



**●FEATURE**

1. SMD Power Choke for High Current Capacity
2. Pass the CE/FCC purpose
3. DC-DC converter applications
4. Compliant with AEC-Q200
5. Operating Temperature: -40 ~ +125°C



**●APPLICATION**

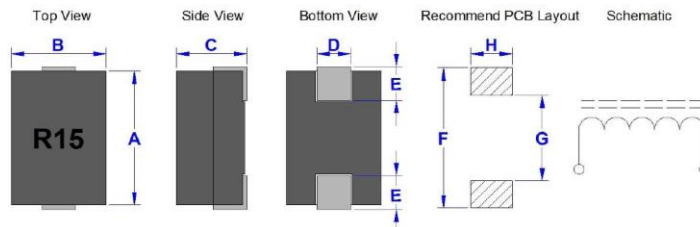
Server and Desktop VRMs and EVRDs, Multi-phase and Vcore Regulators, Voltage Regulator Modules (VRMs), Laptop and Notebook Regulators

**●ORDERING INFORMATION**

<u>WCV</u>	<u>966411</u>	<u>U</u>	<u>-R10</u>	<u>L</u>	<u>V</u>	<u>P</u>	<u>Q</u>	
Series	Dimension	Material	Inductance(L)	Tolerance(T)	DCR	Vertical	Pair	AEC-Q
	(L*W*H)	code	(nH)	K=±10%,L=±15%	D1~D4	type	Inductors	

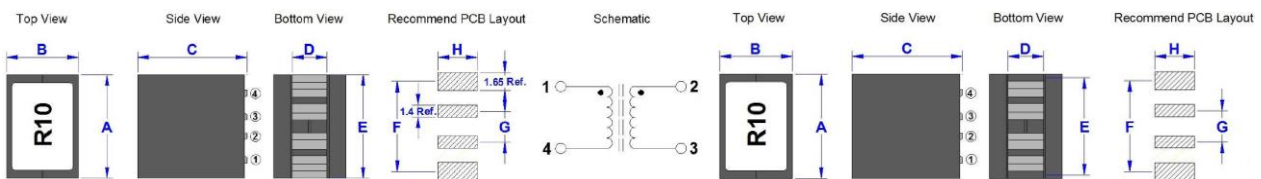
**●SHAPE AND DIMENSION**

986480/107049/108070/128080 TYPE



966411 TYPE

126011 TYPE



**●SPECIFICATION**

Unit: mm (inch)

TYPE	A	B	C	D	E	F	G	H
986480	9.80 Max.	6.40 Max.	8.00 Max.	2.14±0.15	2.30±0.30	10.40 Ref.	4.00 Ref.	2.54 Ref.
107049	10.40 Max.	7.00 Max.	4.95 Max.	2.50±0.20	1.52±0.20	10.35 Ref.	6.35 Ref.	3.10 Ref.
108070	10.60 Max.	8.00 Max.	7.00 Max.	2.10±0.15	2.20±0.20	11.00 Ref.	5.00 Ref.	2.60 Ref.
128080	12.20 Max.	8.10 Max.	8.00 Max.	2.25±0.20	2.10±0.20	12.60 Ref.	5.00 Ref.	2.64 Ref.
966411	9.60 Max.	6.40 Max.	10.50 Max.	3.20 Typ.	9.00 Typ.	9.50 Ref.	3.30 Ref.	3.70 Ref.
126011	11.70±0.30	5.70±0.30	11.10±0.20	2.45±0.30	10.10±0.50	10.10 Ref.	2.65 Ref.	2.95 Ref.

**● ELECTRICAL CHARACTERISTICS**

Part Number	Inductance (L) (nH)	Test Freq. @ 0.1V (Hz)	DCR ±5% (mΩ)	Isat (A) Max.	Irms (A) Max.
WCV986480-R10KD1	100	100K	0.29	94.0	51.0
WCV986480-R12KD1	120	100K	0.29	79.0	51.0
WCV986480-R15KD1	150	100K	0.29	65.0	51.0
WCV986480-R22KD1	220	100K	0.29	44.0	51.0
WCV986480-R28KD1	280	100K	0.29	34.0	51.0
WCV986480-R30KD1	300	100K	0.29	32.5	51.0

\* K=Tolerance =±10%

\* All test data is referenced to 25°C ambient.

