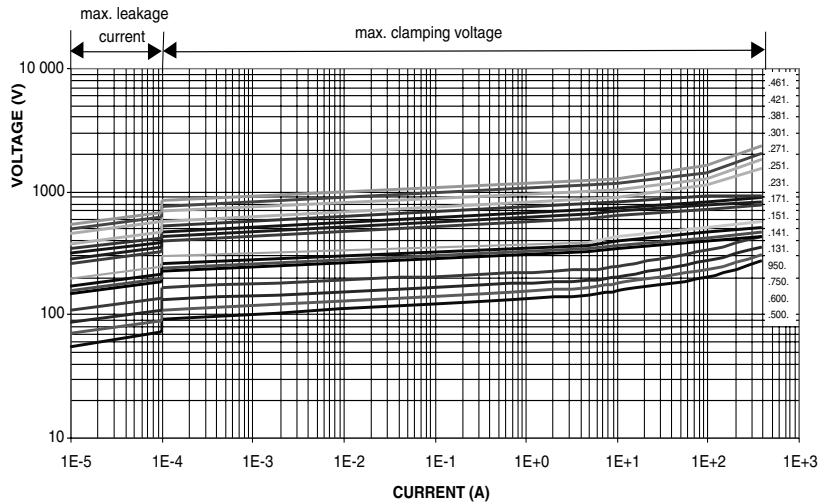


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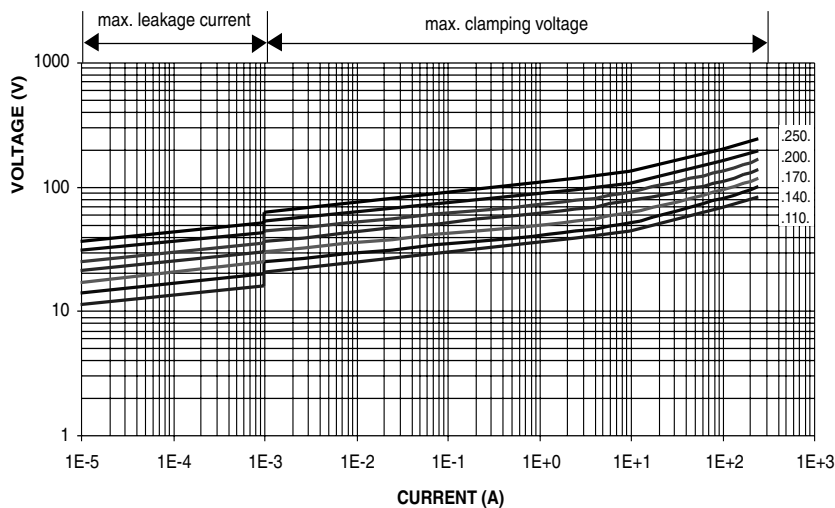
V/I CHARACTERISTIC, 11 TO 40 V (RMS); 2381 582VDRH05.....E



