

SPECIFICATION SHEET

SPECIFICATION SHEET NO.	Q0607- CRCL06JBR39S01
DATE	June. 7, 2023
REVISION	A0
DESCRIPITION	Thick Film Low Ohm Chip Resistors (High power rating and low TCR), 1206 (3216 Metric), CL06 Series, Dimension L3.10*W1.60*H0.55mm, 2 Terminations, Tolerance: ±5.0%, Resistance 0.39 ohm, Dissipation Max. 1/3W @ 70°C, Temperature Coefficient Rate (TCR) Max. ±100ppm/°C Operating Temp. Range -55°C ~+155°C Package in Tape/Reel, 5,000pcs/Reel RoHS/RoHS III compliant and HF
CUSTOMER	
CUSTOMER PART NUMBER	
CROSS REF. PART NUMBER	
ORIGINAL PART NUMBER	Aillen CL06JBR39
PART CODE	CRCL06JBR39S01

VENDOR APPROVE

Issued/Checked/Approved







DATE: June. 7, 2023

SUSTOMER APPROVE	
ATE:	



THICK FILM LOW OHM CL06 SERIES

DESCRIPTION







The resistors are constructed in a high grade ceramic body (aluminum oxide). Internal metal electrodes are added at each end and connected by a resistive paste that is applied to the top surface of the substrate. The composition of the paste is adjusted to give the approximate resistance required and the value is trimmed to within tolerance by laser cutting of this resistive layer. The resistive layer is covered with a protective coat. Finally, the two external end terminations are added. For ease of soldering the outer layer of these end terminations is a Tin (lead free) alloy.

MAIN FEATURE

- High power rating and low TCR
- · High reliability and stability
- Reduced size of final equipment
- RoHS exemption free and Lead free products

APPLICATION

- Power supply / Battery Pack
- Battery charger/ PC
- DC-DC power converter

PART CODE GUIDE

RFQ
Request For Quotation

CRCL	06	J	В	R39	S01
1	2	3	4	5	6

- 1) CRCL: Product code for Thick Film Low Ohm Chip Resistors
- 2) **06**: Size Code, 1206 (3216 Metric), CL06 Series, Dimension L3.10*W1.60*H0.55mm,
- 3) J: Resistance Range Tolerance Code, P: Jumper; B: +/-0.1%; D: +/-0.5%; F: +/-1%; J: +/-5%
- 4) B: Package Code, A: 4Kpcs/7"Reel; B:5kpcs/7"Reel; C:10kpcs/7"Reel; M:15kpcs/7"Reel; D:10kpcs/10"Reel; E:20kpcs/10"Reel
- 5) R39: Resistance value code. 0R: 0ohm; R39: 0.39ohm; 15R: 15ohm; 20R: 20ohm; 39R: 39ohm; 51R: 51ohm; 100R: 100ohm;
- 390R: 390ohm; 1K:1Kohm; 1K87: 1.87Kohm; 4K7: 4.7Kohm; 10K: 10Kohm; 10K5: 10.5Kohm; 12K: 12 Kohm; 150K: 150Kohm; 226K:

226Kohm; 1M: 1.0Mohm; 1M2: 1.2Mohm

6) S01: Internal control code, digits and letter; Blank: N/A



THICK FILM LOW OHM CL06 SERIES

DIMENSION (Unit: mm)

Image for reference

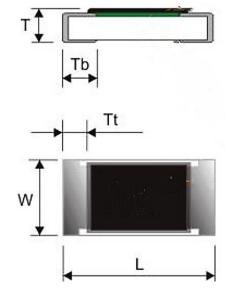


General Marking:

4-digits marking

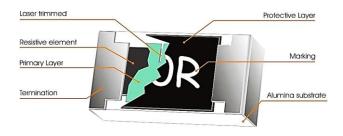
*Each resistor is marked with a four digits code on the protective coating to designate the nominal resistance value

