承认书编号：20190917003A

☐OEM(客户设计)　　产品证书编号：

☐ODM(供应商设计)

产品承认书

客户名称：永泰隆

产品名称：压敏电阻

客户物料编号：01020103043

供方物料编号：COV-14D681K（高能芯片）

版　本：　A0

承认书生效日期：

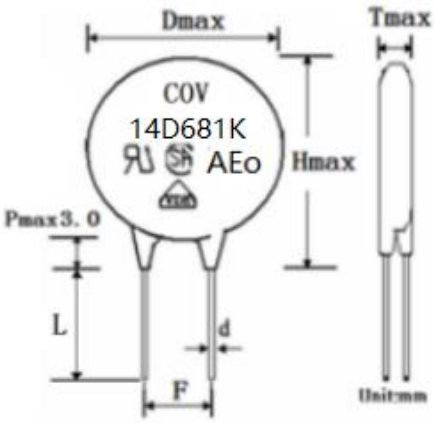
制造商		客户确认（品质）		客户确认（研发）	
拟制	方虹	合　格☐ 不合格☐		合　格☐ 不合格☐	
审核	陈庆国	审核		审核	
批准	冯伟	批准		批准	

A0				
A1				
A2				
A3				
A4				
A5				
A6				

文件编号		NO：DX20190917003A
规格型号	**COV-14D681K（高能芯片）**	**安规：UL:E485395　　体系：ISO9001/ISO14001/OHSAS18001**

1.外观结构

1.1	外观	外观完好，无损伤，无氧化
1.2	尺寸	尺寸（mm）



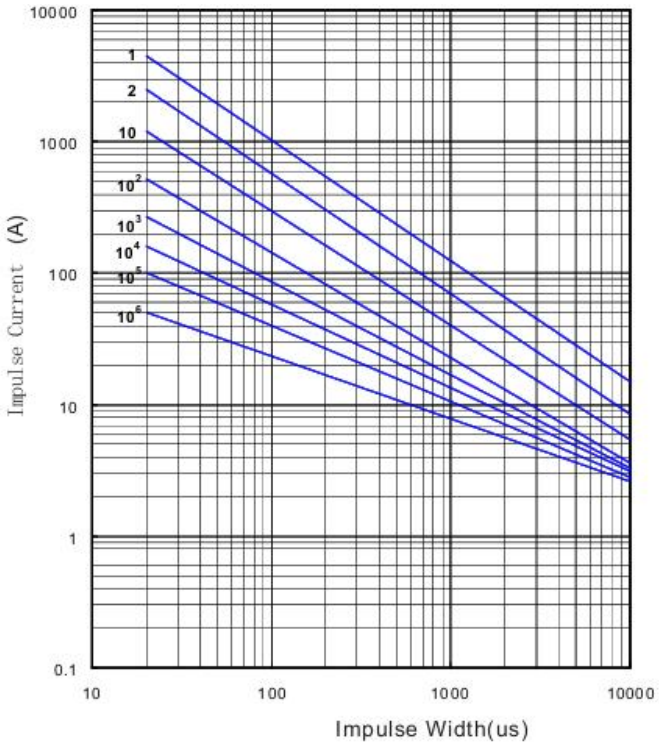
Dmax	16.5
Hmax	18.5
Tmax	5.9
F	7.50±1.0
d	0.8±0.05
L(Min)	20
Pmax	3
引线	电镀 CP 线
包封材料	蓝色（KH）
打印方式	镭射打印