V/I CHARACTERISTIC, 50 TO 460 V (RMS); 2381 582VDRH05.....E



V/I CHARACTERISTIC, 11 TO 40 V (RMS); 2381 583VDRH07.....E



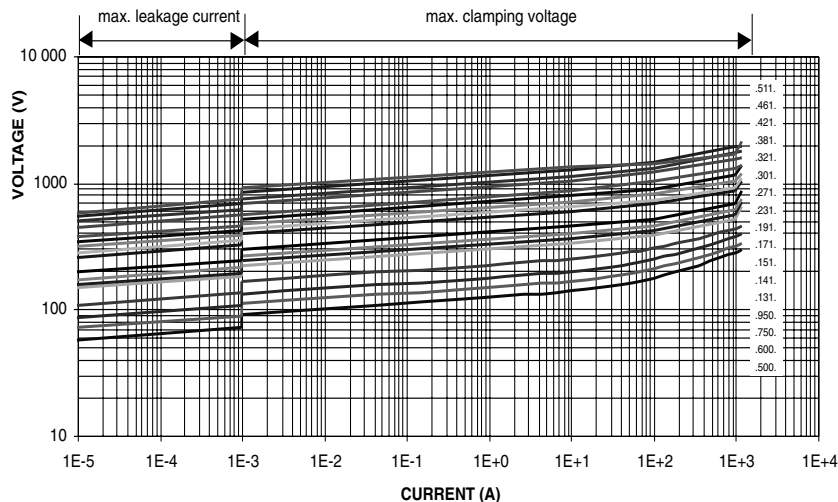
2381 58.VDRH.....E

Vishay BCcomponents High Surge Suppression Varistors

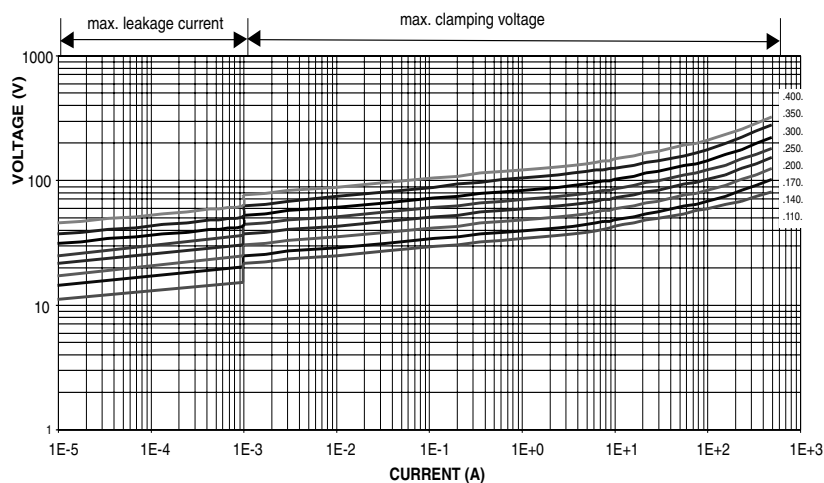


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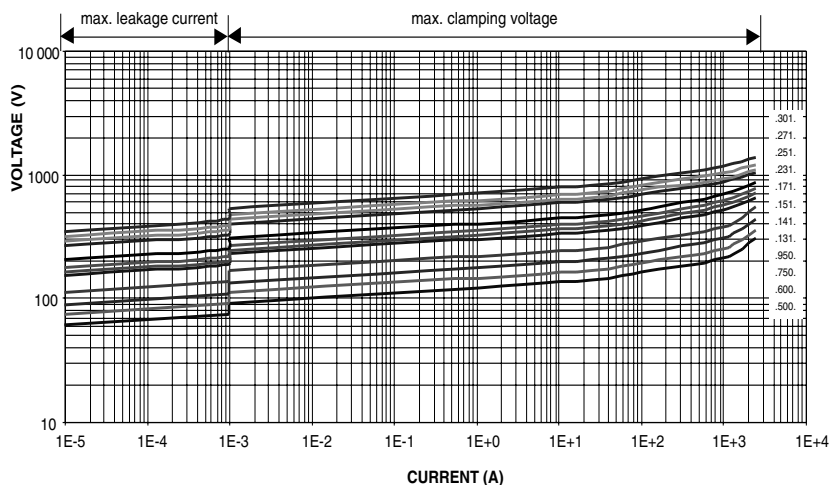
V/I CHARACTERISTIC, 50 TO 510 V (RMS); 2381 583VDRH07.....E



V/I CHARACTERISTIC, 11 TO 40 V (RMS); 2381 584VDRH10.....E



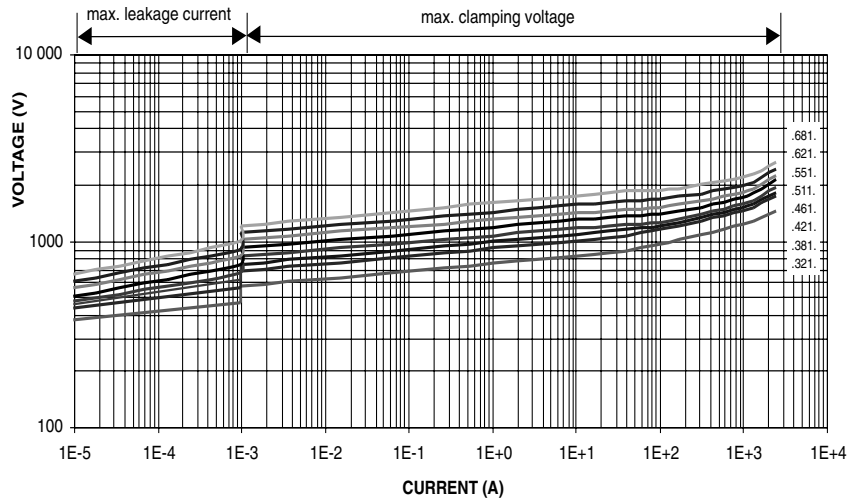
V/I CHARACTERISTIC, 50 TO 300 V (RMS); 2381 584VDRH10.....E



