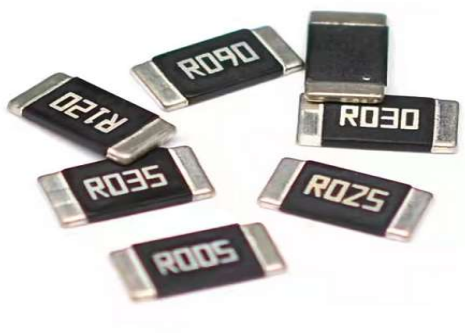
VR 0805 to 1206 Series

Current Sensing Resistor



General

- Chip size from 0805 to 1206
- Resistance value from 3mΩ to 50mΩ
- Low thermal EMF
- Low TCR
- Lead free, RoHS compliant for global
- Applications and halogen free

Application

- Switching model power supply
- Battery pack
- Notebook, personal computer
- Test Instrument
- Power Amplifier

Electrical Specifications

Type	Power Rating at 70℃(W)	Resistance Range(mΩ)	TCR (ppm/℃)	Resistance tolerance	Operation Temp. Range
0805	0.5	3≤R≤9	±100	±0.5%(D) ±1%(F)	-55℃~+170℃
0805		10≤R≤50	±50		
1206	1.0	3≤R≤9	±100		
1206		10≤R≤50	±50		

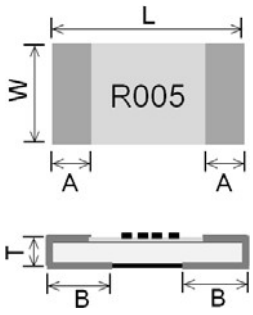
Part Number Information

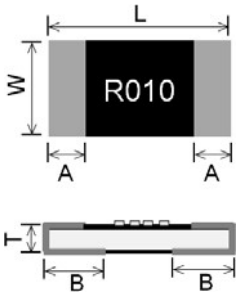
VR 12 F 1 F R010 T

【1】【2】【3】【4】【5】【6】 【7】

【1】Series Name: Vansemi Resistor
【2】Chip size:08:0805 12:1206
【3】Material Code: F: Metal Foil Type
【4】Power Code: H :0.5W 1:1W
【5】Resistance Tolerance: D:±0.5% F:±1%
【6】Resistance Code:R010=10mΩ
【7】Packaging Code: T: Tape& Reel

Dimensions

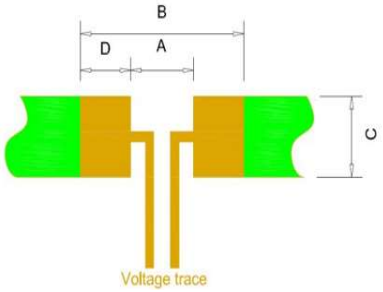




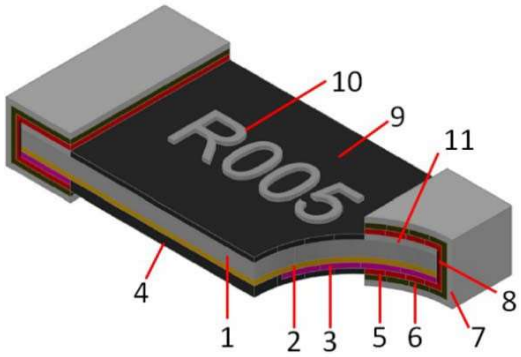
Type	Resistance Range(mΩ)	L (mm)	W (mm)	T (mm)	A (mm)	B (mm)
0805	3~4	2.00±0.20	1.25±0.15	0.70±0.15	0.40±0.25	0.70±0.30
	≥5					0.40±0.20
1206	3~4	3.20±0.20	1.60±0.15	0.75±0.15	0.50±0.30	0.90±0.30
	≥5					0.50±0.20