CL06 series

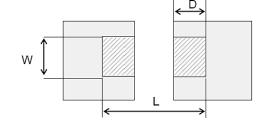


Item	Dimension
L	3.10±0.10
W	1.60±0.10
Т	0.55±0.10
Тb	0.50±0.25
Τt	0.50±0.25

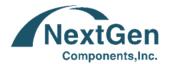
Resistors Construction For Reference



Recommended Solder Pad



Item	Dimension	
W	1.80	
L	4.70	
D	1.30	3



THICK FILM LOW OHM CL06 SERIES

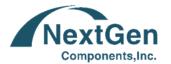
GENERAL ELECTRONICAL CHARACTERISTICS

	Item	Unit	Symbol	Characteristic	Condition
Product Name			CRCL	Thick Film Low Ohm Chip Resistors	
	Size		06	CL06 Series, L3.10*W1.60*H0.55mm	
Resi	stance Range	Ω		0.39	
Resista	ance Tolerance	%	J	±5.0%	
TCR	20MΩ≥ R>10MΩ	ppm/°C		≤ ±1000	
	39MΩ≥ R>22MΩ			≤ ±600	
	47MΩ≥ R>40MΩ			≤ ±200	
	91MΩ≥ R>50MΩ			≤±100	
	910MΩ≥ R>100MΩ			≤ ±100	
Max	. Dissipation	W		1/3	@ Tamb=70°C
Operati	ng Temperature	°C		-55 ~+155	

3) Test condition for jumper (0 Ω)

¹⁾ This is the maximum voltage that may be continuously supplied to the resistor element, see "IEC publication 60115-8"

²⁾ Max. Operation Voltage : So called RCWV (Rated Continuous Working Voltage) is determined by $RCWV = \sqrt{Rated\ Power \times Resistance\ Value} \text{ or Max. RCWV listed above, whichever is lower.}$



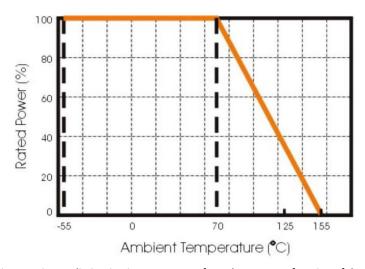
THICK FILM LOW OHM CL06 SERIES

PRODUCT CHARACTERIZATION

Standard values of nominal resistance are taken from the E24 & E96 series for resistors with a tolerance Of +/-0.1%, +/-0.5%, +/-1% & +/-5%, The values of the E24/E96 series are in accordance with "IEC publication 60063"

DERATING

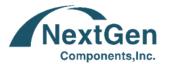
The power that the resistor can dissipate depends on the operating temperature; see Fig.1



 $\label{thm:continuous} \textit{Fig 1} \ \textit{Maximum dissipation in percentage of rated power as a function of the ambient temperature}$

MOUNTING

Due to their rectangular shapes and small tolerances, Surface Mountable Resistors are suitable for handling by automatic placement systems. Chip placement can be on ceramic substrates and printed-circuit boards (PCBs). Electrical connection to the circuit is by individual soldering condition. The end terminations guarantee a reliable contact.



THICK FILM LOW OHM CL06 SERIES

REFLOW SOLDERING CONDITION

The robust construction of chip resistors allows them to be completely immersed in a solder bath of 260 °C for 10 seconds. Therefore, it is possible to mount Surface Mount Resistors on one side of a PCB and other discrete components on the reverse (mixed PCBs). Surface Mount Resistors are tested for solderability at 235 °C during 2 seconds. The test condition for no leaching is 260°C for 30 seconds. Typical examples of soldering processes that provide reliable joints without any damage are given in Fig 2.

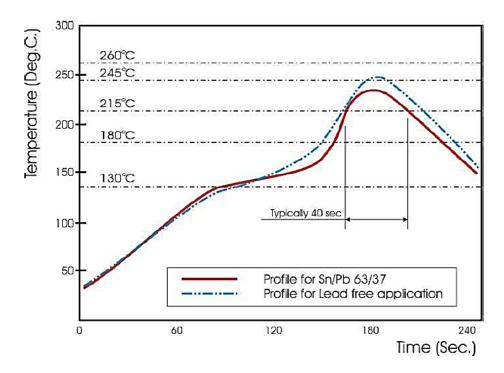


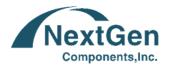
Fig 2. Infrared soldering profile for Chip Resistors



THICK FILM LOW OHM CL06 SERIES

TEST AND REQUIREMENT (JIS C 5201-1: 1998)