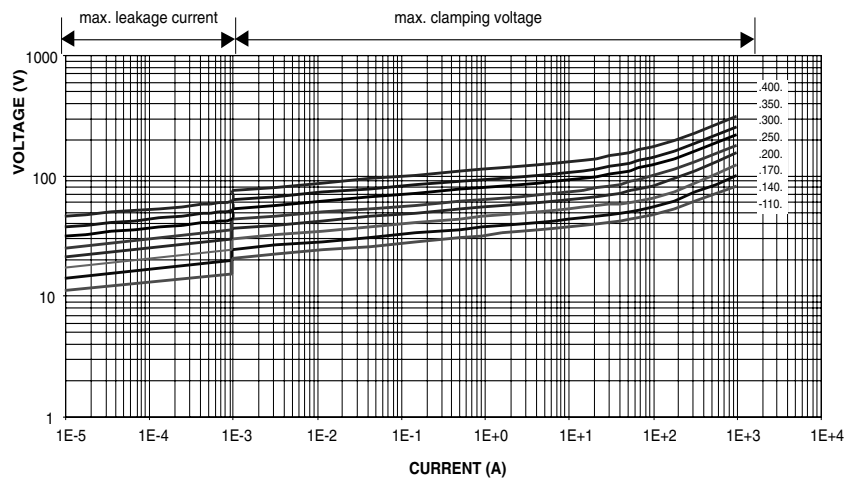


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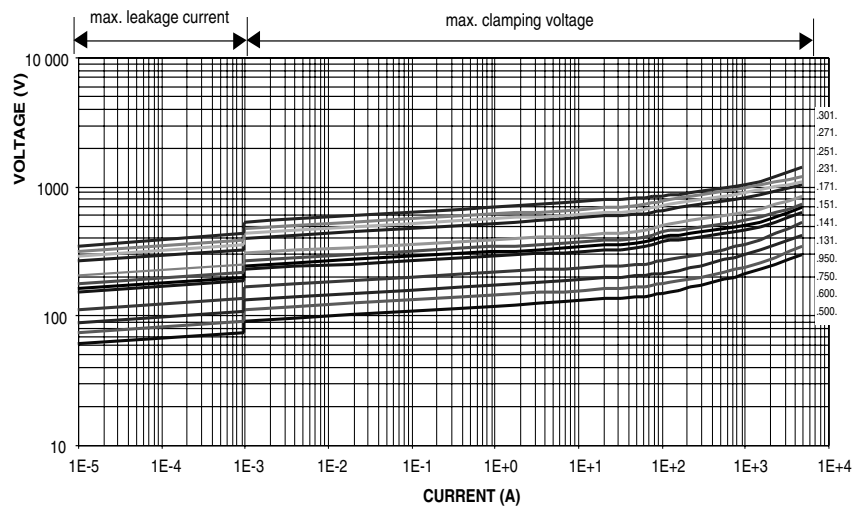
V/I CHARACTERISTIC, 320 TO 680 V (RMS); 2381 584VDRH10.....E



