

LPWI Series

RoHS



Description

Littelfuse offers compact and low profile dimensions, low losses and high efficiency inductor for power supply circuits based thin film photolithography technology.

The metal alloy composite thin film power inductor enables high durability, reliability, quality, excellent temperature saturated characteristics, highly crafted miniaturization, and low-height profiles.

Features

- Thin film photolithography technology for compact and low profile
- The metal alloy composite for high reliability
- Large current type
- High Efficiency and Isat ratings: Δ Temp. value up to 95%
- DC resistance as low as 17mOhm typ.
- Magnetically shielded

Applications

- DC-DC Converters and Power modules in general use Electronic equipment
- Mobile Phone and Tablet
- Portable/Wearable Devices
- Game console, POS, VR, Dongle, and IoT module
- Consumer Products like PDP, LCD TV, DVD Player, PC, Audio player, DSC, Set top box, Laptop, SSD, IoT module, and Home Automation
- Powerbanks and Printers

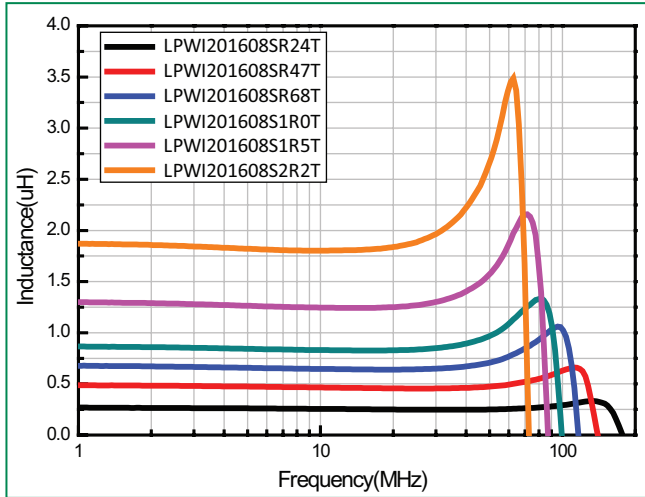
Electrical Characteristics

Part Number	Size (mm)	Size (Inch)	Thick-ness (mm)	Inductance@ 1MHz [uH]	DC Resistance [mΩ]		Rated DC current (A)			
					Typ.	Max.	Isat, ΔL/L=30%		Itemp, ΔT=40°C	
							Typ.	Max.	Typ.	Max.
LPWI201608SR24T	2016	0806	0.8	0.24 ± 20%	20	25	5.0	4.6	4.2	3.8
LPWI201608SR47T	2016	0806	0.8	0.47 ± 20%	32	40	3.7	3.3	3.4	3
LPWI201608SR68T	2016	0806	0.8	0.68 ± 20%	40	55	3.6	3.2	3.1	2.7
LPWI201608S1R0T	2016	0806	0.8	1.00 ± 20%	50	65	3.3	2.9	3.0	2.6
LPWI201608S1R5T	2016	0806	0.8	1.50 ± 20%	90	120	2.9	2.3	2.1	1.9
LPWI201608S2R2T	2016	0806	0.8	2.20 ± 20%	130	150	2.0	1.6	1.9	1.5
LPWI201610SR24T	2016	0806	1.0	0.24 ± 20%	17	23	6.0	5.1	4.7	4.2
LPWI201610SR47T	2016	0806	1.0	0.47 ± 20%	32	40	4.5	4.0	3.8	3.5
LPWI201610SR68T	2016	0806	1.0	0.68 ± 20%	40	50	4.1	3.7	3.5	3.1
LPWI201610S1R0T	2016	0806	1.0	1.00 ± 20%	50	65	3.5	3.1	3.1	2.8
LPWI201610S1R5T	2016	0806	1.0	1.50 ± 20%	92	110	2.8	2.4	2.2	2.0
LPWI201610S2R2T	2016	0806	1.0	2.20 ± 20%	130	150	1.8	1.5	1.7	1.6
LPWI201610HR47T	2016	0806	1.0	0.47 ± 20%	20	25	5.3	4.8	4.2	3.6
LPWI201610HR68T	2016	0806	1.0	0.68 ± 20%	35	40	4.8	4.3	3.7	3.1
LPWI201610H1R0T	2016	0806	1.0	1.00 ± 20%	40	45	3.9	3.6	3.1	2.7
LPWI201610H1R5T	2016	0806	1.0	1.50 ± 20%	85	100	3.2	2.8	2.5	2.3
LPWI201610H2R2T	2016	0806	1.0	2.20 ± 20%	90	100	2.7	2.5	2.4	2.2
LPWI252010SR33T	2520	1008	1.0	0.33 ± 20%	20	25	6.8	6.3	5.8	5.3
LPWI252010SR47T	2520	1008	1.0	0.47 ± 20%	25	30	6.0	5.5	4.1	3.7
LPWI252010SR68T	2520	1008	1.0	0.68 ± 20%	33	45	4.8	4.5	3.8	3.4
LPWI252010S1R0T	2520	1008	1.0	1.00 ± 20%	40	50	4.2	3.8	3.5	3.1
LPWI252010S1R5T	2520	1008	1.0	1.50 ± 20%	65	80	3.5	3.1	2.8	2.5
LPWI252010S2R2T	2520	1008	1.0	2.20 ± 20%	100	110	3.0	2.5	2.5	2.3
LPWI252010HR33T	2520	1008	1.0	0.33 ± 20%	18	21	7.6	6.8	5.6	4.8
LPWI252010HR47T	2520	1008	1.0	0.47 ± 20%	22	27	6.6	6.0	5.2	4.4
LPWI252010HR68T	2520	1008	1.0	0.68 ± 20%	32	37	5.5	5.0	4.1	3.5
LPWI252010H1R0T	2520	1008	1.0	1.00 ± 20%	35	45	4.6	4.1	4.3	4.1
LPWI252010H2R2T	2520	1008	1.0	2.20 ± 20%	90	97	3.5	3.1	2.5	2.3

