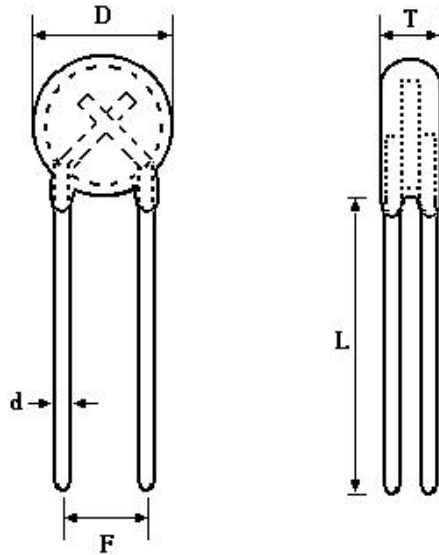


1. Dimensions



20Φ	D	F	T	L	d
max.	24.0	11.0	5.0	-	1.02
\bar{X}	-	10.0	-	-	1.00
min.	-	9.0	-	25.0	0.98

UNIT : mm

D : Diameter with coating

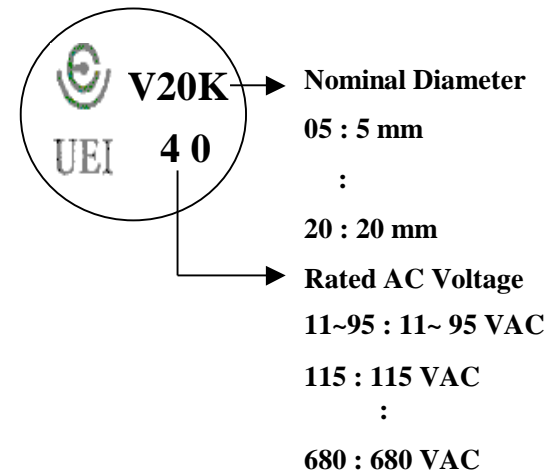
F : Forming Pitch

T : Thickness of thermistor with coating

L : Length of leads

d : Diameter of leads

2. Marking



VARISTOR

PART NO : V20K40-5



UPPERMOST ELECTRONIC INDUSTRIES CO., LTD.

SPECIFICATIONS :**1. Product : Varistor**

1 - 1 Color of Coating : Blue

1 - 2 Material of Coating : Epoxy Resin

1 - 3 Material of Lead : (Cu,Fe,Sn) Alloy

2. Maximun Ratings (Ambient Ta = 25°C)

	Item	Symbol	Max. Rated value	Unit
a	Max. Permissible AC Rated Voltage	Vrms	40	Volts
b	Max. Permissible DC Rated Voltage	Vdc	56	Volts
c	Max. Energy Absorption (10 / 1000us)	E _{max.}	40	Joules
d	Max. Surge Current (8 / 20us. 1 Time)	I _{max.}	2000	Amperes
e	Rated Temperature		-25~+85	°C

3. Electrical Characteristics (Ambient Ta = 25°C)

	Item	Symbol	Conditions	Standard Ratings			Unit
				Min.	Normal	Max.	
a	Varistor Voltage	V _N	1 mA DC	61.2	68	74.8	Volts
b	Max. Clamping Voltage	V _C	IP = 10 A , 8 / 20us	-	-	135	Volts
c	Max. Average Power Dissipation	W _{max.}	Sine Wave Current	-	-	0.2	Watts
d	Typical Capacitance		@1KHz	-	-	11500	Pf

4. Mechanical Characteristics

	Item	Conditions	Test Result
a	Terminal Bending Strength	Load : 0.5 kg, Bend : 2 times	No outstanding Damage
b	Terminal Pull Strength	Load : 1.0 kg, time : 10 sec.	No outstanding Damage
c	Solderability	Solder Temp. 260 ± 5 °C Immersed Time 3 sec.	Min. 75% Terminal Covered with Solder
d	Solder Heat Resistance	Solder Temp. 350 ± 10 °C Immersed Time 3 sec.	$\Delta V_N / V_N \leq \pm 5\%$

