

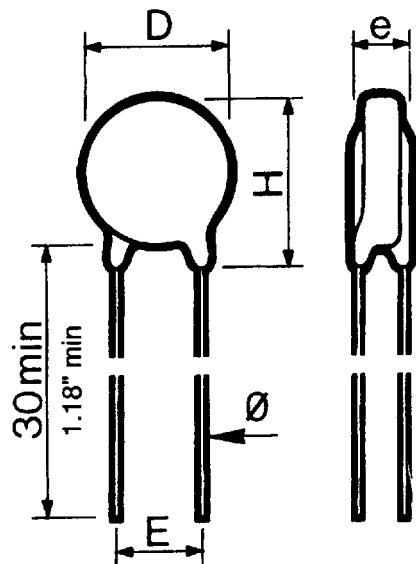
VE SERIES EPOXY DIPPED ZINC OXIDE VARISTORS

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T-11-25

DIMENSIONS

TYPE	D max.		H max.		ϕ +10% -0.05		E ± 0.8	
	mm	ins.	mm	ins.	mm	ins.	mm	ins.
VE07	7	.276	10	.394	0.6	.024	5.08	.200
VE09	9	.354	12	.472	0.6	.024	5.08	.200
VE13 ≤ 175 VRMS	13.5	.531	16.5	.650	0.8	.031	7.62	.300
VE13 ≤ 175 VRMS	14	.551	17	.669	0.8	.031	7.62	.300
VE17 ≤ 175 VRMS	17	.669	20	.787	0.8	.031	7.62	.300
VE17 ≤ 175 VRMS	17.5	.689	20.5	.807	0.8	.031	7.62	.300



THICKNESS

AC nominal voltage EIA coding	Type							
	VE07		VE09		VE13		VE17	
	mm	ins.	mm	ins.	mm	ins.	mm	ins.
0480	4.5	.177	4.6	.181				
0600	4.7	.185	4.7	.185	5.1	.201	5.1	.201
0750	4.8	.189	4.8	.189	5.2	.205	5.2	.205
0950	5	.197	5	.197	5.5	.217	5.5	.217
1060	5.1	.201	5.1	.201	5.6	.220	5.6	.220
0131	5.2	.205	5.2	.205	5.6	.220	5.6	.220
0151	5.4	.213	5.4	.213	5.8	.228	5.8	.228
1750	5.6	.220	5.6	.220	6.1	.240	6.1	.240
0231	6.2	.244	6.2	.244	6.7	.264	6.7	.264
0251	6.4	.252	6.4	.252	6.8	.268	6.8	.268
2750	6.7	.264	6.7	.264	7.2	.283	7.2	.283
0301			7	.276	7.5	.295	7.5	.295
0421			7.8	.308	7.8	.308	8.4	.331
0461					8	.315	8.9	.350
0511					8.5	.335	9.4	.370
0551					9	.354	10	.394
5750					9.5	.374	10.5	.413

APPLICATION

Protection against high voltage transients and surges produced for example by lightning, switching and electrical noise on AC or DC power lines.

MARKING

Type
AC nominal voltage (EIA coding)
THOMSON Logo

UL recognized.
File number E84108 (S)

GENERAL CHARACTERISTICS

- Storage temperature : $-40^{\circ}\text{C} + 125^{\circ}\text{C}$
- Max. operating temperature : $+ 85^{\circ}\text{C}$
- Max. working surface temperature : $+ 115^{\circ}\text{C}$
- Response time : $< 25 \text{ ns}$
- Voltage coefficient temperature : $- 0.005\%/^{\circ}\text{C}$
- Insulation resistance : $\geq 1000 \text{ M}\Omega$
- Insulation voltage : 2500 V

HOW TO ORDER

	1	2	3	4	5	6	7	8	9	10	11	12	13
—	V	E	O	9	M	O	O	2	5	1	K	—	—

Type

VE07
VE09
VE13
VE17

Material Code

M

Non defined

AC nominal voltage
EIA coding

Tolerance at 1mA

K ±10%

Suffixes

1. Operating voltage expressed by 2 significant figures

7th digit: 0 (zero).

8th and 9th digit: the two significant figures of the operating voltage.