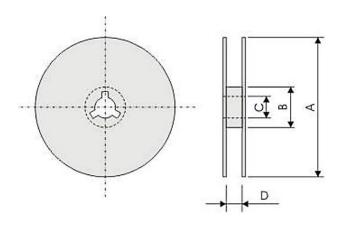
$ \begin{array}{c} \textbf{Coefficient of} \\ \textbf{Resistance(T.C.R)} \\ \textbf{Clause 4.8} \\ \textbf{Clause 4.8} \\ \textbf{R1}: \texttt{Resistance at reference temperature 25^{\circ}C} \\ \textbf{R2}: \texttt{Resistance at test temperature 155^{\circ}C} \\ \textbf{R2}: \texttt{Resistance at test temperature 155^{\circ}C} \\ \textbf{Short time overload} \\ \textbf{(S.T.O.L) Clause 4.13} \\ \textbf{Resistance to} \\ \textbf{Soldering heat(R.S.H)} \\ \textbf{Clause 4.18} \\ \textbf{Solderability} \\ \textbf{Un-mounted chips completely immersed for} \\ \textbf{Clause 4.18} \\ \textbf{Solderability} \\ \textbf{Un-mounted chips completely immersed for 2 \pm 0.8} \\ \textbf{Solderability} \\ \textbf{Clause 4.17} \\ \textbf{Solderability} \\ \textbf{Un-mounted chips completely immersed for 2 \pm 0.8} \\ \textbf{Solderability} \\ \textbf{Clause 4.19} \\ \textbf{30 minutes at -55^{\circ}C±3^{\circ}C, 2^{-3} minutes at 20^{\circ}C+5^{\circ}C-1^{\circ}C, 5^{\circ}C+1^{\circ}C, 5^{\circ}C+1^$	TEST	PROCEDURE / TEST METHOD	REQUIREMENT
Coefficient of Resistance (T.C.R) Clause 4.8centigrade. $\frac{R_2 - R_1}{R_1(l_2 - l_1)} \times 10^6 \text{ (ppm/°C)}$ t1:25°C $\frac{R_1 \cdot Resistance}{R_1 \cdot Resistance}$ at reference temperature 25°C R2: Resistance at reference temperature 155°CDATA"Short time overload (S.T.O.L) Clause 4.13Permanent resistance change after a Ssecond application of a 5 times rated power. $J: \Delta R/R \text{ max. } \pm (2\%+0.5\text{mO})$ $F: \Delta R/R \text{ max. } \pm (1\%+0.5\text{mO})$ Resistance to soldering heat(R.S.H) Clause 4.18Un-mounted chips completely immersed for 10 ± 18 second in a SAC solder bath at $260^\circ\text{C}\pm5^\circ\text{C}$ $F: \Delta R/R \text{ max. } \pm (1\%+0.5\text{mO})$ $F: \Delta R/R \text{ max. } \pm (0.5\%+0.5\text{m})$ no visible damageSolderability Clause 4.17Un-mounted chips completely immersed for 2 ± 0.8 second in a SAC solder bath at $235^\circ\text{C}\pm3^\circ\text{C}$ second in a SAC solder bath at $235^\circ\text{C}\pm5^\circ\text{C}$ 95% coverage min., good tinning and no visible damageClause 4.1930 minutes at $-55^\circ\text{C}\pm3^\circ\text{C}$, 2° 3 minutes at $20^\circ\text{C}+5^\circ\text{C}-1^\circ\text{C}$, total 5 continuous cycles 95% coverage min., good tinning and no visible damageDamp Heat (Load life in humidity chamber controller at $40^\circ\text{C}\pm2^\circ\text{C}$ and $90^\circ\text{9}5\%$ relative humidity, 1.Shours on and 0.5 hours off 95% 25%			
Resistance (T.C.R) Clause 4.8 11:25°C R1: Resistance at reference temperature 25°C R2: Resistance at test temperature 155°C Short time overload (S.T.O.L) Clause 4.13 Permanent resistance change after a Second application of a 5 times rated power. F: Δ R/R max. \pm (1%+0.5mQ) Temperature cycling Clause 4.17 Temperature cycling Clause 4.19 30 minutes at -55°C±3°C, 2~3 minutes at 20°C+5°C-1°C, total 5 continuous cycles Damp Heat (Load life in humidity chamber controller at 40°C±2°C and 90°95% relative humidity, 1.5hours on and 0.5 hours off Clause 4.24 Load life (endurance) JISC5201-1: 1998 Clause 4.25 GRI Ras. \pm Resistors mounted on a 90mm glass epoxy resin PCB(FR4); bending: 3mm for 0603/0805, 2mm for 1206 and above sizes, once for 10 seconds Adhesion Pressurizing force: 5N, Test time: 10±1sec. No remarkable damage	Temperature	Natural resistance change per change in degree	Within the specified tolerance
