

Current Sensing Chip Resistor

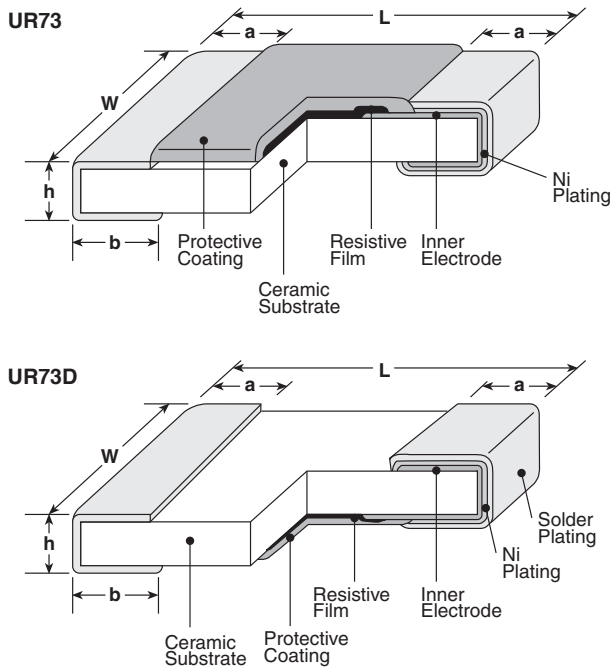
UR73 Type

ISO 9001:2000
TS-16949

1. Features

- Very low resistance, high precision reliability
- Suitable for reflow and flow soldering
- Products with lead-free terminations meet EU RoHS requirements. EU RoHS regulation is not intended for Pb-glass contained in electrode, resistor element and glass.
- Utilization of thick film
- Low T.C.R. achieved (± 100 ppm/ $^{\circ}$ C)
- Marking: Indigo body color with white marking