10th digit: the number of ZEROS to be added to the operating voltage value.

EXAMPLES:

75 VRMS : 0750
250 VRMS: 0251
300 VRMS: 0301

2. Operating voltage expressed by 3 significant figures

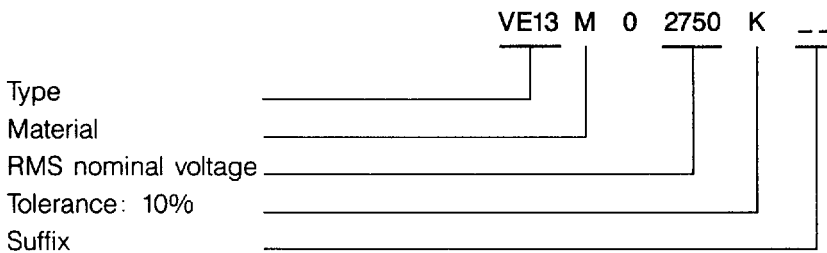
7th, 8th and 9th digit: the 3 significant figures of the operating voltage.

10th digit: the number of ZEROS to be added to the operating voltage value.

EXAMPLES:

106 VRMS: 1060
275 VRMS: 2750

ORDERING CODE



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PARTICULAR CHARACTERISTICS

Type	Max. operating voltage			Nominal voltage at 1mA DC		Max. clamping voltage (8x20µs)		Energy (10x1000µs) W (J)		Permissible peak current 8x20µs 1p (A)					Typical capacitance F=1KHz (pF)	Mean power (W)
	VRMS (V)	VDC (V)	Vn±10% (V)	Vp (V)	Ip (A)	Number of surges										
						1	10	1	10	10 ²	10 ³	10 ⁴				
VE07M00480K -- VE09M00480K --	48	63	75	135	5	1	0.6	400	70	50	30	20	180	0.1		
				125	10	4	1.6	1200	175	130	75	50	480	0.2		
VE07M00600K -- VE09M00600K -- VE13M00600K -- VE17M00600K --	60	80	100	165	5	1.5	0.7	400	70	50	30	20	165	0.1		
				165	10	5	1.7	1200	175	130	75	50	440	0.2		
				165	25	10	7	2500	350	250	150	100	870	0.4		
				165	50	20	14	4500	700	500	300	150	2200	0.6		
VE07M00750K -- VE09M00750K -- VE13M00750K -- VE17M00750K --	75	100	120	200	5	2	0.8	400	70	50	30	20	150	0.1		
				200	10	6	1.8	1200	175	130	75	50	400	0.2		
				200	25	12	8	2500	350	250	150	100	700	0.4		
				200	50	22	15	4500	700	500	300	150	1900	0.6		
VE07M00950K -- VE09M00950K -- VE13M00950K -- VE17M00950K --	95	125	150	250	5	2.5	1	400	70	50	30	20	110	0.1		
				250	10	8	3	1200	175	130	75	50	310	0.2		
				250	25	15	9	2500	350	250	150	100	560	0.4		
				250	50	30	20	4500	700	500	300	150	1200	0.6		
VE07M01060K -- VE09M01060K -- VE13M01060K -- VE17M01060K --	106	140	170	280	5	4	1.2	400	70	50	30	20	100	0.1		
				280	10	10	3.7	1200	175	130	75	50	280	0.2		
				280	25	18	10	2500	350	250	150	100	500	0.4		
				280	50	35	22	4500	700	500	300	150	1100	0.6		
* VE07M00131K -- * VE09M00131K -- * VE13M00131K -- * VE17M00131K --	130	170	205	340	5	5	1.5	400	70	50	30	20	90	0.1		
				340	10	11	4	1200	175	130	75	50	250	0.2		
				340	25	20	11	2500	350	250	150	100	450	0.4		
				340	50	38	25	4500	700	500	300	150	1000	0.6		
* VE07M00151K -- * VE09M00151K -- * VE13M00151K -- * VE17M00151K --	150	200	240	400	5	6	1.8	400	70	50	30	20	80	0.1		
				400	10	13	4.1	1200	175	130	75	50	220	0.2		
				400	25	25	13	2500	350	250	150	100	400	0.4		
				400	50	45	30	4500	700	500	300	150	850	0.6		

* = UL approval.

