

## Low Resistance Flat Chip Resistors

### Type SR73

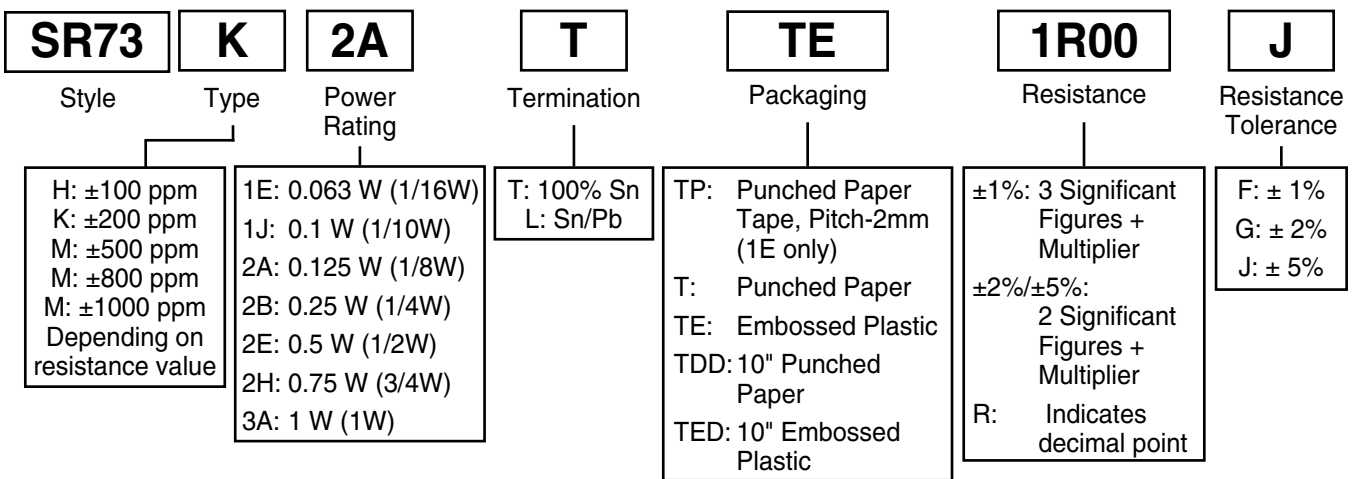
ISO 9002 CERTIFIED

#### 1. Scope

This specification applies to chip resistors (SR73) produced by KOA Corporation.

#### 2. Type Designation

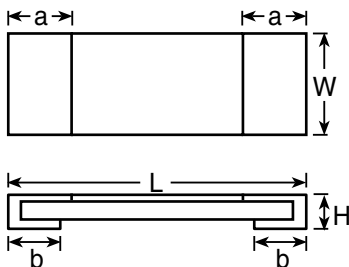
The type designation shall be in the following form:



#### 3. Dimensions and Structure

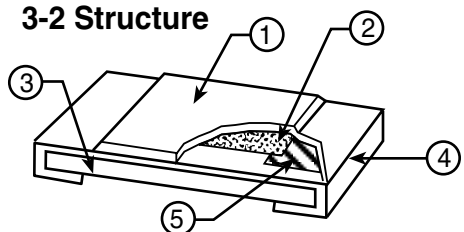
##### 3-1 Dimensions

Dimensions in inches (mm)



