SMD Shielded Wire Wound Power Inductor

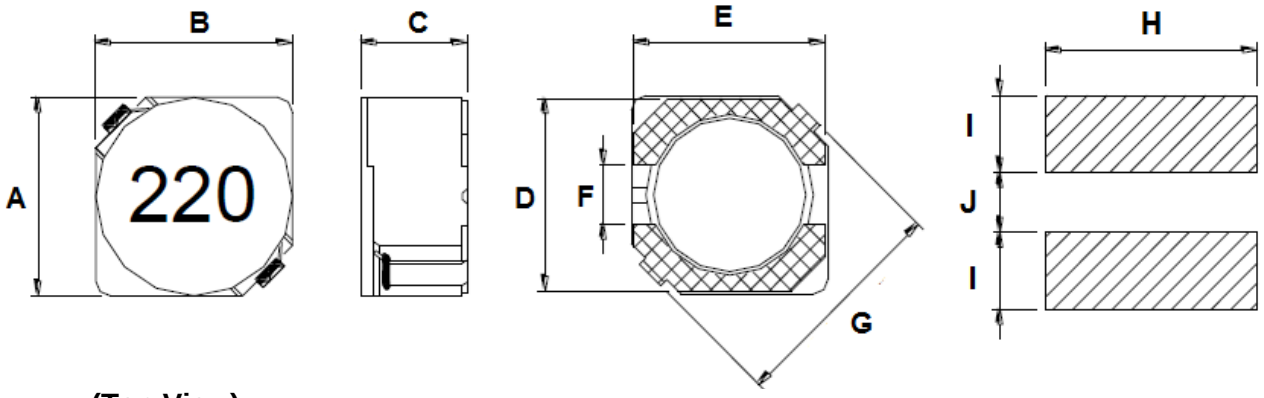
Features

- Magnetically shielded construction
- Compact and thin
- Large current and low DCR
- RoHS Compliant

Applications

- DC-DC converter of portable equipment
- Camcorder, LCD television set, digital camera, notebook

Dimensions

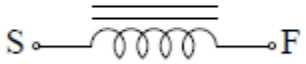


(Top View) (Side View) (Bottom View) (Pad Layout)

Unit: mm

A Max.	B Max.	C Max.	D Typ.	E Typ.	F Typ.	G Max.	H Typ.	I Typ.	J Typ.
5.0	5.0	3.1	4.5	4.5	1.5	6.9	5.3	1.9	1.5

Circuit



Material

NO.	Item	Supplier	Material
1	Core	Ferrite Electronic Ind. Co., LTD. or Equiv.	1CDR046028R20-1.8S
2	RI Core	Ferrite Electronic Ind. Co., LTD. or Equiv.	1CRI047024R41S
3	Wire	Pacific Electronics Wire & Co., LTD. or Equiv.	1W2UEW
4	Clip	Lian Cheng Electronics Ironware or Equiv.	1MIS-C04601S
5	Epoxy	Wells Electronic Material (Guangzhou) Co., LTD.	1EEP-A1006 1EEP-B1006
6	Epoxy	Grace Power Polymer Technology Co., LTD.	1EEP-G500
7	Flux	Shenzhen Yuantong Industry Co., LTD. or Equiv.	1EEFL-W809S
8	Solder	Daihui Electronics Chemicals Co., LTD.	1MTIN-Sn0.7Cu-2

Electrical Specifications

Symbol	Description	Value	Unit	Conditions
L	Inductance	0.68 ~ 180	μH	100KHz, 250mV, 25°C
DCR	DC Resistance (max.)	20 ~ 1900	mΩ	25°C
IDC	Rated DC Current (max.) (Note)	0.22 ~ 3.1	A	100KHz, 250mV
Top	Operating Temperature	-40 to 125	°C	-
Tstg	Storage Temperature	-40 to 125	°C	

