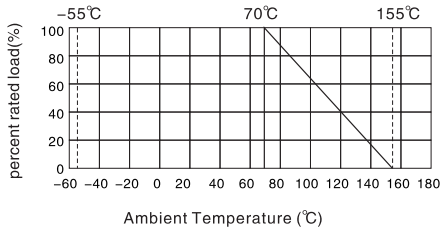
高壓厚膜晶片電阻器 HIGH VOLTAGE THICK FILM CHIP RESISTORS

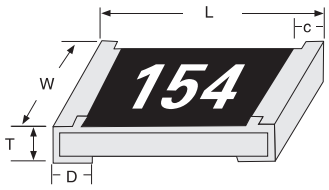
■ 特性 Feature

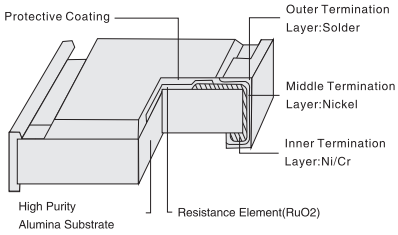
- 在最大工作電壓上優於普通厚膜晶片電阻
  Superior to Thick Film Chip Resistors in Max. Working Voltage
- 適用於回流焊和波峰焊 Suitable for reflow & wave soldering
- 高可靠性 Superior reliability

■ 降功率曲綫 Derating Curve



■ 形狀 & 構造 Figures & Construction





■ 尺寸 Dimension

Type		HV03 (0603 size)	HV05 (0805 size)	HV06 (1206 size)	HV07 (1210 size)	HV10 (2010 size)	HV12 (2512 size)
Dimension (mm)	L	1.60 ± 0.10	2.00 ± 0.15	3.10 ± 0.15	3.10 ± 0.10	5.00 ± 0.10	6.35 ± 0.10
	W	0.80 $^{+0.15}_{-0.10}$	1.25 $^{+0.15}_{-0.10}$	1.55 $^{+0.15}_{-0.10}$	2.60 $^{+0.15}_{-0.10}$	2.50 $^{+0.15}_{-0.10}$	3.20 $^{+0.15}_{-0.10}$
	T	0.45 ± 0.10	0.55 ± 0.10	0.55 ± 0.10	0.55 ± 0.10	0.55 ± 0.10	0.55 ± 0.10
	C	0.30 ± 0.20	0.40 ± 0.20	0.45 ± 0.20	0.50 ± 0.25	0.60 ± 0.25	0.60 ± 0.25
	D	0.30 ± 0.20	0.40 ± 0.20	0.45 ± 0.20	0.50 ± 0.20	0.50 ± 0.20	0.50 ± 0.20

■ 性能 Specification

Type	HV03 (0603 size)	HV05 (0805 size)	HV06 (1206 size)	HV07 (1210 size)	HV10 (2010 size)	HV12 (2512 size)
Power rating (70℃)	1/10W	1/8W	1/4W	1/3W	1/2W	1W
Max.Working Voltage	200V	400V	500V	800V	2000V	3000V
Max.Overload Voltage	400V	800V	1000V	1500V	3000V	4000V
Dielectric withstanding Voltage	300V	500V	500V	500V	500V	500V
Resistance Range	100KΩ~10MΩ	100KΩ~10MΩ	100KΩ~10MΩ	50KΩ~10MΩ	50KΩ~10MΩ	50KΩ~10MΩ
Tolerance	±1% ±5%					
Operating Temperature	−55℃~+155℃					

■性能和測試要求 Specification And Test Methods

Temperature coefficient	±200PPM/℃
Short−time overload	±(2.0% + 0.1Ω) Max.
Insulation resistance	⩾ 1,000 Mega Ohm
Dielectric withstanding voltage	No evidence of flashover, mechanical damage, arcing or insulation breakdown
Terminal bending	±(1.0% + 0.05Ω) Max.
Soldering heat	±(1.0% + 0.05Ω) Max.
Solderability	Min 95% coverage
Temperature cycling	±5%: ±(1.0% + 0.05Ω) Max. ±1%: ±(0.5% + 0.05Ω) Max.
Humidity (Steady State)	±(3.0% + 0.1Ω) Max.
Load life	±(3.0% + 0.1Ω) Max.