R1 : Resistance at reference temperature 25°C R2: Resistance at test temperature 155°C Short time overload (S.T.O.1) Clause 4.13 Permanent resistance change after a 5second application of a 5 times rated power. F: Δ R/R max. ±(1%+0.5mΩ) F: Δ R/R ma	Coefficient of	_	Refer to "QUICK REFERENCE
R1 : Resistance at reference temperature 25°C R2: Resistance at test temperature 155°C Short time overload (S.T.O.1) Clause 4.13 Permanent resistance change after a 5second application of a 5 times rated power. F: Δ R/R max. ±(1%+0.5mΩ) F: Δ R/R ma	Resistance(T.C.R)	$\frac{R_2 - R_1}{1} \times 10^6 \text{ (ppm/°C)}$	DATA"
R2: Resistance at test temperature 155°C Short time overload (S.T.O.L) Clause 4.13 Resistance to application of a 5 times rated power. Resistance to Un-mounted chips completely immersed for 50 soldering heat(R.S.H) 10±1 second in a SAC solder bath at 260°C±5°C F: Δ R/R max. ±(1%+0.5mΩ) 10±1 second in a SAC solder bath at 260°C±5°C F: Δ R/R max. ±(0.5%+0.5m no visible damage 10±1 second in a SAC solder bath at 235°C±5°C tinning and no visible damage 10±1 second in a SAC solder bath at 235°C±5°C tinning and no visible damage 10±2 second in a SAC solder bath at 235°C±5°C tinning and no visible damage 10±2 second in a SAC solder bath at 235°C±5°C tinning and no visible damage 10±2 second in a SAC solder bath at 235°C±5°C tinning and no visible damage 10±2 second in a SAC solder bath at 235°C±5°C tinning and no visible damage 10±2 second in a SAC solder bath at 235°C±5°C tinning and no visible damage 10±2 second in a SAC solder bath at 235°C±5°C tinning and no visible damage 10±2 second in a SAC solder bath at 235°C±5°C tinning and no visible damage 10±2 second in a SAC solder bath at 235°C±5°C tinning and no visible damage 10±2 second in a SAC solder bath at 235°C±5°C tinning and no visible damage 10±2 second in a SAC solder bath at 235°C±5°C tinning and no visible damage 10±2 second in a SAC solder bath at 235°C±5°C tinning and no visible damage 10±2 second in a SAC solder bath at 235°C±5°C tinning and no visible damage 10±2 second in a SAC solder bath at 235°C±5°C tinning and no visible damage 10±2 second in a SAC solder bath at 235°C±5°C tinning and no visible damage 10±2 second in a SAC solder bath at 235°C±5°C tinning and no visible damage 10±2 second in a SAC solder bath at 235°C±5°C tinning and no visible damage 10±2 second in a SAC solder bath at 235°C±5°C tinning and no visible damage 10±2 second in a SAC solder bath at 235°C±5°C tinning and no visible damage 10±2 second in a SAC solder bath at 235°C±5°C tinning and no visible damage 10±2 second in a SAC solder bath at 235°C±5°C tinning and no visible	Clause 4.8	$t_1: 25^{\circ}C R_1(t_2-t_1)$	
Short time overload (S.T.O.L) Clause 4.13 Permanent resistance change after a 5second application of a 5 times rated power. F: Δ R/R max. ±(2%+0.5mΩ)		R1 : Resistance at reference temperature 25°C	
S.T.O.L) Clause 4.13 application of a 5 times rated power. F: Δ R/R max. ±(1%+0.5mΩ)		R2: Resistance at test temperature 155°C	
Resistance to Soldering heat(R.S.H) Clause 4.18 Un-mounted chips completely immersed for Clause 4.18 Solderability Un-mounted chips completely immersed for 2±0.8 Second in a SAC solder bath at 260°C±5°C Clause 4.17 Temperature cycling Clause 4.19 30 minutes at -55°C±3°C, 2~3 minutes at 20°C+5°C-1°C, total 5 continuous cycles Damp Heat (Load life in humidity) Clause 4.24 Load life (endurance) JISC5201-1: 1998 Clause 4.25 Bending strength Clause 4.33 Adhesion Pressurizing force: 5N, Test time: 10±1sec. Un-mounted chips completely immersed for 2±0.8 F: Δ R/R max. ±(1%+0.5mΩ)	Short time overload	Permanent resistance change after a 5second	J: Δ R/R max. ±(2%+0.5mΩ)