Note: Lower inductance by 35%

TIS4D28QES Series

Specifications

Part Number	L (µH)	Test Freq. (KHz)	DCR (mΩ) Max.	Rated DC Current (A) Max.
TIS4D28QESR68*	0.68	100	20.0	3.10
TIS4D28QES1R0*	1.0		25.5	2.56
TIS4D28QES1R5*	1.5		40.0	2.38
TIS4D28QES1R8*	1.8		37.0	2.20
TIS4D28QES2R2*	2.2		50.5	2.00
TIS4D28QES2R7*	2.7		50.5	1.60
TIS4D28QES3R3*	3.3		58.0	1.57
TIS4D28QES3R9*	3.9		66.5	1.44
TIS4D28QES4R7*	4.7		72.0	1.32
TIS4D28QES5R6*	5.6		80.0	1.17
TIS4D28QES6R8*	6.8		92.0	1.12
TIS4D28QES8R2*	8.2		98.0	1.04
TIS4D28QES100*	10.0		103	1.00
TIS4D28QES120*	12.0		128	0.84
TIS4D28QES150*	15.0		144	0.76
TIS4D28QES180*	18.0		186	0.72
TIS4D28QES220*	22.0		218	0.70
TIS4D28QES270*	27.0		252	0.58
TIS4D28QES330*	33.0		285	0.56
TIS4D28QES390*	39.0		408	0.50
TIS4D28QES470*	47.0		440	0.48
TIS4D28QES560*	56.0		550	0.41
TIS4D28QES680*	68.0		620	0.35
TIS4D28QES820*	82.0		920	0.32
TIS4D28QES101*	100		1050	0.29
TIS4D28QES121*	120		1550	0.27

Part Number	L (μH)	Test Freq. (KHz)	DCR (mΩ) Max.	Rated DC Current (A) Max.
TIS4D28QES151*	150	100	1700	0.24
TIS4D28QES151*	150		1700	0.24
TIS4D28QES181*	180		1900	0.22

Note: 1. Tolerance * : M=±20%, N=±30%;

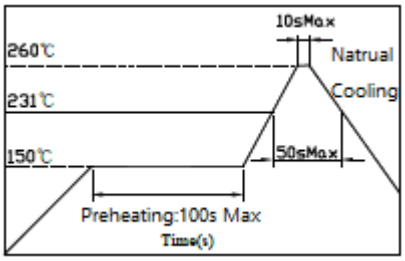
2. Maximum allowable DC current is that which causes a 35% inductance reduction from the initial value, or coil temperature to rise by 40 ℃, whichever is smaller (reference ambient temperature is 20℃).

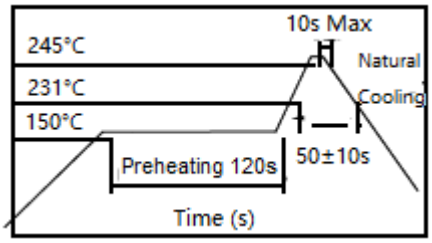
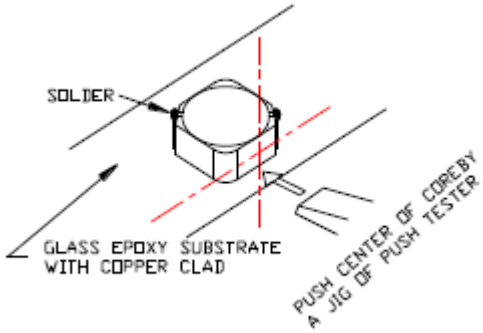
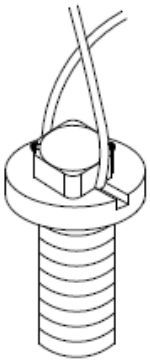
Environment Characteristics

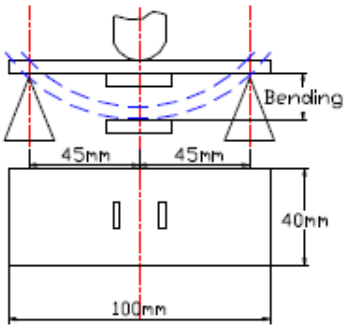
Electrical Performance Test

Item	Requirement	Test Method
L	Refer to standard electrical characteristic list.	CHP-4284A OR EQUIV.
DCR		CH-16502 OR EQUIV
Rated Current		Applied the current to coils the inductance change should be less than 35% to initial value and temperature rise should not be more than 40℃
Temperature Rise Rest	40℃ Max(Δt)	1. Applied the allowed DC current for 4 hours 2. Temperature measure by digital surface thermometer
Overload Test	No evidence of electrical damage	Applied 1.5 times of rated allowed DC current to component for a period of 5 minutes.

