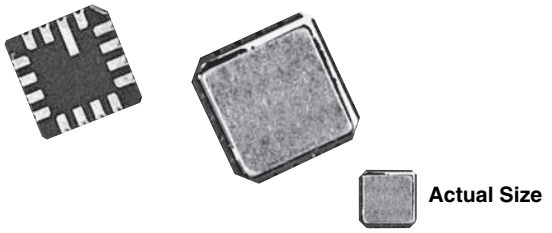
Hermetic, 50 mil Pitch, Leadless Chip Resistor, Surface Mount Network



Vishay Thin Film offers a wide resistance range in 16, 20, and 24 terminal hermetic leadless chip carriers. The standard circuits in the ohmic ranges listed below will utilize the outstanding wraparound terminations developed for chip resistors. Should one of the standards not fit your application, consult the applications engineering group as we may be able to meet your requirements.

FEATURES

- High purity alumina substrate for high power dissipation
- Leach resistant terminations with nickel barrier
- 16, 20, 24 terminal gold plated wraparound true hermetic packaging
- Military/aerospace
- Hermetically sealed
- Isolated/bussed circuits
- Ideal for military/aerospace applications
- Compliant to RoHS directive 2002/95/EC

Pb-free Available

RoHS* COMPLIANT

TYPICAL PERFORMANCE

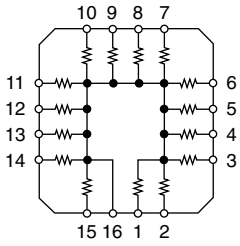
	ABSOLUTE	TRACKING
TCR	25	5
	ABSOLUTE	RATIO
TOL.	0.1	NA

