

SMPC 车载系列集成芯片电感 SMPC Series Chip Molding Power Inductors



产品应用 Application

辅助驾驶	ADAS
车载娱乐系统	Vehicle Infotainment
车载DC/DC转换	Automotive DC/DC Converters



产品特征 Features

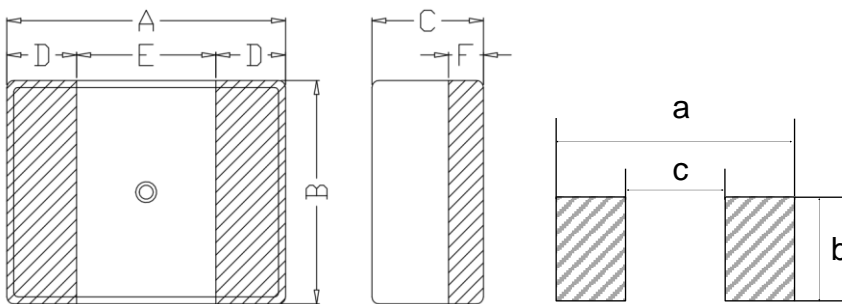
超薄大电流	Low Profile & High Current
温度范围: -40°C~+125°C	Temperature Range: -40°C~+125°C
车载AEC-Q200标准	Compliant with AEC-Q200

产品规格型号表示方法 How to Order

SMPC424020A - 1R0 M C
(1) (2) (3) (4)

- (1) 系列名称 Series Name
- (2) 电感感值 Inductance(μH)
- (3) 精度误差 Tolerance
- (4) 内部代码 Internal Code

外型尺寸 Dimensions



Type	A	B	C	D	E	F	a	b	c
SMPC424020A(mm)	4.2±0.3	4.0±0.3	2.0±0.1	1.2 Typ.	1.8 Typ.	0.75 Ref.	4.8 Typ.	4.4 Typ.	1.6 Typ.

性能参数 Electrical Characteristics

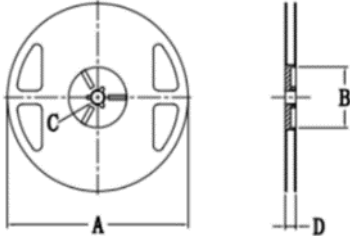
规格型号 Part No.	电感值 Inductance (μH)	直流电阻 R _{DC} (mΩ)		温升电流 I _{rms} (A)		饱和电流 I _{sat} (A)	
		Typ.	Max.	Typ.	Max.	Typ.	Max.
SMPC424020A-R22MC	0.22±20%	6.0	7.0	11.0	10.0	20.0	16.5
SMPC424020A-R33MC	0.33±20%	7.0	9.0	10.0	9.0	16.0	13.0
SMPC424020A-R47MC	0.47±20%	8.0	11.0	9.0	8.0	14.0	11.5
SMPC424020A-R68MC	0.68±20%	10.0	13.0	8.5	7.5	12.5	10.5
SMPC424020A-1R0MC	1.00±20%	20.0	24.0	7.0	6.5	10.0	8.5
SMPC424020A-1R5MC	1.50±20%	31.0	38.0	5.5	5.0	8.6	7.6
SMPC424020A-2R2MC	2.20±20%	36.0	44.0	5.2	4.7	7.5	6.8
SMPC424020A-3R3MC	3.30±20%	65.0	80.0	5.0	4.5	6.5	6.0
SMPC424020A-4R7MC	4.70±20%	90.0	110.0	4.3	3.7	4.7	4.3
SMPC424020A-5R6MC	5.60±20%	110.0	125.0	4.0	3.5	4.5	4.0
SMPC424020A-6R8MC	6.80±20%	130.0	155.0	3.7	3.3	4.3	3.7
SMPC424020A-100MC	10.0±20%	210.0	250.0	3.5	3.0	3.7	3.3
SMPC424020A-150MC	15.0±20%	295.0	350.0	1.8	1.6	3.5	3.0

备注 Remark:

- 所有测试数据均参考18-25°C环境温度
All test data is referenced to 18-25°C ambient;
- 电感测试条件为用WK3260B或同等设备以1MHz/1.0V测试
Inductance tested at 1MHz/1.0V with WK3260B LCR Meter or equivalent;
- 饱和电流: 加电流时电感量下降小于或等于30%
I_{sat}: DC current at which the inductance drops 30% from its value without saturation;
- 温升电流: 加电流时产品温度上升小于等于40°C
I_{rms}: DC current that causes the temperature rise ($\Delta T = 40^\circ\text{C}$) from ambient temperature;
- 工作温度 (包括自身发热) : -40°C~+ 125°C
Operating temperature rang(including coil's self-temperature rise): -40°C~+ 125°C.

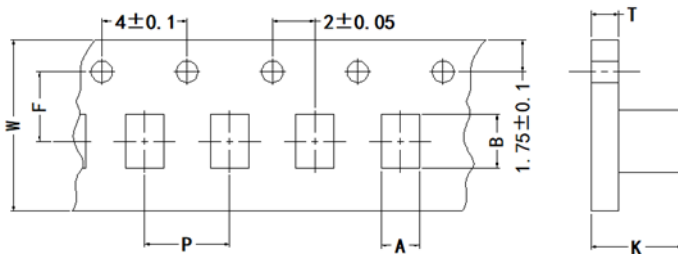
包装材料及规格 Packaging Materials and Specifications

卷轴尺寸图 Reel Size



Item	A	B	C	D
Specification(mm)	178±2.0	60±2.0	13±0.5	14±1.5

包装带尺寸图 Tape Size



Item	A	B	T	W	P	F	K	pcs/Reel
Specification(mm)	4.5±0.1	4.7±0.1	0.33±0.05	12.0±0.1	8.0±0.1	5.5±0.1	2.2±0.05	1000