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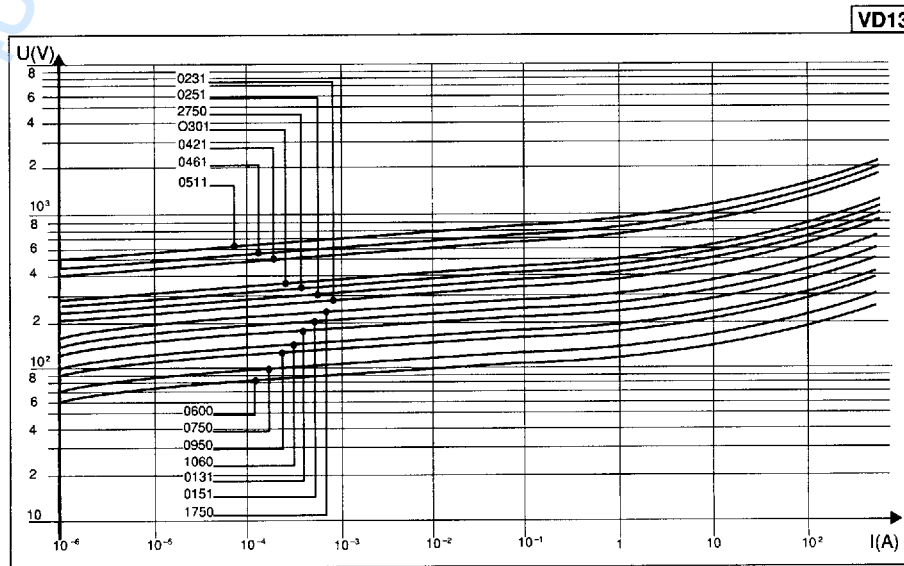
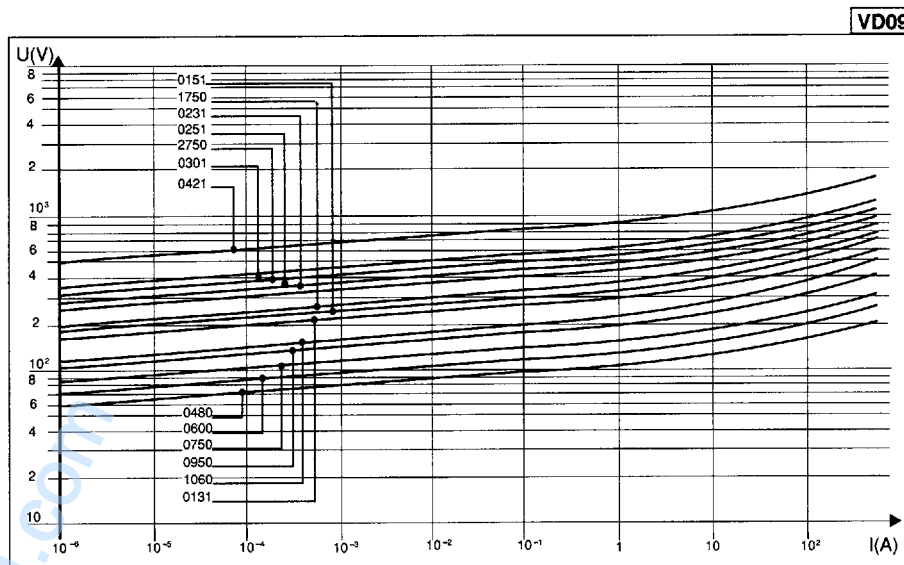
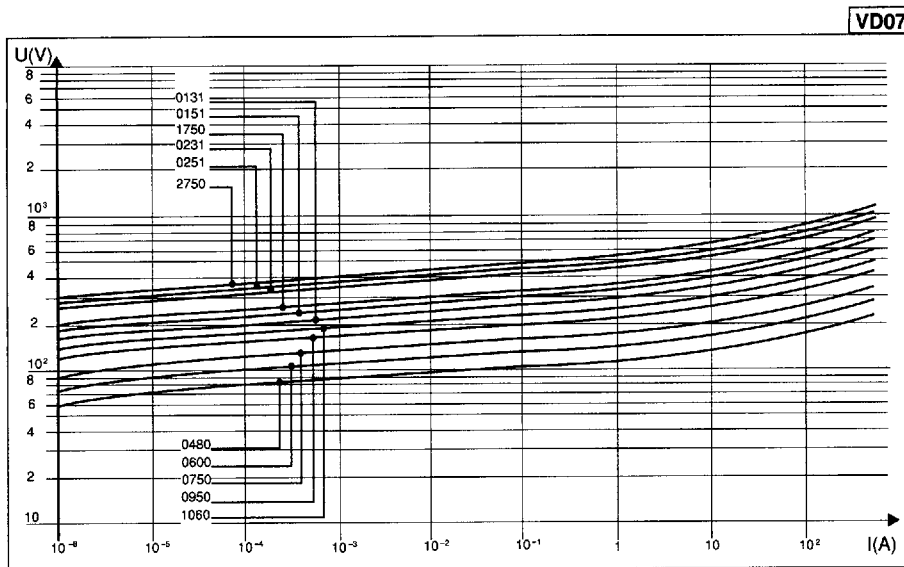
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PARTICULAR CHARACTERISTICS

