MORE 茂昌电子

SPECIFICATION FOR APPROVAL

CUSTOMER ： STD

CUSTOMER PART NO ：

PRODUCTS ： SMD POWER INDUCTOR

PART NO： MCSP Series

DATE： 2019.09.05

SALES： 产品部

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APPROVAL SIGNATURE 客户承认签章	

APPROVAL	CHECK BY	DRAWN BY
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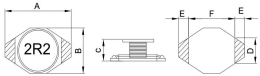
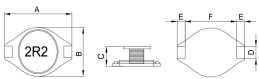
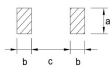
SMD Power Inductors--MCSP Series



Dimension : 1608



Dimension : 3316 , 3340 , 5022



PCB Pattern

Feature

1. High current and inductance capacity.

2.Specially designed for surface mounting.equipment,

good for high density applicaton.

3.Low profile very effective in space-conscious applications.

4.Low resistance and high-energy storage.

Application

Power supply for VTR, OA equipment, LCD TV,

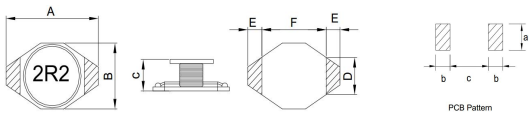
Notebook PC, DC/DC Converter,DC/AC Inverter.

Product Identification

MC	SP	3316Z	2R2	N
A	B	C	D	E

A Company code
B Series Name.
C Dimension.
D Inductance. (for example 2R2= 2.2uH)
E Inductance Tolerance. (for example K=±10% ,M=±20% ,N=±30%)

SMD Power Inductors--MCSP Series

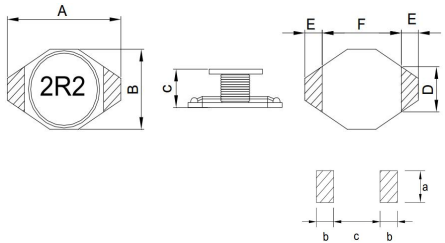


P/N	A（mm）	B（mm）	C（mm）	D（mm）	E（mm）	F（mm）	a（mm）	b（mm）	c（mm）
MCSP1608Z	6.6 Max.	4.45 Max.	2.92 Max.	1.27 ± 0.2	1.02 ± 0.2	4.32 ± 0.3	3.56	1.40	4.06
MCSP3316Z	13.0 ± 0.2	10.0 ± 0.2	5.0 ± 0.3	2.2 ± 0.2	2.4 ± 0.2	7.6 ± 0.3	2.80	3.00	7.30
MCSP3340Z	13.0 ± 0.2	10.0 ± 0.2	11.0 ± 0.5	2.2 ± 0.2	2.4 ± 0.2	7.6 ± 0.3	2.80	3.00	7.30
MCSP5022Z	18.6 ± 0.3	15.0 ± 0.3	7.0 ± 0.5	2.2 ± 0.2	2.4 ± 0.2	13.3 ± 0.3	2.80	3.00	12.70

P/N	Characteristic Range（μH） 100KHz 1.0V 10 100 500 1000	I-sat (Amps)	I-rms (Amps)	DCR (mΩ)
MCSP1608Z	1 ~ 1000	0.1~2.9	0.07~2.9	50~13800
MCSP3316Z	1 ~ 1000	0.3~9	0.3~6.8	9~3000
MCSP3340Z	10 ~ 1000	0.7~7	0.5~3.5	40~2000
MCSP5022Z	1 ~ 1000	1~20	0.56~8.6	9~1300

Shielded Construction--MCSP1608Z Series

1.Mechanical & Dimensions (UNIT: mm)



PCB Pattern

A	**6.6 Max.**
B	**4.45 Max.**
C	**2.92 Max.**
D	**1.27 ± 0.2**
E	**1.02 ± 0.2**
F	**4.32 ± 0.3**
a	**3.56**
b	**1.4**
C	**4.06**