Remark*: 0805 3mΩ≤R≤9mΩ no upper black coating

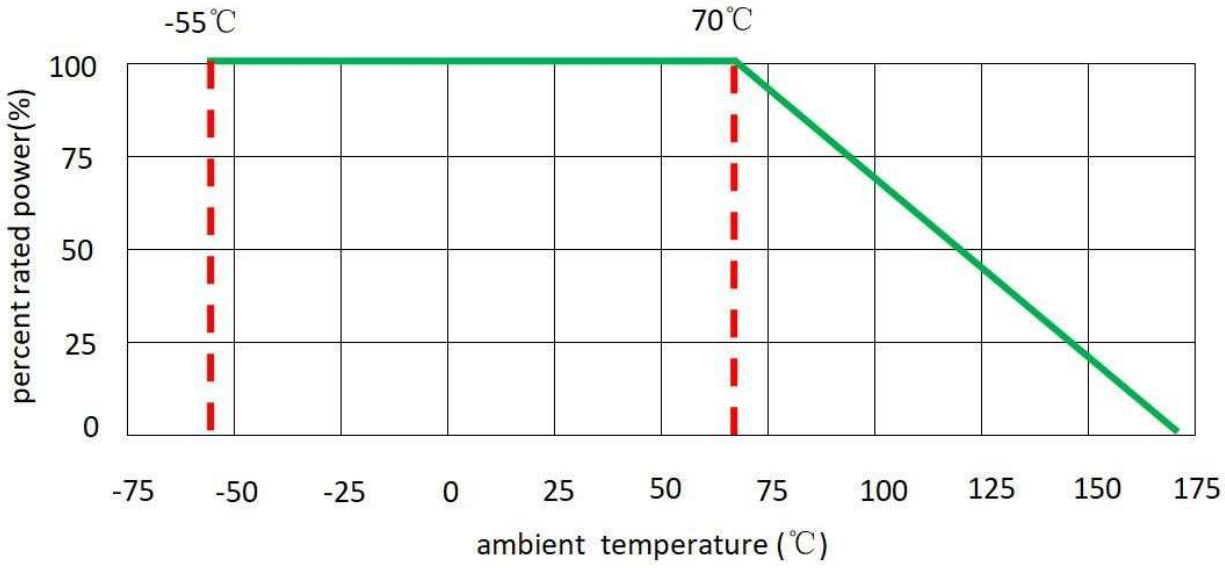
Recommended Land Patterns



Type	Resistance Range (mΩ)	A (mm)	B (mm)	C (mm)	D (mm)
0805	3~4	0.50	3.20	1.40	1.35
	≥5	0.80			1.20
1206	3~4	0.80	4.40	1.80	1.80
	≥5	1.80			1.30

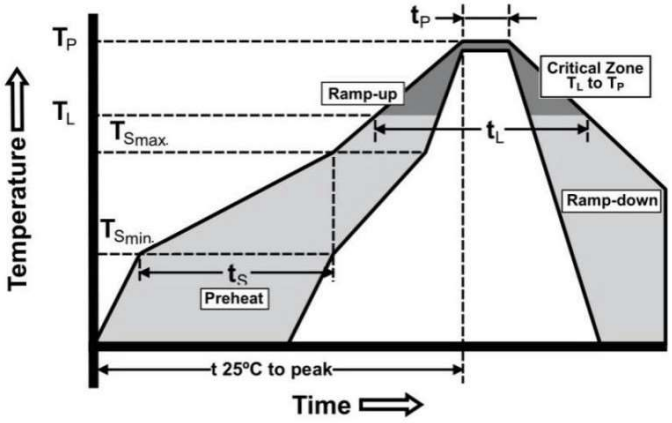


No.	Materials	No.	Materials
1	Ceramic	7	Tin
2	Adhesive film	8	Nicr
3	Alloy	9	Protective coating
4	Protective coating	10	Marking
5	Copper	11	Silver paste
6	Nickel	/	/



Recommended Solder Curve

1. Infrared Reflow
Temperature:260℃
Time:5sec Max.
Recommend Reflow profile:



Profile Feature	Pb-Free Assembly
Average Ramp-Up Rate (Ts_{max} to Tp)	3℃/sec Max.
Preheat Temperature Min(Ts_{min}) Temperature Max(Ts_{max}) Time($Ts_{min}$to Ts_{max})	150℃ 200℃ 60sec~120sec
Peak Temperature(Tp)	260℃
Time within 5℃ of actual Peak Temperature(Tp)	5sec
Melting tin time(T_L)	20sec~30sec
Ramp-Down Rate	6℃/sec Max.
Time 25℃ to Peak Temperature	8min Max.

2. Wave soldering
Reservoir Temperature：260℃
Time in Reservoir：10sec Max.

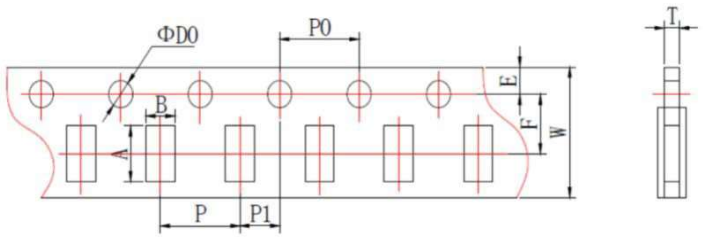
3.Hand Soldering
Temperature：350℃
Time：5sec Max.