\* Isat (A) current will cause L0 to drop approximately 20% (Keep quickly).

\* Irms (A) current will cause coil temperature rise approximately up 40°C without core loss (Keep 1.0 min.).

Part Number	Inductance (L) (nH)	Test Freq. (Hz)	DCR (mΩ)	Isat (A) Max.	Irms (A) Max.
WCV107049-R08KD1	80	100K / 0.1V	0.39±7.5%	90.0	53.0
WCV107049-R10KD1	100	100K / 0.1V	0.39±7.5%	73.0	53.0
WCV107049-R12KD1	120	100K / 0.1V	0.39±7.5%	60.0	53.0
WCV107049-R15KD1	150	100K / 0.1V	0.39±7.5%	47.0	53.0
WCV107049-R22KD1	220	100K / 0.1V	0.39±7.5%	33.0	53.0
WCV107049-R08KD2	80	100K / 0.1V	0.47±6.5%	90.0	50.0
WCV107049-R10KD2	100	100K / 0.1V	0.47±6.5%	73.0	50.0
WCV107049-R12KD2	120	100K / 0.1V	0.47±6.5%	60.0	50.0
WCV107049-R15KD2	150	100K / 0.1V	0.47±6.5%	47.0	50.0
WCV107049-R22KD2	220	100K / 0.1V	0.47±6.5%	33.0	50.0
WCV107049-R08KD3	80	100K / 0.1V	0.55±5.4%	90.0	50.0
WCV107049-R10KD3	100	100K / 0.1V	0.55±5.4%	73.0	50.0
WCV107049-R12KD3	120	100K / 0.1V	0.55±5.4%	60.0	50.0
WCV107049-R15KD3	150	100K / 0.1V	0.55±5.4%	47.0	50.0
WCV107049-R22KD3	220	100K / 0.1V	0.55±5.4%	33.0	50.0
WCV107049-R08KD4	80	100K / 0.1V	0.31±7%	90.0	50.0
WCV107049-R10KD4	100	100K / 0.1V	0.31±7%	73.0	50.0
WCV107049-R12KD4	120	100K / 0.1V	0.31±7%	60.0	50.0
WCV107049-R15KD4	150	100K / 0.1V	0.31±7%	47.0	50.0
WCV107049-R22KD4	220	100K / 0.1V	0.31±7%	33.0	50.0

\* K=Tolerance =±10%

\* All test data is referenced to 25°C ambient.

\* Isat (A) current will cause L0 to drop approximately 20% (Keep quickly).

\* Irms (A) current will cause coil temperature rise approximately up 40°C without core loss (Keep 1.0 min.).



Part Number	Inductance (L) (nH)	Test Freq. (Hz)	DCR ±5% (mΩ)	Isat (A) Max.	Irms (A) Max.
WCV108070-R12KD1	120	100K / 0.1V	0.29	94.0	61.0
WCV108070-R15KD1	150	100K / 0.1V	0.29	75.0	61.0
WCV108070-R18KD1	180	100K / 0.1V	0.29	60.0	61.0
WCV108070-R22KD1	220	100K / 0.1V	0.29	50.0	61.0
WCV108070-R27KD1	270	100K / 0.1V	0.29	41.0	61.0
WCV108070-R30KD1	300	100K / 0.1V	0.29	35.0	61.0
WCV108070-R33KD1	330	100K / 0.1V	0.29	33.0	61.0
WCV108070-R39KD1	390	100K / 0.1V	0.29	28.0	61.0
WCV108070-R47KD1	470	100K / 0.1V	0.29	23.5	61.0

\* K=Tolerance =±10%

\* All test data is referenced to 25°C ambient.

\* Isat (A) current will cause L0 to drop approximately 20% (Keep quickly).

\* Irms (A) current will cause coil temperature rise approximately up 40°C without core loss (Keep 1.0 min.).