	L	W	H	a	b
1 E	.039 (1.0 ± <sup>+0.1</sup> / <sub>-0.05</sub> )	0.019 (0.5 ± <sup>+0.1</sup> / <sub>-0.05</sub> )	.014 (0.35 ± 0.05)	.010 (0.25 ± 0.1)	.010 (0.25 ± 0.1)
1 J	.063 (1.6 ± 0.2)	.031 (0.8 ± <sup>+0.15</sup> / <sub>-0.1</sub> )	0.018 (0.45 ± 0.1)	0.014 (0.35 ± 0.1)	0.014 (0.35 ± 0.1)
2 A	0.079 (2.0 ± 0.2)	0.049 (1.25 ± 0.1)	0.019 (0.5 ± 0.1)	0.016 (0.4 ± 0.2)	0.012 (0.3 ± <sup>+0.2</sup> / <sub>-0.1</sub> )
2 B	0.126 (3.2 ± 0.2)	0.063 (1.6 ± 0.2)	0.024 (0.6 ± 0.1)	0.019 (0.5 ± 0.3)	0.016 (0.4 ± <sup>+0.2</sup> / <sub>-0.1</sub> )
2 E	0.126 (3.2 ± 0.2)	0.102 (2.6 ± 0.2)	0.024 (0.6 ± 0.1)	0.019 (0.5 ± 0.3)	0.016 (0.4 ± <sup>+0.2</sup> / <sub>-0.1</sub> )
2 H	0.197 (5.0 ± 0.2)	0.098 (2.5 ± 0.2)	0.024 (0.6 ± 0.1)	0.019 (0.5 ± 0.3)	0.016 (0.4 ± <sup>+0.2</sup> / <sub>-0.1</sub> )
3 A	0.248 (6.3 ± 0.2)	0.122 (3.1 ± 0.2)	0.024 (0.6 ± 0.1)	0.019 (0.5 ± 0.3)	0.016 (0.4 ± <sup>+0.2</sup> / <sub>-0.1</sub> )

### 3-2 Structure



- ① Protective Coat (Epoxy on Glass)
- ② Low Range Resistive Element
- ③ Alumina Substrate
- ④ Inner Termination
- ⑤ Termination (Nickel & Solder Plating)

## 4. Standard Applications

Type	T.C.R. (ppm/°C)	Power Rating	Resistance Range (Ω)			Max. Working Voltage	Max. Overload Voltage	Operating Temp. Range	Rated Ambient Temp.
			F: ±1% E96-E24	G: ±2% E24	J: ±5% E24				
SR73H1E SR73K1E	± 200 ± 300 ± 500	0.063 W	* 0.51 ~ 10 * 0.2 ~ 0.47 * 0.1 ~ 0.18	0.51 ~ 10 0.2 ~ 0.47 0.1 ~ 0.18	0.51 ~ 10 0.2 ~ 0.47 0.1 ~ 0.18	0.79 V	1.98 V	70°C	-55°C ~ +150°C
SR73H1J SR73K1J	± 200 ± 250	0.1 W	0.2 ~ 1.0 0.1 ~ 0.196	0.2 ~ 1.0 0.1 ~ 0.18	0.2 ~ 1.0 0.1 ~ 0.18	0.32 V	0.79 V		
SR73H2A SR73K2A SR73M2A	± 100 ± 200 ± 500 ± 800	0.125 W	0.1 ~ 10 — —	— 0.1 ~ 10 —	— 0.1 ~ 10 0.051 ~ 0.091 0.030 ~ 0.047	1.11 V	2.79 V		
SR73H2B SR73K2B SR73M2B	± 100 ± 200 ± 500 ± 800	0.25 W	0.1 ~ 10 — —	— 0.1 ~ 10 —	— 0.1 ~ 10 0.056 ~ 0.091 0.030 ~ 0.051	1.58 V	3.95 V		
SR73H2E SR73K2E SR73M2E	± 100 ± 200 ± 500 ± 1000	0.5 W	0.1 ~ 10 — —	— 0.1 ~ 10 —	— 0.047 ~ 10 0.036 ~ 0.043 0.024 ~ 0.033	2.23 V	5.59 V		
SR73H2H SR73K2H SR73M2H	± 100 ± 200 ± 500 ± 800	0.75 W	0.1 ~ 10 — —	— 0.1 ~ 10 —	— 0.1 ~ 10 0.056 ~ 0.091 0.035 ~ 0.051	2.73 V	6.84 V		
SR73H3A SR73K3A SR73M3A	± 100 ± 200 ± 500 ± 800	1.0 W	0.1 ~ 10 — —	— 0.1 ~ 10 —	— 0.1 ~ 10 0.056 ~ 0.091 0.039 ~ 0.051	3.16 V	7.90 V		

\* (F: ±1% E-24 only)

