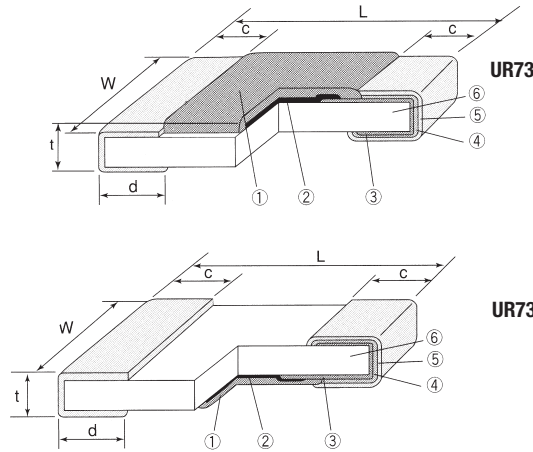


**THICK FILM  
CURRENT SENSING CHIP  
IMPROVED T.C.R.  
UR73 (D)**



**STRUCTURE**

- 1 Protective coating
- 2 Resistive film
- 3 Inner electrode
- 4 Ni plating
- 5 Solder plating
- 6 Ceramic substrate

**IDENTIFICATION**

TYPE	COATING COLOR	MARKING
UR73	Indigo	White, 4 digits (±1%)
UR73 D 1E, 1J	White ceramic	-
UR73 D 2A...3A	(no top coating)	Black, 4 digits (±1%)

All these products have Pb-free terminations and meet EU-RoHS requirements

**TYPE DESIGNATION (HOW TO ORDER)**

UR73	2A	T	TD	47LO	F
PRODUCT CODE	STYLE	TERMINATION SURFACE MATERIAL	TAPING*	NOMINAL RESISTANCE	TOLERANCE
UR73: Standard, UR73D: Face down	1E...3A	T: Sn	TP: 2mm pitch TE, TD: 4mm pitch, BK: Bulk *Please see "PACKAGING"	4 digits	F: (±1%)

Contact us when you have control request for environmental hazardous material other than the substance specified by EU-RoHS

**FEATURES**

- RuO<sub>2</sub> thick film resistor element and special copper paste
- Low resistance and high accuracy resistors for current detection
- High reliability and performance with T.C.R. ±100ppm/K and resistance tolerance ±1%
- Improved T.C.R. at extreme low ohmic values
- UR73D is the face-down version
- The most suitable current detecting resistor for power supplies, motor circuits, computer, HDD, cellular phone, PDA etc.
- Anti-leaching nickel barrier terminations
- Meets or exceeds IEC 60115-8, JIS C 5201-8
- Rated ambient temperature: +70°C
- Operating temperature range: -55°C ... +125°C (+155°C on request)
- Suitable for reflow and wave soldering

**DIMENSIONS (mm)**

SIZE	TYPE	RESISTANCE RANGE	L	W	t	c	d
0402	UR73D 1E <sup>*4</sup>	24mΩ...100mΩ	1.0 <sup>+0.1</sup> <sub>-0.05</sub>	0.5 <sup>+0.1</sup> <sub>-0.05</sub>	0.4 ± 0.05	0.25 ± 0.1	0.3 ± 0.1
0603	UR73D 1J	10mΩ...27mΩ	1.6 ± 0.2	0.8 <sup>+0.15</sup> <sub>-0.1</sub>	0.5 ± 0.1	0.35 ± 0.1	0.55 ± 0.1
		30mΩ...100mΩ					0.35 ± 0.1
0805	UR73D 2A	10mΩ...16mΩ	2.0 ± 0.2	1.25 ± 0.2	0.55 ± 0.1	0.4 ± 0.2	0.6 ± 0.2
	UR73 2A	18mΩ...30mΩ					0.5 ± 0.2
1206	UR73D 2B	10mΩ...16mΩ	3.2 ± 0.2	1.6 ± 0.2	0.6 ± 0.1	0.5 ± 0.2	1.0 ± 0.2
		18mΩ...27mΩ					0.8 ± 0.2
		30mΩ...100mΩ					0.4 <sup>+0.2</sup> <sub>-0.1</sub>
2010	UR73D 2H	10mΩ...30mΩ	5.0 ± 0.2	2.5 ± 0.2	0.65 ± 0.1	0.65 ± 0.3	1.6 ± 0.3
		33mΩ...100mΩ					0.65 ± 0.3
2512	UR73D 3A	10mΩ...30mΩ	6.3 ± 0.2	3.1 ± 0.2	0.6 ± 0.1	0.8 ± 0.3	2.0 ± 0.3
		33mΩ...100mΩ					0.8 ± 0.3

