

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	±100 ±50	50mΩ ~ 100mΩ 100mΩ ~ 1000mΩ
KDV04	0402	1/8W	1.58A	3.54A		
KDV06	0603	1/5W	2.00A	4.47A		
KDV08	0805	1/4W	2.24A	5.00A		
KDV12	1206	1/2W	3.16A	7.07A		

CHARACTERISTICS

Operating Temp. Range -55°C ~+155°C

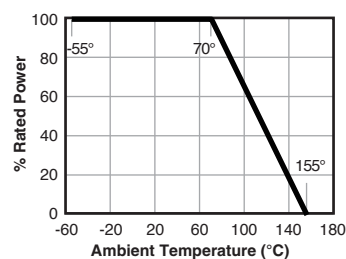
Power rating and current rating Based on continuous full-load at ambient temperature of 70°C

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
 $\text{Rated current} = \sqrt{(\text{Rated power}/\text{Resistance})}$

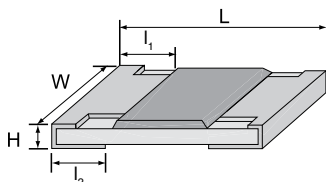
Storage Storage time at environmental temp. 25°C ±5° & humidity 60 ±20% is valid for one year from the date of delivery

Derating



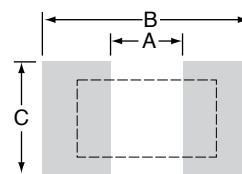
DIMENSIONS

(mm)



Size	L	W	H	l1	l2	A	B	C
KDV02	0.60 ±0.03	0.30 ±0.03	0.26 ±0.05	0.15 ±0.05	0.15 ±0.05	0.25	0.85	0.35
KDV04	1.00 ±0.10	0.50 ±0.05	0.35 ±0.05	0.20 ±0.10	0.25 ±0.10	0.50	1.60	0.70
KDV06	1.60 ±0.10	0.80 ±0.10	0.45 ±0.10	0.25 ±0.15	0.30 ±0.15	0.80	2.40	1.00
KDV08	2.00 ±0.10	1.25 ±0.10	0.55 ±0.10	0.35 ±0.20	0.40 ±0.20	1.30	2.90	1.45
KDV12	3.10 ±0.10	1.60 ±0.10	0.55 ±0.10	0.40 ±0.20	0.45 ±0.20	2.20	4.20	1.80

Land pattern



KDV Series

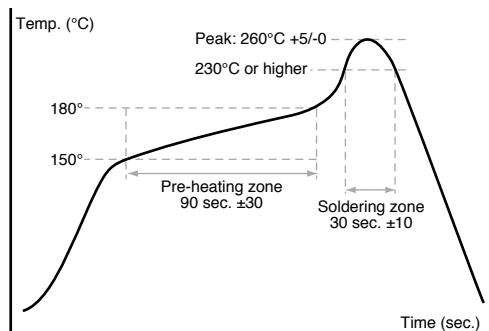
Metal Film Low-Resistance Chip Resistor

PERFORMANCE DATA

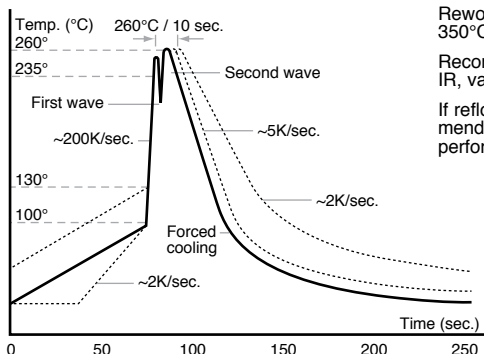
Test Method	Procedure	Requirements
Temp. Coefficient of Resistance (T.C.R.) JIS C 5201-1, clause 4.8	TCR +125°C, 25°C is the reference temperature	Refer to Standard Electrical Specifications
Short Time Overload JIS C 5201-1, clause 4.13	Standard power: 6.25 times rated power whichever is less for 5 seconds High power (2X/4X): 5 times rated power whichever is less for 5 seconds.	$\pm(1.0\%+0.001\Omega)$
Insulation Resistance JIS C 5201-1, clause 4.6	100V for 1 minute.	$\geq 10G\Omega$
Solderability JIS C 5201-1, clause 4.17	245 $\pm 5^\circ\text{C}$ for 3 ± 0.5 secs.	>95% Coverage, No visible damage
Resistance to Soldering Heat JIS-C5201-1, clause 4.18	260 $\pm 5^\circ\text{C}$ for 10 seconds.	$\pm(1.0\%+0.001\Omega)$, No visible damage
Leaching JIS-C5201-1, clause 4.18	260 $\pm 5^\circ\text{C}$ for 30 seconds.	>95% Coverage, No visible damage
Temperature Cycling JIS C 5201-1, clause 4.19	-55°C to +155°C, 300 cycles	$\pm(1.0\%+0.001\Omega)$, No visible damage
High Temperature Exposure JIS-C5201-1 4.25	155 $\pm 5^\circ\text{C}$ for 1000 +48/-0 hours.	$\pm(1.0\%+0.001\Omega)$
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.	$\pm(1.0\%+0.001\Omega)$, No visible damage
Load Life in Humidity JIS C 5201-1 clause 4.24	40 $\pm 2^\circ\text{C}$, 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.	$\pm(1.0\%+0.001\Omega)$
Load Life (Endurance) JIS C 5201-1 clause 4.25	70 $\pm 2^\circ\text{C}$, Rated power, or Max. working current whichever is less for 1000 hrs with 1.5 hrs ON and 0.5 hr OFF.	$\pm(1.0\%+0.001\Omega)$
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	$\pm(1.0\%+0.001\Omega)$, 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

