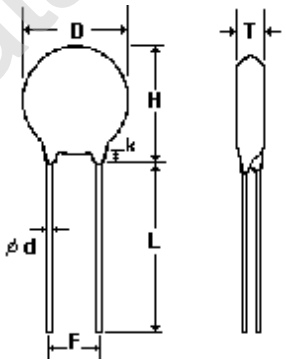
1. QUALITY SYSTEM APPROVAL

ISO9001 Certificate of approval No.97-HOU-AQ-1382

2. SAFETY STANDARDS APPROVAL

Standard No.	UL 1414	UL 1449	UL 497B	CUL	CSA C22.2 No.1
File No.	E181368	E166389	E187844	E166389	LR105317
180K～680K			Approved		
820K～181K		Approved	Approved	Approved	
201K～471K	Approved	Approved	Approved	Approved	Approved

3. STRUCTURE

NO.	ITEM	DESCRIPTION		
3.1	Main Material	Zinc Oxide		
3.2	Coating Material	Epoxy Resin		
3.3	Marking	GNR, Part number, UL and CSA(or CUL) recognized component mark		
3.4	Appearance	Without dirt and crack, marking should be clear		
3.5	Dimensions	 Unit: mm	D(max.)	7.5
			H(max.)	10.0
			T(max.)	∗(1)
			F	5.0± 1.0
			ϕ d	0.6± 0.1
			L(min.)	25.0
			k(max.)	3.0

∗(1) See Page 3, Dimensions Table

Part No.	$T_{max.}$
05D180K	3.4
05D220K	3.6
05D270K	3.9
05D330K	3.2
05D390K	3.4
05D470K	3.6
05D560K	3.8
05D680K	3.6
05D820K	3.2
05D101K	3.4
05D121K	3.6
05D151K	3.9
05D181K	3.3
05D201K	3.4
05D221K	3.5
05D241K	3.6
05D271K	3.7
05D301K	3.9
05D331K	4.0
05D361K	4.2
05D391K	4.3
05D431K	4.5
05D471K	4.7

Unit:mm

4. ELECTRICAL CHARACTERISTICS

N0.	ITEM	PERFORMANCE	TEST METHODS
4.0	Standard Conditions		Unless otherwise specified, all tests are made under environmental conditions as given below: Temperature: 5～35℃ Relative humidity: 45～85 % RH
4.1	Maximum Allowable Voltage	AC : ∗**(2)** Vrms DC : ∗**(2)** V	Maximum continuous sine wave(RMS) or DC voltage which may be applied.
4.2	Varistor Voltage	$V_{0.1mA}$: ∗**(2)** V	Voltage across the varistor measured at C_{mA} DC.
4.3	Varistor Voltage Temperature Coefficient	0 ～ −0.05 %/℃	$\frac{V_{CmA}\text{ at }85℃ - V_{CmA}\text{ at }25℃}{V_{CmA}\text{ at }25℃} \times \frac{1}{60} \times 100$
4.4	Max. Clamping Voltage	∗**(2)** V at ∗**(2)** A	Peak voltage across the varistor with a specified peak impulse current of 8× 20 μs waveform.
4.5	Rated Power	∗**(2)** W	Maximum 50～60Hz power which may be loaded for 1,000 hrs at 85± 2℃ with $\triangle V_{CmA}/V_{CmA} \leqq \pm$ 10%.
4.6	Withstanding Surge Current	∗**(2)** A	The max. current within the varistor voltage change of less than ± 10% when one impulse current (8× 20 μs) applied. The max. current with a varistor voltage change of less than ± 10% when two times impulse current (8× 20 μs) are applied at intervals of 5 minutes.
4.7	Energy	∗**(2)** Joule	The max. energy absorbed with a varistor voltage change of less than ± 10% when one impulse(10× 1000 μs) is applied.
4.8	Surge Life	∗**(2)** A	The max. current with a varistor voltage change of less than ± 10% when 10,000 times impulse current (8× 20 μs) are applied at intervals of 20 seconds at room temperature.

∗**(2) See Page 5**

PART NUMBER	MAXIMUM ALLOWABLE VOLTAGE		VARISTOR VOLTAGE	CLAMPING VOLTAGE (MAX.)		RATED WATTAGE (MAX.)	SURGE CURRENT (8/20 μs)		MAXIMUM ENERGY (10/1000 μs)	SURGE LIFE
	AC_{rms}(V)	DC(V)	(V)	(V)	Ip(A)	(W)	I_{tm}(A) 1 TIME	I_{tm}(A) 2 TIMES	W_{tm}(joule)	(A)
05D180K	11	14	16～20	40	1	0.01	250	125	0.6	8
05D220K	14	18	20～24	48					0.7	
05D270K	17	22	24～30	60					0.9	
05D330K	20	26	30～36	73					1.1	
05D390K	25	31	35～43	86					1.2	
05D470K	30	38	42～52	104					1.5	
05D560K	35	45	50～62	123					1.8	
05D680K	40	56	61～75	150					2.2	
05D820K	50	65	74～90	145	5	0.1	800	600	3.5	40
05D101K	60	85	90～110	175					4.0	
05D121K	75	100	108～132	210					5.0	
05D151K	95	125	135～165	260					6.5	
05D181K	115	150	162～198	320					8.0	
05D201K	130	170	185～225	355					8.5	
05D221K	140	180	198～242	380					9.0	
05D241K	150	200	216～264	415					10.5	
05D271K	175	225	247～303	475					11.0	
05D301K	190	250	270～330	525					12.0	
05D331K	210	275	297～363	570					13.0	
05D361K	230	300	324～396	620					16.0	
05D391K	250	320	351～429	675					17.0	
05D431K	275	350	387～473	745					20.0	
05D471K	300	385	423～517	810					21.0	