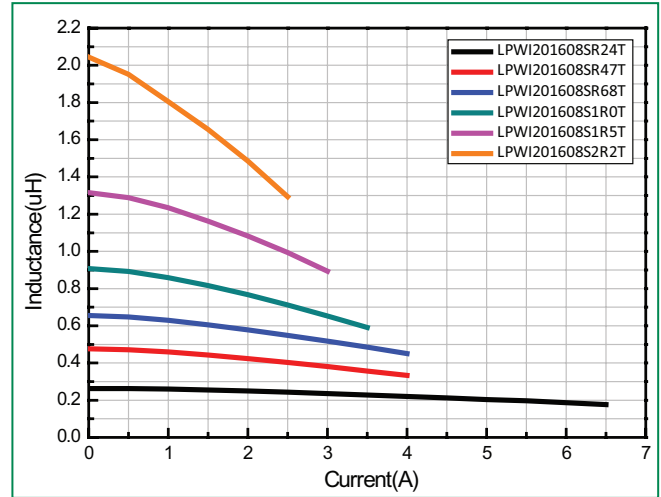
Test Conditions

- Inductance measuring equipment: 4287A RF LCR meter (Agilent), at 1MHz, 0.5V
- DC Resistance measuring equipment: 4338B Milliohm meter (Agilent)
- Rated Current "ΔT = 40°C": Self-temperature rise to 40°C due to self-heating (at room-temperature)

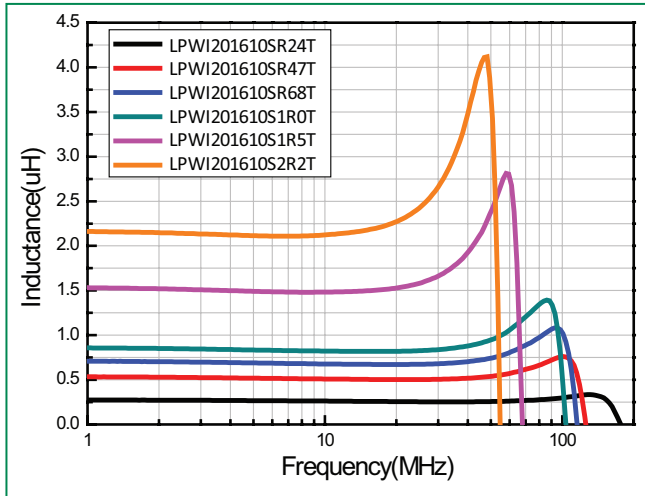
2.0 x 1.6 x 0.8 mm Size
Inductance vs. Frequency Characteristics