Soldering heat(R.S.H)10±1second in a SAC solder bath at 260°C±5°CF: Δ R/R max. ±(0.5%+0.5m: no visible damageSolderabilityUn-mounted chips completely immersed for 2±0.8 second in a SAC solder bath at 235°C±5°C95% coverage min., good tinning and no visible damageTemperature cycling30 minutes at -55°C±3°C, 2~3 minutes at 20°C+5°C-1°C, total 5 continuous cyclesJ: Δ R/R max. ±(1%+0.5mΩ)Damp Heat1000 +48/-0 hours, loaded with RCWV or Vmax in humidity chamber controller at 40°C±2°C and 90°95% relative humidity, 1.5hours on and 0.5 hours offJ: Δ R/R max. ±(1%+0.5mΩ)Clause 4.24Load life (endurance)1000 +48/-0 hours, loaded with RCWV or Vmax in chamber controller 70±2°C, 1.5 hours on and 0.5 HoursJ: Δ R/R max. ±(3%+0.5mΩ)Bending strengthResistors mounted on a 90mm glass epoxy resin PCB(FR4); bending: 3mm for 0603/0805, 2mm for 1206 and above sizes, once for 10 secondsJ: Δ R/R max. ±(1%+0.5mΩ)AdhesionPressurizing force: 5N, Test time: 10±1sec.No remarkable damage	(S.T.O.L) Clause 4.13	application of a 5 times rated power.	F: Δ R/R max. ±(1%+0.5mΩ)
Clause 4.18no visible damageSolderability Clause 4.17Un-mounted chips completely immersed for 2±0.8 second in a SAC solder bath at 235°C±5°C95% coverage min., good tinning and no visible damageTemperature cycling Clause 4.1930 minutes at -55°C±3°C, 2~3 minutes at 20°C+5°C-1°C, total 5 continuous cyclesJ: Δ R/R max. ±(1%+0.5mΩ)Damp Heat (Load life in humidity)1000 +48/-0 hours, loaded with RCWV or Vmax in humidity)J: Δ R/R max. ±(3%+0.5mΩ)Clause 4.241000 +48/-0 hours, loaded with RCWV or Vmax in relative humidity, 1.5hours on and 0.5 hours offF: Δ R/R max. ±(1%+0.5mΩ)JISC5201-1: 1998 Clause 4.251000 +48/-0 hours, loaded with RCWV or Vmax in chamber controller 70±2°C, 1.5 hours on and 0.5 Hours offJ: Δ R/R max. ±(1%+0.5mΩ)Bending strength Clause 4.33Resistors mounted on a 90mm glass epoxy resin PCB(FR4); bending: 3mm for 0603/0805, 2mm for 1206 and above sizes, once for 10 secondsJ: Δ R/R max. ±(1%+0.5mΩ)AdhesionPressurizing force: 5N, Test time: 10±1sec.No remarkable damage	Resistance to	Un-mounted chips completely immersed for	J: Δ R/R max. ±(1%+0.5mΩ)
Solderability Clause 4.17 Temperature cycling Clause 4.19 Damp Heat (Load life in humidity) Clause 4.24 Load life (endurance) JISCS201-1: 1998 Clause 4.25 Bending strength Clause 4.33 Adhesion Un-mounted chips completely immersed for 2±0.8 second in a SAC solder bath at 235°C±5°C tinning and no visible damage 100 +48/-0 hours, 2°C ±3°C, 2~3 minutes at 20°C+5°C1°C, 5°C ±6 R/R max. ±(1%+0.5mΩ) F: Δ R/R max. ±(0.5%+0.5m no visible damage J: Δ R/R max. ±(3%+0.5mΩ) F: Δ R/R max. ±(1%+0.5mΩ) F: Δ R/R max	soldering heat(R.S.H)	10±1second in a SAC solder bath at 260°C±5ºC	F: Δ R/R max. ±(0.5%+0.5mΩ)
Clause 4.17second in a SAC solder bath at 235°C±5°Ctinning and no visible damageTemperature cycling Clause 4.1930 minutes at -55°C±3°C, 2~3 minutes at 20°C+5°C-1°C, total 5 continuous cyclesJ: Δ R/R max. ±(1%+0.5mΩ)Damp Heat (Load life in humidity)1000 +48/-0 hours, loaded with RCWV or Vmax in humidity) relative humidity, 1.5hours on and 0.5 hours offJ: Δ R/R max. ±(3%+0.5mΩ)Clause 4.24J: Δ R/R max. ±(1%+0.5mΩ)Load life (endurance) JISC5201-1: 1998 Clause 4.251000 +48/-0 hours, loaded with RCWV or Vmax in chamber controller 70±2°C, 1.5 hours on and 0.5 Hours offJ: Δ R/R max. ±(3%+0.5mΩ)Bending strength Clause 4.33Resistors mounted on a 90mm glass epoxy resin PCB(FR4); bending : 3mm for 0603/0805, 2mm for 1206 and above sizes, once for 10 secondsJ: Δ R/R max. ±(1%+0.5mΩ)AdhesionPressurizing force: 5N, Test time: 10±1sec.No remarkable damage	Clause 4.18		no visible damage