内外箱标识内容 Inside and Outside Box Identification Content

CYGE 创一科技 科技创一

Made in China
<HSF/ROHS>

Customer Name: XXXXXXXX



2

P/O: XXXXXXXXXXXXXXXXXXXX



Customer P/N: XXXXXXXXXX



CYGE P/N: XXXXXXXXXXXX



LOT NO: XXXXXXXXX

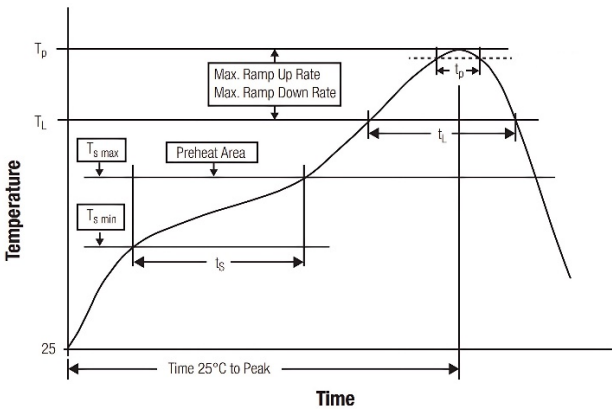
DATE: XXXXX

QTY: XXXX PCS



匠心致远 追求卓越 感动人心
Following ingenuity, pursuing excellence, touching hearts

推荐回流焊条件 Recommended Reflow Soldering Conditions



Profile Feature	Lead-Free Assembly
Preheat Temperature Min ($T_{s \text{ min}}$)	150°C
Preheat Temperature Max ($T_{s \text{ max}}$)	200°C
Preheat Time t_s from $T_{s \text{ min}}$ to $T_{s \text{ max}}$	60-120 seconds
Average Ramp-Up Rate (T_L to T_p)	3°C /second max.
Liquidous Temperature (T_L)	217°C
Time t_L maintained above T_L (t_L)	60-150 seconds
Peak/Classification Temperature (T_p)	255°C
Time within 5°C of actual peak temperature (t_p)	20-30 second
Ramp-down Rate (T_p to T_L)	6 °C/second max.
Time 25 °C to Peak Temperature	8 minutes max.

储存条件/注意的事项 Storage Conditions/Note Things

1、贮存温度、湿度条件 Storage temperature and humidity conditions :

1.1、产品包装与载体: -5°C ~ +40°C, 低于60% RH.

Product packing with Carrier tape: -5°C ~ +40°C and less than 60% RH.

1.2、单独的产品: -20°C ~ +60°C, 低于60% RH.

Product alone: -20°C ~ +60°C and less than 60% RH.

2、产品在6个月内使用(注意:产品一经拆开包装,须尽快使用).

Products should be used within 6 months.

(Note that the product should be used as soon as possible once it is folded) .

3、包装材料应保存在空气中不存在氯或硫的地方.

The packaging material should be kept where no chlorine or sulfur exists in the air.

4、不要用手指触摸电极(焊接端子),因为这可能导致焊接能力的下降.

Do not touch the electrodes (soldering terminals) with fingers as this may lead to deterioration of solderability.

5、个别零件强烈建议使用镊子或真空取料机散装搬运应减少磨损和机械冲击.

The use of tweezers or vacuum pick-ups is strongly recommended for individual components.

Bulk handling should ensure that abrasion and mechanical shock are minimized.



使用相关注意事项(车载等级)
Application Guidelines (Automotive grade)

注意事项 Safety Precautions

1、使用本产品时，无论其用途如何，请事先签订交货规格书。

本产品介绍中的设计及规格在发生变更时可能不予事先通知，敬请谅解。

When using this product, regardless of the use, exchange product specifications in advance.

The design and specifications in this catalog are subject to change without prior notice.

2、请不要超出本目录的规格范围使用产品。

Do not use the products beyond the specifications described in this catalog.

3、本目录表示单个零部件的品质和性能。用户在使用时，请务必在贴装于贵公司产品的状态下，在实际使用条件下进行评估、确认。

This catalog explains the quality and performance of the products as individual components. Before use, check and evaluate their operations when installed in your products.

4、在预测到运输设备(火车，汽车，船舶等)，通信设备，医疗设备，航空航天设备，电热用品，燃烧燃气设备，旋转设备，防灾防盗设备 etc. 上因本产品出现的故障问题而可能导致人身伤害及其他重大损害发生的情况下，请通过以下系统进行故障保护设计以确保安全性。

If a malfunction of this product may result in the loss of human life or other serious damage in transportation equipment (trains, automobiles, ships, etc.), signaling equipment, medical equipment, aerospace equipment, electric heating equipment, combustion and gas equipment, rotating equipment, disaster prevention and security equipment, and other equipment, ensure safety by implementing a fail-safe design with the following system.

*设置保护电路及保护装置的系统。

Systems equipped with a protection circuit and a protection device.

*设置冗余电路，出现单一故障时可确保安全的系统。

Systems equipped with a redundant circuit or other system to prevent an unsafe status in the event of a single fault.

符合AEC-Q200 AEC-Q200 compliant

符合AEC-Q200的产品，是指已全部或部分实施AEC-Q200中规定的评估试验条件的产品。

The products are tested based on all or part of the test conditions and methods defined in AEC-Q200.

有关各产品的详细规格和具体的评估试验结果等事宜，请向本公司咨询。此外，在订购产品时，请按每类产品签订交货规格书。

Please consult with Panasonic for the details of the product specification and specific evaluation test results, etc., make sure to exchange product specifications for each product when placing an order.