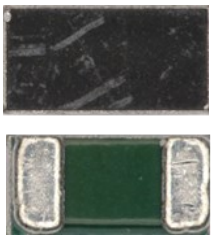
Thin Film Technology Corp.

Product Family: 2-Terminal High Current Jumper

Part Number Series: LPC Series

RoHS COMPLIANT 2011/65/EU

HF HALOGEN-FREE



Construction:

- Cu metal foil resistive element
- Epoxy-resin overcoat
- Non-wrapped terminations
- 100% matte tin over Ni terminations
- Halogen Free
- RoHS compliant and Pb Free
- Inherently Anti-Sulfur

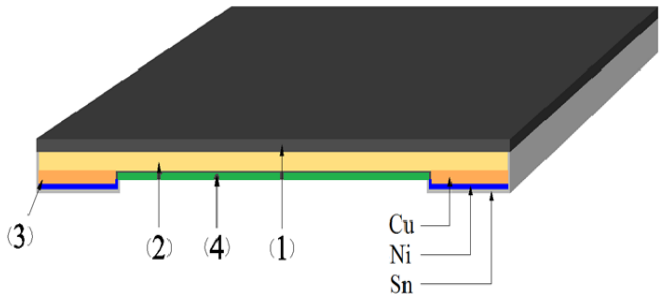
Features:

- 0201, 0402, 0603, 0805, and 1206 English case sizes
- Max current up to 40 Amps
- Max resistance of up to 1mΩ
- Low profile (0201: 0.21in max.; 0402:0.45in max.; 0603:0.60in max.; 0805-1206:0.60in max.)
- Moisture Sensitivity Level (MSL) = 1

Description:

These high current metal foil jumper chip resistors exhibit excellent performance with a very low height profile. They are useful in many jumper applications where high current capabilities and high durability are required.

Product Construction:

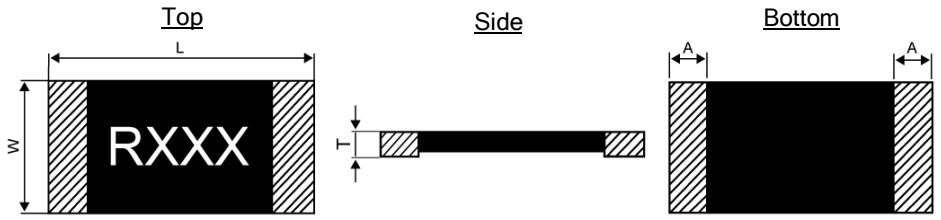


Number	Description
1	Substrate (glass epoxy)
2	Resistor element (Cu alloy foil)
3	Terminals (100% matte Sn)
4	Protection coating (epoxy resin)

Part Numbering: Ex: LPC0402CJUMPF-T10

Series Name	English Size (Metric Size)	Resistive Element	Resistance Value	Internal Code	T&R Packaging Quantity
LPC	**0201** (0603) **0402** (1005) **0603** (1608) **0805** (2012) **1206** (3216)	**C** = Cu Alloy	**JUMP** = Jumper, 0Ω	**F** = Face Down	**-T5** = 5,000 pcs/reel **-T10** = 10,000 pcs/reel

Product Dimensions:



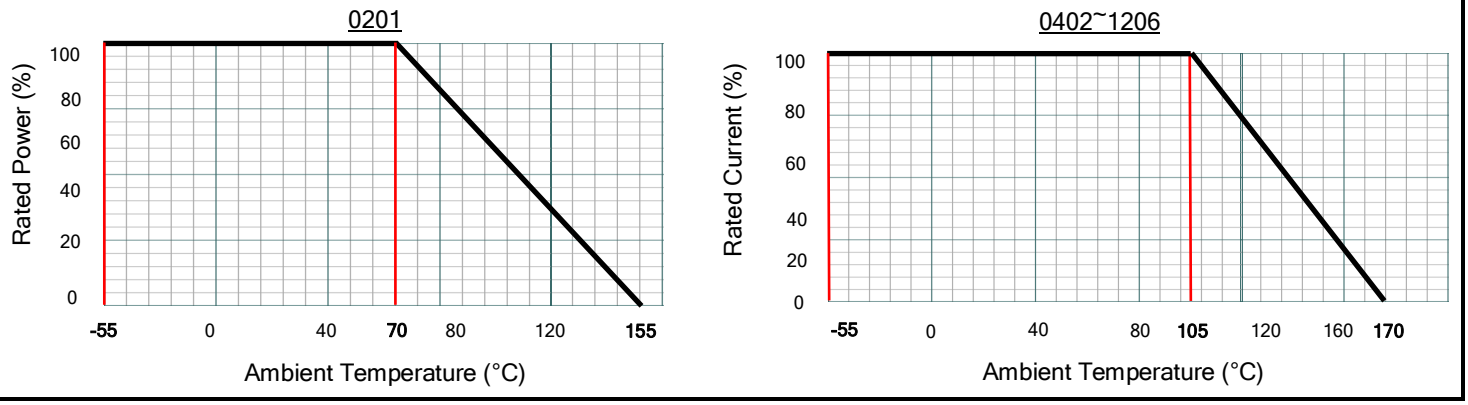
All dimensions shown in inches, mm in parentheses.

Dimensions (Metric)	L	W	T	A
LPC0201 (0603)	0.024 ±0.001 (0.60 ±0.03)	0.012 ±0.002 (0.30 ±0.04)	0.010 ±0.004 (0.25 ±0.10)	0.006 ±0.002 (0.15 ±0.06)
LPC0402 (1005)	0.040 ±0.008 (1.00 ±0.20)	0.020 ±0.008 (0.50 ±0.20)	0.012 ±0.006 (0.30 ±0.15)	0.008 ±0.006 (0.20 ±0.15)
LPC0603 (1608)	0.063 ±0.008 (1.60 ±0.20)	0.031 ±0.008 (0.80 ±0.20)	0.014 ±0.008 (0.35 ±0.20)	0.014 ±0.008 (0.35 ±0.20)
LPC0805 (2012)	0.078 ±0.008 (2.00 ±0.20)	0.049 ±0.008 (1.25 ±0.20)	0.016 ±0.008 (0.40 ±0.20)	0.014 ±0.008 (0.35 ±0.20)
LPC1206 (3216)	0.126 ±0.008 (3.20 ±0.20)	0.063 ±0.008 (1.60 ±0.20)	0.016 ±0.008 (0.40 ±0.20)	0.020 ±0.008 (0.50 ±0.20)

Electrical Specifications:

Type	LPC0201	LPC0402	LPC0603	LPC0805	LPC1206
Metric Size	0603	1005	1608	2012	3216
Max Current	8.0A	20A	26A	35A	40A
Resistance Value	1mΩ Max	0.5mΩ Max	0.2mΩ Max		
Operating Temp. Range	-55°C~+155°C	-55°C~+170°C			
Packaging (code)	10,000pcs/reel (-T10)		5,000pcs/reel (-T5)		

Power Derating Curves:



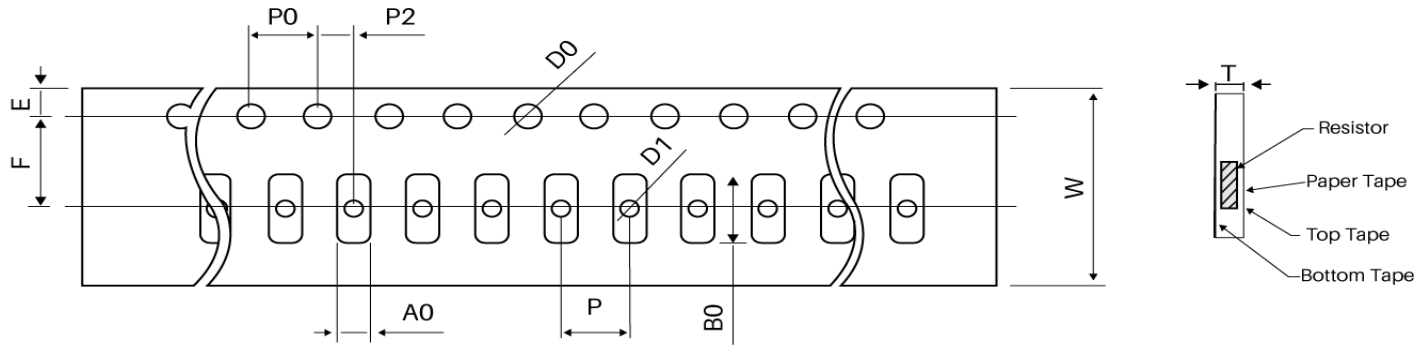
Reliability Specifications:

Test	Procedure	Specification
Load Life IEC60115-1 4.25	Test Temperature: 70°C ±2°C t = 1000 hours with power cycling as follows: 90 min power ON/30 min power OFF	Part must meet initial specifications following testing
Moisture Load Life IEC60115-1 4.25	0201: T = 40 ±2°C; RH = 90%; t = 1000h 0402~1206: $V_{test} = V_{max}$; T = 60 ±2°C; RH = 95%; t = 90 mins. ON, 30 mins. OFF, t = 1000h	
Thermal Shock IEC60115-1 4.19	Repeat 100 cycles as follows: -55°C (30 min.) / Room temp (3 min) / +150°C (30 min.) / Room temp (3 min)	
Resistance To Solder Heat IEC60115-1 4.18	Through Reflow T = 275 ±5°C, t = 20 ±1 seconds. Repeat for a total of 3 cycles	

Reliability Specifications (Cont.):

Test	Procedure	Specification
Load Life - Endurance (High Temperature Exposure) IEC60115-1 4.25	0201: Test Temperature: 125 ±2°C t = 1000 hours 0402~1206: Test Temperature: 150 ±2°C t = 1000 hours	Part must meet initial specifications following testing
HAST (Highly Accelerated Stress Test - Autoclave)	0201: Test Temperature: 121 ±2°C Test Pressure: 30 PSIA Test period: 48 hours	
Solderability IEC60115-1 4.17	Dipped into solder for 3 ±0.5 seconds at 245 ±5°C	New solder coverage of 95% minimum
Mechanical Shock	0201: Force: 50 ±5G	
Substrate Bending IEC60115-1 4.33	0201: Span between fulcrums: 90mm Bend Width: 2mm Duration: 10 seconds	
Vibration	0201: Frequency: 10~2,000Hz Acceleration: 15 ±1.5G Test Duration: 20 mins, 12 Cycles	Part must meet initial specifications following testing
Low Temperature Storage IEC60115-1 4.25	0402~1206: T = -55 ±2°C t = 1000h	
Terminal Strength	0201: Test force: 3.4N Duration: 60 ±1 seconds	

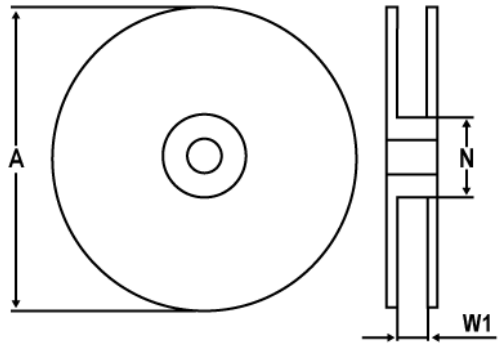
Paper Tape Dimensions:



All dimensions in mm.