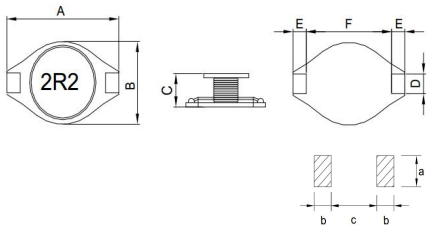
2.Electrical characteristics

Part Number	nductance L0(uH 100KHZ/0.1V	DCR (mΩ) MAX	I-rms (A) ΔT≦ 40℃	I-sat (A) ≥80%L0
MCSP1608Z1R0M	1.0 ± 20%	50.0	2.90	2.90
MCSP1608Z1R5M	1.5 ± 20%	50.0	2.80	2.60
MCSP1608Z2R2M	2.2 ± 20%	70.0	2.40	2.30
MCSP1608Z3R3M	3.3 ± 20%	80.0	2.00	2.00
MCSP1608Z4R7M	4.7 ± 20%	90.0	1.50	1.50
MCSP1608Z6R8M	6.8 ± 20%	130.0	1.40	1.20
MCSP1608Z100M	10.0 ± 20%	160.0	1.10	1.10
MCSP1608Z150M	15.0 ± 20%	230.0	1.00	0.90
MCSP1608Z220M	22.0 ± 20%	270.0	0.80	0.70
MCSP1608Z330M	33.0 ± 20%	510.0	0.60	0.58
MCSP1608Z470M	47.0 ± 20%	640.0	0.50	0.50
MCSP1608Z680M	68.0 ± 20%	860.0	0.40	0.50
MCSP1608Z101M	100.0 ± 20%	1270.0	0.30	0.31
MCSP1608Z151M	150.0 ± 20%	2000.0	0.25	0.27
MCSP1608Z221M	220.0 ± 20%	3110.0	0.20	0.22
MCSP1608Z331M	330.0 ± 20%	3800.0	0.16	0.18
MCSP1608Z471M	470.0 ± 20%	5060.0	0.15	0.16
MCSP1608Z681M	680.0 ± 20%	9200.0	0.12	0.14
MCSP1608Z102M	1000.0 ± 20%	13800.0	0.07	0.10

3.Operating -40℃ ~ +125℃ (Including self-temperature rise)

Shielded Construction--MCSP3316Z Series

1.Mechanical & Dimensions (UNIT: mm)



PCB Pattern

A	13.0 ± 0.2
B	10.0 ± 0.2
C	5.0 ± 0.3
D	2.2 ± 0.2
E	2.4 ± 0.2
F	7.6 ± 0.3
a	2.8
b	3
C	7.3

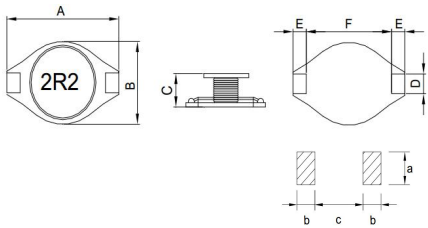
2.Electrical characteristics

Part Number	nductance L0(uH 100KHZ/0.1V	DCR (mΩ) MAX	I-rms (A) ΔT≦ 40℃	I-sat (A) ≥80%L0
MCSP3316Z1R0M	1.0 ± 20%	9.0	6.80	9.00
MCSP3316Z1R5M	1.5 ± 20%	10.0	6.40	8.00
MCSP3316Z2R2M	2.2 ± 20%	12.0	6.10	7.00
MCSP3316Z3R3M	3.3 ± 20%	15.0	5.40	5.80
MCSP3316Z4R7M	4.7 ± 20%	18.0	4.80	5.20
MCSP3316Z6R8M	6.8 ± 20%	27.0	4.40	4.30
MCSP3316Z100M	10.0 ± 20%	38.0	3.90	3.40
MCSP3316Z150M	15.0 ± 20%	46.0	3.10	3.00
MCSP3316Z220M	22.0 ± 20%	85.0	2.70	2.50
MCSP3316Z330M	33.0 ± 20%	100.0	2.10	2.00
MCSP3316Z470M	47.0 ± 20%	140.0	1.80	1.80
MCSP3316Z680M	68.0 ± 20%	200.0	1.50	1.40
MCSP3316Z101M	100.0 ± 20%	280.0	1.30	1.10
MCSP3316Z151M	150.0 ± 20%	400.0	1.00	0.90
MCSP3316Z221M	220.0 ± 20%	610.0	0.80	0.80
MCSP3316Z331M	330.0 ± 20%	1020.0	0.60	0.60
MCSP3316Z471M	470.0 ± 20%	1270.0	0.50	0.50
MCSP3316Z681M	680.0 ± 20%	2020.0	0.40	0.40
MCSP3316Z102M	1000.0 ± 20%	3000.0	0.30	0.30

3.Operating -40℃ ~ +125℃ (Including self-temperature rise)

Shielded Construction--MCSP3340Z Series

1.Mechanical & Dimensions (UNIT: mm)



A	**13.0 ± 0.2**
B	**10.0 ± 0.2**
C	**11.0 ± 0.5**
D	**2.2 ± 0.2**
E	**2.4 ± 0.2**
F	**7.6 ± 0.3**
a	**2.8**
b	**3**
C	**7.3**