Temperature cycling Clause 4.19 30 minutes at -55°C±3°C, 2~3 minutes at 20°C+5°C-1°C, total 5 continuous cycles Damp Heat (Load life in humidity) relative humidity, 1.5hours on and 0.5 hours off Clause 4.24 Load life (endurance) JISC5201-1: 1998 Clause 4.25 Bending strength Clause 4.33 Adhesion Adhesion Agents African School (2.2°C and 30°C+5°C-1°C, total 5 continuous cycles J: Δ R/R max. ±(1%+0.5mΩ) F: Δ R/R max. ±(3%+0.5mΩ) F: Δ R/R max. ±(3%+0.5mΩ) F: Δ R/R max. ±(1%+0.5mΩ) F: Δ R/R max. ±(1%+0.5	Solderability	Un-mounted chips completely immersed for 2±0.8	95% coverage min., good
Clause 4.19 30 minutes at -25°C±3°C, 2~3 minutes at 20°C+5°C1°C, total 5 continuous cycles Damp Heat (Load life in humidity chamber controller at 40°C±2°C and 90~95% relative humidity, 1.5hours on and 0.5 hours off Load life (endurance) J: Δ R/R max. ±(3%+0.5mΩ) F: Δ R/R max. ±(3%+0.5mΩ) F: Δ R/R max. ±(1%+0.5mΩ) F: Δ R/R max. ±(3%+0.5mΩ) F: Δ R/R max. ±(3%+0.5mΩ) F: Δ R/R max. ±(1%+0.5mΩ) F: Δ R/R max. ±(1%+0.	Clause 4.17	second in a SAC solder bath at 235°C±5°C	tinning and no visible damage
total 5 continuous cyclesno visible damageDamp Heat (Load life in humidity) Clause 4.241000 +48/-0 hours, loaded with RCWV or Vmax in humidity, 1.5hours on and 0.5 hours offJ: Δ R/R max. ±(3%+0.5mΩ) F: Δ R/R max. ±(1%+0.5mΩ)Load life (endurance) JISC5201-1: 1998 Clause 4.251000 +48/-0 hours, loaded with RCWV or Vmax in chamber controller 70±2°C, 1.5 hours on and 0.5 Hours offJ: Δ R/R max. ±(3%+0.5mΩ) F: Δ R/R max. ±(1%+0.5mΩ)Bending strength Clause 4.33Resistors mounted on a 90mm glass epoxy resin PCB(FR4); bending: 3mm for 0603/0805, 2mm for 1206 and above sizes, once for 10 secondsJ: Δ R/R max. ±(0.5%+0.5mm no visible damageAdhesionPressurizing force: 5N, Test time: 10±1sec.No remarkable damage	Temperature cycling	30 minutes at -55°C±3°C, 2~3 minutes at 20°C+5°C-1°C,	J: Δ R/R max. ±(1%+0.5mΩ)
Damp Heat (Load life in humidity)1000 +48/-0 hours, loaded with RCWV or Vmax in humidity)J: Δ R/R max. ±(3%+0.5mΩ)Clause 4.24F: Δ R/R max. ±(1%+0.5mΩ)Load life (endurance)1000 +48/-0 hours, loaded with RCWV or Vmax in chamber controller 70±2°C, 1.5 hours on and 0.5 HoursJ: Δ R/R max. ±(3%+0.5mΩ)Clause 4.25Resistors mounted on a 90mm glass epoxy resin PCB(FR4); bending: 3mm for 0603/0805, 2mm for 1206 and above sizes, once for 10 secondsJ: Δ R/R max. ±(1%+0.5mΩ)AdhesionPressurizing force: 5N, Test time: 10±1sec.No remarkable damage	Clause 4.19	30 minutes at +125°C±3°C, 2~3 minutes at 20°C+5°C1°C,	F: Δ R/R max. ±(0.5%+0.5mΩ)
Load life in humidity chamber controller at 40°C±2°C and 90~95% F: Δ R/R max. ±(1%+0.5mΩ)		total 5 continuous cycles	no visible damage
humidity)relative humidity, 1.5hours on and 0.5 hours offClause 4.241000 +48/-0 hours, loaded with RCWV or Vmax in chamber controller 70±2°C, 1.5 hours on and 0.5 Hours offJ: Δ R/R max. ±(3%+0.5mΩ) F: Δ R/R max. ±(1%+0.5mΩ)Bending strength Clause 4.25Resistors mounted on a 90mm glass epoxy resin PCB(FR4); bending: 3mm for 0603/0805, 2mm for 1206 and above sizes, once for 10 secondsJ: Δ R/R max. ±(1%+0.5mΩ) F: Δ R/R max. ±(0.5%+0.5mg) no visible damageAdhesionPressurizing force: 5N, Test time: 10±1sec.No remarkable damage on	Damp Heat	1000 +48/-0 hours, loaded with RCWV or Vmax in	J: Δ R/R max. ±(3%+0.5mΩ)