Part Number	Inductance (L) (nH)	Test Freq. (Hz)	DCR ±5% (mΩ)	Isat (A) Max.	Irms (A) Max.
WCV128080-R15KD1	150	100K / 0.1V	0.29	85.0	50.0
WCV128080-R18KD1	180	100K / 0.1V	0.29	72.0	50.0
WCV128080-R21KD1	210	100K / 0.1V	0.29	65.0	50.0
WCV128080-R23KD1	230	100K / 0.1V	0.29	61.0	50.0
WCV128080-R25KD1	250	100K / 0.1V	0.29	55.0	50.0

\* K=Tolerance =±10%

\* All test data is referenced to 25°C ambient.

\* Isat (A) current will cause L0 to drop approximately 20% (Keep quickly).

\* Irms (A) current will cause coil temperature rise approximately up 40°C without core loss (Keep 1.0 min.).

Part Number	Inductance (L) (nH)	DCR(1)-(4) (mΩ) ±10%	DCR(2)-(3) (mΩ) ±10%	Isat (A) Typ.	Irms(A) (1)-(4) Typ.	Irms(A) (2)-(3) Typ.
WCV966411-R10LVP	100	0.125	0.33	98.0	75.0	40.0
WCV966411-R12LVP	120	0.125	0.33	79.0	75.0	40.0
WCV966411-R15LVP	150	0.125	0.33	62.0	75.0	40.0
WCV966411-R18LVP	180	0.125	0.33	54.0	75.0	40.0
WCV966411-R22LVP	220	0.125	0.33	50.0	75.0	40.0

\* L=Tolerance =±15%

\* All test data is referenced to 25°C ambient.

\* L@100kHz, 1.0Vrms, 0A

\* Isat (A) current will cause L0 to drop approximately 30% (Keep quickly).

\* Irms (A) current will cause coil temperature rise approximately up 40°C without core loss.



Part Number	Inductance (1)-(4)=(2)-(3) (nH)	DCR(1)-(4) (mΩ) ±10%	DCR(2)-(3) (mΩ) ±10%	Isat (A)		Irms(A) (1)-(4)	Irms(A) (2)-(3)
				@25°C	@100°C		
				WCV126011-R10LV	100	0.125	0.37
WCV126011-R12LV	120	0.125	0.37	102.0	87.0	77.0	45.0
WCV126011-R15LV	150	0.125	0.37	84.0	71.0	77.0	45.0
WCV126011-R17LV	170	0.125	0.37	70.0	60.0	77.0	45.0
WCV126011-R20LV	200	0.125	0.37	58.0	50.0	77.0	45.0

\* L=Tolerance =±15%

\* All test data is referenced to 25°C ambient.

\* L@100kHz, 1.0Vrms, 0A

\* Isat (A) current will cause L0 to drop approximately 20% (Keep quickly).

\* Irms (A) current will cause coil temperature rise approximately up 40°C without core loss.