V/I CHARACTERISTIC, 11 TO 40 V (RMS); 2381 585VDRH14.....E

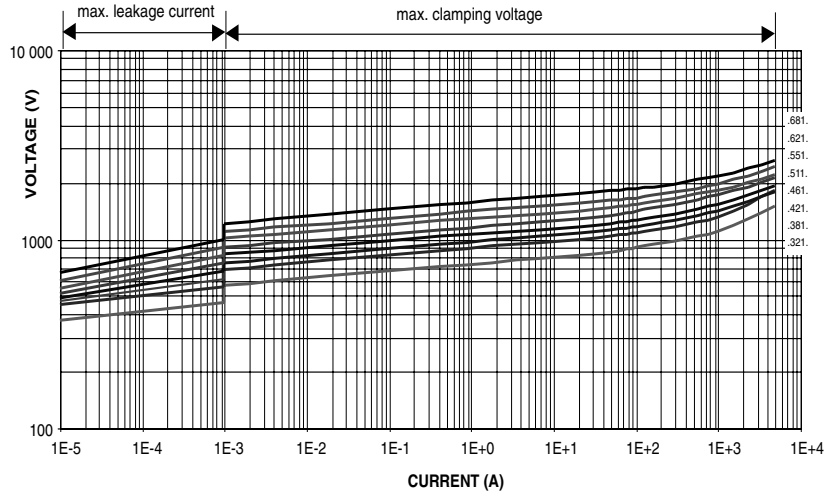


V/I CHARACTERISTIC, 50 TO 300 V (RMS); 2381 585VDRH14.....E

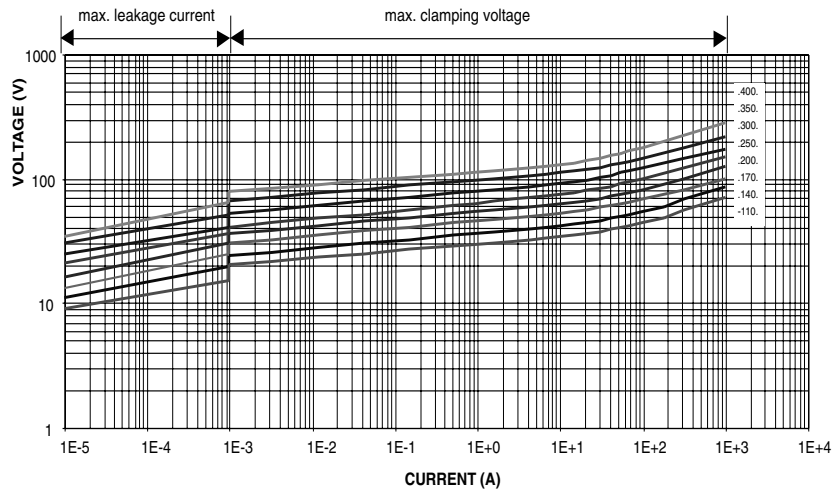


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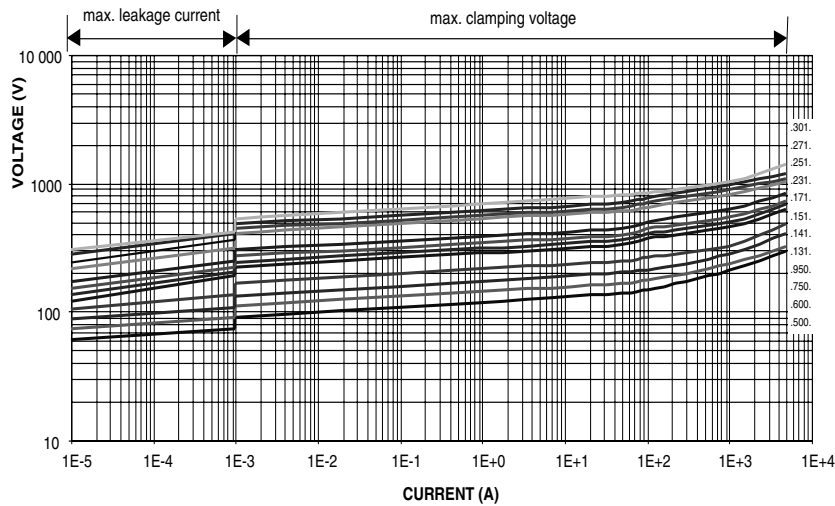
V/I CHARACTERISTIC, 300 TO 385 V (RMS); 2381 585VDRH14.....E



V/I CHARACTERISTIC, 11 TO 40 V (RMS); 2381 586VDRH20.....E



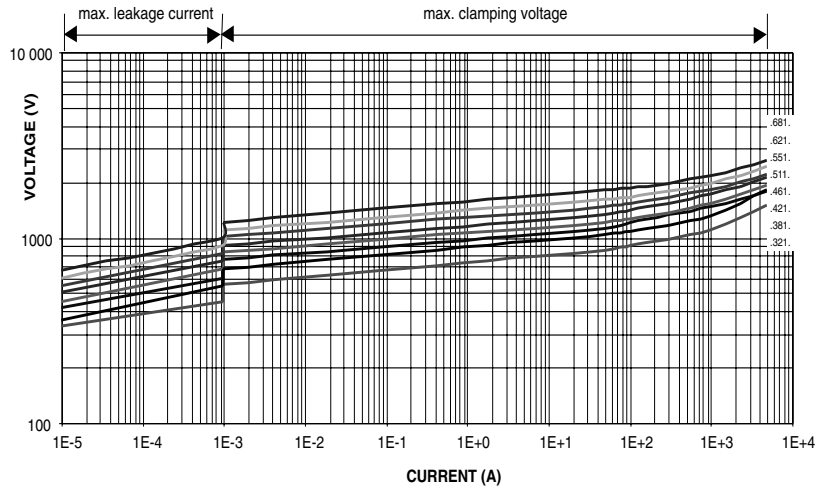
V/I CHARACTERISTIC, 50 TO 300 V (RMS); 2381 586VDRH20.....E