**RATING**

SIZE	TYPE	T.C.R. (ppm/K)	POWER RATING*1	MAX. WORKING VOLTAGE	MAX. OVERLOAD VOLTAGE	RESISTANCE RANGE	RESISTANCE TOLERANCE
						E 24*2 & 25mΩ, 50mΩ	
0402	UR73D 1E <sup>*4</sup>	± 500 ± 100	0.125 W	0.111 V	0.279 V	24mΩ...27mΩ 30mΩ...100mΩ	F (±1%)
0603	UR73D 1J	± 300	0.2 W	0.141 V	0.353 V	10mΩ...27mΩ	
		± 200				30mΩ...43mΩ	
0805	UR73D 2A	± 100	0.25 W	0.086 V	0.216 V	47mΩ...100mΩ	
	UR73 2A	± 250				10mΩ...30mΩ	
1206	UR73D 2B	± 100	0.25 W	0.158 V	0.224 V	47mΩ...100mΩ	
		± 200				10mΩ...27mΩ	
		± 100				30mΩ...43mΩ	
2010	UR73D 2H	± 200	0.25 W	0.158 V	0.224 V	47mΩ...100mΩ	
		± 100				10mΩ...30mΩ	
2512	UR73D 3A	± 250	1 W	0.316 V	0.790 V	33mΩ...100mΩ	
		± 100				10mΩ...30mΩ	

Rated voltage = √Power rating x resistance value or max. working voltage, whichever is lower.

\*1 For resistors operated at an ambient temperature of +70°C or above, the power rating shall be derated in accordance with the "DERATING" CURVE.

\*2 Other values which are not within E24-series on request. 25mΩ and 50mΩ are also standard for UR73D-series.

\*3 Please contact KOA if the component is used at marked power (0.5 W).

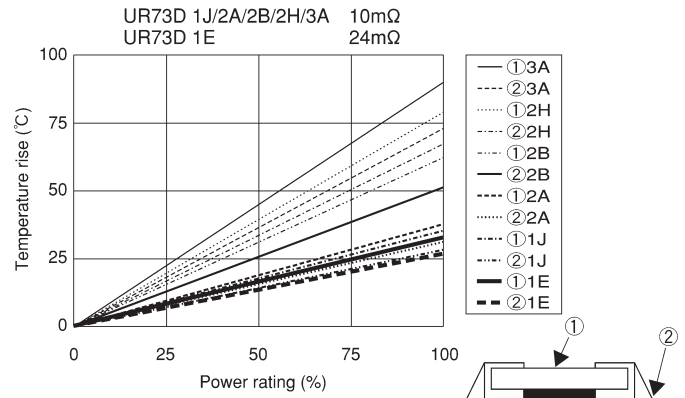
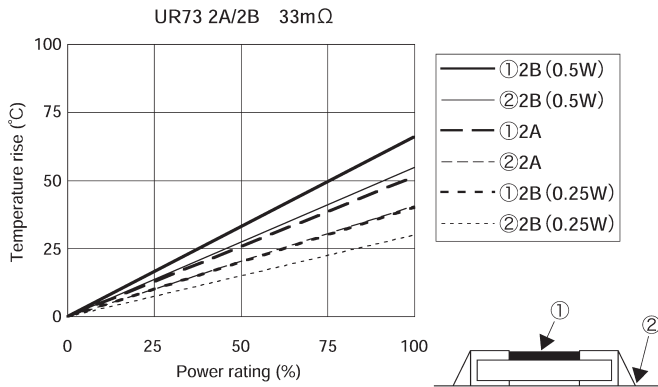
\*4 Please contact KOA for further performance characteristics and order the technical specification for this product before you order and use this series.