●**RELIABILITY**

Test Item	Test Condition	Specification												
Dimension	Actual Size ...	Meet Spec												
Thermal Shock (Temperature Cycle)	Temperature: -40 ~ +125°C kept stabilized for 30 min. each Cycle: 100 Cycles (power off)	Elec. no variation Appearance no deformation												
Humidity Resistance	Humidity: 90% ~ 95% RH Temperature: 60 ± 2°C Test Time: 96 ± 2 Hours	Elec. no variation Appearance no deformation												
High Temperature	Temperature: 125 ± 2°C Testing Time: 96 ± 2 Hours	Elec. no variation Appearance no deformation												
Low Temperature	Temperature: -40 ± 2°C Time: 96 ± 2 Hours	Elec. no variation Appearance no deformation												
Temperature and Humidity Cycle	<table border="1"> <thead> <tr> <th>Temperature</th> <th>Humidity</th> <th>Time</th> </tr> </thead> <tbody> <tr> <td>25°C</td> <td>90% ~ 95% RH</td> <td>3.0 Hr</td> </tr> <tr> <td>55°C</td> <td>95% ~ 96% RH</td> <td>5.0 Hr</td> </tr> <tr> <td>25°C</td> <td>90% ~ 95% RH</td> <td>3.0 Hr</td> </tr> </tbody> </table>	Temperature	Humidity	Time	25°C	90% ~ 95% RH	3.0 Hr	55°C	95% ~ 96% RH	5.0 Hr	25°C	90% ~ 95% RH	3.0 Hr	Elec. no variation Appearance no deformation
	Temperature	Humidity	Time											
	25°C	90% ~ 95% RH	3.0 Hr											
	55°C	95% ~ 96% RH	5.0 Hr											
25°C	90% ~ 95% RH	3.0 Hr												
Cycle: 20 Cycles														
Vibration	Frequency: 10Hz ~ 55Hz , Amplitude: 1.5 mm Direction: X, Y, Z, Time: 2 Hours each	Elec. no variation Appearance no deformation												
Solderability	Go through real SMT IR-Reflow .... The profile like our suggest profile. Preheat: 160 ± 10°C (90 sec) Peak: 245 ± 5°C Peak Time: 50 Sec. / up 217°C	Elec. no variation Appearance no deformation												
Soldering Heat Resistance	Preheat: 160 ± 10°C (90 sec) Solder: Sn / Ag / Cu (Pb Free) Solder Temp.: 260 ± 5°C, Time: 3 ± 1 seconds	Elec. no variation Appearance no deformation												
Iron Solder Heat Resistance	Solder Temp.: 350 ± 5°C Flux: Rosin, Time: 3 ± 1 seconds	Elec. no variation Appearance no deformation												
Bending Strength	<p>Unit : mm</p> <p>Force : 1Kg / min.</p>	Elec. no variation Appearance no deformation												
Flexure Strength	<p>Unit : mm</p> <p>Solder cream 0.15 mm</p>	Elec. no variation Appearance no deformation												
Terminal Strength	<p>Mount on PCB Solder Cream 0.15 mm</p> <p>Push 10N force to X , Y direction</p>	Elec. no variation Appearance no deformation												
High-Voltage	100 V DC between core & winding	Elec. no variation Appearance no deformation												
Load life	Temperature: 25 ± 3°C Load: Allowed DC Current, Test Time: 96 ± 2 Hours	Elec. no variation Appearance no deformation												



**●TEST EQUIPMENT**

- 1. HP4284A, HP42841A- L, Q, DCR, IDC
- 2. HP8753D Network analyzer- SRF

**●OPERATING & STORAGE CONDITION**

- 1. Operating Temp: -40 ~ +125°C (Including self - temperature rise)
- 2. Storage Temp: a. Product with Taping: -10 ~ 45°C, 50 ~ 60% RH  
b. On Board: -40 ~ +125°C
- 3. Storage Life Time: 12 Month (Less than 40°C and 60% RH)

Standard Atmosphere Conditions:

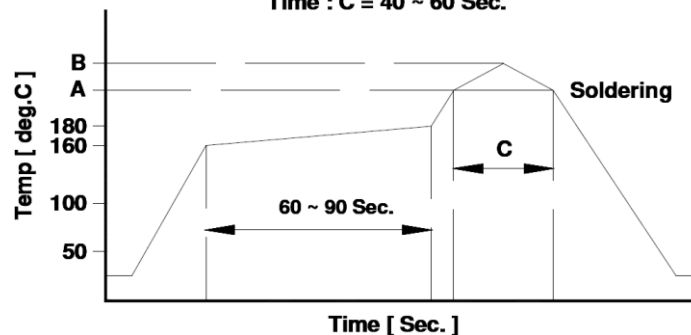
Ambient Temperature 20 ± 15°C; Humidity RH 65 ± 20%

If there may be any doubt on the test result, Measurement shall be made within the following limits:

Ambient Temperature 25 ± 5°C; Humidity RH 75 ± 10%

**●RECOMMEND REFLOW CURVE (TIME: Second)**

Lead Free Solder : A = 217 deg.C , B = 245+/-5 deg.C  
Time : C = 40 ~ 60 Sec.



Notice: Iron Soldering, Solder < 30 Watt,  
Direct touch the terminal x 3 Sec. Max. @ 350°C

**●ATTENTION & CAUTION:**

- \* Keep out of Splashing water or salt water
- \* Avoid Toxic Gas (Hydrogen sulfide, Sulfurous acid, Chlorine, Ammonia)
- \* Vibrations or shocks which exceed the specified condition
- \* Dew condense
- \* Layout near the edge of PCB
- \* Over flexure after SMT mounting & PCBA
- \* Pin foot or SMD pad solder ability: Pb free type is best within 6 months after delivery
- \* Humidity sensitive, IPC/JEDEC J-STD-020 MSL if over Level 1, recommend bake 30mins@150°C before PCBA
- \* Caution for human life relative applications: PLS contact & consult with AiT team in design stage.