5. Environmental Life Test

	Test	Conditions	Variable Rate
a	High Temp. Storage	125 ± 5 °C for 1000 hours	$\Delta V_N / V_N \leq \pm 5\%$
b	Humidity	40 °C 95% R.H. for 1000 hours	$\Delta V_N / V_N \leq \pm 5\%$
c	Thermal Shock	-25 °C * 30' → $+25$ °C * 30' $+85$ °C * 30' → $+25$ °C * 30' } * 8 cycles	$\Delta V_N / V_N \leq \pm 5\%$
d	High Temp. Operation	Ambient Temp. at 85°C with Max. Permissible Voltage Applied.	$\Delta V_N / V_N \leq \pm 10\%$

6. Part Number Code.

Example :

$\frac{V}{(1)} \frac{20}{(2)} \frac{K}{(3)} \frac{40}{(4)} - \frac{5}{(5)}$

(1) Varistor

(2) Nominal Diameter :

05 : 5mm
 07 : 7mm
 10 : 10mm
 14 : 14mm
 20 : 20mm

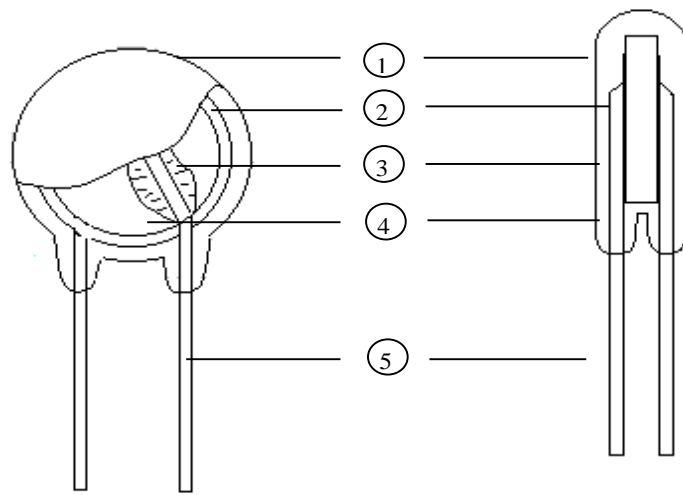
(3) Tolerance of Varistor Voltage : $\pm 10\%$

(4) Rated AC Voltage

11~95 : 11~95Vac
 115~680 : 115~680Vac

(5) Lead free

7. Construction Diagram



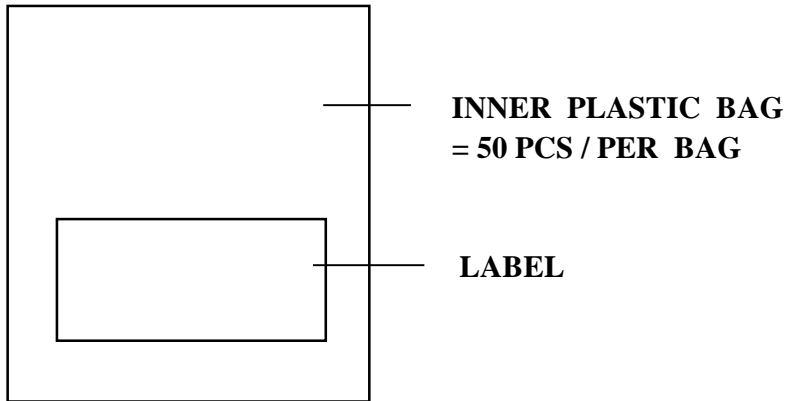
No.	Component	Material
1	Coating	Powder Epoxy
2	Varistor	ZnO
3	Solder	Sn-Ag
4	Electrode	Ag
5	Lead Wire	(Cu,Fe,Sn) Alloy