2.电性基本要求

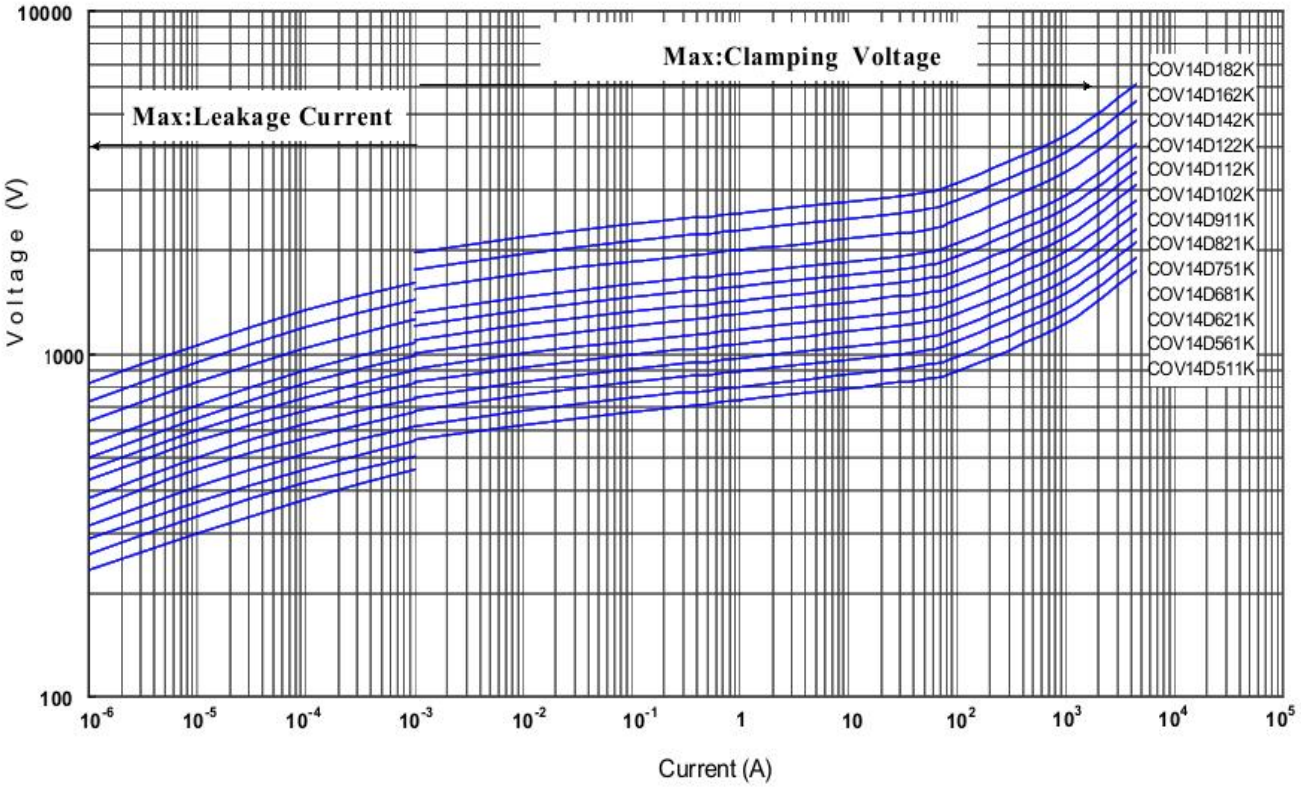
2.1	最大允许使用电压	AC：460（V） DC ：615（V）	
2.2	压敏电压	**675~825（V）**	V1mA■　　V0.1mA □
2.3	最大静态功率	0.60（W）	
2.4	最大限制电压	IP：50（A） Vc:1240（V）	测试条件 8/20μs
2.5	最大通流容量	1 Time：6000（A） 2 Time:4500（A）	测试条件 8/20μs
2.6	最大能量耐量	210（J）	测试条件 10/1000μs
2.7	静态参考电容量	270(PF)	@1KHz
2.8	漏电流	≦ 20(μA)	@80%*V1mA
2.9	冲击过后最大变化率	≦±10%(V1mA)	测试条件 8/20μs
2.10	工作温度范围	-40℃ ~ +125℃	-40℃ ~ +125℃
2.11	储存温度范围	-40℃ ~ +125℃	-40℃ ~ +125℃

3、Inpulse Life Time Rating Curves:

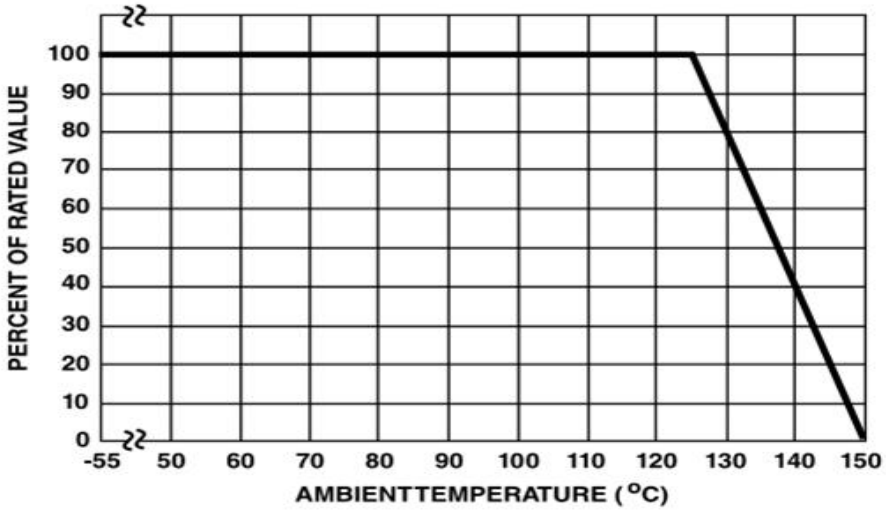
COV-14D681K



COV-14D681K V-I Curve

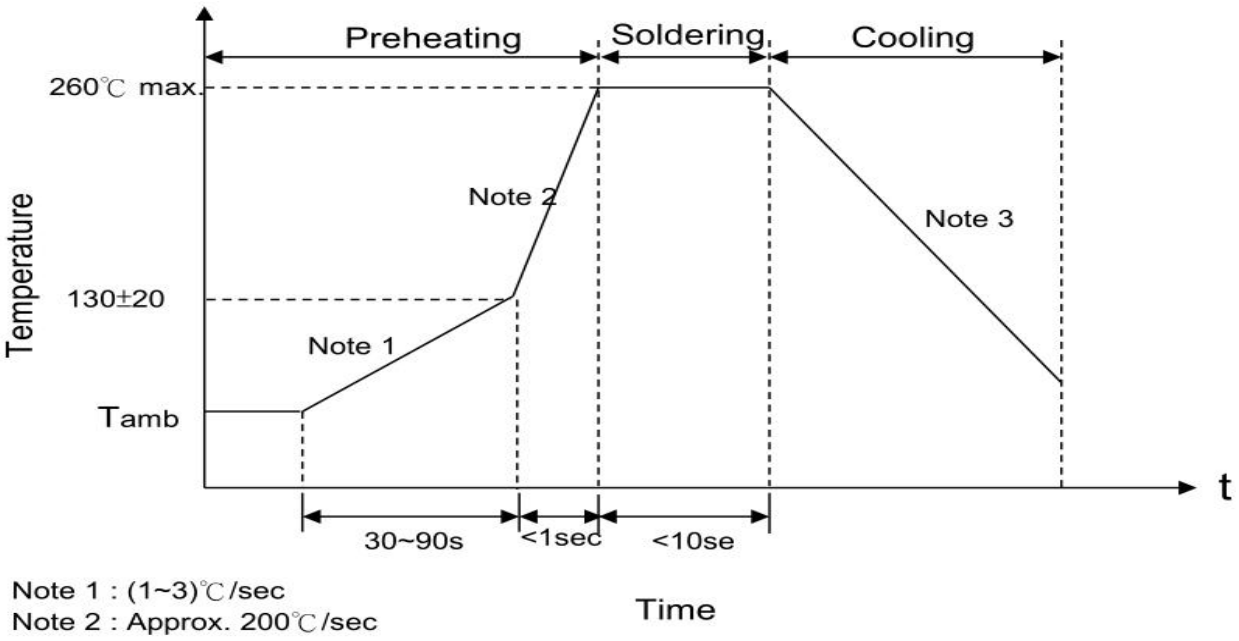


4、Current Energy and Power Derating Curve 电流、能量、功率递减曲线



（图 1：电流、能量、功率递减曲线）

5、Soldering Recommendation Profile 推荐焊接条件



Note 1 : (1~3)℃/sec
Note 2 : Approx. 200℃/sec

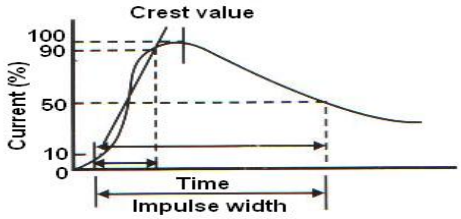
Note3:5℃/sec Max

(图 2：波峰焊曲线图）

Recommendation Reworking Conditions with Soldering Iron 烙铁重工焊接条件

项目	条件
烙铁头部温度	360℃ (max.)
焊接时间	3 sec (max.)
焊接位置与涂装层距离	2 mm (min.)

6、Reliability-Performance Characteristics(Electrical) :

<table>
<tr><th>Characteristics</th><th>Test Methods/Description</th><th>Specifications</th></tr>
<tr><td>Standard Test Condition</td><td>Environmental conditions under which every measuring is done without doubt on the measuring results. Unless specially specified, temperature, relative humidity are 5℃ to 35℃, 45% to 85%RH.</td><td>—</td></tr>
<tr><td>Varistor Voltage</td><td>The voltage between two terminals with the specified measuring current C mA DC applied is called Vc or Vc mA. The measurement shall be made as fast as possible to avoid heat affection.</td><td rowspan="6">To meet the specified value</td></tr>
<tr><td>Maximum Allowable Voltage</td><td>The maximum sinusoidal RMS voltage or maximum DC voltage that can be applied continuously in the specified environmental temperature range.</td></tr>
<tr><td>Clamping Voltage</td><td>The maximum voltage between two terminals with the specified standard impulse current(8/20 μs) illustrated below applied.
 
</td></tr>