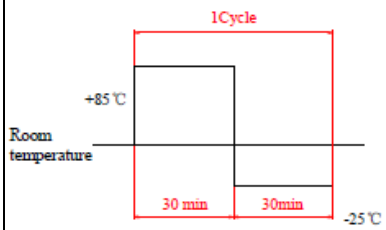
Mechanical Performance Test

Item	Requirement	Test Method
Solder Heat Resistance	1. Component should have no evidence of electrical and mechanical damage. 2. Inductance should not change more than ±10%	Preheat: 150℃ 100s Max. Solder: Pb Free Solder Temperature: 260±5℃ Dip time: 10s Max 
Vibration Test (Low Frequency)		1. Amplitude: 1.5mm 2. Frequency 10-55-10Hz / 1Min 3. Direction: X, Y, Z 4. Duration: 2 Hours / X, Y, Z
Shock Test		Component should be dropped 10 times from a height of 1m onto 3cm wooden board

Item	Requirement	Test Method
Solderability Test	More than 90% of terminal electrode should be covered with solder	Preheat: 150℃ 120s Solder: Pb Free Solder Temperature: 245±5℃ Dip time: 10s Max 
Component Adhesion (Push Test)	1.8Kg Min.	The device should be reflow soldered (232±5℃ for 10 seconds) to a tinned copper substrate. A dynometer force gauge should be applied to the side of the component. The device must withstand 0.8Kg without allure of the termination attached to component. 
Component Adhesion (Pull Test)	1.8Kg Min.	1. Insert 10cm wire into the remaining open eye bend the ends of even wire lengths upward and wind together. 2. Terminal shall not be remarkably damaged. 

Item	Requirement	Test Method
Flexure Strength	The forces applied should not damage the dielectric.	Solder a chip on a test substrate, bend the substrate by 2 mm and return. 
Resistance to Solvent Test	There should be no case deformation, change in appearance or bite ration of marking	Component shall withstand 6 minutes of alcohol.

Climatic Test

Item	Requirement	Test Method
Temperature Characteristic	1. Appearance: No damage 2. Inductance: Within±10% of initial value	-40℃ ~ +125℃
Humidity Test		60±2℃ / 96±2 hours R.H.: 90-95% R.H.
Low temperature Storage		1. Temperature: -40±2℃ 2. Time: 96±2 hours
Thermal Shock Test		1. -40±5℃ for 30 minutes +125±5℃ for 30 minutes 2. Total: 10 Cycles 
High Temperature Storage		1. Applied Max rated current 2. Temperature: 125±2℃ 3. Time: 96±2 hours

