# Power Choke Coil (Automotive Grade)

## Series: PCC-M1050MS (MC)


High heat resistance and high reliability
Using metal composite core (MC)

Industrial Property : patents 18 (Registered 10/Pending 8)

## Features

- The vibration-resistant structure achieves a vibration acceleration-resistance of 50 G or higher in 150 °C environments
- Reduce core loss in high frequency band (More than 2 MHz)
- High heat resistance : Operation up to 150 °C including self-heating
- SMD type
- High-reliability : High vibration resistance as result of newly developed integral construction; under severe reliability conditions of automotive and other strenuous applications
- High bias current : Excellent inductance stability using ferrous alloy magnetic material
- Temp. stability : Excellent inductance stability over broad temp. range
- Low audible (buzz) noise : New metal composite core technology
- High efficiency : Low $R_{DC}$ of winding and low eddy-current loss of the core
- Shielded construction
- AEC-Q200 Automotive qualified
- RoHS compliant

## Recommended Applications

- ECU placed in the engine itself, mechanical-electrical-integrated ECU
- Noise filter for various drive circuitry requiring high temp. operation and peak current handling capability
- Boost-Converter, Buck-Converter DC/DC

## Standard Packing Quantity (Minimum Quantity/Packing Unit)

- 1,000 pcs./box (2 reel)

## Explanation of Part Numbers

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| E | T | Q | P | | M | | | | Y | S | |
| Product Code | | | Classification | Height | Winding | Inductance | | | Core | Suffix | Size |

R68 → 0.68 µH

C : □10 mm size

## Temperature rating

| | | |
|---|---|---|
| Operating temperature range | | Tc : -40 °C to +150 °C(Including self-temperature rise) |
| Storage condition | After PWB mounting | |
| | Before PWB mounting | Ta : -5 °C to +35 °C 85%RH max. |

## Standard Parts

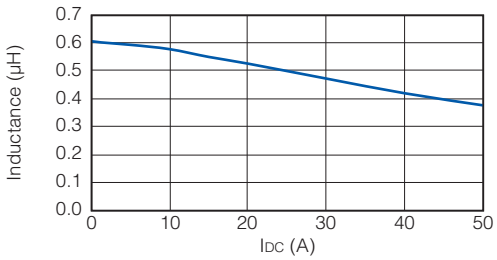
| Series | Part No. | Inductance *1 | | DCR (at 20 °C) (mΩ) | | Rated Current (Typ. : A) | | |
|---|---|---|---|---|---|---|---|---|
| | | L0 (μH) | Tolerance (%) | Typ. (max.) | Tolerance (%) | ΔT=40K | | ΔL=–30% |
| | | | | | | (*2) | (*3) | (*4) |
| PCC-M1050MS [10.9×10.0×5.0(mm)] | ETQP5MR68YSC | 0.68 | ±20 | 1.66 (1.83) | ±10 | 27.0 | 32.3 | 40.0 |

(*1) Measured at 100 kHz.
(*2) DC current which causes temperature rise of 40 K. Parts are soldered by reflow on four-layer PWB (1.6 mm FR4) and measured at room temperature. See also (*5)
(*3) DC current which causes temperature rise of 40 K. Parts are soldered by reflow on multilayer PWB with high heat dissipation performance. Note: Heat radiation constant are approx. 20 K/W measured on 10.9×10.0×5.0 mm case size. See also (*5)
(*4) Saturation rated current : Dc current which causes L(0) drop –30 %.
(*5) Within a suitable application, the part's temperature depends on circuit design and certain heat dissipation conditions. This should be double checked in a worst case operation mode.
In normal case, the max.standard operating temperature of +150 °C should not be exceeded.
For higher operating temperature conditions, please contact Panasonic representative in your area.