Type	Max. operating voltage		Nominal voltage at 1mA DC (8x20µs)	Max. clamping voltage		Energy (10x1000µs) W (J)		Permissible peak current 8x20µs 1p (A)					Typical capacitance F=1KHz (pF)	Mean power (W)
	VRMS (V)	VDC (V)		Vn±10% (V)	Vp (V)	Ip (A)	1	10	1	10	10 ²	10 ³		
VE07M01750K -- VE09M01750K -- * VE13M01750K -- * VE17M01750K --	175	225	270	445	5	7.5	1.9	400	70	50	30	20	70	0.1
				445	10	15	4.5	1200	175	130	75	50	190	0.2
				445	25	28	13.5	2500	350	250	150	100	340	0.4
				445	50	55	31	4500	700	500	300	150	750	0.6
* VE07M00231K -- * VE09M00231K -- * VE13M00231K -- * VE17M00231K --	230	300	360	595	5	9	2.4	400	70	50	30	20	55	0.1
				595	10	20	6	1200	175	130	75	50	140	0.2
				595	25	35	14.3	2500	350	250	150	100	250	0.4
				595	50	70	38	4500	700	500	300	150	550	0.6
* VE07M00251K -- * VE09M00251K -- * VE13M00251K -- * VE17M00251K --	250	320	390	645	5	10	2.8	400	70	50	30	20	50	0.1
				645	10	21	7.3	1200	175	130	75	50	130	0.2
				645	25	40	19	2500	350	250	150	100	230	0.4
				645	50	72	39	4500	700	500	300	150	500	0.6
* VE07M02750K -- * VE09M02750K -- * VE13M02750K -- * VE17M02750K --	275	350	430	710	5	11	3	400	70	50	30	20	45	0.1
				710	10	23	7.4	1200	175	130	75	50	120	0.2
				710	25	45	20	2500	350	250	150	100	210	0.4
				710	50	75	40	4500	700	500	300	150	450	0.6
* VE09M00301K -- VE13M00301K -- VE17M00301K --	300	385	470	775	10	25	7.5	1200	175	130	75	50	100	0.2
				775	25	45	20	2500	350	250	150	100	180	0.4
				775	50	80	42	4500	700	500	300	150	400	0.6
VE09M00421K -- VE13M00421K -- VE17M00421K --	420	560	680	1120	10	25	7.5	1200	175	130	75	50	80	0.2
				1120	25	45	20	2500	350	250	150	100	120	0.4
				1120	50	90	42	4500	700	500	300	150	300	0.6
VE13M00461K -- VE17M00461K --	460	615	750	1240	25	45	20	2500	350	250	150	100	110	0.4
				1240	50	100	47	4500	700	500	300	150	250	0.6
VE13M00511K -- VE17M00511K --	510	670	820	1350	25	50	22	2500	350	250	150	100	100	0.4
				1350	50	115	57	4500	700	500	300	150	220	0.6
VE13M00551K -- VE17M00551K --	550	715	860	1420	25	55	24	2500	350	250	150	100	90	0.4
				1420	50	115	57	4500	700	500	300	150	200	0.6
VE13M05750K -- VE17M05750K --	575	730	910	1500	25	60	25	2500	350	250	150	100	80	0.4
				1500	50	120	60	4500	700	500	300	150	180	0.6