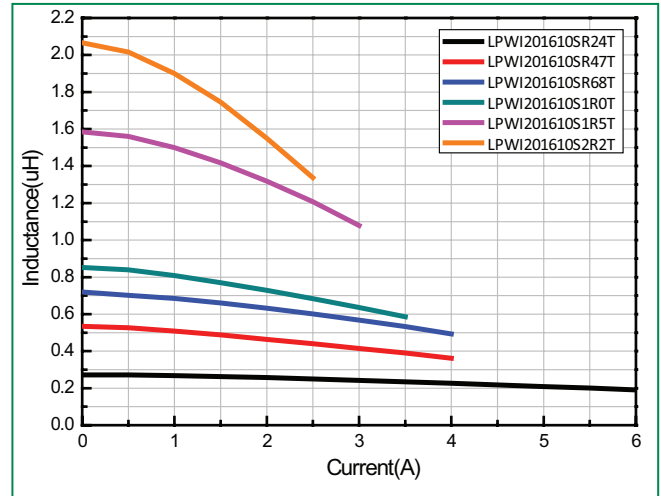
Inductance vs. DC Current Characteristics



2.0 x 1.6 x 1.0 mm Size
Inductance vs. Frequency Characteristics



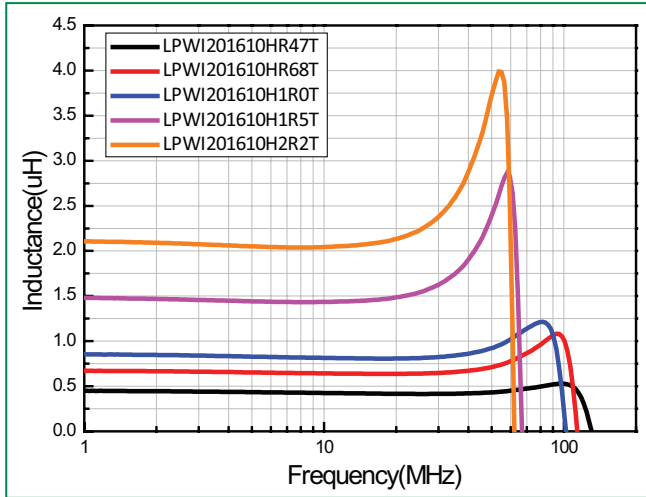
Inductance vs. DC Current Characteristics



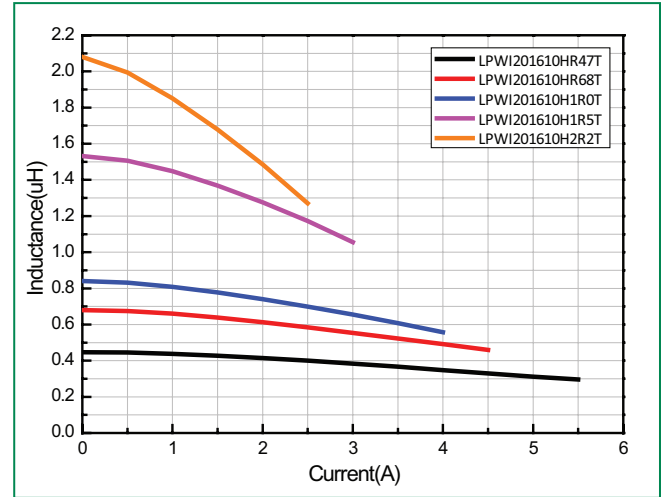
Test Conditions

- Test Equipment: 4991A RF Impedance Analyzer (Agilent)
- Test Frequency: 1MHz ~ 200MHz

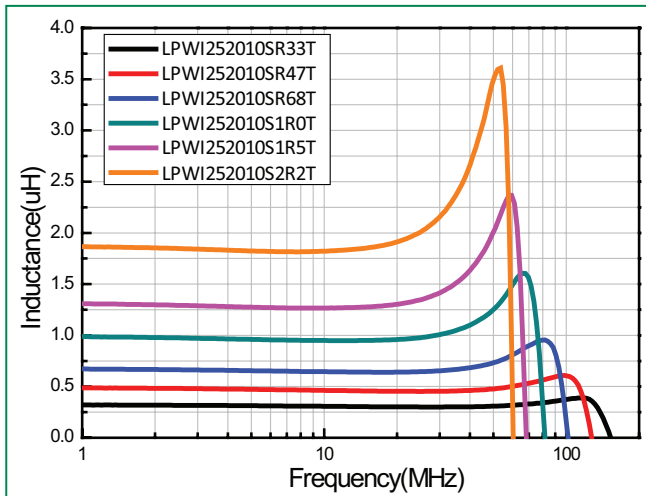
2.0 x 1.6 x 1.0 mm Size (High Current) Inductance vs. Frequency Characteristics