<tr><td>Rated Power</td><td>The power that can be applied in the specified ambient temperature.</td></tr>
<tr><td>Maximum Energy</td><td>The maximum energy within the varistor voltage change of ±10% when one impulse of 2 ms or 10/1000 μs is applied.</td></tr>
<tr><td>Maximum peck Current 2 times</td><td>The maximum current within the varistor voltage change of ±10% with the standard impulse current (8/20 μs) applied twice with an interval of 5 minutes.</td></tr>
<tr><td>Withstanding Surge Current 1 time</td><td>The maximum current within the varistor voltage change of ±10% with the standard impulse current (8/20 μs) applied once.</td></tr>
<tr><td>Temperature Coefficient of Varistor Voltage</td><td>$\frac{Vc\ at\ 85℃ - Vc\ at\ 25℃}{Vc\ at\ 25℃} \times \frac{1}{60} \times 100\ (\%/℃)$</td><td>- 0.05%/℃ Max</td></tr>
<tr><td>Capacitance</td><td>Capacitance shall be measured at 1 KHz ±10%, 1 Vrms max. 0V bias and 20±2 ℃</td><td rowspan="2">To meet the specified value</td></tr>
<tr><td>Dissipation Factor</td><td>Dissipation Factor be measured at 1 KHz ±10%, 1 Vrms max. 0V bias and 20±2 ℃</td></tr>
<tr><td>Withstanding Voltage (Body Insulation)</td><td>The specified voltage shall be applied both terminals of the specimen connected together and metal foil closely wrapped round its body for 1 minute. Electrical breakdown shall be examined.
<table>
<tr><th>Classification (Nominal varistor voltage)</th><th>Test Voltage (AC)</th></tr>
<tr><td>V0.1mA,V1mA ≦ 330V</td><td>1500Vrms</td></tr>
<tr><td>V0.1mA,V1mA > 330V</td><td>2500Vrms</td></tr>
</table></td><td>No breakdown</td></tr>
</table>

7、Reliability-(Mechanical):

