

# KDV Series

## Metal Film Low-Resistance Chip Resistor



### FEATURES

- Low Resistance / TCR / Inductance
- Excellent long-term stability
- High precision current sensing
- High power capability
- Halogen free and lead free
- RoHs compliant

### APPLICATIONS

- Consumer electronics
- Computer
- Telecom
- Measuring instrument
- Industrial / Power supply
- Battery management system

### SERIES SPECIFICATIONS

Series	Size	Power @70°C	Max. Rated Current	Max. Overload Current	TCR (ppm/°C)	Resistance Range
KDV02	0201	1/10W	1.41A	3.16A		
KDV04	0402	1/8W	1.58A	3.54A	±100	50mΩ ~ 100mΩ
KDV06	0603	1/5W	2.00A	4.47A	±50	100mΩ ~ 1000mΩ
KDV08	0805	1/4W	2.24A	5.00A		
KDV12	1206	1/2W	3.16A	7.07A		

### CHARACTERISTICS

**Operating Temp. Range** -55°C ~+155°C

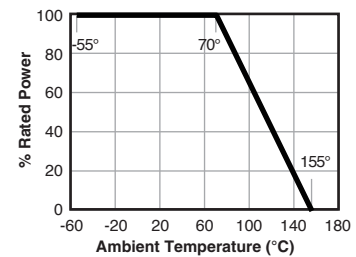
**Power rating and current rating** Based on continuous full-load at ambient temperature of 70°C

**TCR** Test to - 55°C is available on request

**Rated Current** Resistance Range: ≤1Ω. DC continuous working current or a AC (rms) continuous working current at commercial-line frequency and wave form corresponding to the power rating, as determined formula  
 Rated current =  $\sqrt{\text{Rated power/Resistance}}$

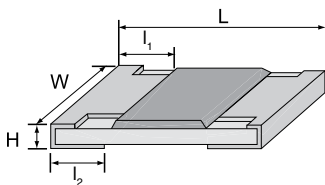
**Storage** Storage time at environmental temp. 25°C ±5° & humidity 60 ±20% is valid for one year from the date of delivery

### Derating



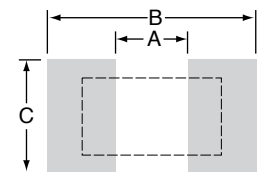
### DIMENSIONS

(mm)



Size	L	W	H	l1	l2	A	B	C
KDV02	0.60 ±.03	0.30 ±.03	0.26 ±.05	0.15 ±.05	0.15 ±.05	0.25	0.85	0.35
KDV04	1.00 ±.10	0.50 ±.05	0.35 ±.05	0.20 ±.10	0.25 ±.10	0.50	1.60	0.70
KDV06	1.60 ±.10	0.80 ±.10	0.45 ±.10	0.25 ±.15	0.30 ±.15	0.80	2.40	1.00
KDV08	2.00 ±.10	1.25 ±.10	0.55 ±.10	0.35 ±.20	0.40 ±.20	1.30	2.90	1.45
KDV12	3.10 ±.10	1.60 ±.10	0.55 ±.10	0.40 ±.20	0.45 ±.20	2.20	4.20	1.80

### Land pattern



# KDV Series

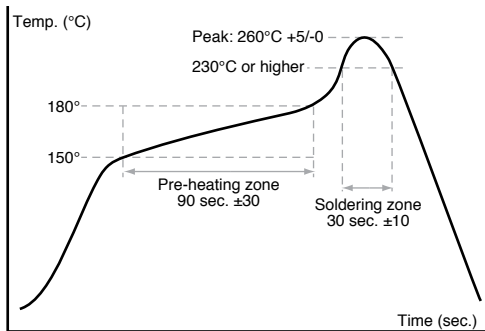
## Metal Film Low-Resistance Chip Resistor