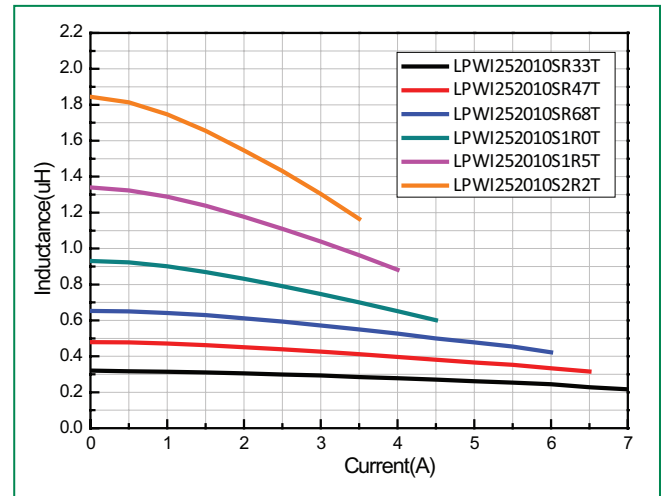
Inductance vs. DC Current Characteristics



2.5 x 2.0 x 1.0 mm Size Inductance vs. Frequency Characteristics



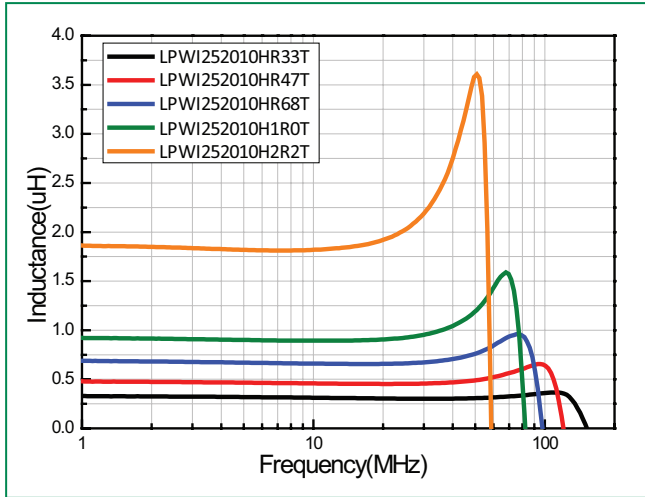
Inductance vs. DC Current Characteristics



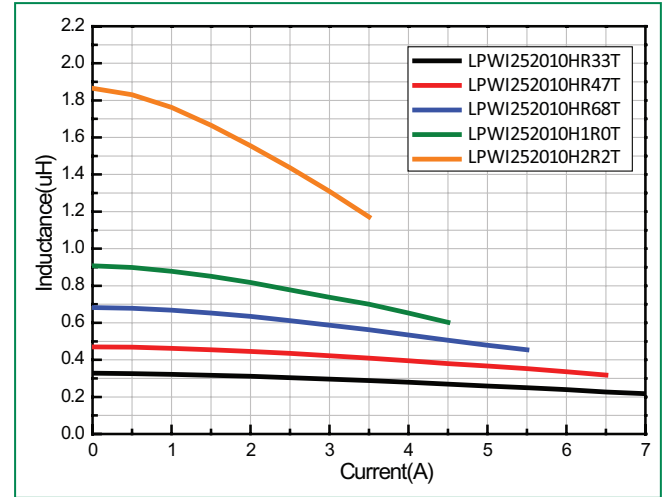
Test Conditions

- Test Equipment: 4991A RF Impedance Analyzer (Agilent)
- Test Frequency: 1MHz ~ 200MHz

2.5 x 2.0 x 1.0 mm Size (High Current) Inductance vs. Frequency Characteristics



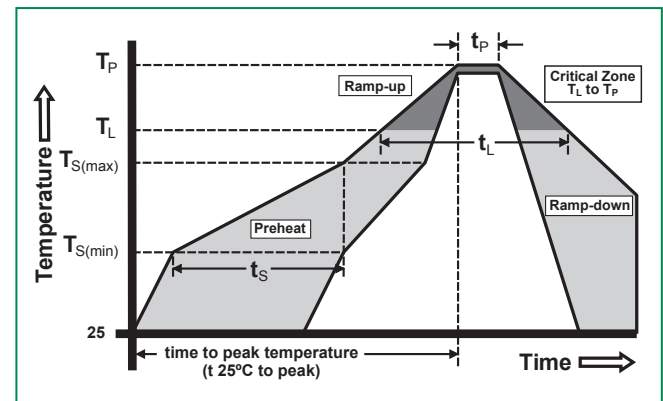
Inductance vs. DC Current Characteristics



