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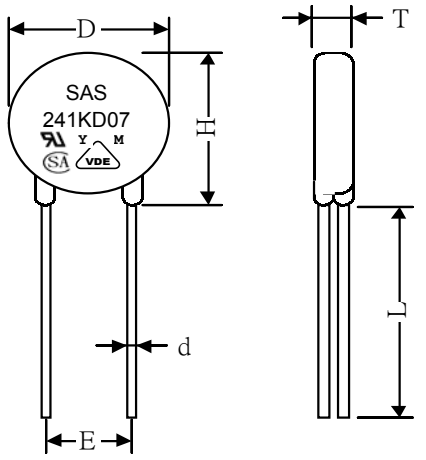
SUBJECT	SAS SURGE ABSORBER	VER	2003.9
PART NUMBER	**SAS-241KD07SB**		

1 Dimension

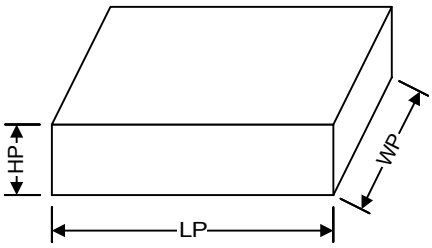
1.1	Appearance	No visible scarp. Clear marking.
1.2	Disk Dimension	

D	**9 max.**
H	**12 max.**
T	**4.3 max.**
d	**0.6 ± 0.05**
E	**5 ± 0.8**
L	**20 min.**

unit : mm

1.3	Marking	**Trade Mark, Spec., UL&CSA&VDE recognized.**

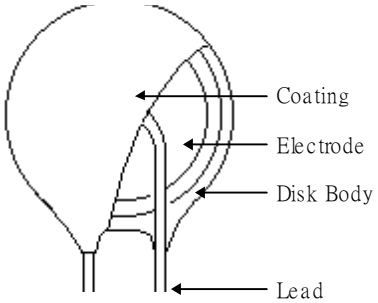
2 Packing

2.1	Quantity	2000 pcs
2.2	Packing Dimension	

LP	260 max.
HP	60 max.
WP	170 max.

unit : mm

3 Material List

3.1	Drawing	

3.2 Material Chart

Item	Composition	Manufacturer	Type no.
Coating	Epoxy Resin	NIPPON PELNOX CORP.	PCE-210
Lead	Tin Co. Wire	Wencheng Industry Co. , LTD.	0.6/0.8/1.0
Electrode	Silver	SHIN NIHON KAKIN Co. , LTD.	SP-A6
Disk	Zinc Oxide	PROGRESSIVE CHEMICAL CORP.	E15129
Solder	Sn:60% Pb:39% Ag:1%	Koyie Industry Co. , LTD.	60/39/1

Q.C. SUPERVISOR		PREPARED BY	

4 Electrical Test Method

4.1	Varistor Voltage	The voltage between two terminals with the specified measuring current 1 mA DC applied is call Vb.
4.2	Maximum Allowable Voltage	The recommended maximum sine wave voltage (rms) or the maximum DC voltage can be applied continuously.
4.3	Maximum Clamping Voltage	The maximum voltage between two terminal with the specification standard impulse current (8/20 μ sec.).
4.4	Rated Wattage	The maximum power that can be applied within the specified ambient temperature.
4.5	Energy	The maximum energy within the varistor voltage change of ±10% when one impulse of 10/1000 μ sec. or 2 msec. is applied.
4.6	Withstanding Surge Current	The maximum current within the varistor voltage change of ±10% with the standard impulse current (8/20 μ sec.) applied one time.
4.7	Varistor Voltage Temp. Coefficient	$\frac{\text{Vb at } 20℃\ (68℉) - \text{Vb at } 70℃\ (158℉)}{\text{Vb at } 20℃\ (68℉)} * \frac{1}{50} * 100\ (\%/℃)$
4.8	Surge Life	The change of Vb shall be measured after the impulse listed below is applied 10,000 times continuously with the interval of ten seconds at room temperature.

5 series	180L to 680K	10A (8/20 μ sec.)
	820K to 751K	20A (8/20 μ sec.)
7 series	180L to 680K	25A (8/20 μ sec.)
	820K to 821K	50A (8/20 μ sec.)
10(9) series	180L to 680K	50A (8/20 μ sec.)
	820K to 182K	100A (8/20 μ sec.)
14 series	180L to 680K	75A (8/20 μ sec.)
	820K to 182K	150A (8/20 μ sec.)
18 series	201K to 182K	200A (8/20 μ sec.)
20 series	180L to 680K	100A (8/20 μ sec.)
	820K to 182K	200A (8/20 μ sec.)

5 Mechanical Test Method

5.1	Terminal Pull Strength	After gradually applying the load specified below and keeping the unit fixed for ten seconds, the terminal shall be visually examined for any damage.