PCB Pattern

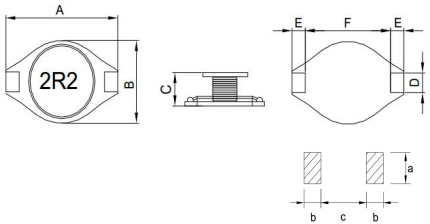
2.Electrical characteristics

Part Number	nductance L0(uH 100KHZ/0.1V	DCR (mΩ) MAX	I-rms (A) ΔT≦ 40℃	I-sat (A) ≥80%L0
MCSP3340Z100M	10.0 ± 20%	40.0	3.50	7.00
MCSP3340Z150M	15.0 ± 20%	50.0	3.20	5.80
MCSP3340Z220M	22.0 ± 20%	66.0	2.90	4.80
MCSP3340Z330M	33.0 ± 20%	80.0	2.35	3.80
MCSP3340Z470M	47.0 ± 20%	110.0	2.10	3.40
MCSP3340Z680M	68.0 ± 20%	170.0	1.90	2.70
MCSP3340Z101M	100.0 ± 20%	220.0	1.55	2.20
MCSP3340Z151M	150.0 ± 20%	340.0	1.35	1.90
MCSP3340Z221M	220.0 ± 20%	440.0	1.00	1.50
MCSP3340Z331M	330.0 ± 20%	700.0	0.90	1.30
MCSP3340Z471M	470.0 ± 20%	950.0	0.75	1.00
MCSP3340Z681M	680.0 ± 20%	1200.0	0.55	0.90
MCSP3340Z102M	1000.0 ± 20%	2000.0	0.50	0.70

3.Operating -40℃ ~ +125℃ (Including self-temperature rise)

Shielded Construction--MCSP5022Z Series

1.Mechanical & Dimensions (UNIT: mm)



PCB Pattern

A	**18.6 ± 0.3**
B	**15.0 ± 0.3**
C	**7.0 ± 0.5**
D	**2.2 ± 0.2**
E	**2.4 ± 0.2**
F	**13.3 ± 0.3**
a	**2.8**
b	**3**
C	**12.7**

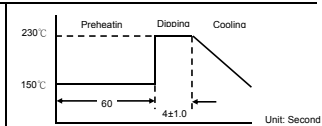
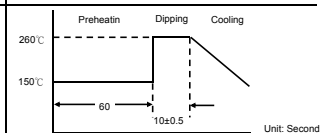
2.Electrical characteristics

Part Number	nductance L0(uH 100KHZ/0.1V	DCR (mΩ) MAX	I-rms (A) ΔT≦ 40℃	I-sat (A) ≥80%L0
MCSP5022Z1R0M	1.0 ± 20%	9.0	8.60	20.00
MCSP5022Z1R5M	1.5 ± 20%	12.0	7.50	18.00
MCSP5022Z2R2M	2.2 ± 20%	14.0	7.10	16.00
MCSP5022Z3R3M	3.3 ± 20%	18.0	6.20	14.00
MCSP5022Z5R6M	5.6 ± 20%	20.0	5.30	12.00
MCSP5022Z100M	10.0 ± 20%	31.0	4.30	10.00
MCSP5022Z150M	15.0 ± 20%	36.0	4.00	8.00
MCSP5022Z220M	22.0 ± 20%	47.0	3.50	7.00
MCSP5022Z330M	33.0 ± 20%	66.0	3.00	5.50
MCSP5022Z470M	47.0 ± 20%	86.0	2.60	4.50
MCSP5022Z680M	68.0 ± 20%	130.0	2.30	3.50
MCSP5022Z101M	100.0 ± 20%	190.0	1.80	3.00
MCSP5022Z151M	150.0 ± 20%	250.0	1.50	2.60
MCSP5022Z221M	220.0 ± 20%	380.0	1.20	2.40
MCSP5022Z331M	330.0 ± 20%	560.0	1.00	1.90
MCSP5022Z471M	470.0 ± 20%	850.0	0.82	1.40
MCSP5022Z681M	680.0 ± 20%	1100.0	0.72	1.20
MCSP5022Z102M	1000.0 ± 20%	1300.0	0.56	1.00

3.Operating -40℃ ~ +125℃ (Including self-temperature rise)