Note: Component are to be tested after 2 hours at room temperature

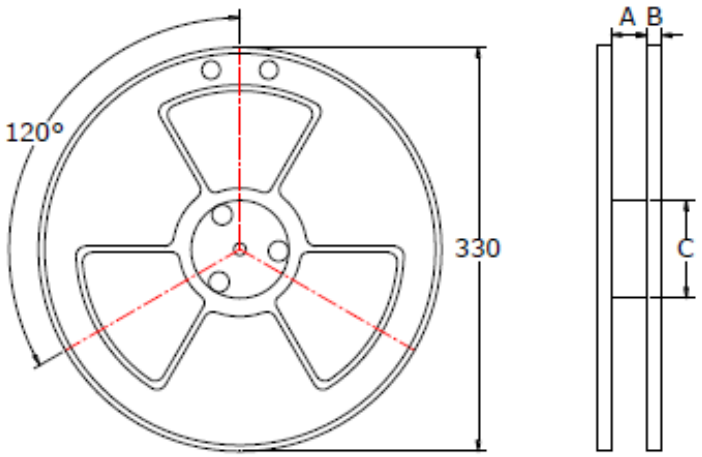
Life Test

Item	Requirement	Test Method
High Temperature Load Life Test	Component should be no evidence of short or open circuit	1. Temperature: 125±2℃ 2. Time: 500±12 hours 3. Load: Allowed DC current
Humidity Load Life Test		1. Temperature: 60±2℃ 2. R.H.: 90-95% R.H. 3. Time: 500±12 hours 4. Load: Allowed DC current

Packing Information:

Reel Specifications

Unit: mm

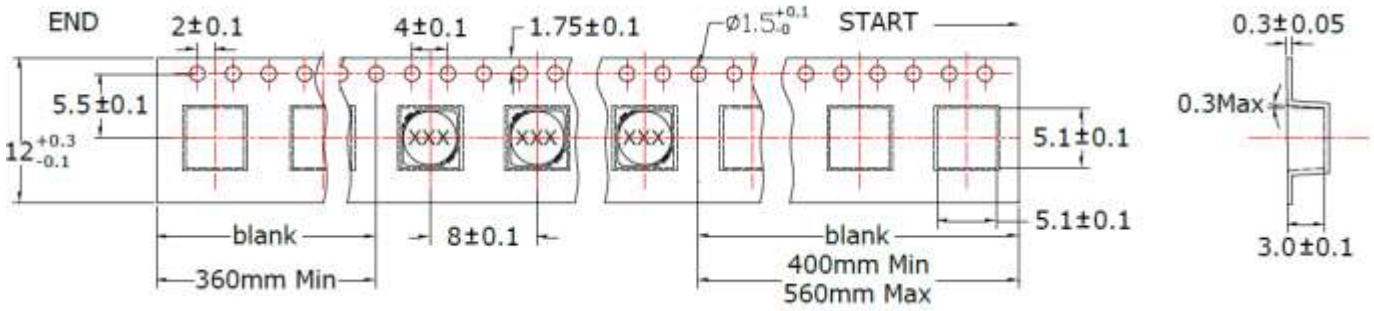


Type	A±0.1	B±0.1	C Min.
TIS4D28QES	12.5	2.3	100

TIS4D28QES Series

Tape Specifications

Unit: mm



Packing Quntities:

Pcs per Reel	Pcs per Inner Box	Pcs per Shipping Carton
2,000	6,000	30,000

How to Order

TIS 4D28 QE S 220 M– xx –TR30

- TIS: Taitron SMD Power Inductor
- 4D28: Size Code — 4D28: 5.0x5.0x3.1mm
- QE: Shape Code — QE: Pattern
- S: Shield Code — S: Shield
- 220: Inductance Code: 220: 22uH
- M: Tolerance Code: M: ±20%
- xx: Factory Location Code
- TR30: Packing Code — TR30: 13” Reel, RoHS

How to Contact Us

USA HEADQUARTERS
28040 WEST HARRISON PARKWAY, VALENCIA, CA 91355-4162
Tel: (800)-TAITRON (800)-824-8766 (661)-257-6060
Fax: (800)-TAITFAX (800)-824-8329 (661)-257-6415
Email: taitron@taitroncomponents.com
Http://www.taitroncomponents.com

TAITRON COMPONENTS INCORPORATED TAIWAN BRANCH
6F., NO.190, SEC. 2, ZHONGXING RD., XINDIAN DIST., NEW TAIPEI CITY 23146, TAIWAN R.O.C.
Tel: 886-2-2913-6238
Fax: 886-2-2913-6239

TAITRON COMPONENT TECHNOLOG SHANGHAI CORPORATION
SUITE 1503, METROBANK PLAZA, 1160 WEST YAN'AN ROAD, SHANGHAI, 200052, CHINA
Tel: +86-21-5424-9942
Fax: +86-21-2302-5027