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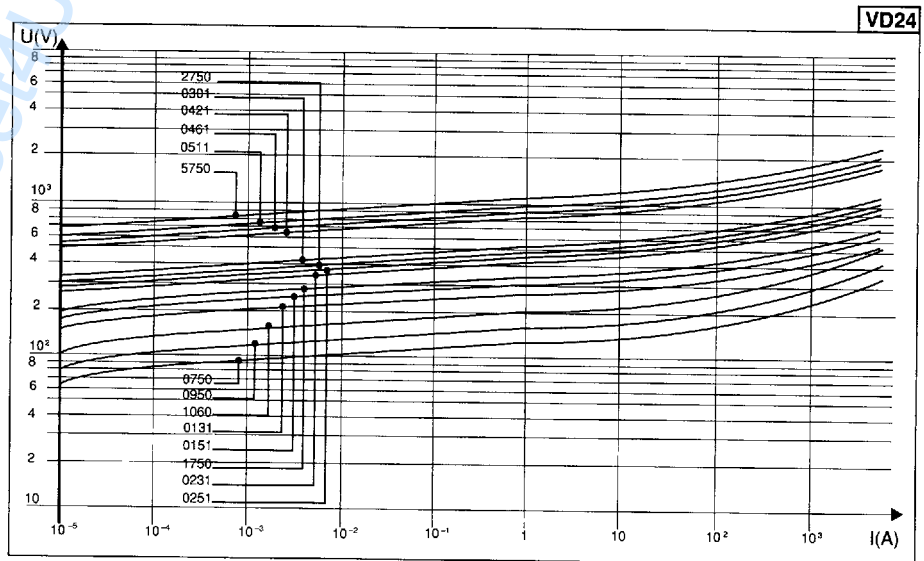
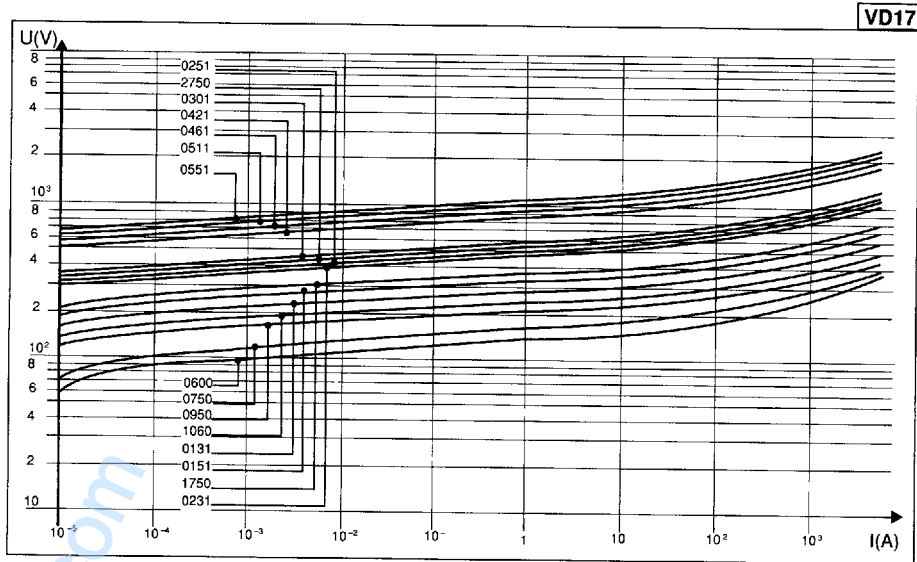
VOLTAGE CURRENT CHARACTERISTICS