8. PACKING METHOD

1.MATERIAL OF PACKING

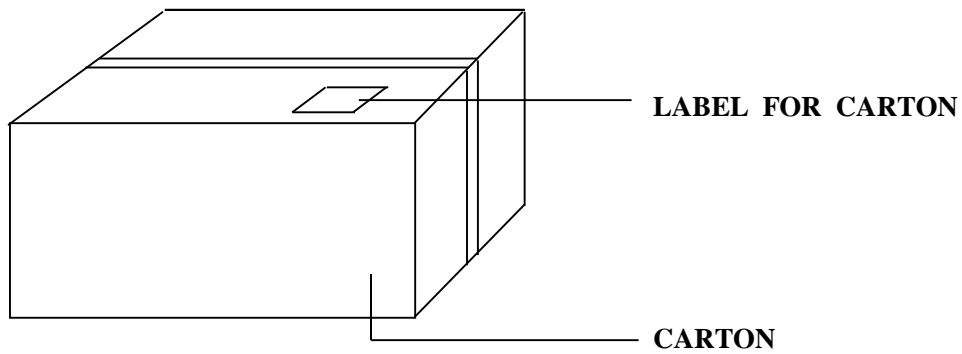
ITEM	MATERIAL	SIZE (L*W*H) mm
INNER PLASTIC BAG	POLYESTER	200 * 130 * 0.08
CARTON	CARTON PAPER	310 * 255 *240