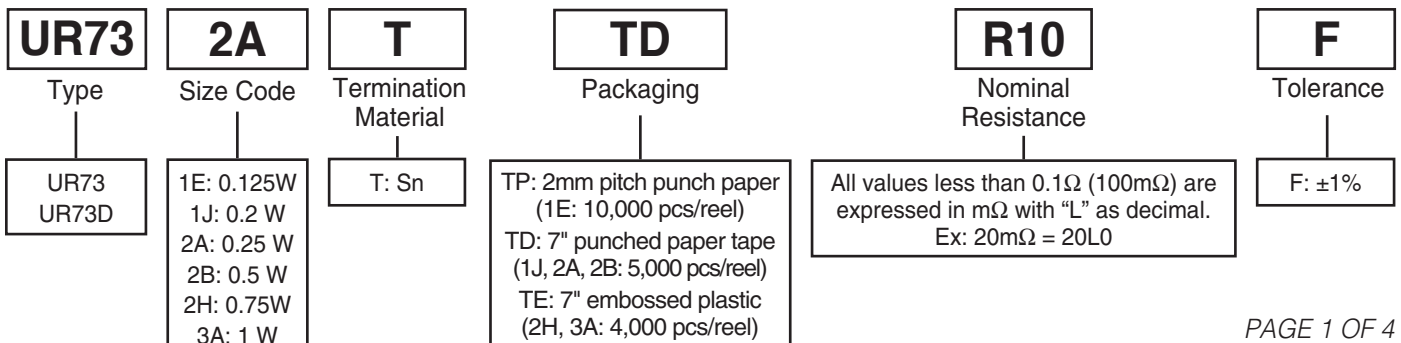
2. Dimensions



Size Code	Resistance Range	Dimensions inches (mm)				
		L	W	h	a	b
D1E	24m ~ 100m	$.039^{+.004}_{-.002}$	$.020^{+.004}_{-.002}$	$.016 \pm .002$	$.010 \pm .004$	$.012 \pm .004$
		(1.0 ^{+0.1} _{-0.05})	(0.5 ^{+0.1} _{-0.05})	(0.4 \pm 0.05)	(0.25 \pm 0.1)	(0.3 \pm 0.1)
D1J	10m ~ 27m	$.063 \pm .008$	$.031^{+.005}_{-.004}$	$.02 \pm .004$	$.014 \pm .004$	$.022 \pm .004$
	30m ~ 100m	(1.6 \pm 0.2)	(0.8 ^{+0.15} _{-0.1})	(0.5 \pm 0.1)	(0.35 \pm 0.1)	$.014 \pm .004$ (0.35 \pm 0.1)
D2A	10m ~ 16m	$.079 \pm .008$	$.049 \pm .008$	$.022 \pm .004$	$.016 \pm .008$	$.024 \pm .008$
	18m ~ 30m	(2.0 \pm 0.2)	(1.25 \pm 0.2)	(0.55 \pm 0.1)	(0.4 \pm 0.2)	$.02 \pm .008$ (0.5 \pm 0.2)
2A	33m ~ 100m	$.079 \pm .008$	$.049 \pm .008$	$.02 \pm .004$	$.016 \pm .008$	$.012^{+.008}_{-.004}$ (0.3 ^{+0.2} _{-0.1})
D2B	10m ~ 16m	$.126 \pm .008$	$.063 \pm .008$	$.024 \pm .004$	$.020 \pm .008$	$.039 \pm .008$
	18m ~ 27m	(3.2 \pm 0.2)	(1.6 \pm 0.2)	(0.6 \pm 0.1)	(0.5 \pm 0.2)	$.031 \pm .008$ (0.8 \pm 0.2)
2B	30m ~ 100m	$.126 \pm .008$	$.063 \pm .008$	$.024 \pm .004$	$.020 \pm .012$	$.016^{+.008}_{-.004}$ (0.4 ^{+0.2} _{-0.1})
D2H	10m ~ 30m	$.197 \pm .008$	$.098 \pm .008$	$.026 \pm .004$	$.026 \pm .012$	$.063 \pm .012$
	33m ~ 100m	(5.0 \pm 0.2)	(2.5 \pm 0.2)	(0.65 \pm 0.1)	(0.65 \pm 0.3)	$.026 \pm .012$ (0.65 \pm 0.3)
D3A	10m ~ 30m	$.248 \pm .008$	$.122 \pm .008$	$.024 \pm .004$	$.031 \pm .012$	$.079 \pm .012$
	33m ~ 100m	(6.3 \pm 0.2)	(3.1 \pm 0.2)	(0.6 \pm 0.1)	(0.8 \pm 0.3)	$.031 \pm .012$ (0.8 \pm 0.3)

3. Type Designation

The type designation shall be in the following form:



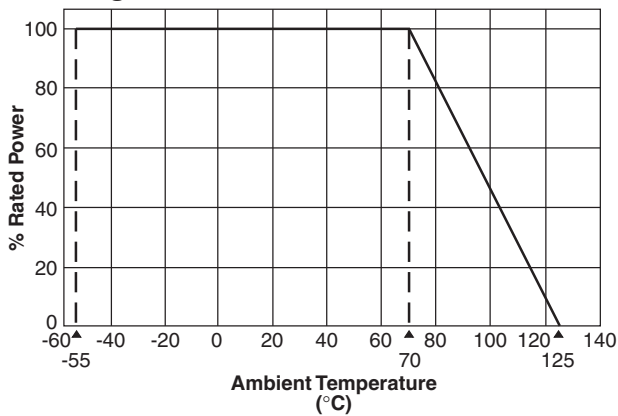
4. Applications & Ratings

Part Designation	Power* Rating	T.C.R. (ppm/°C) Max.	Resistance Range	Absolute Maximum Working Voltage	Maximum Overload Voltage (5 sec. max.)	Operating Temperature Range
			F (±1%) E-24, 25mΩ, 50mΩ			
UR73D1E	1/8W (.125W)	±100	30mΩ - 100mΩ	$\sqrt{P \cdot R}$	$\sqrt{P \cdot R} \times 2.5$	-55°C to +125°C
		±500	24mΩ - 27mΩ			
UR73D1J	1/5W (.2W)	±100	47mΩ - 100mΩ			
		±200	30mΩ - 43mΩ			
		±300	10mΩ - 27mΩ			
UR73D2A	1/4W (.25W)	±250	10mΩ - 30mΩ			
UR732A	1/4W (.25W)	±100	47mΩ - 100mΩ			
		±250	33mΩ - 43mΩ			
UR73D2B	1/2W (.5W)	±200	10mΩ - 27mΩ			
UR732B	1/2W (.5W)	±100	47mΩ - 100mΩ			
		±200	30mΩ - 43mΩ			
UR73D2H	3/4W (.75W)	±250	10mΩ - 30mΩ			
		±100	33mΩ - 100mΩ			
UR73D3A	1W (1W)	±250	10mΩ - 30mΩ			
		±100	33mΩ - 100mΩ			

