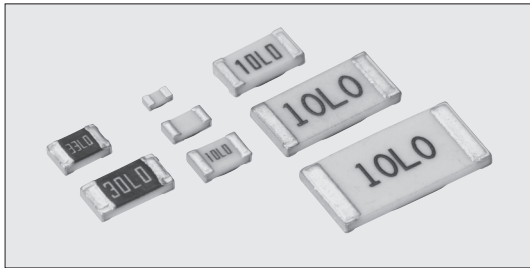


# THICK FILM (LOW RESISTANCE)

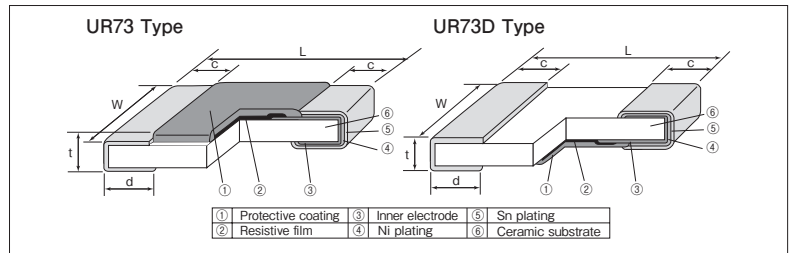


## UR73 Low Resistance Flat Chip Resistors (Low T.C.R.)



Coating color : Indigo

### Construction



### Features

- Current detecting resistors for power supplies, motor circuits, etc.
- Low resistance (100mΩ or under) and high accuracy resistors (±1%) for current detection.
- High reliability and performance with T.C.R.  $\pm 100 \times 10^{-6}/K$ .
- Suitable for flow and reflow solderings.
- Products meet EU-RoHS requirements.

### Applications

- Computers, HDDs, Cellular-telephones, Power supplies, and Motor circuits, etc.

### Reference Standards

IEC 60115-8  
JIS C 5201-8

### Dimensions

Type (Inch Size Code)	Resistance range (Ω)	Resistance range (mm)					Weight (g) (1000pcs)
		L	W	c	d	t	
UR73D 1E (0402)	24m~100m	1.0 <sup>+0.1</sup> <sub>-0.05</sub>	0.5 <sup>+0.1</sup> <sub>-0.05</sub>	0.25±0.1	0.3±0.1	0.4±0.05	0.72
	10m~27m	1.6±0.2	0.8 <sup>+0.15</sup> <sub>-0.1</sub>	0.35±0.1	0.55±0.1	0.5±0.1	2.84
30m~100m	0.35±0.1						
UR73D 1J (0603)	10m~16m	2.0±0.2	1.25±0.2	0.4±0.2	0.6±0.2	0.55±0.1	5.74
	18m~30m				0.5±0.2		
UR73D 2A (0805)	33m~100m	2.0±0.2	1.25±0.2	0.4±0.2	0.3 <sup>+0.2</sup> <sub>-0.1</sub>	0.55±0.1	5.60
UR73D 2B (1206)	10m~16m	3.2±0.2	1.6±0.2	0.5±0.2	1.0±0.2	0.6±0.1	11.12
	18m~27m				0.8±0.2		
UR73D 2B (1206)	30m~100m	3.2±0.2	1.6±0.2	0.5±0.3	0.4 <sup>+0.2</sup> <sub>-0.1</sub>	0.6±0.1	10.09
UR73D 2H (2010)	10m~30m	5.0±0.2	2.5±0.2	0.65±0.3	1.6±0.3	0.65±0.1	29.80
	33m~100m				0.65±0.3		
UR73D 3A (2512)	10m~30m	6.3±0.2	3.1±0.2	0.8±0.3	2.0±0.3	0.6±0.1	47.69
	33m~100m				0.8±0.3		