Contact our sales representatives before you use our products for applications including automobiles, medical equipment and aerospace equipment. Malfunction or failure of the products in such applications may cause loss of human life or serious damage.

Specifications given herein may be changed at any time without prior notice. Please confirm technical specifications before you order/use.

## THICK FILM CURRENT SENSING CHIP IMPROVED T.C.R. UR73 (D)

### TEMPERATURE RISE

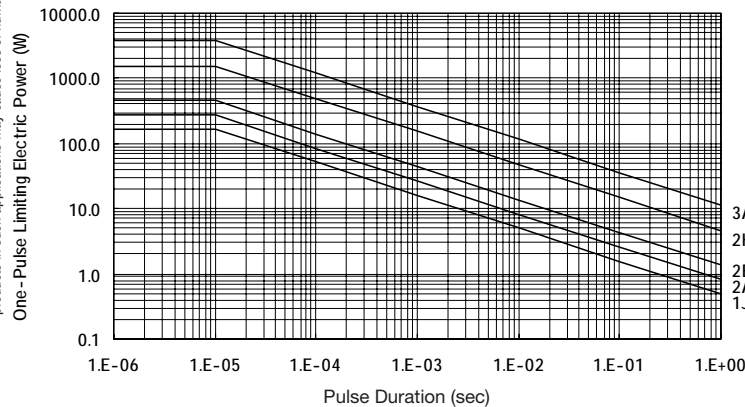


Regarding the temperature rise, the value of the temperature varies per conditions and board for use since the temperature is measured under our measuring conditions.

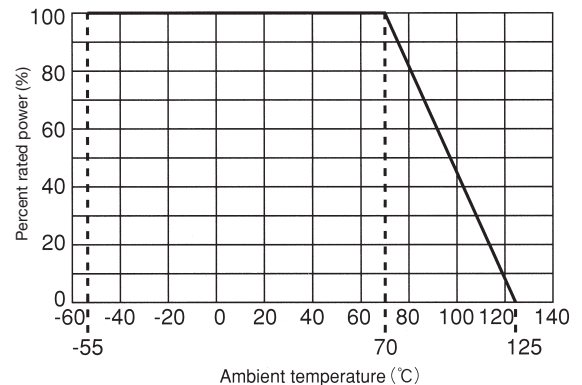
### ONE-PULSE LIMITING ELECTRIC POWER

(For reference)

UR73 • UR73D



### DERATING CURVE



#### Precautions:

In case of using resistance values of 50mΩ or below, please note during design, that the voltage drop over these low ohm resistors is dependant on the PCB-layout, the shape and size of the pad pattern, the solder amount and the measuring points.

The substrate of these chip resistors is alumina. Cracks may occur at the solder connection (solder fillet portion) due to the different thermal expansion of the mounting board and the resistors when heat stress (e.g. heat cycle, etc.) is repeatedly supplied to this area.

Care should also be taken if ambient temperatures are changed or "ON/OFF" of load is repeated.

The large types 2H and 3A (which have large thermal expansion and also self heating) are more susceptible than smaller sizes.

During general temperature cycle test by using glass epoxy (FR-4) boards under the max./min. temperatures of the operating temperature range, cracks do not easily occur in the types 1J ~ 2B.

The occurrence of a crack by heat stress may be influenced by the size of the pad, the solder amount, the heat radiation of mounting board, etc.

Please carefully design your PCB in case of big changes in ambient temperature and "ON/OFF-load" using conditions may occur.

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