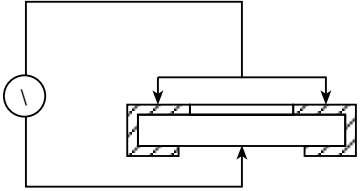


## 8. Characteristics

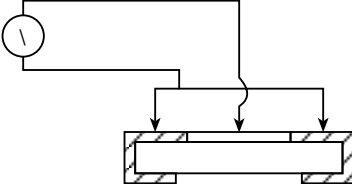
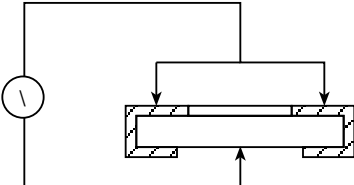
### 8-1 Mechanical Characteristics

Item	Requirement	Test Methods (JIS C 5202)
Withstanding Soldering Heat	No visual damage ± 1.0%	6.10 260°C ± 5°C 10 ± 1 sec.
Solderability	More than 95% of the surface of the termination must be covered new solder	6.11 230°C ± 5°C 3 ± 0.5 sec.
Termination Strength	± 1.0%	6.1.4 <b>1) Bending</b> 2A, 2B Circuit board bending 5mm Circuit board bending 2mm <b>2) Shear</b> <b>3) Pull-off strength</b>
Vibration	± 0.5%	6.3 Condition A Each direction / 2hrs
Withstanding Solvent	No visual & mechanical damage	<b>1) 4.2 and 4.9</b> <b>2) MIL-STD-202F</b> Test method 215

### 8-2 Electrical Characteristics

Item	Requirement	Test Methods (JIS C 5202)
Resistance	Within tolerance	5.1 Measuring Voltage A, 25 °C
Resistance of Temperature Coefficient	Within specified R.T.C -55°C/125°C	5.2 Condition B
Short Time Overload	± 2.0%	5.5 Condition A
Intermittent Overload	± 5.0%	5.8 <b>Applied Voltage: RV x 2.5</b>
Insulation	Above 10 <sup>4</sup> MΩ	5.5      500V DC The following sketch: 

## 8-2 Electrical Characteristics (Continued)

Item	Requirement	Test Methods (JIS C 5202)
Insulation	Above $10^3 M\Omega$	5.6 500V DC The following sketch: 
Withstanding Voltage	$\pm 0.5\%$	5.7 500V DC $60 \pm 10/0$ sec. The following sketch: 
Temperature Rise (Rated Load)	1) Surface temp. rise: $100^\circ C \geq$ 2) $\Delta R \pm 0.5\%$	5.4 1) Test board 90mm x 10mm x 1.6mm 2) Recommended land dimensions

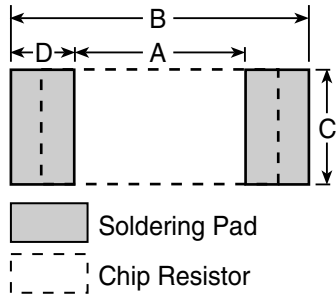
## 8-3 Environmental Characteristics

Item	Requirement	Test Methods (JIS C 5202)
Thermal Shock (Air to Air)	$\pm 1.0\%$	-40°C 30 minutes 125°C 30 minutes 100 cycles
High Temperature Exposure	$\pm 1.0\%$	7.2 $125 \pm 3^\circ C$ 1000 hrs.
Load Life in Humidity	$\pm 2.0\%$	7.9 $40 \pm 2^\circ C$ 90 ~ 95% RH 1000 hrs.
Load Life	$\pm 2.0\%$	7.10 $70 \pm 3^\circ C$ 1000 hrs.