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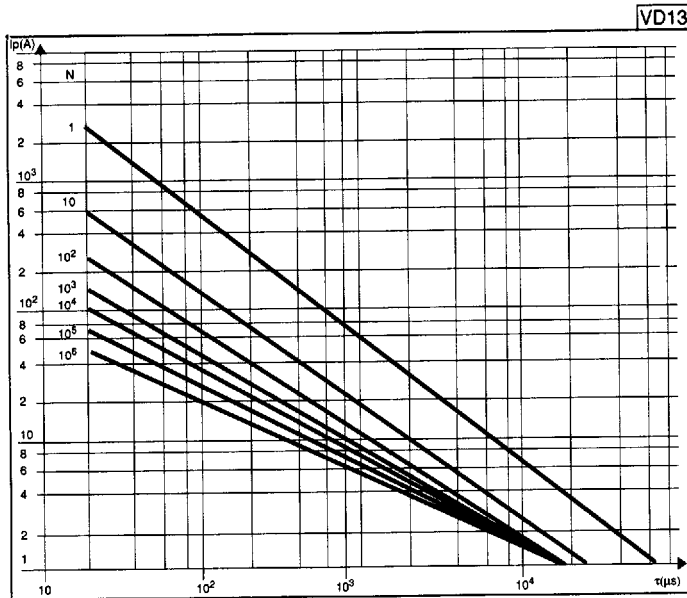
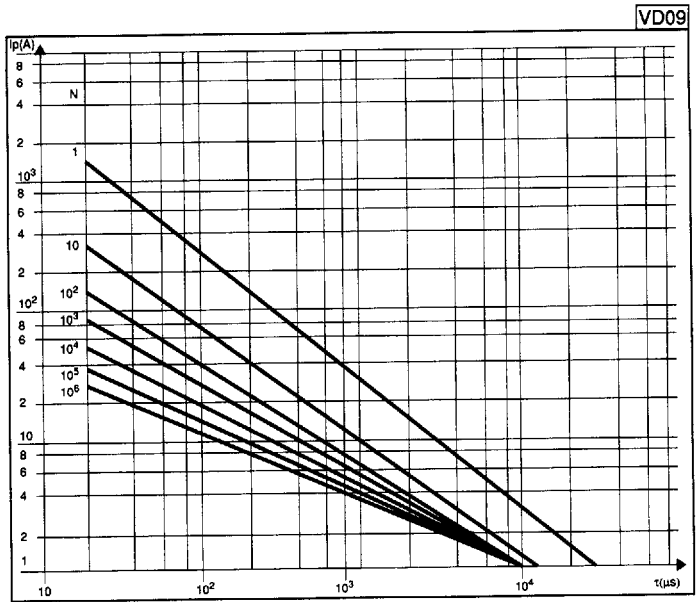
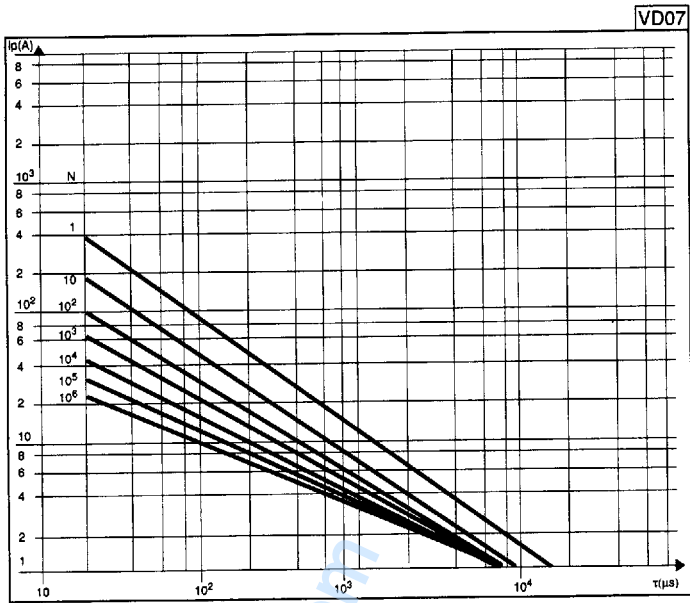
VOLTAGE CURRENT CHARACTERISTICS



VE SERIES EPOXY DIPPED ZINC OXIDE VARISTORS

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MAXIMAL CURRENT (I_p) RESULTING FROM PULSE WIDTH (τ) AND FREQUENCY



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MAXIMAL CURRENT (I_p) RESULTING FROM PULSE WIDTH (τ) AND FREQUENCY