Care Note for Use:

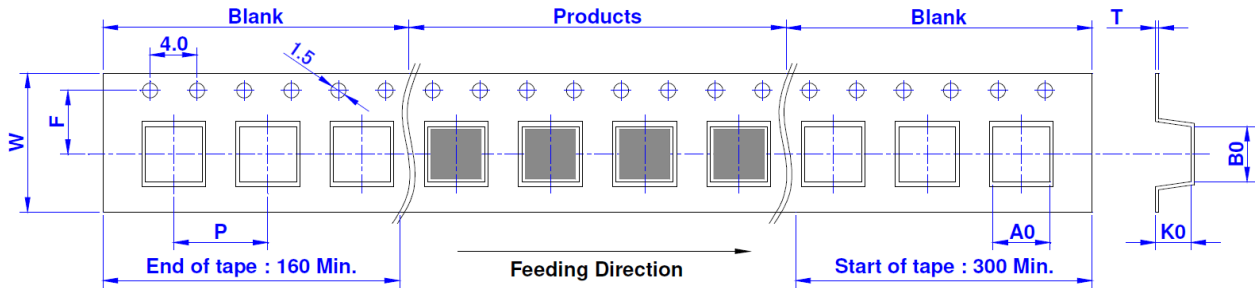
- (1) Storage Condition:  
Temperature 25 to 35°C, Humidity 45 to 60% RH
- (2) Use Temperature:
  - a. Minimum Temperature: -40°C Ambient temperature of this product.
  - b. Maximum Temperature: +125°C The value of temperature including ambient and temperature rise of this product.
  - c. Reliability test temperature range from -40 ~ +125°C
  - d. However, this is not meant as temperature grade guarantee for UL.
- (3) Model:  
When this product was used in a similar or as new product to the original one, sometimes it might be unable to satisfy the specifications due to difference in condition of usage.
- (4) Drop:  
If this product suffered mechanical stress such as drop, characteristics may become poor ( due to damage on coil / bobbin / ferrite ... etc. )  
Never use such stressed product.

Care Note for Safety:

- (1) Provision to Abnormal Condition:  
This product itself does not have any protective function in abnormal condition such as overload, short-circuit and open-circuit conditions, etc.  
Therefore, it shall be confirmed from the end product that there is no risk of smoking, fire, dielectric withstand voltage insulation resistance, etc. in abnormal conditions to provide protective devices and /or protection circuit in the end product.
- (2) Temperature Rise:  
Temperature rise on this product depends on the installation condition on end products.  
It shall be confirmed on the actual end product that temperature rise of this product is within the specified temperature class limit.
- (3) Dielectric Strength:  
Dielectric withstanding test with higher voltage than specific value will damage insulating material and shorten its life.
- (4) Water:  
This product must not be used in wet condition resulted from water, coffee or any liquid contact because insulation strength becomes very low under such condition.
- (5) Potting:  
If this product is potted in some compound, coating material of magnet wire might be occasionally damaged. Please ask us if you intend to pot this product.
- (6) Detergent:  
Please consult AiT Semi immediately once under such circumstances because product reliability confirmation etc. is needed when this product come in contact with these chemicals.