## 9. Recommended Land Dimensions

### 9-1 Flow Soldering

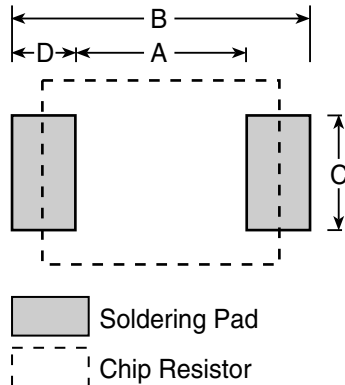
Dimensions in inches (mm)



Type	Style	Resistor Size	A	B	C	D
SR73	1 E	0.039 x 0.020 (1.0 x 0.5)	0.020 (0.5)	0.059 (1.5)	0.020 (0.5)	0.020 (0.5)
	1 J	0.063 x 0.031 (1.6 x 0.8)	0.039 (1.0)	0.094 (2.4)	0.031 (0.8)	0.028 (0.7)
	2 A	0.079 x 0.049 (2.0 x 1.25)	0.051 (1.3)	0.122 (3.1)	0.049 (1.25)	0.035 (0.9)
	2 B	0.126 x 0.063 (3.2 x 1.6)	0.087 (2.2)	0.173 (4.4)	0.063 (1.6)	0.043 (1.1)
	2 E	0.126 x 0.098 (3.2 x 2.5)	0.087 (2.2)	0.173 (4.4)	0.098 (2.5)	0.043 (1.1)
	2 H	0.197 x 0.098 (5.0 x 2.5)	0.138 (3.5)	0.248 (6.3)	0.098 (2.5)	0.055 (1.4)
	3 A	0.252 x 0.126 (6.4 x 3.2)	0.181 (4.6)	0.315 (8.0)	0.126 (3.2)	0.067 (1.7)

### 9-2 Reflow Soldering

Dimensions in inches (mm)

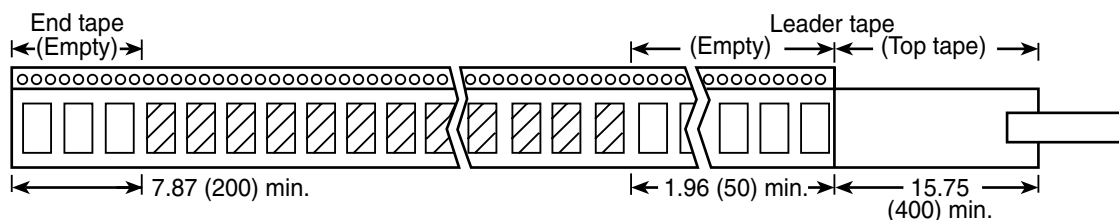


Type	Style	Resistor Size	A	B	C	D
SR73	1 E	0.039 x 0.020 (1.0 x 0.5)	0.020 (0.5)	0.051 (1.3)	0.012 (0.3)	0.016 (0.4)
	1 J	0.063 x 0.031 (1.6 x 0.8)	0.039 (1.0)	0.079 (2.0)	0.024 (0.6)	0.020 (0.5)
	2 A	0.079 x 0.049 (2.0 x 1.25)	0.051 (1.3)	0.098 (2.5)	0.041 (1.05)	0.024 (0.6)
	2 B	0.126 x 0.063 (3.2 x 1.6)	0.087 (2.2)	0.157 (4.0)	0.055 (1.4)	0.035 (0.9)
	2 E	0.126 x 0.098 (3.2 x 2.5)	0.087 (2.2)	0.157 (4.0)	0.091 (2.3)	0.035 (0.9)
	2 H	0.197 x 0.098 (5.0 x 2.5)	0.138 (3.5)	0.248 (6.3)	0.091 (2.3)	0.055 (1.4)
	3 A	0.252 x 0.126 (6.4 x 3.2)	0.181 (4.6)	0.315 (8.0)	0.118 (3.0)	0.067 (1.7)