Test Conditions
 • Test Equipment: 4991A RF Impedance Analyzer (Agilent)
 • Test Frequency: 1MHz ~ 200MHz

Soldering Parameters

Reflow Condition	Pb-free assembly	
Pre Heat	- Temperature Min ($T_{s(min)}$)	160°C
	- Temperature Max ($T_{s(max)}$)	185°C
	- Time (Min to Max) (t_s)	100 – 120 seconds
Average Ramp-up Rate (Liquidus Temp (T_L) to peak)	1°C/second max	
$T_{s(max)}$ to T_L - Ramp-up Rate	1°C/second max	
Reflow	- Temperature (T_L) (Liquidus)	220°C
	- Temperature (t_L)	30 – 50 seconds
Peak Temperature (T_P)	260°C	
Time within 5°C of actual peak Temperature (t_p)	5~10 seconds	
Ramp-down Rate	2°C/second max	
Time 25°C to Peak Temperature (T_P)	4 minutes max	
Do not exceed	260°C	
Wave Soldering	260°C, 10 sec. max	



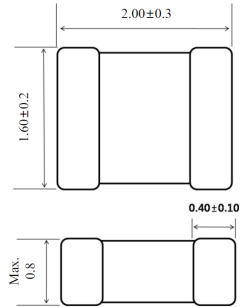
Recommended Soldering Profile (Lead free condition)

Product Characteristics

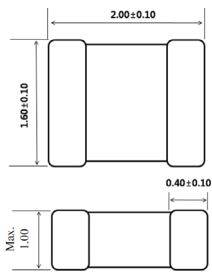
Lead Pull Strength	5N
Solderability	260°C, ≤10s (Reflow), Max 380°C, ≤5s (Soldering iron)
Soldering Heat Resistance	Max 260°C 10sec (Wave), Max Temperature: Max 380°C (Max 5sec)
Operating Temperature	-40°C ~ + 125°C
Climatic Category	-40°C ~ + 85°C/8 days
Stock Conditions	-10°C ~ + 40°C RH, ≤ 70%
Vibration Resistance	5 g's for 20 minutes, 12 cycles each of 3 orientations