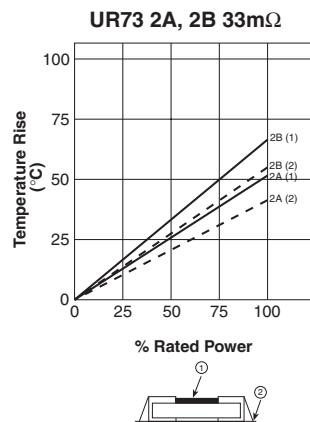
* Power rating is guaranteed by the Temperature Rise data shown below

5. Environmental Applications

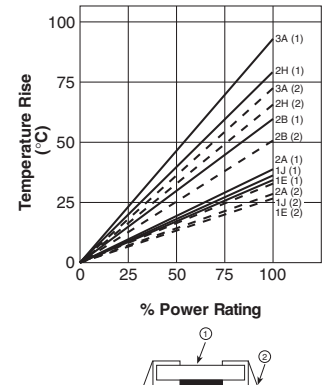
Derating Curve



Surface Temperature Rise - UR73 & UR73D



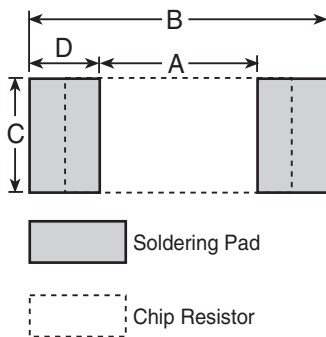
UR73D 1J, 2A, 2B, 2H, 3A 10mΩ UR73D 1E 24mΩ



6. Characteristics

Parameter	Requirement $\Delta R \pm(\%+0.005\Omega)$		Test Method
	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)	$\pm 2\%$	$\pm 0.5\%$	Rated power x 2.5 for 5 seconds
Resistance to Solder Heat	$\pm 1\%$	$\pm 0.3\%$	260°C $\pm 5^\circ\text{C}$, 10 ± 1 second
Rapid Change of Temperature	$\pm 1\%$	$\pm 0.5\%$	-55°C (30 minutes), +125°C (30 minutes), 100 cycles
Moisture Resistance	$\pm 2\%$	$\pm 1\%$	40°C $\pm 2^\circ\text{C}$, 90%~95%RH, 1000 hours, 1.5 hr ON, 0.5 hr OFF cycle
Endurance at 70°C	$\pm 2\%$	$\pm 1\%$	70°C $\pm 2^\circ\text{C}$, 1000 hours, 1.5 hr ON, 0.5 hr OFF cycle
High Temperature Exposure	$\pm 1\%$	$\pm 0.3\%$	+125°C, 1000 hours

