



THUNDER PRECISION RESISTORS



APPROVAL SHEET

UPRNS21SF3B1006

METAL GLAZE FILM RESISTORS

MOLD TYPE

PRODUCE	CHECK AND APPROVE	ACCEPTED BY
EM	CE	HONORABLE CUSTOMER
Edison Chen	Charles Chen	
28 Apr., 2017	28 Apr., 2017	



1. PRODUCT: METAL GLAZE FILM RESISTORS PROFESSIONAL TYPE
2. PART NUMBER: Part number is identified by the type, number of leads, number of resistors, layout profile, tolerance, temperature coefficient, packing type and resistance value.

Example:

UPRNS	2	14	F	3	B	1006
Series Name	Number of Leads	Number of Resistor	Tolerance	TCR	Packing Type	Resistance Value

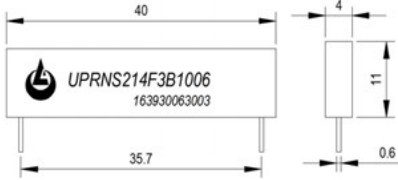
- (1) UPRNS 型号: 单列直插模压电阻
- (2) 2 引出脚的数量, 这里是 2 支引出脚
- (3) 14 封装的电阻数量, 这里是 14 个
- (4) Tolerance 输出电阻的精度: $F = \pm 1.0\%$;
- (5) TCR 输出电阻的温度系数 $3 = \pm 25 \text{ppm}/^\circ\text{C}$;
- (6) B 包装方式: 标准的套管包装
- (7) 1006 电阻阻值的标准表达方式: 1006=100M、6705=67M、2006=200M;

3. 数字标识, 标识内容包括料号和生产批号以及该批次的顺序号。其中料号包括了 上述的所有内容。





4. ELECTRICAL CHARACTERISTICS

Part number	UPRNS214F3B6705	UPRNS214F3T1006	产品编码
Standard applied	Q/SLC026-2010; GB/T5729-1994;		技术标准
Rated dissipation, P_{70}	2.5W		70℃下额定功率
Maximum operating voltage U_{max}	10,000V _{DC}	12000V _{DC}	U_{max} 额定工作电压
Resistance range	67MΩ	100M	标准阻值范围
Tolerance	F(±1.0%)		精度
TCR	±25ppm/℃		温度系数
Voltage coefficient	<1ppm/V		电压系数
Operating Temperature range	-55℃~25℃; 25℃~125℃		工作环境温度
Dimension	<div><div>±0.5(mm)</div></div> <div>±0.5(mm)</div>		尺寸

*Unless otherwise specified, all values are tested at the following condition:

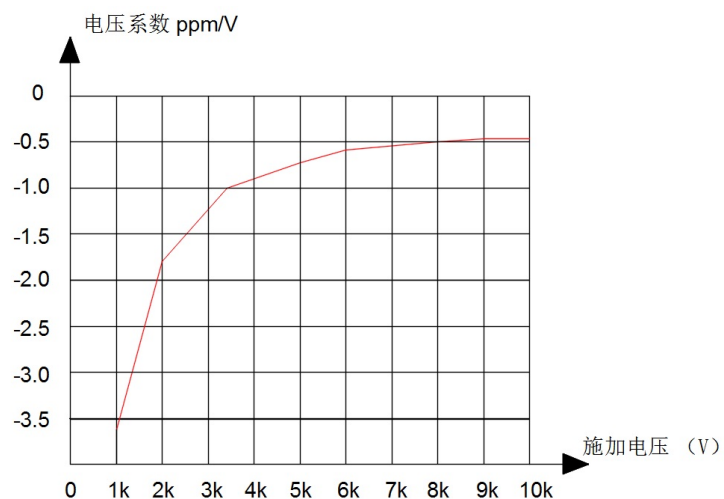
Temperature: 21℃ to 25℃; Relative humidity: 45% to 70%

*Unless otherwise specified, all values are tested at 100V_{DC}.

*除特殊规定之外，所有测量环境都须满足以下条件：

测试环境温度为：21℃ to 25℃；测试环境湿度为：45% to 70%；

标准测试电压为 100V_{DC}



*电压系数走势图：



5. ENVIRONMENTAL CHARACTERISTICS

(1) Temperature Coefficient Test

IEC 60115-1, 4.8: Test of resistors at room temperature and 60°C above the room temperature. Then measure the resistance. The Temperature Coefficient is calculated by the following equation and its value should be within the range requested.

$$\text{Resistor Temperature Coefficient} = \frac{R - R_0}{R_0} \times \frac{1}{t - t_0} \times 10^6$$

R = Resistance value under the testing temperature

R₀ = Resistance value at the room temperature

t = the 2nd testing temperature

t₀ = Room temperature

(2) Short Time Over Load Test

IEC60115-1 4.13: At 2.5 times rated voltage or 1.5 times the maximum working voltage whichever is lower for 5 seconds, the resistor should be free from defects. The change of the resistance value should be within ± (0.5%) compared with the value before the test.

(3) Solderability

IEC 60115-1, 4.17: 235±5°C for 3±0.5 Seconds, there are at least 95% solder coverage on the termination.

(4) Resistance to soldering heat:

IEC 60115-1, 4.18: 260±3°C for 10±1 Seconds, immersed to a point 3±0.5mm from the body. The change of the resistance value should be within ±(0.5%) as compared with the value before the test.

(5) Damp Heat Steady State

IEC 60115-1, 4.24: 40±2°C, 90-95% RH for 56 days, loaded with 0.1 times RCWV or the maximum working voltage whichever is lower. The change of the resistance value should be within ± (0.5%) compared with the value before the load.



(6) Load Life Test

IEC 60115-1, 4.25: $70 \pm 2^\circ\text{C}$ at RCWV or the maximum working voltage whichever is lower for 1,000+48/-0 Hr. (1.5Hr. on, 0.5Hr. off). The resistors shall be arranged not much effected mutually by the temperature of others and the excessive ventilation shall not be performed.

The change of the resistance value should be within $\pm (1\%)$ compared with the value before the load.

(7) Accidental Overload Test

IEC 60115-1, 4.26: 4 times RCWV for 1 Minute. No evidence of flaming or arcing

(8) Resistance to Solvent

IEC 60115-1, 4.30: IPA for 5 ± 0.5 Min. with ultrasonic. No deterioration occurred.

(9) Humidity resistance

IEC 60115-1, 4.24: $40 \pm 2^\circ\text{C}$, 90-95% RH for 56 days, loaded with 0.1 times RCWV or the maximum working voltage whichever is lower. The change of the resistance value should be within $\pm (0.5\%)$ compared with the value before the load.