Dimensions

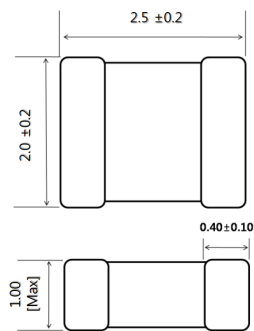
Unit = mm



2.0 x 1.6 x 1.0 mm Size



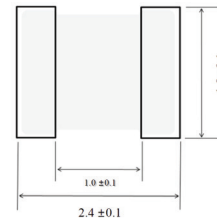
2.5 x 2.0 x 1.0 mm Size



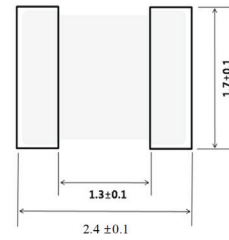
Recommended Footprint and Stencil Mask

Unit = mm

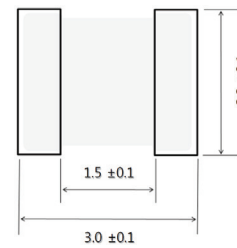
Stencil Mask T = 0.10mm



2.0 x 1.6 x 1.0 mm Size

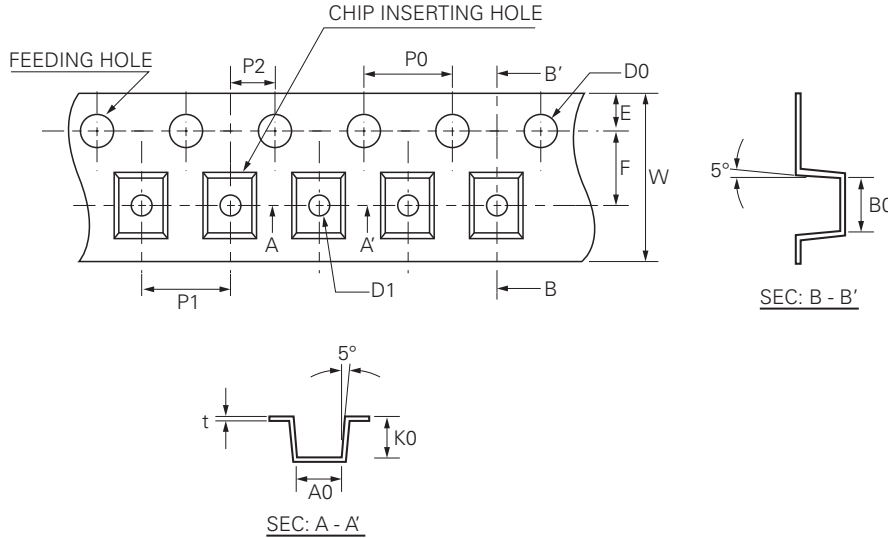


2.5 x 2.0 x 1.0 mm Size



Carrie Tape Dimensions

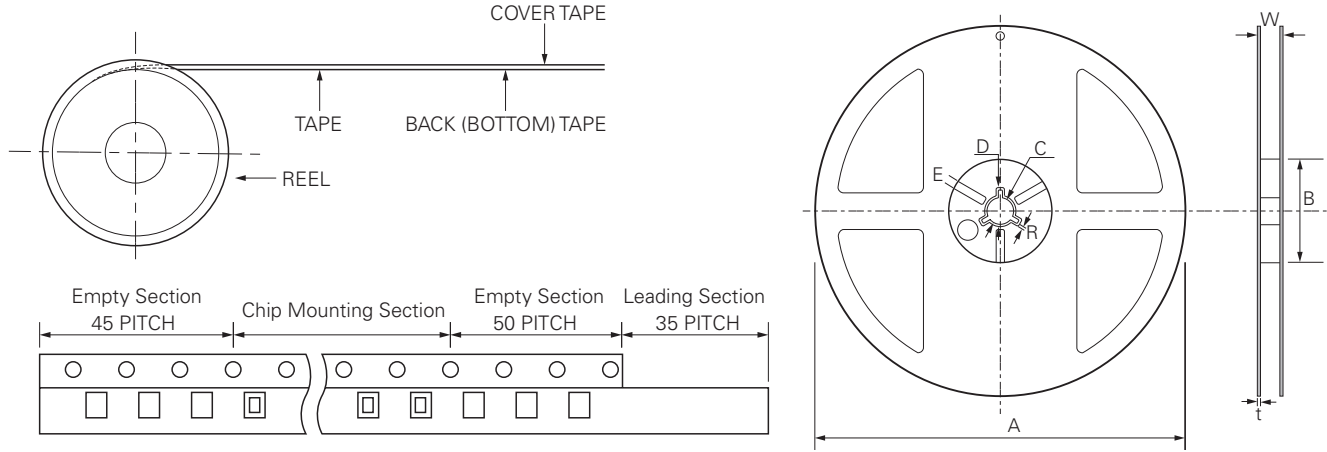
2016mm, 0.8t



Symbol	Dimensions
	Millimeters
A0	1.90±0.10
B0	2.35±0.10
K0	1.15±0.10
W	8.00±0.2
F	3.50±0.05
E	1.75±0.10
P1	4.00±0.10
P2	2.00±0.05
P0	4.00±0.05
D0	1.50+0.10 & -0
D1	1.00±0.10
t	0.22±0.05

Tape and Reel Dimension

2016mm, 0.8t

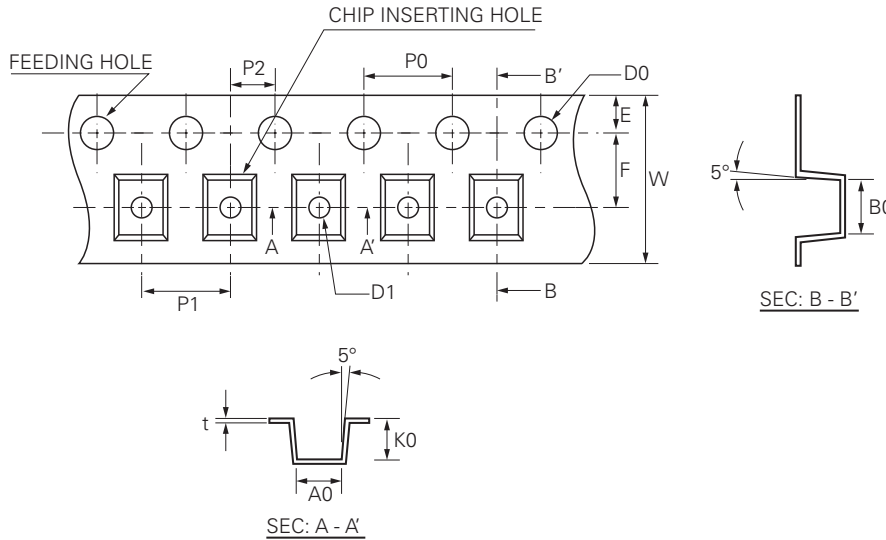


- (1) Reel Materials: Polystyrene (2) Label (3) Taping
 - Standard Packing Quantity per Reel (Ø178)
 - PE Tape: 3,000pcs