Type	W	P0	P	P2	A0	B0	D0	F	E	T	T1	K0
0201	8.00 ±0.20	4.00 ±0.10	2.00 ±0.10	2.00 ±0.10	0.38 ±0.10	0.68 ±0.10	1.50 ±0.10	3.50 ±0.10	1.75 ±0.10	0.45 ±0.05	Max 0.10	0.30 ±0.05
0402	8.00 ±0.30	4.00 ±0.10	2.00 ±0.10	2.00 ±0.10	0.65 ±0.10	1.10 ±0.10	1.50 ±0.10	3.50 ±0.10	1.75 ±0.10	0.42 ±0.05	-	-
0603	8.00 ±0.30	4.00 ±0.10	4.00 ±0.10	2.00 ±0.10	0.98 ±0.10	1.85 ±0.10	1.50 ±0.10	3.50 ±0.10	1.75 ±0.10	0.60 ±0.05	-	-
0805	8.00 ±0.30	4.00 ±0.10	4.00 ±0.10	2.00 ±0.10	1.55 ±0.10	2.30 ±0.10	1.50 ±0.10	3.50 ±0.10	1.75 ±0.10	0.60 ±0.10	-	-
1206	8.00 ±0.30	4.00 ±0.10	4.00 ±0.10	2.00 ±0.10	2.05 ±0.20	3.65 ±0.20	1.50 ±0.10	3.50 ±0.10	1.75 ±0.10	0.60 ±0.10	-	-

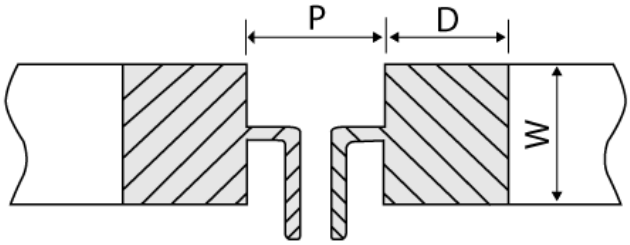
Reel Dimensions:



All dimensions in mm.

Type	A	N	W1
0201	178 ±5.00	60.0 ±2.00	9.00 ±1.00
0402			
0603			
0805			
1206			

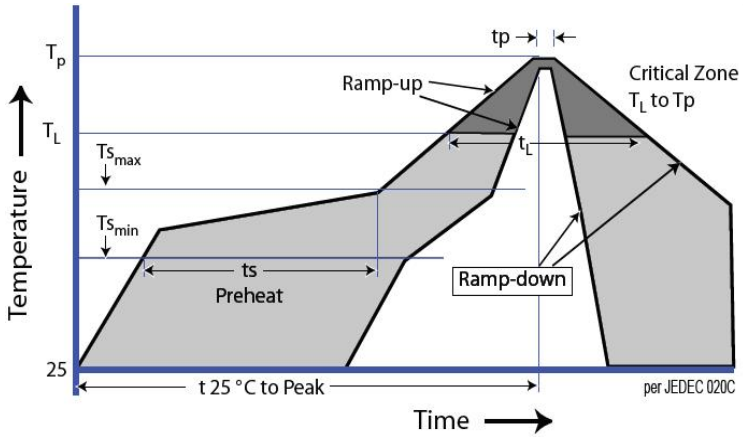
Recommended Land Pattern:



All dimensions in mm.

Type	P	W	D
0201	0.25	0.33	0.20
0402	0.40	0.60	0.60
0603	0.60	0.92	1.30
0805	0.80	1.44	1.40
1206	1.20	1.84	1.80

Soldering Profile:



Profile Feature	Pb-Free Assembly
Average Ramp-Up Rate (Ts_{max} to Tp)	3 °C/second max.
Preheat	
- Temperature Min (Ts_{min})	150 °C
- Temperature Max (Ts_{max})	200 °C
- Time (ts_{min} to ts_{max})	60-180 seconds
Time maintained above:	
- Temperature (T_L)	217 °C
- Time (t_L)	60-150 seconds
Peak Temperature (T_p)	260 +0 °C
Time within 5 °C of actual Peak Temperature (tp)	20-40 seconds
Ramp-Down Rate	6 °C/second max.
Time 25 °C to Peak Temperature	8 minutes max.

Storage Conditions:

Environment Conditions:

Products should be stored under the following environmental conditions.

- Temperature: +5 to +35°C
- Humidity: 45 to 85% relative humidity
- Do not keep products in environments where they may be subject to particulate contamination or harmful gases such as sulfuric acid or hydrogen chloride as it may cause oxidization on electrodes, resulting in poor solderability.
- Products should be stored in a space that does not expose it to high temperatures, vibration, or direct sunlight.
- Products should be stored in the original airtight packaging until use.