## Performance Characteristics (Reference)

● Inductance vs DC Current

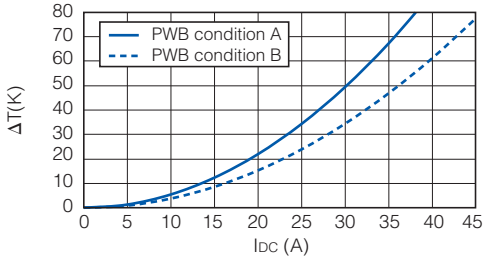
ETQP5MR68YSC




● Case Temperature vs DC Current

PWB condition A : Four-layer PWB (1.6 mm FR4), See also (*2)
PWB condition B : Multilayer PWB with high heat dissipation performance. See also (*3)

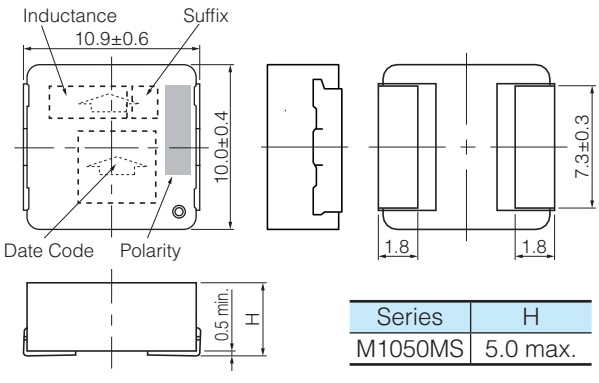
ETQP5MR68YSC




## Dimensions in mm (not to scale)

Dimensional tolerance unless noted : ±0.5

Series PCC-M1050MS
(ETQR5M□□□YSC)

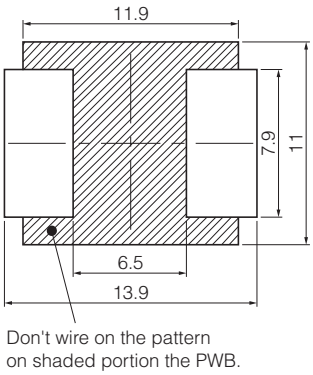



| Series | H |
|---|---|
| M1050MS | 5.0 max. |

## Recommended Land Pattern in mm (not to scale)

Dimensional tolerance unless noted : ±0.5

Series PCC-M1050MS
(ETQR5M□□□YSC)

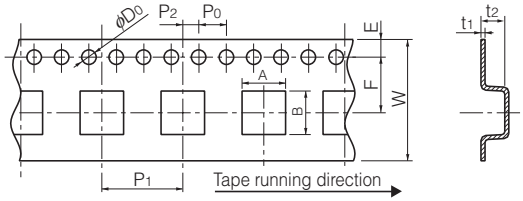



## ■ As for Soldering Conditions and Safety Precautions (Power Choke Coils (Automotive Grade)),

Please see Data Files

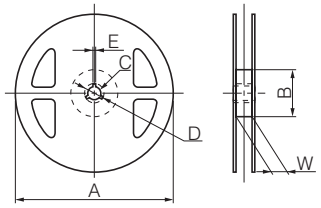
## Packaging Methods (Taping)

● Embossed Carrier Tape Dimensions in mm (not to scale)




| Series | A | B | W | E | F | $P_1$ | $P_2$ | $P_0$ | $\phi D_0$ | $t_1$ | $t_2$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PCC-M1050MS | 10.7 | 11.9 | 24.0 | 1.75 | 11.5 | 16.0 | 2.0 | 4.0 | 1.5 | 0.5 | 6.3 |

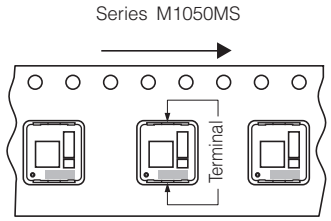
● Taping Reel Dimensions in mm (not to scale)




Standard Reel Dimensions

| Series | A | B | C | D | E | W |
|---|---|---|---|---|---|---|
| PCC-M1050MS | 330 | 100 | 13 | 21 | 2 | 25.5 |

## Component Placement (Taping)




## Standard Packing Quantity/Reel

| Series | Part No. | Minimum Quantity / Packing Unit | Quantity per reel |
|---|---|---|---|
| PCC-M1050MS | ETQP5M□□□YSC | 1,000 pcs. / box (2 reel) | 500 pcs. |