Product Characteristics

Item	Test condition/ Methods	Performance	Standard
Short Time Overload	0.5W:5X rated power for 5 sec 1.0W:5X rated power for 5 sec	$\|\Delta R\| \leq \pm 1\%$	IEC60115-1 4.13
Temperature Coefficient of Resistance (T.C.R.)	$TCR = (R-R_0)/R_0(T2-T1) * 10^6$ T1 T2 Test temperature：25℃~125℃	Refer to VavSemi Spec	IEC60115-1 4.8
Load Life	1000 hours at rated power, 70℃± 2℃, 1.5hours “ON”, 0.5hours “OFF”	$\|\Delta R\| \leq \pm 1\%$	IEC60115-1 4.25
Bias Humidity	40℃±2℃, 93% ±3% RH, 1000 hours at rated power, 1.5 hours “ON”, 0.5 hours “OFF”	$\|\Delta R\| \leq \pm 1\%$	IEC60115-1 4.24
Thermal Shock	-55℃(30min)/+125℃ (30min), 100 cycles	$\|\Delta R\| \leq \pm 1\%$	IEC60115-1 4.19
Solder ability	245℃± 5℃，3sec ± 0.3sec	95%coverage Min.	IEC60115-1 4.17
Resistance to Soldering Heat	270℃± 5℃，10sec ±1.0sec	$\|\Delta R\| \leq \pm 1\%$	IEC60115-1 4.18
High temperature Exposure	170℃± 2℃ for 1000 hours	$\|\Delta R\| \leq \pm 1\%$	IEC60115-1 4.23
Bending test	Epoxy thickness1.6mm, Fulcrums distance 90mm,Bending width 5mm （ 0805 ） , Bending width 4mm（1206）.	$\|\Delta R\| \leq \pm 1\%$	IEC60115-1 4.33

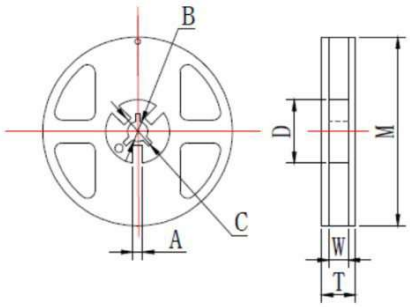
Packaging

1. Paper Tape Dimensions



Type	A (mm)	B (mm)	W (mm)	F (mm)	E (mm)
0805	2.40±0.10	1.60±0.10	8.00±0.20	3.50±0.05	1.75±0.10
1206	3.60±0.20	2.00±0.20	8.00±0.20	3.50±0.05	1.75±0.10
Type	**P (mm)**	**P0 (mm)**	**P1 (mm)**	**D0 (mm)**	**T (mm)**
0805	4.00±0.10	4.00±0.10	2.00±0.05	1.50±0.10	0.95±0.10
1206	4.00±0.10	4.00±0.10	2.00±0.05	1.50±0.10	0.95±0.10

2. Reel Dimensions

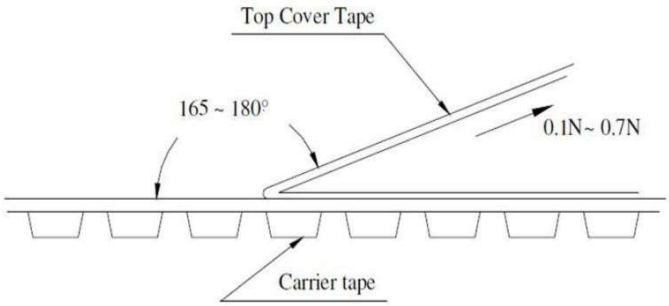


Type	M (mm)	W (mm)	T (mm)	A (mm)	B (mm)	C (mm)	D (mm)
0805 1206	178.00±2.00	9.5±1.00	12.50±1.50	2.00±0.50	13.00±0.50	21.00±0.50	58.00±0.20

3. Quantity of Package

Type	0805	1206
Quantity(PCS）	5000	

4. Peeling Test



Storage

- The ambient temperature shall between 5℃~30℃.
- The relative humidity recommended for storage is between 25%RH~60%RH.
- Sealed plastic bags with desiccant shall be used to reduce the oxidation of the termination and shall only be opened prior to use.
- The products shall not be stored in areas where harmful gases containing sulfur or chlorine are present.