Resistors

Thermal Jumper Chip

TJC Series

- High thermal conductivity
- Electrically isolated
- AlN ceramic chips
- Compact thermal management
- Low capacitance
- Pb-free or SnPb finish

RoHS All Pb-free parts comply with EU Directive 2011/65/EU amended by (EU) 2015/863 (RoHS3)

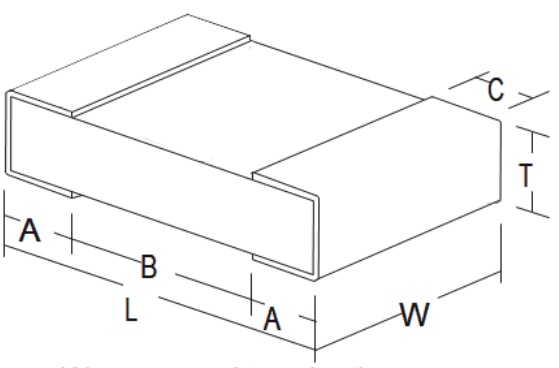
Functional Data

		0603	0505	0805	0508	1206	0612	2010	1020	2512	1225
Thermal Resistance	°C/W	17.4	9.3	14.9	5.8	18.8	4.6	18.5	4.6	18.7	4.6
Thermal Conductance	mW/°C	57.6	108	67.3	173	53.3	219	54	216	53.5	218
Capacitance typ. @1kHz	pF	0.16	0.27	0.16	0.4	0.11	0.43	0.07	0.31	0.05	0.46

Physical Data

Dimensions (mm) & weight (mg)

	L	W	T max	A nom	B min	C nom	Wt. nom
0603	1.5 ±0.1	0.8±0.1	0.8	0.59	0.3	0.59	3.4
0505	1.21 ± 0.1	1.21 ±0.1	0.8	0.54	0.1	0.54	4.2
0805	2.0 ±0.15	1.25 ±0.15	0.8	0.69	0.5	0.69	5.9
0508	1.25 ±0.15	2.0 ±0.15	0.8	0.55	0.12	0.55	5.9
1206	3.2 ±0.2	1.6 ±0.2	0.8	0.71	1.55	0.71	11.3
0612	1.6 ±0.2	3.2 ±0.2	0.8	0.63	0.15	0.63	12.1
2010	5.1 ±0.3	2.5 ±0.2	0.8	0.78	3.4	0.78	29.2
1020	2.5 ±0.2	5.1 ±0.3	0.8	0.74	1	0.74	31.9
2512	6.5 ±0.3	3.2 ±0.2	0.8	0.89	4.3	0.89	43.9
1225	3.2 ±0.2	6.5 ±0.2	0.8	0.9	1.1	0.9	49.7



Wrap-around terminations
(3 faces)

Construction

Ag terminations are screen printed onto an aluminium nitride (AlN) substrate. Parts are wrap-around terminated and plated with nickel then either 100% matt Sn or 60/40 SnPb.

Marking

Components are not marked. Reels are marked with type, date code and quantity.

Packing

2010, 1020, 2512 & 1225 sizes are supplied on 12mm plastic carrier tape. All smaller sizes are supplied on 8mm plastic carrier tape. All sizes are on 178mm (7 inch) reels as per IEC286-3.

Performance Data

Shear strength	>18N
Temperature cycling (-55/125°C, 30 minutes dwell)	No visual damage
Solderability (245°C ±5°C for 2s ±0.5s)	>95% coverage

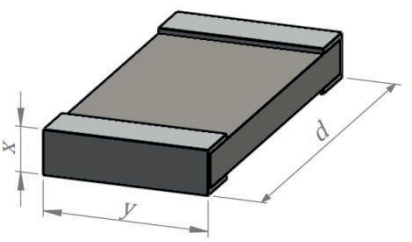
Thermal Performance Calculation

The thermal data are based on the thermal resistivity of aluminium nitride, which is 170 W/m°C.
Values for Thermal Resistance (T_R) and Thermal Conductance (T_C) are obtained as follows.

$$T_R = \frac{d}{k(x.y)}$$

where k is the thermal resistivity of AlN, 170W/m°C

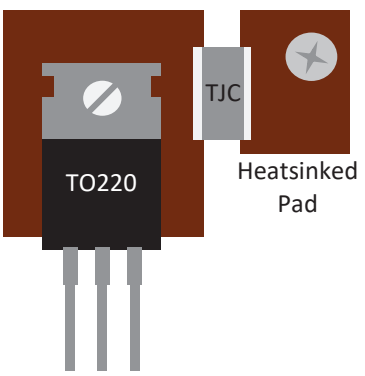
$$T_C = \frac{1}{T_R}$$



Application Notes

TJC is designed to provide a thermally conductive pathway with electrical isolation. It may be used as a thermal management solution for cooling PCB hotspot areas. A typical application is pictured, in which a TO220 power device is cooled by linking it to a pad which is heatsinked by a fixing which connects to the equipment chassis. Electrical isolation from the chassis must be maintained.

To select the optimum size of TJC, begin by defining the range of terminal widths W which best matches the pad or solder joint to be cooled. Then select the shortest length dimension, L, within the constraints of capacitance and clearance requirements. The capacitance must be controlled for circuits operating at high frequency and where coupling between the pad to be cooled and the heatsink pad is undesirable. The clearance is important where high voltages can exist between the pads, and this is given by dimension B. Since the surface of the insulated body of TJC is ceramic, surface tracking is not considered an issue, so this dimension may be compared to the air clearances required in the application design.



Ordering Procedure

Example: TJC1206LF-T3 (TJC in 1206 size, Pb-free)

T	J	C	1	2	0	6	L	F	-	T	3
1			2				3			4	

1 Series	2 Size	3 Finish	4 Packing			
TJC	0603	LF = Pb-free	T5	0603	5000/reel	Standard
	0505	PB = SnPb	T3	0505, 0805, 0508, 1206, 0612, 2010, 1020	3000/reel	
	0805		T18	2512, 1225	1800/reel	
	0508		T1	All sizes	1000/reel	Non-standard
	1206					
	0612					
	2010					
	1020					
	2512					
	1225					