Terminal diameter	Load
0.6mm (.024")	0.5kg (1.1 lbs)
0.8mm (.031")	1.0kg (2.2 lbs)
1.0mm (.039")	2.0kg (4.4 lbs)

5.2	Terminal Bending Strength	The unit shall be secured with its terminal kept vertical and the weight specified below be applied in the axial direction. The terminal shall gradually be bent by 90° in one direction, then 90° in the opposite direction, and again back to the original position. The damage of the terminal shall be visually examined.

Terminal diameter	Load
0.6mm (.024")	0.25kg (0.55lbs)
0.8mm (.031")	0.5kg (1.1 lbs)
1.0mm (.039")	1.0kg (2.2 lbs)

5.3	Solderability	After dipping the terminal to a depth of approximately mm (0.118") from the specimen in a soldering bath of 235℃ (455℉) for three seconds. There after the terminal shall be visually examined.
5.4	Resistance to Soldering Heat	After preheating the specimen, the specimen shall be completely immersed into a soldering bath having a temperature of 260 ℃ (500℉) for 3 seconds. There after the change of Vb and mechanical damage shall be examined.

6 Environmental Test Method

6.1	Dry Heat Load	The specimen shall be subjected to 85℃ (185℉) for 1,000 hours in a thermostatic bath without load and then stored at room temperature and humidity for one to two hours. Thereafter, the change of Vb shall be measured.
6.2	Damp Heat Load	The specimen shall be subjected to 40℃ (104℉), 90 to 95 % R.H. for 1,000 hours without load and then stored at room temperature and humidity for one to two hours. Thereafter, the change of Vb shall be measured.
6.3	Temperature Cycle	Condition the specimen to each temperature form step 1 to step 4 in this order for the period shown in the table of specifications. The change of Vb

Step	Temperature	Period
1	- 40 ℃ (- 40 ℉)	30 min.
2	Room Temp.	15 min.
3	85 ℃ (185 ℉)	30 min.
4	Room Temp.	15 min.

7 Electrical Test Requirements

7.1	Varistor voltage	Vb : 216 V~ 264 V		Measuring current : 1 mA
7.2	Maximum Allowable Voltage	AC : 150 V rms DC : 200 V		
7.3	Clamping Voltage	395 V max.		Measuring current : 10 A Impulse waveform : 8/20 μ sec.
7.4	Rated Wattage	0.25 W		
7.5	Energy	28 J		Impulse waveform : 10/1000 μ sec.
7.6	Withstanding Surge Current	1 Pulse	1200 A	Impulse waveform : 8/20 μ sec.
		2 Pulse	600 A	8/20 μ sec., interval 5 min.
7.7	Varistor Voltage Temp. Coefficient	0 to 0.05% / ℃		Temp. range : +25℃ ~ +85℃
7.8	Surge Life	△Vb / Vb ≦ 10% at 50 A		Impulse waveform : 8/20 μ sec. 10,000 times by interval 10 sec.

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8	**Mechanical Test Requirement**				
8.1	Terminal Pull Strength	No outstanding damage	Load : 0.5 kg(1.1 lbs)		
8.2	Terminal Bending Strength	No outstanding damage	Load : 0.25 kg(0.55 lbs)		
8.3	Solderability	Almost all the surface should be covered with solder uniformly 90%	Solder Temp. : 235℃ ± 5℃ Immersed time : 3±0.5 sec.		
8.4	Resistance to soldering heat	△Vb / Vb ≦ ± 10% No outstanding damage	Solder Temp. : 260℃ ± 5℃ Immersed time : 3±0.5 sec.		
9	**Environmental Test Requirements**				
9.1	Dry Heat Load	△Vb / Vb ≦ ± 10%	Ambient temp. : 85℃ ± 2℃ Time : 1,000 ± 24 hours		
9.2	Damp Heat Load	△Vb / Vb ≦ ± 10%	Ambient temp. : 40℃ ± 2℃ Humidity : 90 to 95 % R.H. Time : 1,000 ± 24 hours		
9.3	Temperature Cycle	△Vb / Vb ≦ ± 10%	Step	Temp.	Period
			1	- 40 ℃	30 min.
			2	Room Temp	15min.
			3	85 ℃	30 min.
			4	Room Temp	15min.
			5 Cycles		
10	**General Characteristics Definition**				
10.1	Operating Temperature	-40°C to +85°C			
10.2	Storage Temperature	-40°C to +125°C			
10.3	Maximum work Surface temperature	+115°C			
10.4	Maximum Response time	＜25 nano Seconds.			
10.5	Insulation Resistance	Minimum resistance between shorted terminals and varistor surface. 100MΩ Minimum.			
10.6	Coating (Epoxy Resin)	flame-retardant to UL 94 V-0			