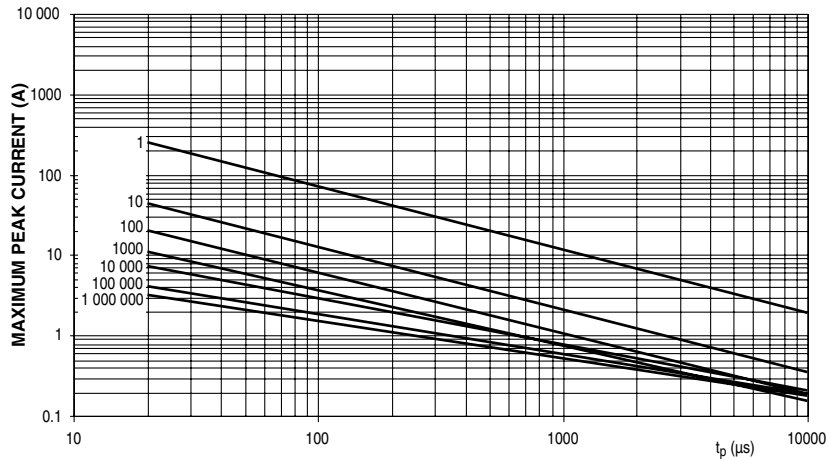


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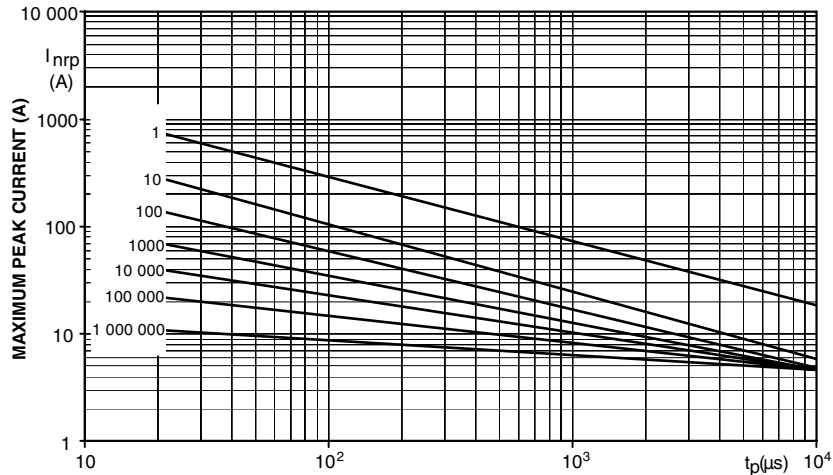
V/I CHARACTERISTIC, 320 TO 680 V (RMS); 2381 586VDRH20.....E