標示 Marking on the Resistors Body

☞ For 0201 & 0402 size, no marking on the body due to the small size of the resistor.

☞ ±5% tolerance product: the marking is 3 digits, the first 2 digits are the significant of the resistance and the 3rd digit denotes number of zeros following.

153=15000=15KΩ; 120=12Ω

Below10Ω; 6R8=6.8Ω

☞ 0805, 1206, 1210, 2010, 2512≤ ±1%: the marking is 4 digits, the first 3 digits are the significant of the resistance and the 4th digit denotes number of zeros following.

2372=23700Ω=23.7KΩ; 1430=143Ω

Below100Ω: 3R24=3.24Ω

☞ Standard E–96 series values of 0603≤ ±1%: due to the small size of the resistor's body, 3 digits marking will be used to indicate the accurate resistance value by using the following Multiplier & Resistance Code.

◎ **Multiplier Code (for 0603 1% marking)**

code	A	B	C	D	E	F	G	H	X	Y	Z
Multiplier	10^0	10^1	10^2	10^3	10^4	10^5	10^6	10^7	10^{-1}	10^{-2}	10^{-3}

Standard E–96 Series Resistance Value Code (for 0603 1% marking)

Value	Code	Value	Code	Value	Code	Value	Code	Value	Code	Value	Code
100	01	147	17	215	33	316	49	464	65	681	81
102	02	150	18	221	34	324	50	475	66	698	82
105	05	154	19	226	35	332	51	487	67	715	83
107	04	158	20	232	36	340	52	499	68	732	84
110	05	162	21	237	37	348	53	511	69	750	85
113	06	165	22	243	38	357	54	523	70	768	86
115	07	169	23	249	39	365	55	536	71	787	87
118	08	174	24	255	40	374	56	549	72	806	88
121	09	178	25	261	41	383	57	562	73	825	89
124	10	182	26	267	42	392	58	576	74	845	90
127	11	187	27	274	43	402	59	590	75	866	91
130	12	191	28	280	44	412	60	604	76	887	92
133	13	196	29	287	45	422	61	619	77	909	93
137	14	200	30	294	46	432	62	634	78	931	94
140	15	205	31	301	47	442	63	649	79	953	95
143	16	210	32	309	48	453	64	665	80	976	96

So the resistance value are marked as the following examples:

1.96KΩ=196× 10^1Ω=29B

12.4Ω=124×10^{-1}=10x

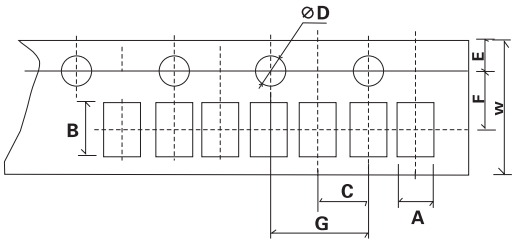
☞ **So the resistance value are marked as the following examples:**

122=1200=1.2KΩ

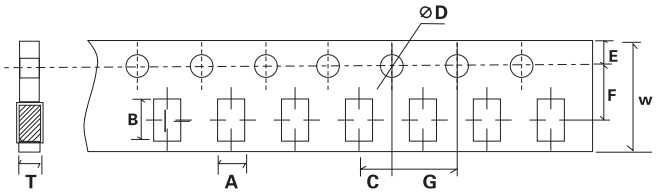
680=68Ω

RoHs Compliant

■ 紙帶尺寸 Dimenlsion of Paper Taping (mm)