### PERFORMANCE DATA

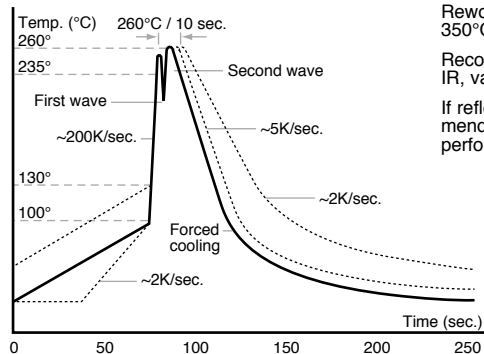
Test Method	Method	Procedure	Requirements
Temp. Coefficient of Resistance (T.C.R.)	JIS C 5201-1, clause 4.8	TCR +125°C, 25°C is the reference temperature	Refer to Standard Electrical Specifications
Short Time Overload	JIS C 5201-1, clause 4.13	Standard power: 6.25 times rated power whichever is less for 5 seconds High power (2X/4X): 5 times rated power whichever is less for 5 seconds.	±(1.0%+0.001Ω)
Insulation Resistance	JIS C 5201-1, clause 4.6	100V for 1 minute.	≥10GΩ
Solderability	JIS C 5201-1, clause 4.17	245 ±5°C for 3 ±0.5secs.	>95% Coverage, No visible damage
Resistance to Soldering Heat	JIS-C5201-1, clause 4.18	260 ±5°C for 10 seconds.	±(1.0%+0.001Ω), No visible damage
Leaching	JIS-C5201-1, clause 4.18	260 ±5°C for 30 seconds.	>95% Coverage, No visible damage
Temperature Cycling	JIS C 5201-1, clause 4.19	-55°C to +155°C, 300 cycles	±(1.0%+0.001Ω), No visible damage
High Temperature Exposure	JIS-C5201-1 4.25	155 ±5°C for 1000 +48/-0 hours.	±(1.0%+0.001Ω)
Resistance to Solvent	JIS C 5201-1, clause 4.29	The tested resistor be immersed into isopropyl alcohol of 20~25°C for 60 secs. Then the resistor is left in the room for 48 hrs.	±(1.0%+0.001Ω), No visible damage
Load Life in Humidity	JIS C 5201-1 clause 4.24	40±2°C, 90~95% R.H. , Rated power or Max. working current whichever is less for 1000 hrs with 1.5 hrs ON and 0.5 hr OFF.	±(1.0%+0.001Ω)
Load Life (Endurance)	JIS C 5201-1 clause 4.25	70±2°C, Rated power, or Max. working current whichever is less for 1000 hrs with 1.5 hrs ON and 0.5 hr OFF.	±(1.0%+0.001Ω)
Terminal Bending Strength	JIS C 5201-1, clause 4.33	Bending once for 5 seconds: 0402, 0603, 0805 = 5mm; 1206, 1210 = 3mm; 2010, 2512 = 2mm	±(1.0%+0.001Ω), No visible damage

### SOLDERING

#### Wave solder



#### Solder reflow



Rework temperature (hot air equipment):  
350°C, 3~5seconds

Recommended reflow methods:  
IR, vapor phase oven, hot air oven

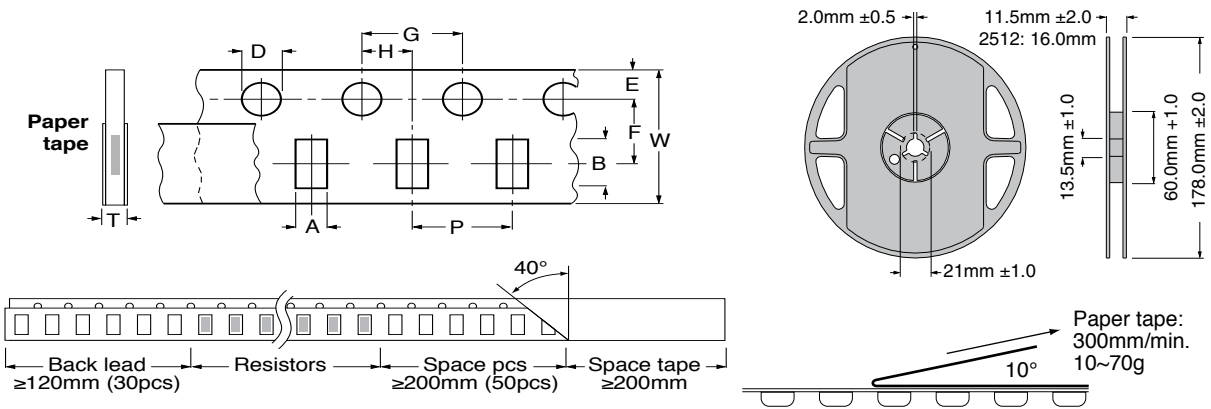
If reflow temperatures exceed the recommended profile, devices may not meet the performance requirements.