MAXIMUM APPLICABLE TRANSIENT CURRENT AS A FUNCTION OF PULSE DURATION, 11 V TO 40 V (RMS); 2381 582VDRH05.....E

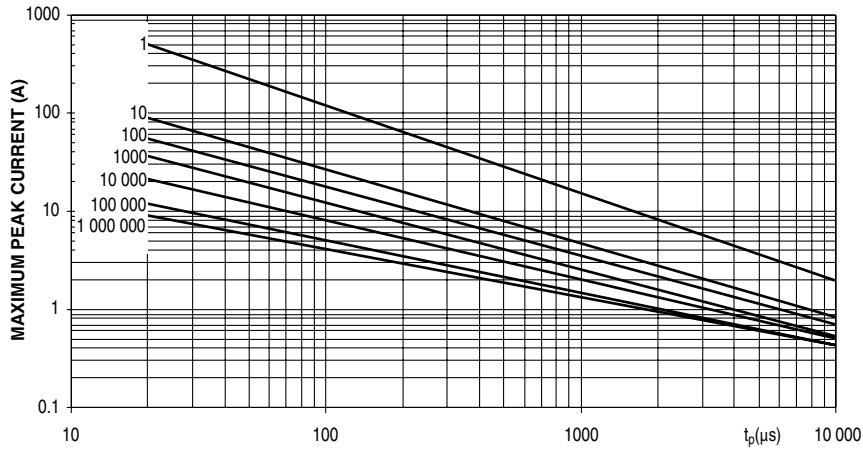


MAXIMUM APPLICABLE TRANSIENT CURRENT AS A FUNCTION OF PULSE DURATION, 50 V TO 300 V (RMS); 2381 582VDRH05.....E

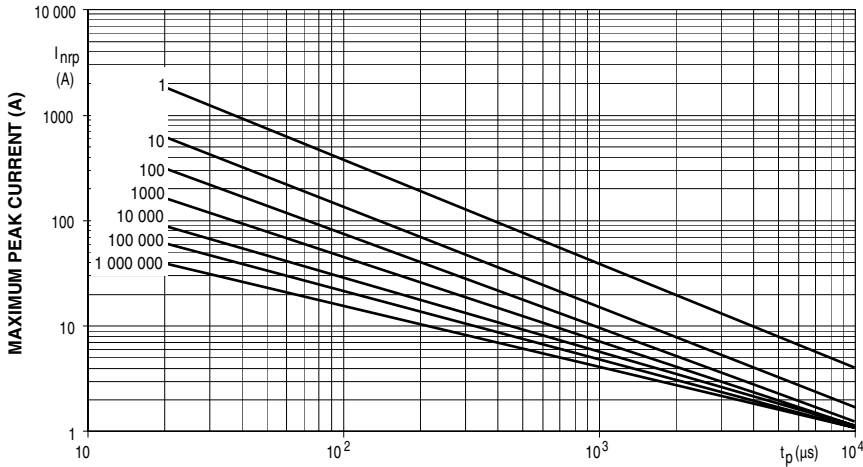


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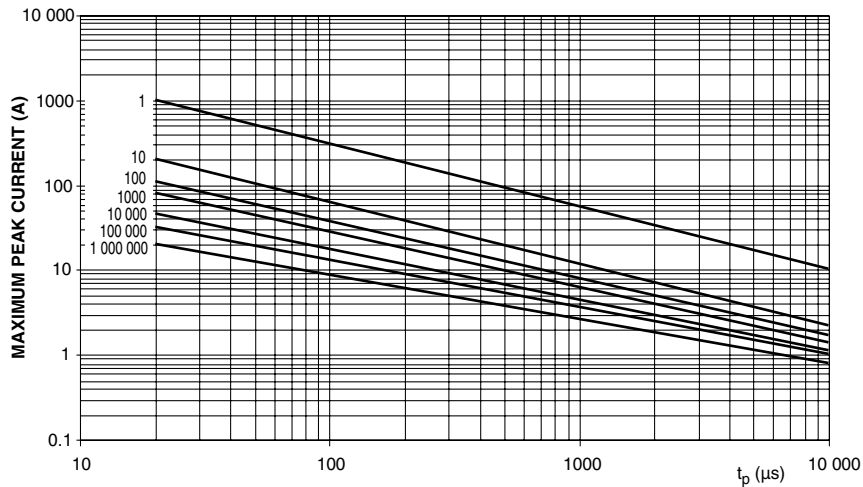
MAXIMUM APPLICABLE TRANSIENT CURRENT AS A FUNCTION OF PULSE DURATION, 11 V TO 40 V (RMS); 2381 583VDRH07.....E



MAXIMUM APPLICABLE TRANSIENT CURRENT AS A FUNCTION OF PULSE DURATION, 50 V TO 300 V (RMS); 2381 583VDRH07.....E



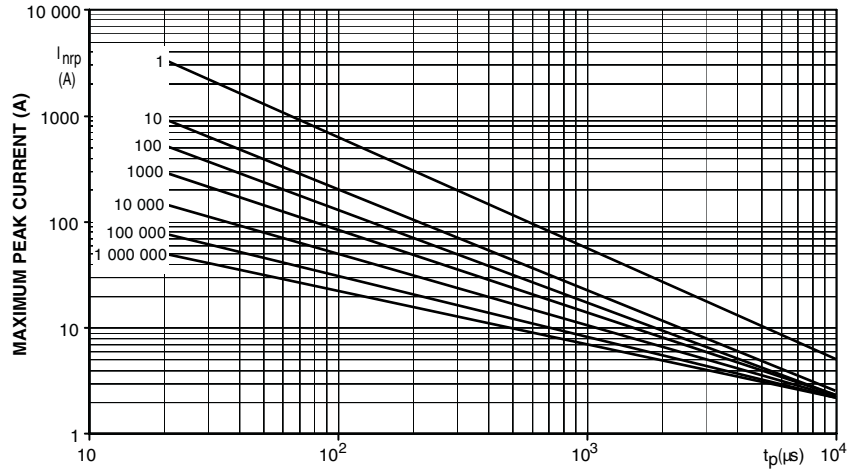
MAXIMUM APPLICABLE TRANSIENT CURRENT AS A FUNCTION OF PULSE DURATION, 11 V TO 40 V (RMS); 2381 584VDRH10.....E