2.PACKING DETAIL



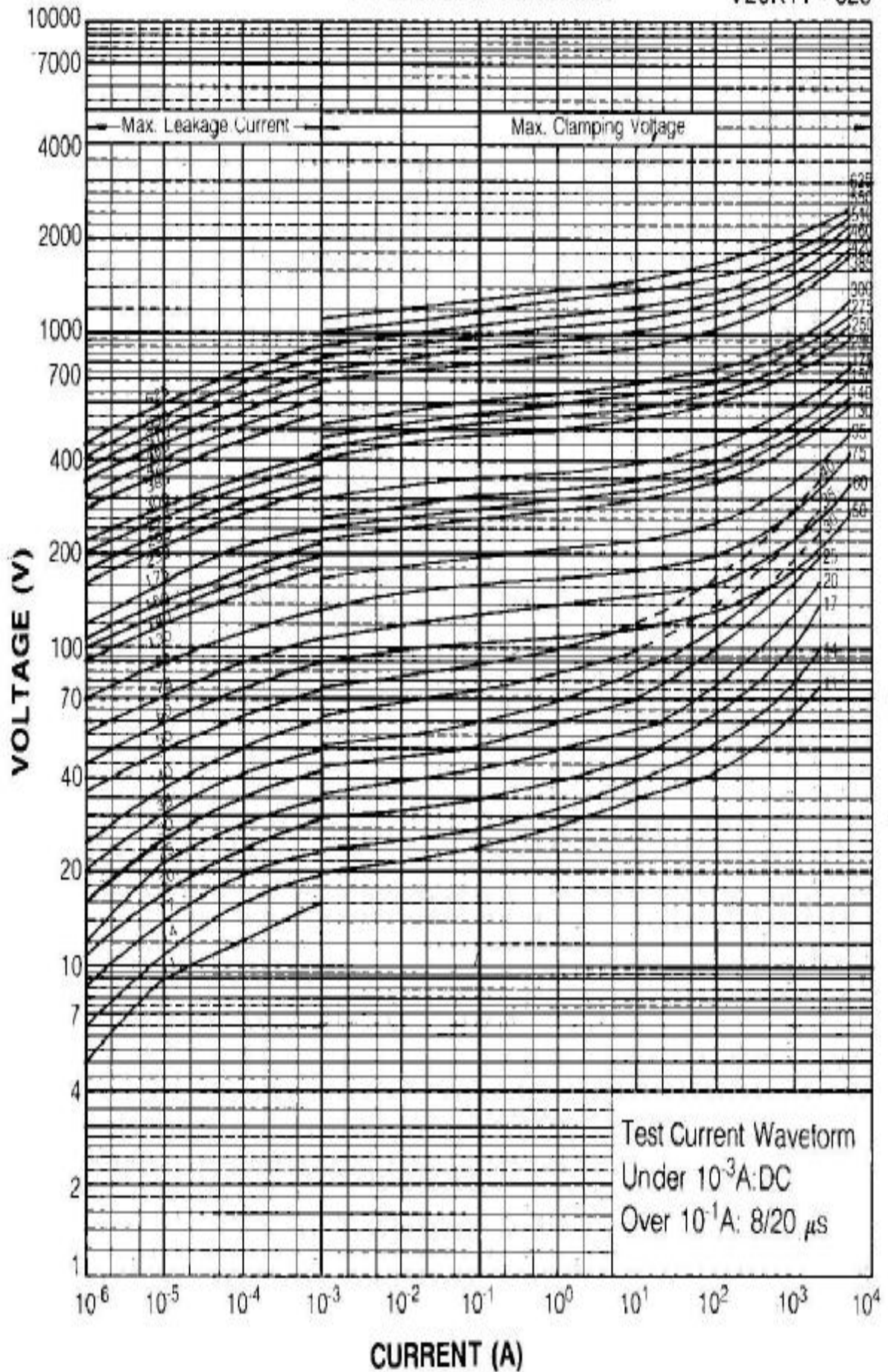
3.PACKING METHOD

50 PCS / BAG * 40 BAG / CARTON = 2000 PCS / CARTON



V-I CHARACTERISTICS

V20K11 - 625



RELIABILITY TEST REPORT

PART NO : V20K40 -5

VARISTOR VOLT. @1mA : 68 V±10%

1-1. HIGH TEMPERATURE CONTINUOUS LOAD..

AMBIENT TEMPERATURE : 85 ± 5 °C

APPLIED VOLTAGE : 40 V

DURATION : 1000 HOURS

SPECIFICATION : WITHIN ± 10 % OF INITIAL VALUE.

NO.	INITIAL	AFTER		RESULT.
	VOLTAGE @ 1mA (V)	VOLTAGE @ 1mA (V)	CHANGE (%)	
1	70.2	69.2	-1.42	PASS
2	70.5	71.3	1.13	PASS
3	68.1	68.7	0.88	PASS
4	70.5	69.7	-1.13	PASS
5	72.1	70.9	-1.66	PASS
AVG	70.3	70.0	-0.44	
DATE	Jun.27,2004	Aug.9,2004		

1-2. HUMIDITY

AMBIENT TEMPERATURE : 45 ± 5 °C

RELATIVE HUMIDITY : 90 ~ 95%

DURATION : 1000 HOURS

SPECIFICATION : WITHIN ± 5 % OF INITIAL VALUE.

NO.	INITIAL	AFTER		RESULT.
	VOLTAGE @ 1mA (V)	VOLTAGE @ 1mA (V)	CHANGE (%)	
1	71.2	70.6	-0.84	PASS
2	69.3	69.9	0.87	PASS
3	69.2	67.9	-1.88	PASS
4	70.4	71.3	1.28	PASS
5	69.6	70.2	0.86	PASS
AVG	69.9	70.0	0.06	
DATE	Jun.27,2004	Aug.9,2004		

1-3. HIGH TEMPERATURE STORAGE

AMBIENT TEMPERATURE : 125 ± 5 °C

DURATION : 1000 HOURS

SPECIFICATION : WITHIN ± 5 % OF INITIAL VALUE.

NO.	INITIAL	AFTER		RESULT.
	VOLTAGE @ 1mA (V)	VOLTAGE @ 1mA (V)	CHANGE (%)	
1	69.2	68.5	-1.01	PASS
2	70.8	71.4	0.85	PASS
3	67.7	68.4	1.03	PASS
4	70.4	69.7	-0.99	PASS
5	69.8	70.8	1.43	PASS
AVG	69.6	69.8	0.26	
DATE	Jun.27,2004	Aug.9,2004		

1-4. THERMAL SHOCK.

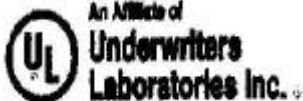
CONDITION : -25 °C * 30 MIN. → +25 °C * 30 MIN.

+85 °C * 30 MIN. → +25 °C * 30 MIN.

* 8 CYCLES.

SPECIFICATION : WITHIN ± 5 % OF INITIAL VALUE.