Code	A	B	C	D	E	W	t	R
Dimension	Ø178±2	Min. Ø50	Ø13±0.5	Ø21±0.8	2.0±0.5	10±1.5	0.8±0.2	1.0

Carrie Tape Dimensions

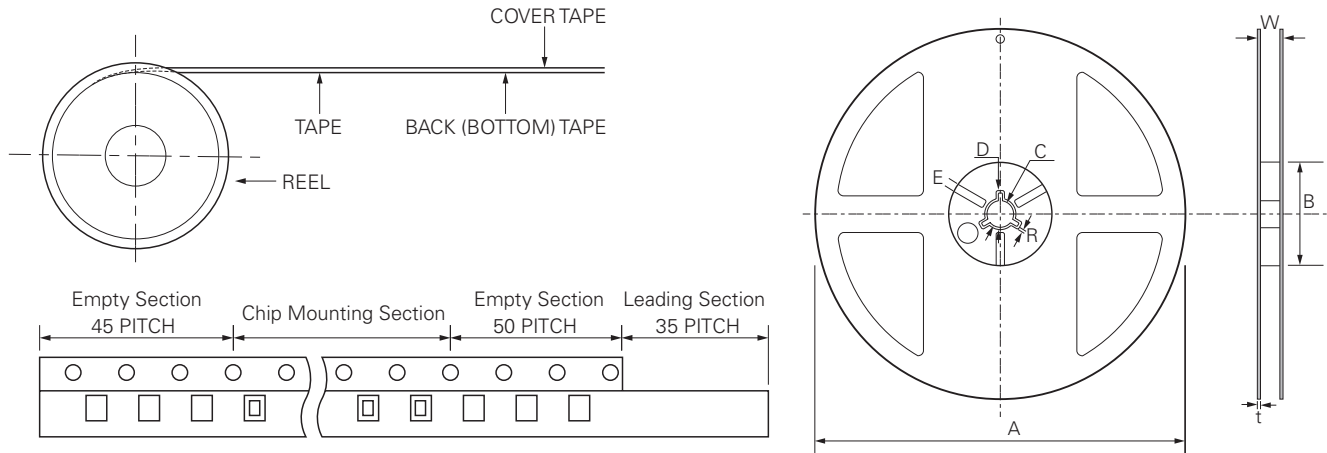
2016mm, 1.0t



Symbol	Dimensions
	Millimeters
A0	1.90±0.10
B0	2.35±0.10
K0	1.15±0.10
W	8.00±0.2
F	3.50±0.05
E	1.75±0.10
P1	4.00±0.10
P2	2.00±0.05
P0	4.00±0.05
D0	1.50+0.10 & -0
D1	1.00±0.10
t	0.22±0.05