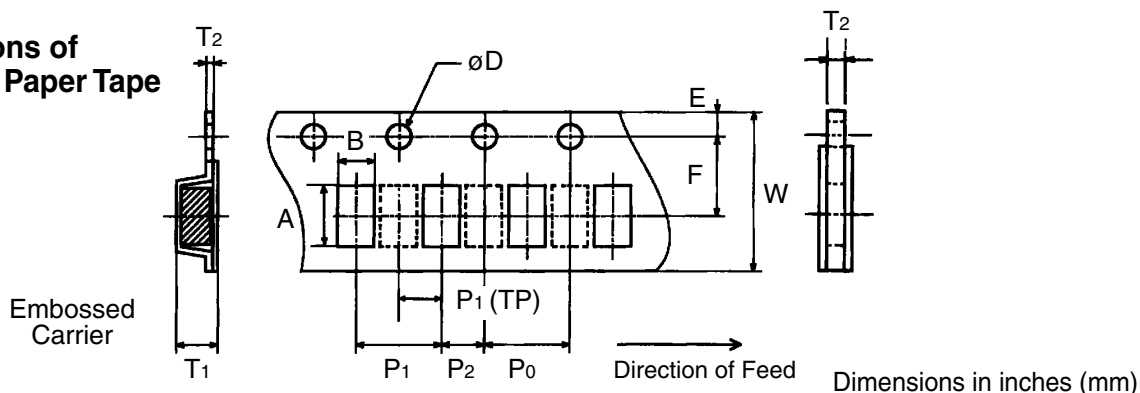
## 10. Taping

### 10-1 Taped Configuration

Dimensions in inches (mm)



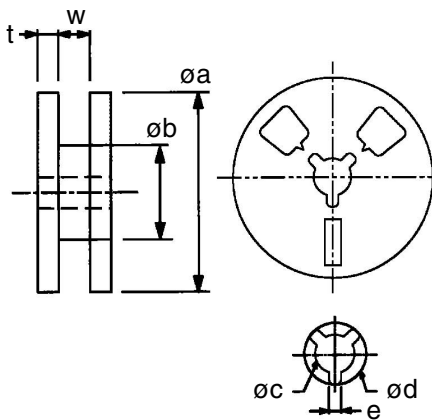
## 10-2 Dimensions of Punched Paper Tape



Packaging	Size Code	A	B	W	E	F	T1	T2	P0	P1	P2	øD
(TP) 7" Paper Tape (2 mm Pitch)	1H (0201)	.045	.026	.315	.069	.138	—	.018	.157	.079	.079	.059
	1E (0402)	(1.15 ± 0.1)	(0.65 ± 0.1)	(8.0 ± 0.2)	(1.75 ± 0.1)	(3.5 ± 0.05)	—	(0.45 ± 0.1)	(4.0 ± 0.1)	(2.0 ± 0.05)	(2.0 ± 0.05)	(1.5 ± )
(T) 7" PaperTape	1J (0603)	.075 (1.9 ± 0.1)	.043 (1.1 ± 0.1)	"	"	"	—	.024 (0.60 ± 0.1)	"	.157 (4.0 ± 0.1)	"	"
	2A (0805)	.094 (2.4 ± 0.1)	.065 (1.65 ± 0.1)	"	"	"	—	.030 (0.75 ± 0.1)	"	"	"	"
	2B (1206)	.138 (3.5 ± 0.1)	.075 (1.9 ± 0.1)	"	"	"	—	"	"	"	"	"
	2E (1210)	.138 (3.5 ± 0.1)	.110 (2.8 ± 0.1)	"	"	"	—	"	"	"	"	"
(TE) 7" Embossed Plastic	2A (0805)	.094 (2.4 ± 0.2)	.057 (1.45 ± 0.15)	"	"	"	.033 (0.85 ± 0.1)	.010 (0.25 ± 0.1)	"	"	"	"
	2B (1206)	.138 (3.5 ± 0.1)	.075 (1.9 ± 0.2)	"	"	"	.039 (1.0 ± 0.1)	"	"	"	"	"
	2E (1210)	.142 (3.6 ± 0.15)	.043 (2.9 ± 0.15)	"	"	"	"	.008 (0.2 ± 0.1)	"	"	"	"
	2H (2010)	.213 (5.4 ± 0.2)	.114 (2.9 ± 0.2)	.472 (12.0 ± 0.1)	"	.217 (5.5 ± 0.5)	.033 (0.85 ± 0.1)	"	"	"	"	"
	3A (2512)	.272 (6.9 ± 0.2)	.142 (3.6 ± 0.2)	"	"	"	"	"	"	.157 (4.0 ± 0.1)	"	"
(TDD) 10" Paper Tape	1J (0603)	.075 (1.9 ± 0.1)	.043 (1.1 ± 0.1)	.315 (8.0 ± 0.2)	.069 (1.75 ± 0.1)	.138 (3.5 ± 0.05)	—	.024 (0.60 ± 0.1)	"	"	"	"
	2A (0805)	.094 (2.4 ± 0.1)	.065 (1.65 ± 0.1)	"	"	"	—	.030 (0.75 ± 0.1)	"	"	"	"
	2B (1206)	.138 (3.5 ± 0.1)	.075 (1.9 ± 0.1)	"	"	"	—	"	"	"	"	"
	2E (1210)	.138 (3.5 ± 0.1)	.110 (2.8 ± 0.1)	"	"	"	—	"	"	"	"	"
(TE) 7" Embossed Plastic	2A (0805)	.094 (2.4 ± 0.2)	.057 (1.45 ± 0.15)	"	"	"	.033 (0.85 ± 0.1)	.010 (0.25 ± 0.1)	"	"	"	"
	2B (1206)	.138 (3.5 ± 0.1)	.075 (1.9 ± 0.2)	"	"	"	.039 (1.0 ± 0.1)	"	"	"	"	"
	2E (1210)	.142 (3.6 ± 0.15)	.114 (2.9 ± 0.15)	"	"	"	"	.008 (0.2 ± 0.1)	"	"	"	"
	2H (2010)	.213 (5.4 ± 0.2)	.114 (2.9 ± 0.2)	.472 (12 ± 0.1)	"	.217 (5.5 ± 0.5)	.033 (0.85 ± 0.1)	"	"	"	"	"
	3A (2512)	.272 (6.9 ± 0.2)	.142 (3.6 ± 0.2)	"	"	"	"	"	"	.157 (4.0 ± 0.1)	"	"