Clause 4.24Load life (endurance)1000 +48/-0 hours, loaded with RCWV or Vmax in chamber controller 70±2°C, 1.5 hours on and 0.5 Hours offJ: Δ R/R max. ±(3%+0.5mΩ) F: Δ R/R max. ±(1%+0.5mΩ)Clause 4.25Resistors mounted on a 90mm glass epoxy resin PCB(FR4); bending: 3mm for 0603/0805, 2mm for 1206 and above sizes, once for 10 secondsJ: Δ R/R max. ±(1%+0.5mΩ) F: Δ R/R max. ±(0.5%+0.5mm) no visible damageAdhesionPressurizing force: 5N, Test time: 10±1sec.No remarkable damage on	(Load life in	humidity chamber controller at 40°C±2°C and 90~95%	F: Δ R/R max. ±(1%+0.5mΩ)
Load life (endurance)1000 +48/-0 hours, loaded with RCWV or Vmax in chamber controller 70±2°C, 1.5 hours on and 0.5 Hours offJ: Δ R/R max. ±(3%+0.5mΩ) F: Δ R/R max. ±(1%+0.5mΩ)Bending strength Clause 4.33Resistors mounted on a 90mm glass epoxy resin PCB(FR4); bending: 3mm for 0603/0805, 2mm for 1206 and above sizes, once for 10 secondsJ: Δ R/R max. ±(1%+0.5mΩ) F: Δ R/R max. ±(1%+0.5mΩ)AdhesionPressurizing force: 5N, Test time: 10±1sec.No remarkable damage	humidity)	relative humidity, 1.5hours on and 0.5 hours off	
Load life (endurance)1000 +48/-0 nours, loaded with RCWV or Vmax in chamber controller 70±2°C, 1.5 hours on and 0.5 HoursF: Δ R/R max. ±(1%+0.5mΩ)Clause 4.25Resistors mounted on a 90mm glass epoxy resin PCB(FR4); bending: 3mm for 0603/0805, 2mm for 1206 and above sizes, once for 10 secondsJ: Δ R/R max. ±(1%+0.5mΩ)AdhesionPressurizing force: 5N, Test time: 10±1sec.No remarkable damage	Clause 4.24		
JISC5201-1: 1998chamber controller 70±2°C, 1.5 hours on and 0.5 HoursF: Δ R/R max. ±(1%+0.5mΩ)Clause 4.25Resistors mounted on a 90mm glass epoxy resin PCB(FR4); bending: 3mm for 0603/0805, 2mm for 1206 and above sizes, once for 10 secondsJ: Δ R/R max. ±(1%+0.5mΩ)AdhesionPressurizing force: 5N, Test time: 10±1sec.No remarkable damage	Load life (endurance)	1000 +48/-0 hours, loaded with RCWV or Vmax in	J: Δ R/R max. ±(3%+0.5mΩ)
Bending strengthResistors mounted on a 90mm glass epoxy resinJ: Δ R/R max. ±(1%+0.5mΩ)Clause 4.33PCB(FR4); bending: 3mm for 0603/0805, 2mm for 1206 and above sizes, once for 10 secondsF: Δ R/R max. ±(0.5%+0.5mm no visible damageAdhesionPressurizing force: 5N, Test time: 10±1sec.No remarkable damage or no visible damage	JISC5201-1: 1998	chamber controller 70±2°C, 1.5 hours on and 0.5 Hours	F: Δ R/R max. ±(1%+0.5mΩ)
Clause 4.33 PCB(FR4); bending : 3mm for 0603/0805, 2mm for 1206 and above sizes, once for 10 seconds F: Δ R/R max. ±(0.5%+0.5mm no visible damage Adhesion Pressurizing force: 5N, Test time: 10±1sec. No remarkable damage or no visible damag	Clause 4.25	off	
Clause 4.33PCB(FR4); bending : 3mm for 0603/0805, 2mm for 1206 and above sizes, once for 10 secondsF: Δ R/R max. ±(0.5%+0.5mm) no visible damageAdhesionPressurizing force: 5N, Test time: 10±1sec.No remarkable damage or	Bending strength	Resistors mounted on a 90mm glass epoxy resin	J: Δ R/R max. ±(1%+0.5mΩ)
1206 and above sizes, once for 10 seconds no visible damage Adhesion Pressurizing force: 5N, Test time: 10±1sec. No remarkable damage o			F: Δ R/R max. ±(0.5%+0.5mΩ)
Adnesion No Tellial Rabie dalliage of		1206 and above sizes, once for 10 seconds	
	Adhesion	Pressurizing force: 5N, Test time: 10±1sec.	No remarkable damage or
Clause 4.32 removal of the termination			removal of the terminations
Insulation Resistance Test voltage: 100+/-15V I.R≥1GΩ	Insulation Resistance	Test voltage: 100+/-15V	I.R≧1GΩ
Clause 4.6			7