Characteristics	Test Methods	Specifications
Robustness of Terminal (Tensile)	IEC60068-2-21 After gradually applying the force specified below and keeping the unit fixed for the seconds, the terminal shall be visually examined for any damage. Terminal diameter Force Φ0.6 mm 9.8N (1.0Kgf) Φ0.8 mm 9.8N (1.0Kgf) Φ1.0 mm 19.6N(2.0Kgf)	No visible damage
Robustness of Terminal (Bending)	IEC60068-2-21 The unit shall be secured with its terminal kept vertical and the force 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 terminal shall be visually examined for any damage. Terminal diameter Force . Φ0.6 mm 4.9N (0.5Kgf) Φ0.8 mm 4.9N (0.5Kgf) Φ1.0 mm 9.8N (1.0Kgf)	
Vibration	IEC 60068-2-6 After repeatedly applying a single harmonic vibration(amplitude0.75mm) double amplitude:1.5mm with 1 minute vibration frequency cycles(10 Hz to 55 Hz to 10Hz) to each of three perpendicular directions for 2 hours (Duration: 3*2h= 6 h). Thereafter, the unit shall be visually examined.	
Solderability	IEC 60068-2-20 After dipping the terminals to a depth of approximately 3mm from the body in a soldering bath of 260±5℃ for 2±0.5 seconds, the terminal shall be visually examined.	Approximately 95% of the terminals shall be covered with solder uniformly
Resistance to Soldering Heat	IEC 60068-2-20 After each lead shall be dipped into a solder bath having a temperature 260±5℃ to a point 2.0 to 2.5 mm from the body of the unit, using shielding board (t=1.5mm), be held there for specified time(3 series: 3±1 s, 5 series:5±1 s and others:10±1 s), and then be stored at room temperature and humidity for 1 to 2 hours. The change of Vc and mechanical damages are examined.	△VcmA/VcmA≦±5% No visible damage

8、Reliability-(Environmental):

<table>
<tr><th>Characteristics</th><th>Test Methods</th><th>Specifications</th></tr>
<tr><td>High Temperature Storage/Dry Heat</td><td>IEC 60068-2-2
The specimen shall be subjected to 125±2℃ for 1000 hours in a thermostatic bath without load and then stored at room temperature
and humidity for 1 to 2 hours. Thereafter, the change of Vc shall be measured.</td><td rowspan="3">ΔVcmA/VcmA≦±5%</td></tr>
<tr><td>Damp Heat/Humidity (Steady State)</td><td>IEC 60068-2-78
The specimen shall be subjected to 40±2℃,90 to 95% RH for 1000 hours without load and then stored at room temperature and humidity for one to two hours. Thereafter, the change of Vc shall be measured.</td></tr>
<tr><td>Rapid Change of Temperature Cycle</td><td>IEC 60068-2-14
The temperature cycle shown below shall be repeated five times and then stored at room temperature and humidity for one to two hours.
Then change of Vc and mechanical damage shall be examined.
<table>
<tr><th>Step</th><th>Temperature(℃)</th><th>Period(minutes)</th></tr>
<tr><td>1</td><td>-40±3</td><td>30±3</td></tr>
<tr><td>2</td><td>Room temperature</td><td>15±3</td></tr>
<tr><td>3</td><td>125±2</td><td>30±3</td></tr>
<tr><td>4</td><td>Room temperature</td><td>15±3</td></tr>
</table></td></tr>
<tr><td>High Temperature load/Dry Heat Load</td><td>IEC 61051-1
After being continuously applied the Maximum Allowable Voltage at 125±2℃ for 1000 hours. The specimen shall be stored at room temperature and humidity for one to two hours .Thereafter, the change of Vc shall be measured.</td><td>ΔVcmA/VcmA≦±10%</td></tr>
<tr><td>Damp Heat load/ Humidity Load</td><td>The specimen shall be subjected to 40±2 ℃, 90 to 95% RH and the Maximum Allowable Voltage for 1000 hours and then stored at room temperature and humidity for one to two hours.
Thereafter, the change of Vc shall be measured.</td><td>Δ VcmA/VcmA≦±10%</td></tr>
<tr><td>Low Temperature Storage/Cold</td><td>The specimen shall be subjected to -40±2 ℃, without load for 1000 hours and then stored at room temperature for one to two hours. Thereafter, the change of Vc shall be measured.</td><td>Δ VcmA/VcmA≦±5%</td></tr>
</table>