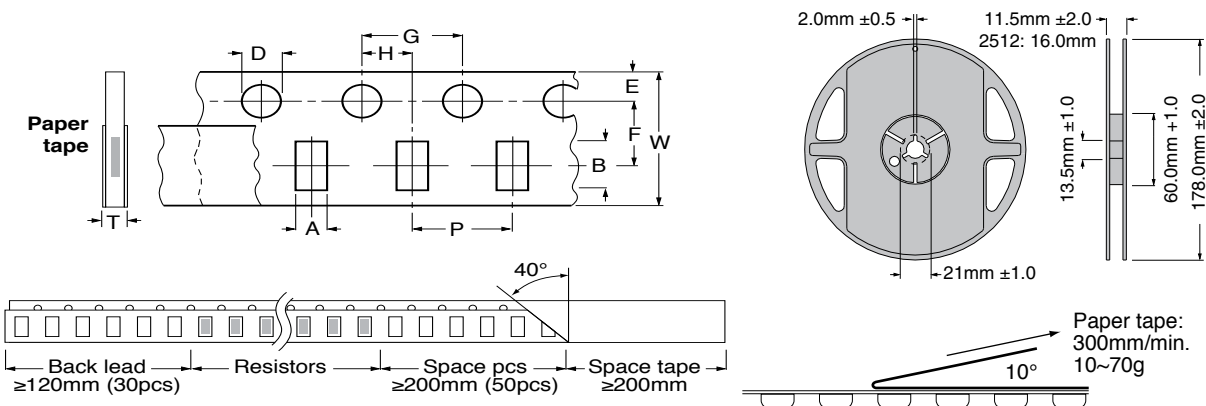
If reflow temperatures exceed the recommended profile, devices may not meet the performance requirements.

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 ±1	0.75 ±1	8.0 ±2	1.75 ±1	3.5 ±05	4.0 ±1	2.0 ±05	0.35 ±1	1.50 +1/-0	2.0 ±1	10K
KDV04	0.7 ±1	1.20 ±1	8.0 ±2	1.75 ±1	3.5 ±05	4.0 ±1	2.0 ±05	0.45 ±1	1.50 +1/-0	2.0 ±1	10K
KDV06	1.05 ±2	1.80 ±2	8.0 ±2	1.75 ±1	3.5 ±05	4.0 ±1	2.0 ±05	0.60 ±1	1.50 +1/-0	4.0 ±1	5K
KDV08	1.55 ±2	2.30 ±2	8.0 ±2	1.75 ±1	3.5 ±05	4.0 ±1	2.0 ±05	0.75 ±1	1.50 +1/-0	4.0 ±1	5K
KDV12	1.90 ±2	3.05 ±2	8.0 ±2	1.75 ±1	3.5 ±05	4.0 ±1	2.0 ±05	0.75 ±1	1.50 +1/-0	4.0 ±1	5K

ORDERING INFORMATION

Marking

RoHS Compliant				
KDV series	Size	Tolerance	Resistance	Tape and reel
02 = 0201	02 = 0201	D = 0.5%		
04 = 0402	04 = 0402	F = 1%		
06 = 0603	06 = 0603	G = 2%		
08 = 0805	08 = 0805	J = 5%		
12 = 1206	12 = 1206			

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

Standard part numbers

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