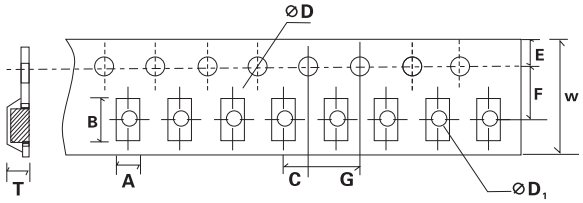
0201 0402 2D02 4D02



0603 0805 1206 1210 2010 4D03 HP02 HP03 HP05 HP06
HP10 HV03 HV05 HV06 HV07 HV10 TC02 TC03 TC05 TC06
TC10 CS03 CS05 CS06 CS07 CS10 10P8 16P8

Type	A ± 0.2	B ± 0.2	C ± 0.05	⌀D +0.1 −0	E ± 0.1	F ± 0.05	G ± 0.1	W ± 0.2	T ± 0.1
0201	0.40 ± 0.05	0.70 ± 0.05	2.0	1.5	1.75	3.5	4.0	8.0	0.42
0402/TC02/HP02	0.65	1.15	2.0	1.5	1.75	3.5	4.0	8.0	0.45
0603/TC03/HV03/HP03/CS03	1.10	1.90	2.0	1.5	1.75	3.5	4.0	8.0	0.67
0805/TC05/HV05/HP05/CS05	1.65	2.40	2.0	1.5	1.75	3.5	4.0	8.0	0.81
1206/TC06/HV06/HP06/CS06	2.00	3.60	2.0	1.5	1.75	3.5	4.0	8.0	0.81
1210/CS07/HV07	2.80	3.50	2.0	1.5	1.75	3.5	4.0	8.0	0.75
2010/HV10/CS10	2.80	5.40	2.0	1.5	1.75	3.5	4.0	1.20	0.75
2D02	1.20	1.20	2.0	1.5	1.75	3.5	4.0	8.0	0.45
4D02	1.20	2.20	2.0	1.5	1.75	3.5	4.0	8.0	0.70
4D03	2.00	3.60	2.0	1.5	1.75	3.5	4.0	8.0	0.83
10E9/10P8/10S8/10T8	2.00	3.60	2.0	1.5	1.75	3.5	4.0	8.0	0.85
16P8	1.80	4.30	2.0	1.5	1.75	3.5	4.0	1.20	0.75

■ 塑膠帶尺寸 Dimension of Embossed Taping (mm)



Type	A ± 0.2	B ± 0.2	C ± 0.05	⌀D +0.1 −0	⌀D +0.25 −0	E ± 0.1	F ± 0.05	G ± 0.1	W ± 0.2	T ± 0.1
TC10	2.9	5.6	2.0	1.5	1.5	1.75	5.5	4.0	12	1.0
2512/TC12/CS12/HV12	3.5	6.7	2.0	1.5	1.5	1.75	5.5	4.0	12	1.0

■ 卷軸尺寸 Dimension of Reel (mm)

Type	Tape	Qty	Tape wldth	W ± 1
0210/0402/TC02/HP02	Paper	10,000pcs	8mm	10mm
0603/TC03/HV03/HP03/CS03	Paper	5,000pcs	8mm	10mm
0805/TC05/HV05/HP05/CS05	Paper	5,000pcs	8mm	10mm
1206/TC06/HV06/HP06/CS06	Paper	5,000pcs	8mm	10mm
1210/CS07/HV07	Paper	5,000pcs	8mm	10mm
2010/HV10/CS10	Paper	4,000pcs	12mm	13.8mm
TC10	Embossed	4,000pcs	12mm	13.8mm
2512/TC12/HV12/HP12/CS12	Embossed	4,000pcs	12mm	13.8mm
2D02	Paper	10,000pcs	8mm	10mm
4D02	Paper	10,000pcs	8mm	10mm
4D03	Paper	5,000pcs	8mm	10mm
10E9/10P8/10S8/10T8	Paper	5,000pcs	8mm	10mm
16P8	Paper	4,000pcs	12mm	13.8mm