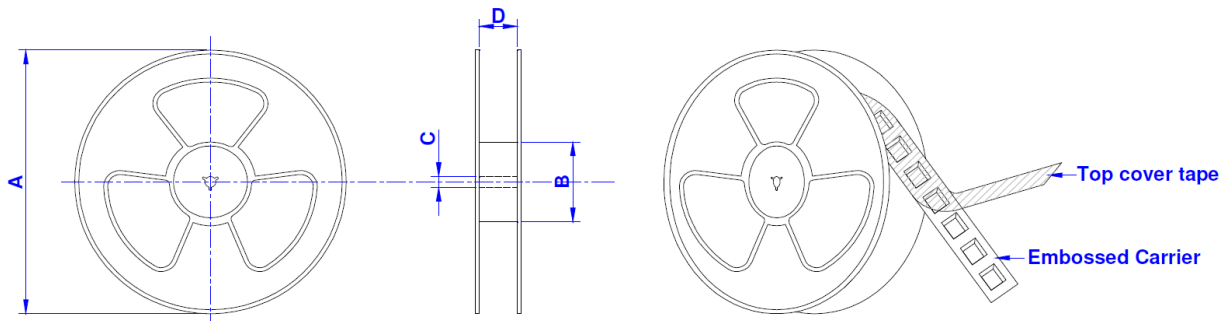


●TAPE DIMENSION: mm



SIZE/mm	W	P	A0	B0	K0	T	F
986480	24.0	12.0	6.7	10.3	8.2	0.4	11.5
107049	24.0	12.0	7.4	10.5	5.1	0.4	11.5
108070	24.0	16.0	8.2	10.7	7.6	0.4	11.5
128080	24.0	12.0	8.4	12.5	8.3	0.4	11.5
966411V	24.0	12.0	9.8	6.6	10.7	0.5	11.5
126011V	24.0	12.0	6.2	12.2	11.3	0.5	11.5

●REEL DIMENSION: mm

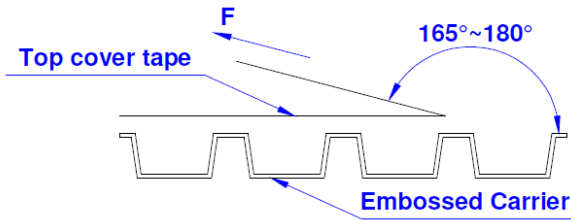


SIZE / mm	REEL SIZE	A	B	C	D	QTY/REEL
986480	13" x 24mm	330	100	13	24.5	700 PCS
107049	13" x 24mm	330	100	13	24.5	1000 PCS
108070	13" x 24mm	330	100	13	24.5	500 PCS
128080	13" x 24mm	330	100	20.4	24.5	700 PCS
966411V	13" x 24mm	330	100	20.4	24.5	500 PCS
126011V	13" x 24mm	330	100	20.4	24.5	400 PCS





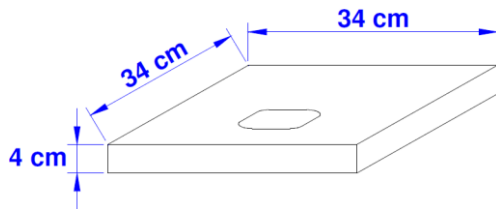
●TEARING OFF FORCE:



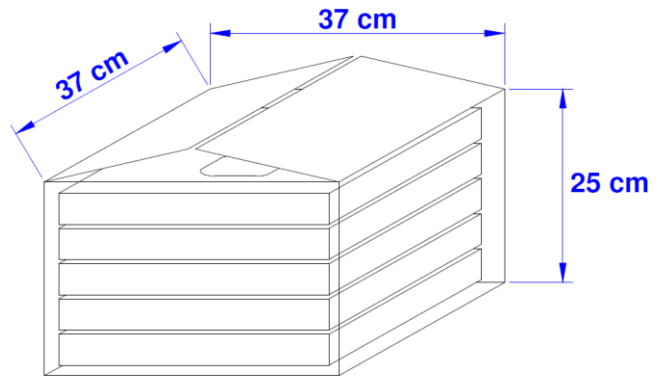
The force for tearing off cover tape is 10 to 130 grams in the arrow direction under the following conditions (referenced ANSI/EIA - 481 - D - 2008 of 4.11 standard).

Room Temp. (°C)	Room Humidity (%)	Room Atm. (hPa)	Tearing Speed (mm/min)
5 ~ 35	45 ~ 85	860~1060	300

●BOX PACKAGE: cm



13" Small Box



Large Box

SIZE/mm	Reels in Small Box	Small Box in Large Box
986480	1	5
107049	1	5
108070	1	5
128080	1	5
966411V	1	5
126011V	1	5



## **IMPORTANT NOTICE**

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