THICK FILM CHIP RESISTORS CL06 SERIES

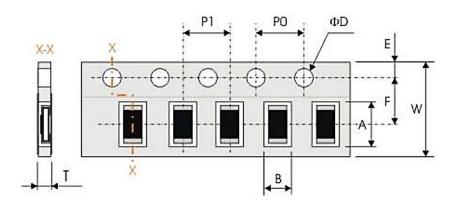
REEL DIMENSION (Unit: mm)

7": 5,000Ppcs/Reel



Code	Dimension 7"	Dimension 10"	Dimension 13"	
А	178.0+/-2.0	254.0+/-2.0	330.0+/-2.0	
В	60.0 +/-1.0	100 +/-1.0	100+/-1.0	
С	13.0+/-0.20	13.0+/-0.20	13.0+/-0.20	
D	10.0±1.5	10.0±1.5	10.0±1.5	

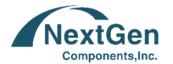
TAPE DIMENSION (Unit: mm)



Code	Dimension
А	3.60±0.20
В	2.00±0.20
W	8.00±0.30
F	3.50±0.20
E	1.75±0.10
P 1	4.00±0. 10
PO	4.00±0.10
ФD	1.50±0.10
T	1.0 Max.

TAPING QUANTITY AND TAPE MATERIAL

Таре	Paper Tape						Embossed Tape	Bulk Cassette
		4 mm Pitch		2 mm Pitch			4 mm Pitch	
Reel Size	7"	10"	13"	7"	10"	13"	7"	
CL06	5000	10000	20000	-	-	-	-	5000



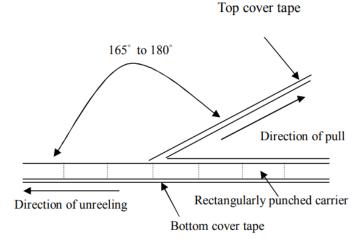
THICK FILM LOW OHM CL06 SERIES

PERFORMANCE OF TAPING

Strength of Carrier Tape and Top Cover Tape

Carrier Tape: When a tensile force 1.02kgf is applied in the direction of unreeling the tape, the tape shall withstand this force. Top cover Tape: When a tensile force 1.02kgf is applied to the tape, the tape shall withstand this force. Peel Force of Top Cover Tape

Unless otherwise specified, the peel force of top cover tape shall be 10.2 to 71.4 g f when the top cover tape is pulled at a speed of 300mm/min with the angle between the taped during peel and the direction of unreeling maintained at 165 to 180°as illustrated in Fig.



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