NO.	INITIAL	AFTER		RESULT.
	VOLTAGE @ 1mA (V)	VOLTAGE @ 1mA (V)	CHANGE (%)	
1	71.0	70.4	-0.85	PASS
2	69.4	70.1	1.01	PASS
3	67.6	67.1	-0.74	PASS
4	70.3	69.9	-0.57	PASS
5	68.6	69.3	1.02	PASS
AVG	69.4	69.4	-0.02	
DATE	Jun.27,2004	Jun.28,2004		



香港商優力安全測驗有限公司台灣分公司
 UL International Services Ltd. Taiwan Branch
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 1st Fl 280 Da-Yeh Road Pitou Taipei City Taiwan 112
 tel: 886-2-2890-7730 fax: 886-2-2891-7644
 http://www.ul.com

NOTICE OF AUTHORIZATION TO APPLY THE UL MARK

TAIWAN OFFICE - January 16, 2003

TO : Uppermost Electronic Industries Co., Ltd.
 28 Hua Shu Rd Ta Fu Industrial District
 Kaohsiung Hsien Taiwan
Attention: Mr. Yi-Mia Lin
Our Reference: File E105157 Project 02NK94036
Product: Transient Voltages Surge Suppressors - Component, Models V05K, V07K, V10K, V14K and V20K Series

Gentlemen:

This letter is sent on behalf of Underwriters Laboratories Inc. pursuant to the Corporate Services Agreement between UL International Services Ltd. - Taiwan Branch and UL.

UL's Investigation of your products has been completed under the above project number and the subject products were determined to comply with the applicable requirements.

This letter temporarily supplements the UL Follow-Up Services Procedure and serves as authorization to apply the UL Recognized Component Mark only at the factory under UL's Follow-Up Services Program to the subject products which are constructed as described below:

Identical to varistors, Models V05, V07, V10, V14, V20 followed by K11; V05, V07, V10, V14, V20 followed by K14; V05, V07, V10, V14, V20 followed by K17; V05, V07, V10, V14, V20 followed by K20; V05, V07, V10, V14, V20 followed by K25; V05, V07, V10, V14, V20 followed by K30; V05, V07, V10, V14, V20 followed by K35; V05, V07, V10, V14, V20 followed by K40; V05, V07, V10, V14, V20 followed by K50; V05, V07, V10, V14, V20 followed by K60; V05, V07, V10, V14, V20 followed by K75; V05, V07, V10, V14, V20 followed by K95; V05, V07, V10, V14, V20 followed by K115; V05, V07, V10, V14, V20 followed by K190; V05, V07 followed by K320; V05, V07, V10, V14, V20 followed by K350; V05, V07, V10 followed by K385; V10 followed by K460; V10, V14, V20 followed by K510; V10, V14, V20 followed by K550; V10, V14, V20 followed by K625; V10, V14, V20 followed by K680 which were submitted to UL for this investigation. The UL records covering the products will be in the Follow-Up Services Procedure, File E105157, Volume 1.

To provide the manufacturer with the intended authorization to use the UL Marks, the addressee must send a copy of this Notice and all attached material to each manufacturing location as currently authorized in File E105157, Volume 1.

This authorization is effective for 90 days only from the date of this Notice and only for products at the indicated manufacturing locations. Records in the Follow-Up Services Procedure covering the products are now being prepared and will be sent to the indicated manufacturing locations in the near future. Please note that Follow-Up Services Procedures are sent to the manufacturers only unless the Applicant specifically requests this document.

Products that bear the UL Mark shall be identical to those that were evaluated by UL and found to comply with UL's requirements. If changes in construction are discovered, appropriate action will be taken for products not in conformance with UL's requirements and continued use of the UL Mark may be withdrawn.

Very truly yours,

Reviewed by:

George Hung /sc

Tony Hsu /sc

George Hung (Ext.62288)
 Associate Project Engineer
 Conformity Assessment Services, 3000ATPI

Tony Hsu (Ext.62293)
 Project Engineer
 Conformity Assessment Services, 3000ATPI

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