## 11-5 Dimensions of Reel

Dimensions in inches (mm)



Size Code	øa max.		øb	w	t	øc	ød	e
	7"	10"						
1 H (0201)								
1 E (0402)			3.150 (80 ± 2.0)	0.394 (10 ± 1.0)			1.063 (27 ± 2.0)	.118 (3.0 ± 0.5)
1 J (0603)								
2 A (0805)	7.008 (178)	10.039 (255)			.059 (1.5 ± 0.05)	0.512 (13 ± 0.5)		
2 B (1206)								
2 E (1210)			2.362 (60 ± 2.0)	0.551 (14 ± 1.0)			.827 (21 ± 2.0)	.079 (2.0 ± 0.5)
2 H (2010)								
3 A (2512)								

Quantity per reel or reel size are requested to designate at the time of ordering.  
Contents on label:

- |   |  |
|---|--|
| (1) Article number (SR73K2ATD J)                              | (4) Customer's code number (subject to change) |
| (2) Quantity  | (5) Production lot number                      |
| (3) Nominal Resistance and the chip marking [Ex: 0.2 Ω (R20)] | (6) Manufacturer's name                        |

## 10. Packing

### 10-1 Bulk Packing

1000 pcs or 5000 pcs chip are packed in a polyethylene package. The package shall be marked:

- (1) Article number (SR73K2A J)
- (2) Nominal Resistance Value
- (3) Quantity
- (4) Production lot number
- (5) Manufacturer's name
- (6) Customer's code number (subject to change)
- (7) Product order number

Lot number (8 digits)

<u>89</u>	<u>12</u>	<u>3001</u>
Production year, month	Date	Additional day number

71	January, 2001	85	January, 2002
∫	∫	∫	∫
82	December, 2001	94	December, 2002

## 11. Packaging Method

Size Code	TE 7" Embossed Plastic	TP 7" Punched Paper	T 7" Punched Paper	TED 10" Embossed Plastic	TDD 10" Punched Paper
1 E (0402)	—	10,000	—	—	—
1 J (0603)	—	10,000	5,000	—	10,000
2 A (0805)	4,000	10,000	5,000	10,000	10,000
2 B (1206)	4,000	—	5,000	10,000	10,000
2 E (1210)	4,000	—	5,000	10,000	10,000
2 H (2010)	4,000	—	—	10,000	—
3 A (2512)	4,000	—	—	10,000	—