# KDV Series

## Metal Film Low-Resistance Chip Resistor

### TAPE AND REEL

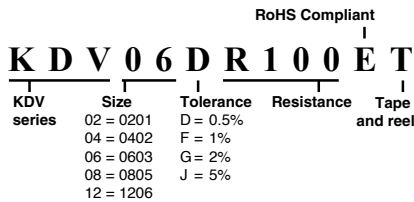
(mm)



Size	A	B	W	E	F	G	H	T	D	P	Qty. per reel
KDV02	0.45 $\pm 1$	0.75 $\pm 1$	8.0 $\pm 2$	1.75 $\pm 1$	3.5 $\pm 05$	4.0 $\pm 1$	2.0 $\pm 05$	0.35 $\pm 1$	1.50 $\pm 1/-0$	2.0 $\pm 1$	10K
KDV04	0.7 $\pm 1$	1.20 $\pm 1$	8.0 $\pm 2$	1.75 $\pm 1$	3.5 $\pm 05$	4.0 $\pm 1$	2.0 $\pm 05$	0.45 $\pm 1$	1.50 $\pm 1/-0$	2.0 $\pm 1$	10K
KDV06	1.05 $\pm 2$	1.80 $\pm 2$	8.0 $\pm 2$	1.75 $\pm 1$	3.5 $\pm 05$	4.0 $\pm 1$	2.0 $\pm 05$	0.60 $\pm 1$	1.50 $\pm 1/-0$	4.0 $\pm 1$	5K
KDV08	1.55 $\pm 2$	2.30 $\pm 2$	8.0 $\pm 2$	1.75 $\pm 1$	3.5 $\pm 05$	4.0 $\pm 1$	2.0 $\pm 05$	0.75 $\pm 1$	1.50 $\pm 1/-0$	4.0 $\pm 1$	5K
KDV12	1.90 $\pm 2$	3.05 $\pm 2$	8.0 $\pm 2$	1.75 $\pm 1$	3.5 $\pm 05$	4.0 $\pm 1$	2.0 $\pm 05$	0.75 $\pm 1$	1.50 $\pm 1/-0$	4.0 $\pm 1$	5K

### ORDERING INFORMATION

#### Marking



Size	Resistance	Code	Example	Value
0201, 0402			no marking	
0603	50m $\Omega$ ~ 99m $\Omega$ 100m $\Omega$ ~ 990m $\Omega$ 1000m $\Omega$	0XX RXX 1R0	068 R68 1R0	68m $\Omega$ 680m $\Omega$ 1000m $\Omega$
0805, 1206, 1210, 2010, 2512	50m $\Omega$ ~ 99m $\Omega$ (only for 0805, 1206, 1210) 100m $\Omega$ ~ 990m $\Omega$ 1000m $\Omega$	R0XX RXXX 1R00	R068 R680 1R00	68m $\Omega$ 680m $\Omega$ 1000m $\Omega$

#### Standard part numbers

Ohm Value	Size	Power	Tolerance	Part. No.	0201	0201	0402	0402	0603	0603	0805	0805	1206	1206
					0.10W	0.10W	0.125W	0.125W	0.20W	0.20W	0.25W	0.25W	0.5W	0.5W
					0.5%	1%	0.5%	1%	0.5%	1%	0.5%	1%	0.5%	1%
					KDV02D-	KDV02F-	KDV04D-	KDV04F-	KDV06D-	KDV06F-	KDV08D-	KDV08F-	KDV12D-	KDV12F-
50m $\Omega$				-R050ET	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
68m $\Omega$				-R068ET	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
82m $\Omega$				-R082ET	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
100m $\Omega$				-R100ET	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
120m $\Omega$				-R120ET	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
150m $\Omega$				-R150ET	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
180m $\Omega$				-R180ET	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
200m $\Omega$				-R200ET	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
220m $\Omega$				-R220ET	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
240m $\Omega$				-R240ET	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
270m $\Omega$				-R270ET	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
300m $\Omega$				-R300ET	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
330m $\Omega$				-R330ET	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
360m $\Omega$				-R360ET	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
390m $\Omega$				-R390ET	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
470m $\Omega$				-R470ET	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
510m $\Omega$				-R510ET	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
560m $\Omega$				-R560ET	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
620m $\Omega$				-R620ET	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
820m $\Omega$				-R820ET	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