Note

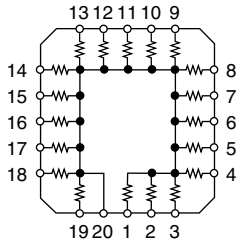
- Resistance range: Noted on schematics

SCHEMATIC

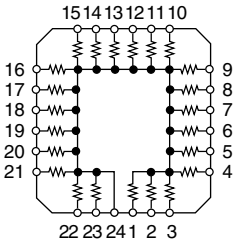
TLCC 16 A01
1 kΩ to 100 kΩ



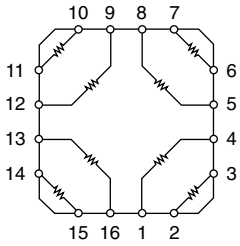
TLCC 20 A01
10 kΩ to 200 kΩ



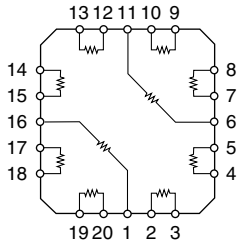
TLCC 24 A01
1 kΩ to 100 kΩ



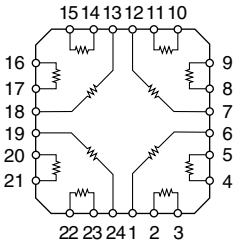
TLCC 16 A03
100 Ω to 100 kΩ



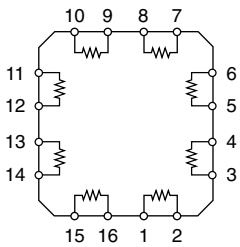
TLCC 20 A03
10 Ω to 120 kΩ



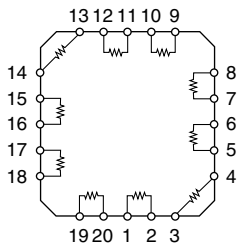
TLCC 24 A03
1 kΩ to 100 kΩ



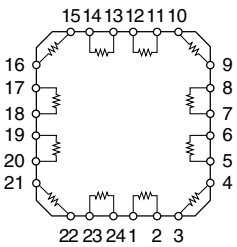
TLCC 16 A06
100 Ω to 100 kΩ



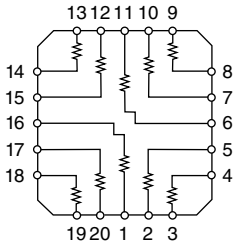
TLCC 20 A06
1 kΩ to 110 kΩ



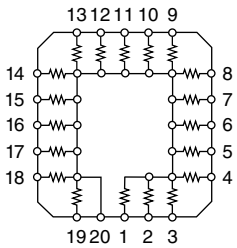
TLCC 24 A06
1 kΩ to 100 kΩ



LCC 20A
(10 Isolated Resistors)
10 Ω to 250 kΩ



LCC 20B
(19 Resistors + 1 Common Point)
10 Ω to 200 kΩ



* Pb containing terminations are not RoHS compliant, exemptions may apply

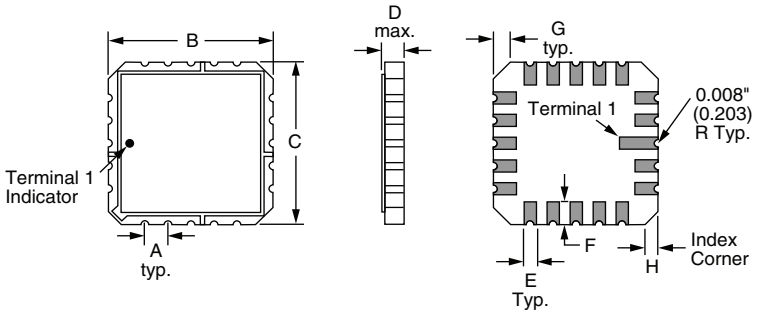
STANDARD ELECTRICAL SPECIFICATIONS

TEST	SPECIFICATIONS	CONDITIONS
Material	Passivated nichrome	-
Pin/Lead Number	16, 20, 24	-
Resistance Range	10 Ω to 250 kΩ per resistor	-
TCR: Absolute	± 25 ppm/°C to ± 300 ppm/°C	- 55 °C to + 125 °C
TCR: Tracking	± 5 ppm/°C	- 55 °C to + 125 °C
Tolerance: Absolute	± 0.1 % to ± 1.0 %	+ 25 °C
Tolerance: Ratio	N/a	-
Power Rating: Resistor	50 mW max. = common circuits 100 mW max. = isolated circuits	Maximum at + 70 °C
Power Rating: Package	500 mW	Maximum at + 70 °C
Stability: Absolute	ΔR ± 0.05 %	2000 h at + 70 °C
Stability: Ratio	-	-
Voltage Coefficient	< 5 ppm/V (typical)	-
Working Voltage	100 V max. not to exceed $\sqrt{P \times R}$	-
Operating Temperature Range	- 55 °C to + 125 °C	-
Storage Temperature Range	- 55 °C to + 150 °C	-
Noise	< - 30 dB	-
Thermal EMF	0.008 µV/°C	-
Shelf Life Stability: Absolute	ΔR ± 0.01 %	1 year at + 25 °C
Shelf Life Stability: Ratio	-	-

Note

- Tantalum nitride film is custom, consult factory

DIMENSIONS in inches and millimeters



DIMENSION	16 PINS		20 PINS		24 PINS	
	INCHES	MILLIMETERS	INCHES	MILLIMETERS	INCHES	MILLIMETERS
A	0.050	1.27	0.050	1.27	0.050	1.27
B	0.300	7.26	0.350	8.89	0.400	10.16
C	0.300	7.26	0.350	8.89	0.400	10.16
D	0.077	1.96	0.077	1.96	0.077	1.96
E	0.025	0.635	0.025	0.635	0.025	0.635
F	0.050	1.27	0.050	1.27	0.050	1.27
G	0.040	1.02	0.040	1.02	0.040	1.02
H	0.020	0.508	0.020	0.508	0.020	0.508

Hermetic, 50 mil Pitch,
Leadless Chip Resistor, Surface Mount Network

MECHANICAL SPECIFICATIONS

Resistive Element	Passivated nichrome
Substrate Material	Alumina
Body	Ceramic
Terminals	Gold over nickel
Marking Resistance to Solvents	Per MIL-PRF-83401
Tin Lead Option	Sn63
Lead (Pb)-free Option	96.5 % Sn, 3.0 % Ag, 0.5 % Cu
Tin Lead and Lead (Pb)-free	Hot solder dip

GLOBAL PART NUMBER INFORMATION

New Global Part Numbering: TLCC20AE1002BUF

T	L	C	C	2	0		A		E	1	0	0	2	B	U	F
T	L	C	C	T	1	6	A	0	1	K	1	0	0	3	K	U	F

GLOBAL MODEL (4 or 5 digits)	TERMINAL COUNT [1]	SCHEMATICS (4 or 5 digits)	TCR CHARACTERISTICS	RESISTANCE	TOLERANCE	PACKAGING
LCC (Tin lead)	**20**	**A** = Isolated resistors **B** = Resistor to common bus	**E** = 25 ppm/°C **H** = 50 ppm/°C **K** = 100 ppm/°C **M** = 300 ppm/°C	First 3 digits are significant figures and the last digit specifies the number of zeros to follow. Example: 10R0 = 10 Ω 12R5 = 12.5 Ω 1000 = 100 Ω 1001 = 1000 Ω	**B** = 0.1 % **D** = 0.5 % **F** = 1 % **G** = 2 % **J** = 5 % **K** = 10 % **S** = Special	TAPE AND REEL **T0** = 100 min., 100 mult **T1** = 1000 min., 1000 mult **T3** = 300 min., 300 mult **T5** = 500 min., 500 mult **TF** = Full reel 2000 **TS** = 100 min., 1 mult **UF** = TUBED
LCCT (Lead (Pb)-free) (e1)	**20**					
TLCC (Tin lead)	**16** **20** **24**	**A01** = Resistor to common bus **A03** = Isolated parallel resistor **A06** = Isolated adjacent resistor				
TLCCT (Lead (Pb)-free) (e1)	**16** **20** **24**					

Historical Part Number example: LC20BK1003J (for reference purposes only)

LC	20	B	K	1003	J
SERIES	PINS	SCHEMATIC	TCR CHARACTERISTIC	RESISTANCE	TOLERANCE

Note

[1] LCC or LCCT only available in 20 pin size

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