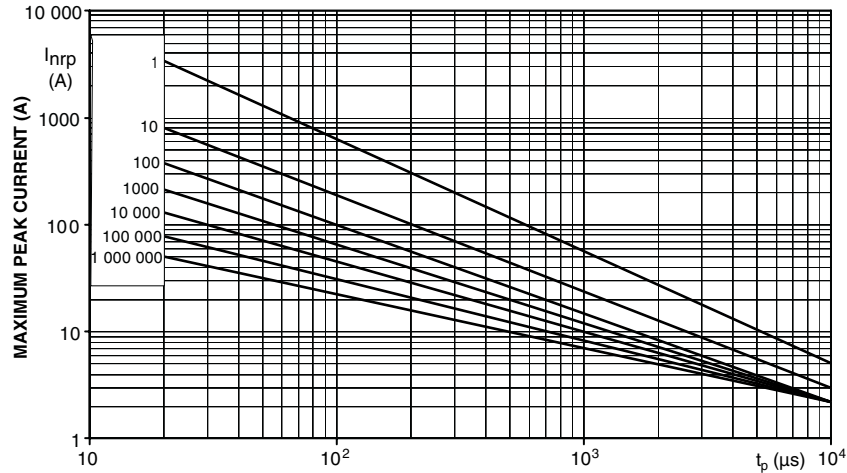


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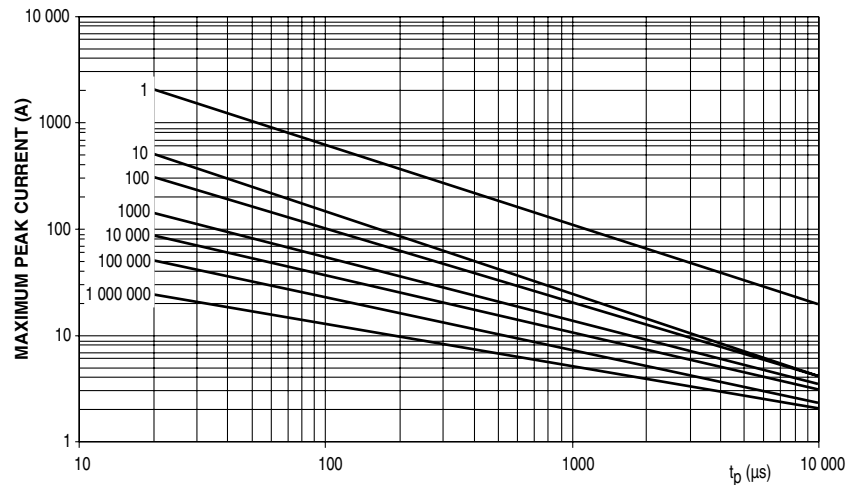
MAXIMUM APPLICABLE TRANSIENT CURRENT AS A FUNCTION OF PULSE DURATION, 50 V TO 300 V (RMS); 2381 584VDRH10.....E



MAXIMUM APPLICABLE TRANSIENT CURRENT AS A FUNCTION OF PULSE DURATION, 320 V TO 680 V (RMS); 2381 584VDRH10.....E

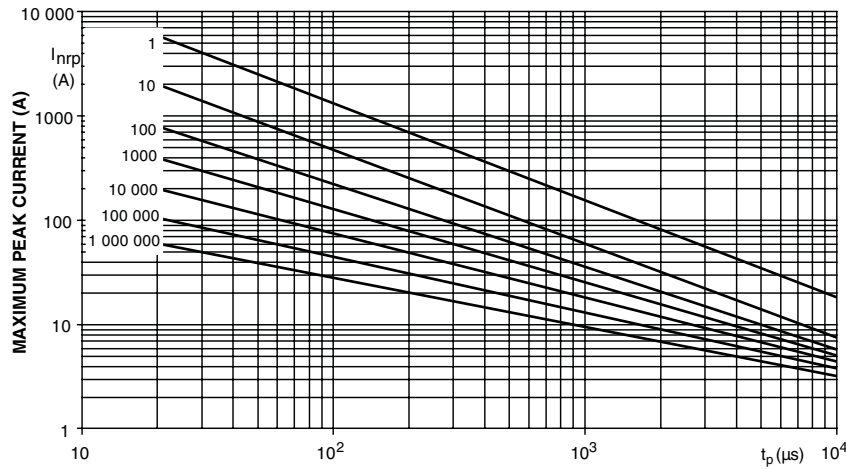


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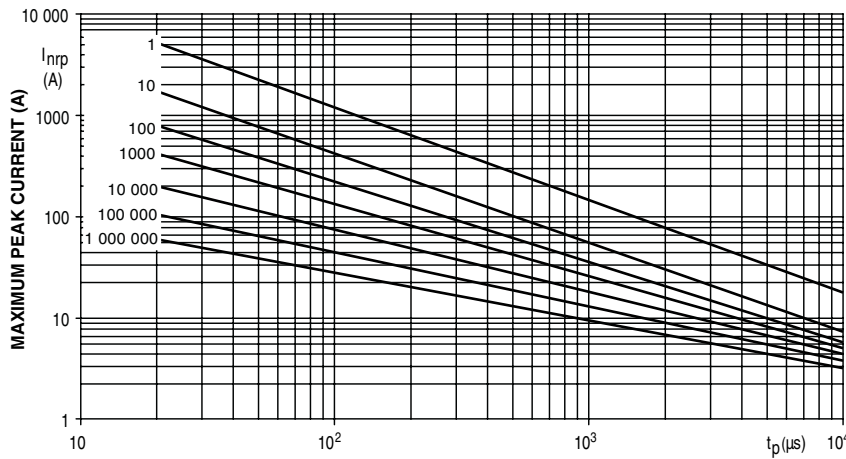