Tape and Reel Dimension

2016mm, 1.0t

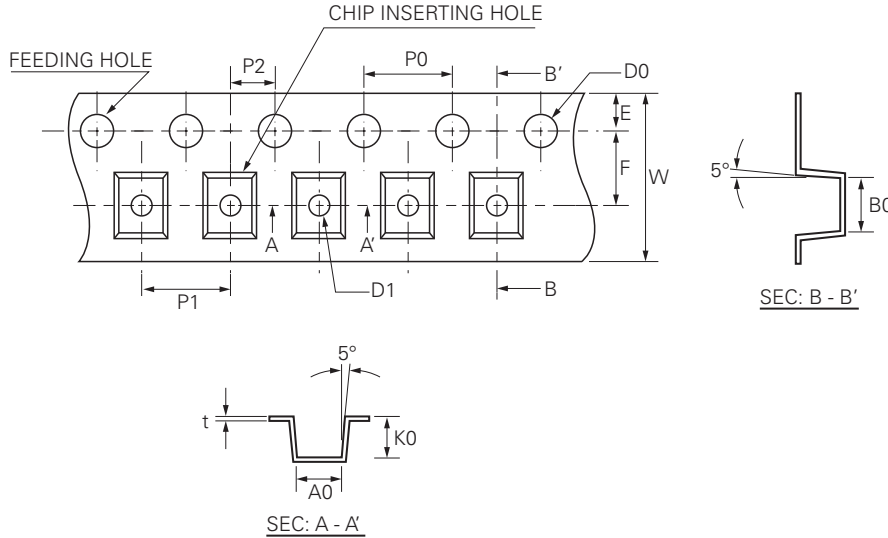


- (1) Reel Materials: Polystyrene (2) Label (3) Taping
 - Standard Packing Quantity per Reel (Ø178)
 - PE Tape: 3,000pcs

Code	A	B	C	D	E	W	t	R
Dimension	Ø178±2	Min. Ø50	Ø13±0.5	Ø21±0.8	2.0±0.5	10±1.5	0.8±0.2	1.0

Carrie Tape Dimensions

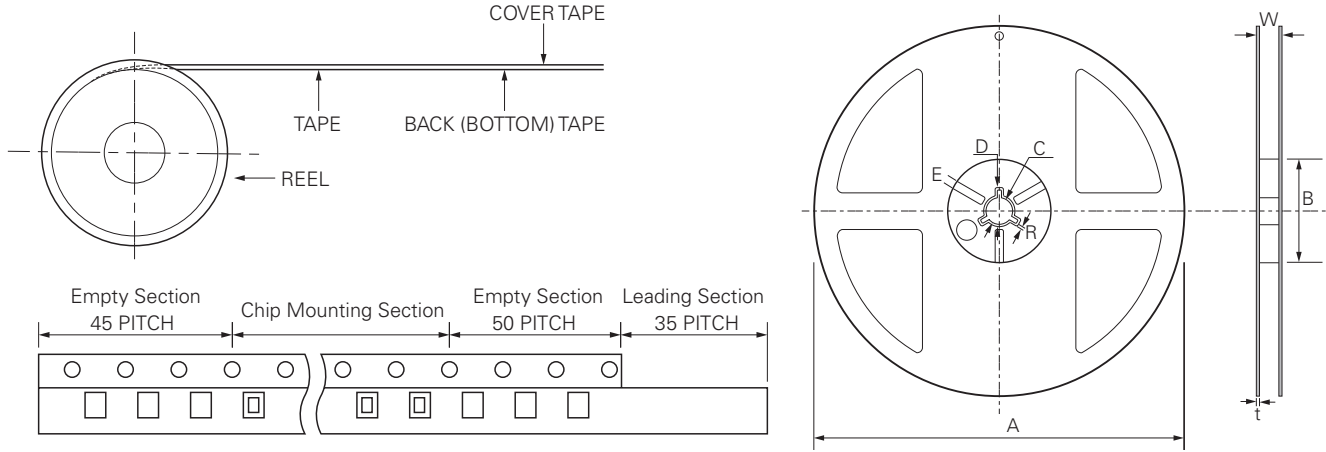
2520mm, 1.0t



Symbol	Dimensions
	Millimeters
A0	2.23±0.10
B0	2.74±0.10
K0	1.17±0.10
W	8.00±0.2
F	3.50±0.05
E	1.75±0.10
P1	4.00±0.10
P2	2.00±0.05
P0	4.00±0.05
D0	1.50+0.10 & -0
D1	1.00±0.10
t	0.22±0.05

Tape and Reel Dimension

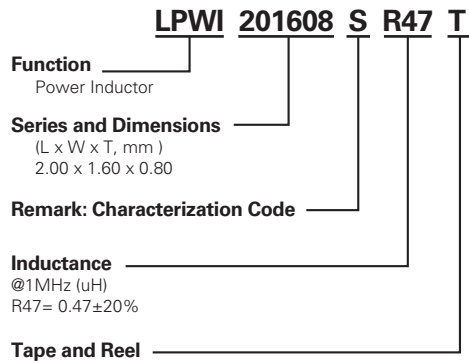
2520mm, 1.0t



(1) Reel Materials: Polystyrene (2) Label (3) Taping
- Standard Packing Quantity per Reel (Ø178)
- PE Tape: 3,000pcs

Code	A	B	C	D	E	W	t	R
Dimension	Ø178±2	Min. Ø50	Ø13±0.5	Ø20±0.8	3.0±0.5	10±1.5	1.3±0.2	1.0±0.2

Part Numbering System



Ordering Information

Part Number	Reel Quantity
	3,000