### Type Designation

Example	UR73D	2A	T	TD	10L0	F
Product Code	UR73D	2A	T	TD	10L0	F
Product Code	UR73D	2A	T	TD	10L0	F
Face-down	UR73D	2A	T	TD	10L0	F
Power Rating	1E : 0.125W 1J : 0.25W 2A : 0.33W 2B : 0.5W 2H : 0.75W 3A : 1W	2A : 0.33W 2B : 0.5W	Terminal Surface Material T : Sn	Taping TP : 2mm pitch punch paper TD : 4mm pitch punch paper TE : 4mm pitch plastic embossed BK : Bulk	Nominal Resistance 4 digits Ex. 10L0 : 10mΩ R100 : 100mΩ	Resistance Tolerance F : ±1%
Product Code	UR73	2B	T	TD	47L0	F
Product Code	UR73	2B	T	TD	47L0	F
Power Rating	2A : 0.33W 2B : 0.5W	2A : 0.33W 2B : 0.5W	Terminal Surface Material T : Sn	Taping TD : 4mm pitch punch paper BK : Bulk	Nominal Resistance 4 digits Ex. 47L0 : 47mΩ R100 : 100mΩ	Resistance Tolerance F : ±1%

Resistance Value (Ω)	4 digits
10m~91m	10L0~91L0
0.1	R100

Contact us when you have control request for environmental hazardous material other than the substance specified by EU-RoHS. For further information or taping, please refer to APPENDIX C on the back pages.

### Ratings

Type	Power Rating	Rated Ambient Temp.	Rated Terminal Part Temp.	T.C.R. ( $\times 10^{-6}/K$ )	Resistance Range (Ω) E24 & 25m, 50m <sup>*1</sup>	Resistance Tolerance	Operating Temp. Range	Taping & Q <sup>1</sup> ty/Reel (pcs)		
								TP	TD	TE
UR73D 1E <sup>**2</sup>	0.125W	70°C	—	±500 ±100 ±300	24m~27m 30m~100m 10m~27m	F : ±1%	-55°C ~ +125°C	10,000	—	—
UR73D 1J	0.25W	70°C	80°C	±200 ±100	30m~43m 47m~100m			—	5,000	—
UR73D 2A	0.33W	70°C	90°C	±250 ±250	10m~30m 33m~43m			—	5,000	—
UR73 2A	0.33W	70°C	100°C	±100	47m~100m			—	5,000	—
UR73D 2B	0.5W	70°C	85°C	±200 ±100	10m~27m 30m~43m 47m~100m			—	5,000	—
UR73 2B	0.5W	70°C	85°C	±200 ±100	10m~30m 33m~100m			—	5,000	—
UR73D 2H	0.75W	70°C	90°C	±250 ±100	10m~30m 33m~100m			—	—	4,000
UR73D 3A	1W	70°C	95°C	±250 ±100	10m~30m 33m~100m			—	—	4,000

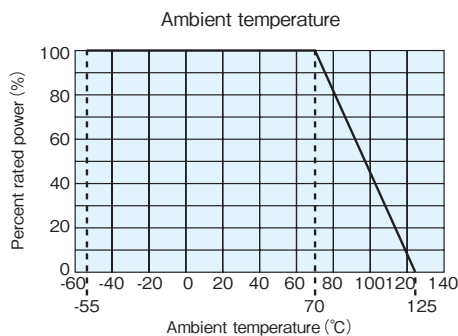
Rated voltage =  $\sqrt{\text{Power Rating} \times \text{Resistance value}}$

<sup>\*1</sup> 25mΩ and 50mΩ are available.

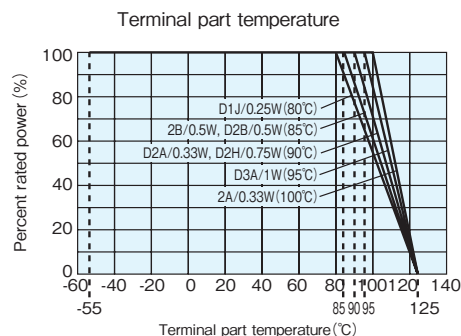
<sup>\*\*2</sup> Please inquire before use.

If any questions arise whether to use the "Rated Ambient Temperature" or the "Rated Terminal Part Temperature" in your usage conditions, please give priority to the "Rated Terminal Part Temperature". For more details, please refer to "Introduction of the derating curves based on the terminal part temperature" on the beginning of our catalog.