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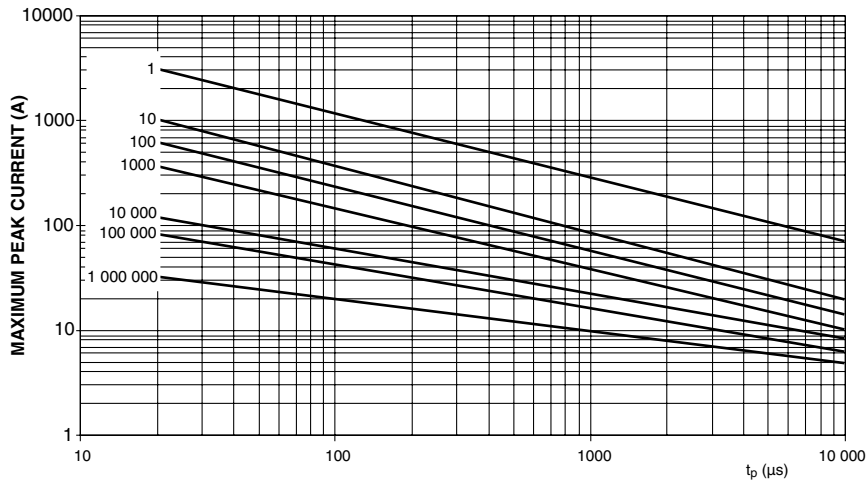
MAXIMUM APPLICABLE TRANSIENT CURRENT AS A FUNCTION OF PULSE DURATION, 50 V TO 300 V (RMS); 2381 585VDRH14.....E



MAXIMUM APPLICABLE TRANSIENT CURRENT AS A FUNCTION OF PULSE DURATION, 320 V TO 680 V (RMS); 2381 585VDRH14.....E



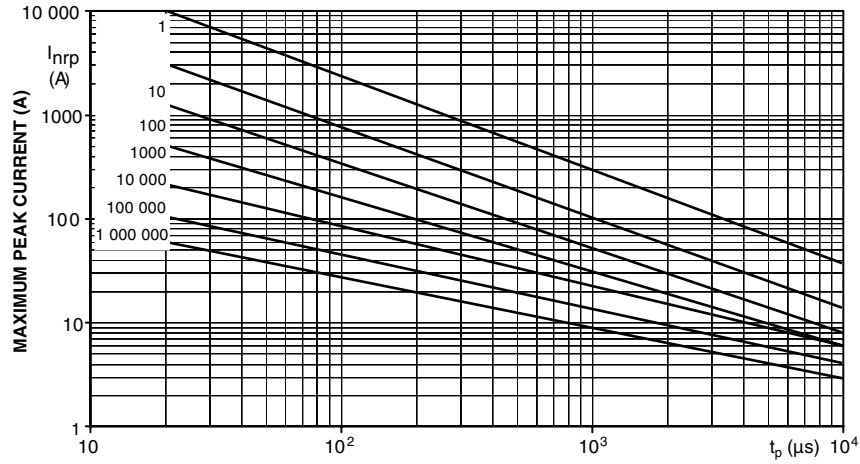
MAXIMUM APPLICABLE TRANSIENT CURRENT AS A FUNCTION OF PULSE DURATION, 11 V TO 40 V (RMS); 2381 586VDRH20.....E



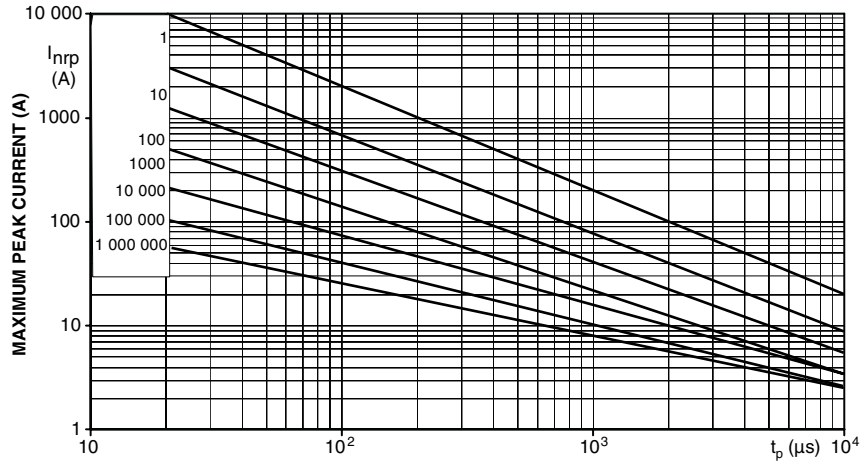


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MAXIMUM APPLICABLE TRANSIENT CURRENT AS A FUNCTION OF PULSE DURATION, 50 V TO 300 V (RMS); 2381 586VDRH20.....E



MAXIMUM APPLICABLE TRANSIENT CURRENT AS A FUNCTION OF PULSE DURATION, 320 V TO 680 V (RMS); 2381 586VDRH20.....E





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