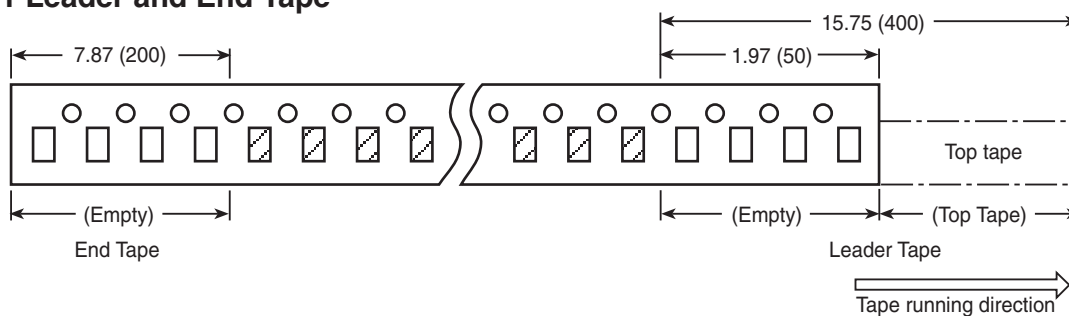
7. Pad Dimensions



Type	Style	Dimensions millimeters				
		Component Size	A	B	C	D
UR73	2A	2.0 X 1.25	1.3	3.1	1.25	0.9
	2B	3.2 X 1.6	2.2	4.4	1.6	1.1
UR73D	1E	1.0 X 0.5	0.5	1.8	0.5	0.65
	1J	1.6 X 0.8	0.5	2.5	0.9	1.0
	2A	2.0 X 1.25	0.8	3.4	1.3	1.3
	2B	3.2 X 1.6	1.2	4.6	1.8	1.7
	2H (10m~30m Ω)	5.0 X 2.5	1.8	6.1	2.6	2.5
	2H (33m~100m Ω)	5.0 X 2.5	3.3	6.1	2.5	1.4
	3A (10m~30m Ω)	6.4 X 3.2	2.3	8.0	3.3	1.7
	3A (33m~100m Ω)	6.4 X 3.2	4.6	8.0	3.0	1.7

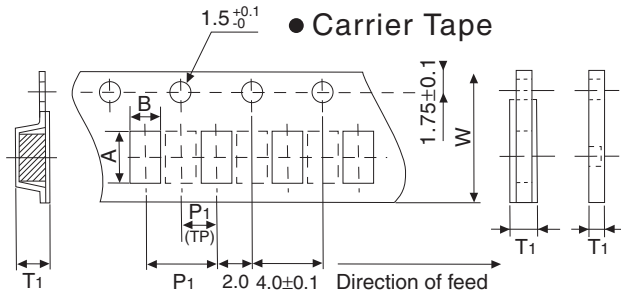
8. Packaging Specifications

8.1 Leader and End Tape



8. Packaging Specifications (Continued)

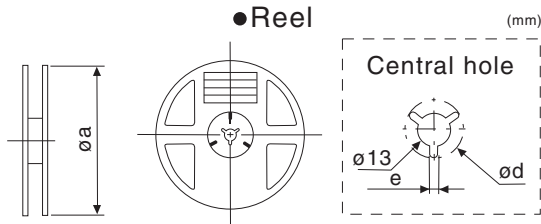
8.2 Dimensions of Punched Paper Tape



Type	Component Size (mm)			Carrier Tape	Quantity/Reel (Pieces)	Taping (mm)					Reel Size	
	L	W	T			A	B	W	P1	T1		
UR73 UR73D	1E	1	0.5	0.35	TP	10000	1.15±0.1	0.65±0.1	8.0±0.2	2±0.05	0.45+0.2/-0	178
	1J	1.6	0.8	0.45	TP	10000	1.9±0.1	1.1±0.1	8.0±0.2	2±0.05	0.6+0.2/-0	178
					TD	5000	1.9±0.1	1.1±0.08	8.0±0.2	4.0±0.1	0.6+0.2/-0	178
	2A	2	1.25	0.5	TP	10000	2.4±0.2	1.65±0.2	8.0±0.2	2±0.05	0.75+0.2/-0	178
					TD	5000	2.4±0.2	1.65±0.2	8.0±0.2	4.0±0.1	0.75+0.2/-0	178
	2B	3.2	1.6	0.6	TE	4000	2.4±0.2	1.6±0.2	8.0±0.2	4.0±0.1	0.9±0.1	178
					TD	5000	3.5±0.2	2±0.2	8.0±0.2	4.0±0.1	0.75+0.2/-0	178
	2H	5	2.5	0.6	TE	4000	3.5±0.2	1.9±0.2	8.0±0.2	4.0±0.1	1.0±0.1	178
	3A	6.3	3.1	0.6	TE	4000	5.35±0.2	2.9±0.2	12.0±0.1	4.0±0.1	1.0±0.15	178
								6.65±0.2	3.44±0.2	12.0±0.1	4.0±0.1	1.0±0.15

(Notes) Dotted lines are applicable to only "TP" and "TB."

8.3 Reel specifications for taping



(Notes) Reel holes, shapes and design are examples

Type	ød (mm)	e (mm)
UR73, UR73D	21	2

9. Lot Number (8 digits)

53 12 3001
Production Date Additional
Year, Month Day Number

41	January 2006
52	December 2006
53	January 2007
64	December 2007

10. Marking & Coating Color

Type	Tolerance	Coating	Marking Color
UR73 UR73D	F (±1%)	Indigo	white / 4 digit