## Derating Curve



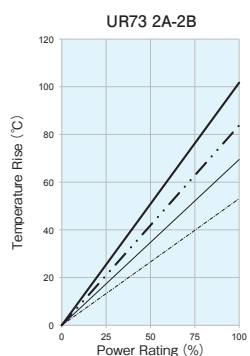
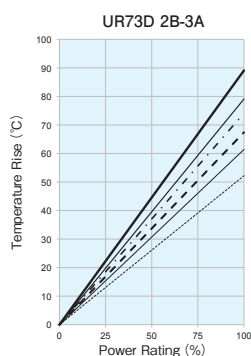
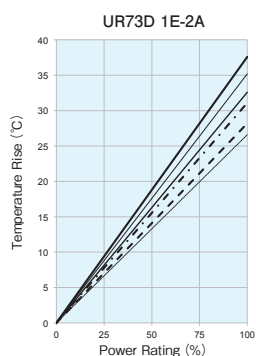
For resistors operated at an ambient temperature of 70°C or higher, the power shall be derated in accordance with the above derating curve.



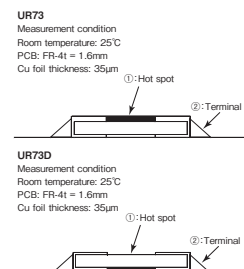
When the terminal part temperature of the resistor exceeds the rated terminal part temperature shown above, the power shall be derated according to the derating curve.

\*Please refer to "Introduction of the derating curves based on the terminal part temperature" on the beginning of our catalog before use.

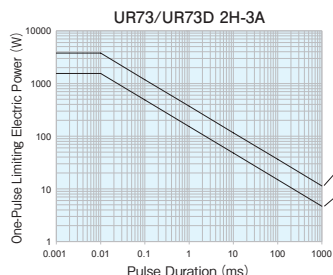
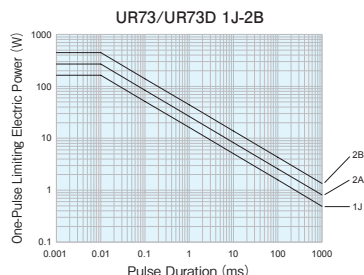
## Temperature Rise



Regarding the temperature rise, the value of the temperature varies per conditions and board for use since the temperature is measured under our measuring conditions.



## One-Pulse Limiting Electric Power



Please ask us about the resistance characteristic of continuous applied pulse. The pulse endurance values are not assured values, so be sure to check the products on actual equipment when you use them.

## Performance

Test Items	Performance Requirements $\Delta R \pm (\% + 0.005\Omega)$		Test Methods
	Limit	Typical	
Resistance	Within specified tolerance	—	25°C
T.C.R.	Within specified T.C.R.	—	+25°C/-55°C and +25°C/+125°C
Overload (Short time)	2	0.5	Rated voltage $\times$ 2.5 for 5s
Resistance to soldering heat	1	0.3	260°C $\pm$ 5°C, 10s $\pm$ 1s
Rapid change of temperature	1	0.5	-55°C (30min.) / +125°C (30min.) 100 cycles
Moisture resistance	2	1	40°C $\pm$ 2°C, 90%~95%RH, 1000h 1.5h ON/0.5h OFF cycle
Endurance at 70°C or rated terminal part temperature	2	1	70°C $\pm$ 2°C or rated terminal part temperature $\pm$ 2°C 1000h 1.5h ON/0.5h OFF cycle
High temperature exposure	1	0.3	+125°C, 1000h

## Precautions for Use

- The substrate of chip resistors is alumina. Cracks may occur at the connection of solder (solder fillet portion) due to the difference of the coefficient of thermal expansion from a mounting board when heat stress like heat cycle, etc. are repeatedly given to them. Care should be taken to the occurrence of the cracks when the change in ambient temperature or ON/OFF of load is repeated, especially when large types of 2H/3A which have large thermal expansion and also self heating. By general temperature cycle test using glass-epoxy(FR-4) boards under the maximum/minimum temperatures of operating temperature range, the crack does not occur easily in the types of 1E~2B, but the crack tends to occur in the types of 2H/3A. The occurrence of the crack by heat stress may be influenced by the size of a pad, solder volume, heat radiation of mounting board etc., so please pay careful attention to designing when a big change in ambient temperature and conditions for use like ON/OFF of load can be assumed.
- In the resistance values of 50m $\Omega$  or under, the resistance value after soldering may change depending on the size of pad pattern or solder amount. Make sure the effect of decline/increase of resistance value before designing.