SPECIFICATION FOR APPROVAL

4.Reliability and Testing Conditions / Pin Type Power Inductors

Item	Specification	Conditions
Operating temperature range	-40℃ ~ +125℃ (Including self-temperature rise)	
Storage temperature and humidity range	-40℃ ~ +125℃ , 70% RH Max	
Solderability	More than 90% of the terminal electrode should be covered with solder.	
Solder Heat Resistance	Inductance within ±20% of initial value. No disconnection or short circuit. The appearance shall not break.	
Heat resistance	Inductance within ±20% of initial value. No disconnection or short circuit. The appearance shall not break.	After 96 hours in 85±5℃and 2 hour drying under normal condition.
Cold resistance	Inductance within ±20% of initial value. No disconnection or short circuit. The appearance shall not break.	After 96 hours in -40±5℃ and 2 hour drying under normal condition.
Thermal shock	Inductance within ±20% of initial value. No disconnection or short circuit. The appearance shall not break.	After 100 cycles of following condition. Step / Temperature (℃) / Times (min.) 1 / -40±5℃ / 30 2 / Room Temperature / Within 3 3 / 85±5℃ / 30 4 / Room Temperature / Within 3
Humidity Resistance	Inductance within ±20% of initial value. No disconnection or short circuit. The appearance shall not break.	After96 hours in 40±2℃ and 90 to 95% humidity , and 2 hour drying under normal condition.
Vibration Test	Inductance within ±5% of initial value and appearance shall not break.	After vibration for 1hour, In each of three orientations at sweep vibration (10~55~10Hz) with 1.52mm P-P Amplitudes.
Terminal strength	The terminal electrode and the ferrite must not be damaged	Solder a chip to test substrate, and then laterally apply a load 10N in the arrow direction, Duration 5S ±

5.Recommended Soldering Conditions

Figure 1. Re-flow Soldering

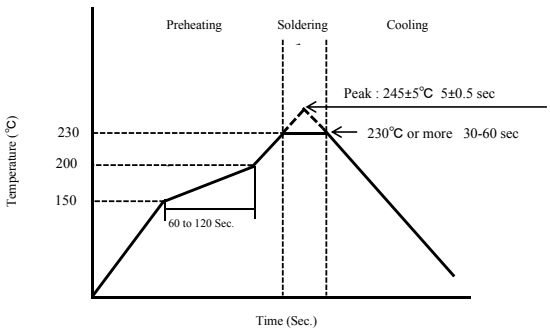
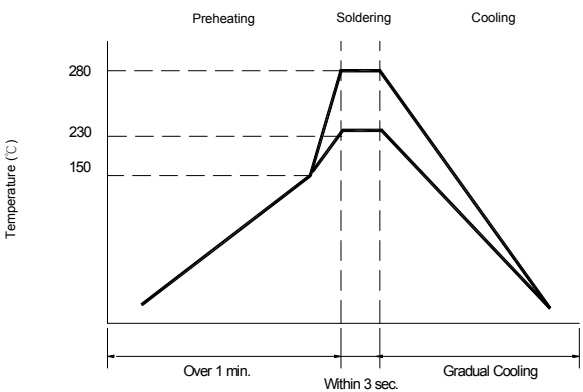
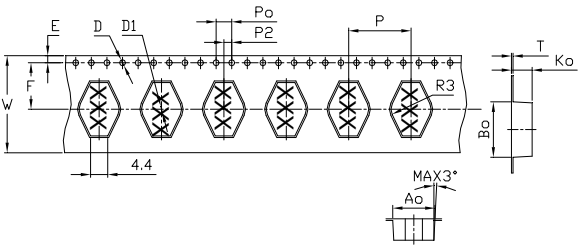


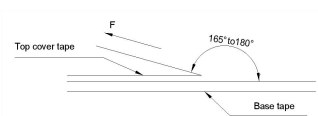
Figure 2. Hand Soldering



6.Packaging



Part Number	A0	B0	K0	P	T	W	PCS/REEL
MCSP3316Z	**10.4±0.1**	**13.2±0.1**	**5.3±0.1**	**12.0±0.1**	**0.4±0.05**	**24±0.03**	**1000**
MCSP3340Z	**10.4±0.1**	**13.2±0.1**	**11.8±0.1**	**14.0±0.1**	**0.4±0.05**	**24±0.03**	**250**
MCSP5022Z	**15.4±0.1**	**19±0.1**	**7.3±0.1**	**16.0±0.1**	**0.4±0.05**	**32±0.03**	**300**



The force tearing off cove tape is 15 to 60 grams in the arrow direction under the following conditions

Room Temp	Room Humidity	Room atrn	Teaming Speed
(℃)	(%)	(hPa)	(mm/min)
5~35	45~85	860~1060	300

※Storage Conditions

1. Temperature and humidity conditions: -40℃ ~ +125℃ and 70% RH.
2. Recommended products should be used within 6 month form the time of delivery.
3. The packaging material should be kept where no chlorin or sulfur exists in the air.

※Transportation

1. Products should be handled with care to avoid damage or contamination from perspiration and skin oils.
2. The use of tweezers or vacuum pick up is strongly recommended for individual components.
3. Bulk handling should ensure that abrasion and mechanical shock are minimized.