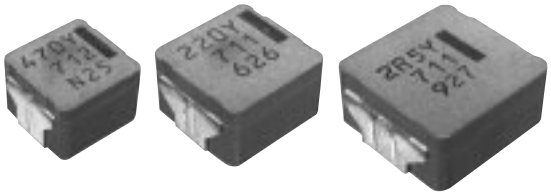
Power Choke Coil for Automotive application

Series: **PCC-M0754M (MC)**
PCC-M0854M (MC)
PCC-M0850M (MC)
PCC-M1054M (MC)
PCC-M1050M (MC)



M0754M M0854M M0850M M1054M M1050M

Realize high heat resistance and high reliability with metal composite core(MC)

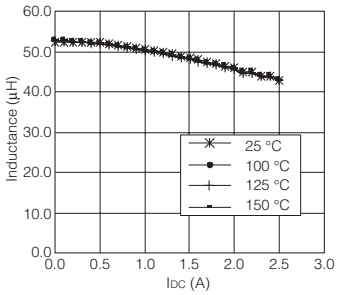
Industrial Property : patents 21 (Registered 2/Pending 19)

■ Features

- ● High heat resistance : Operation up to 150 °C
- ● High-reliability : High vibration resistance due to newly developed integral construction and severe reliability condition of automotive application is covered
- ● High bias current : Excellent inductance stability by using ferrous alloy magnetic material(Fig.1)
- ● Temp. stability : Excellent inductance stability in wide temp. range (Fig.1)
- ● Low buzz noise : New metal composite core technology
- ● High efficiency : Low R_{DC} of winding and low eddy-current loss of the core
- ● RoHS compliant

● Fig.1 Inductance v.s. DC current, Temp.

ETQP5M470YFM(reference)



■ Recommended Applications

- ● Noise filter for various drive circuitry requiring high temp. operation and peak current handling capability
- ● DC-DC converters

■ Standard Packing Quantity

- ● 500 pcs./Reel

■ Explanation of Part Numbers

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

Inductance	
4R7→	4.7 µH
220→	22 µH
101→	100 µH

Size	
M	□ 7 mm size
K	□ 8 mm size
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.

1. PCC-M0754M Series (ETQP5M□□□YFM)

■ Standard Parts

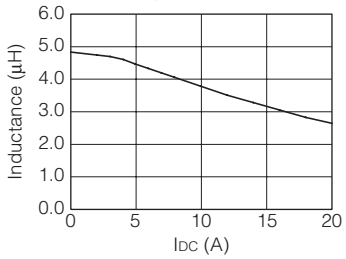
Series	Part No.	Inductance *1		Rated current	Reference current	DC resistance	
		L0 (μH)	Tolerance (%)	△T=15K*2 (A)	△T=40K*3 (A)	Typ. (mΩ)	Tolerance (%)
PCC-M0754M [7.5×7.0×5.4(mm)]	ETQP5M4R7YFM	4.7	±20	2.8	4.5	20.4	±10
	ETQP5M220YFM	22.7	±20	1.3	2.2	92	±10
	ETQP5M330YFM	34	±20	1.1	1.9	120	±10
	ETQP5M470YFM	48	±20	1.0	1.6	156	±10

(*1) Inductance is measured at 100 kHz.
(*2) Rated current defines actual value of DC current which is case temperature rise becomes 15 K.
(*3) Reference current defines actual value of DC current which is case temperature rise becomes 40 K.

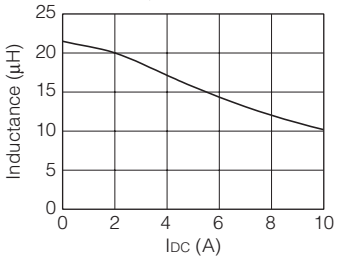
■ Performance Characteristics (Reference)

● Inductance vs DC Current

ETQP5M4R7YFM



ETQP5M220YFM



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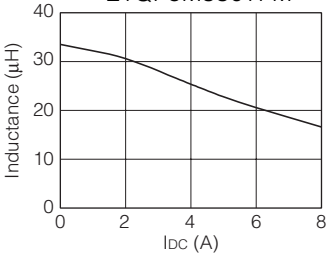

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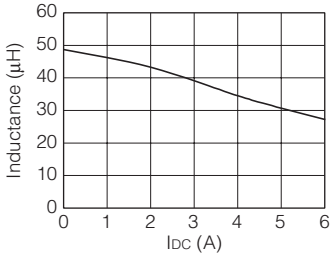
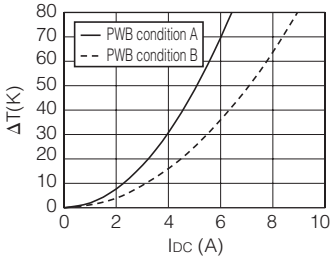


● Case Temperature vs DC Current*

PWB condition A : FR4, single layer PWB, t=1.6mm ✻our specification
PWB condition B : FR4, four layer PWB, t=1.6mm

ETQP5M4R7YFM



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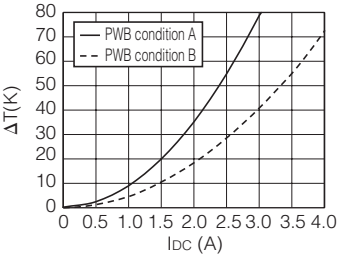

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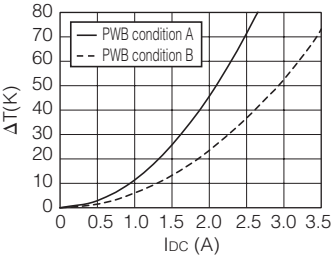
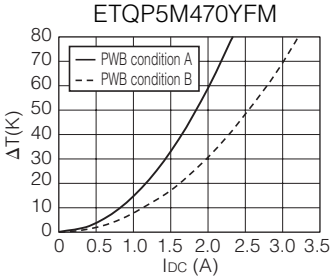


ETQP5M470YFM



✻ Our temperature rise is specified with measurement of single layer PWB(condition A). Please refer to temperature rise curve V.S. current for the rated current (ΔT=15K) and Reference value (ΔT=40K). and when four layer PWB (condition B) is used, temperature rise is different from single layer PWB(conditionA). Even we specify the rated current at our condition, the actual temperature rise of PCC may have different result due to thermal dissipation condition. We recommend customers to measure PCC temperature rise at application to confirm it.

2. PCC-M0854M/PCC-M0850M Series (ETQP5M□□□YFK/ETQP5M□□□YGK)

■ Standard Parts

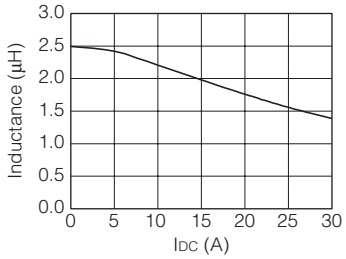
Series	Part No.	Inductance *1		Rated current	Reference current	DC resistance	
		L0 (μH)	Tolerance (%)	ΔT=15K*2 (A)	ΔT=40K*3 (A)	Typ. (mΩ)	Tolerance (%)
PCC-M0854M [8.5×8.0×5.4(mm)]	ETQP5M2R5YFK	2.45	±20	4.5	7.5	7.6	±10
	ETQP5M220YFK	22	±20	1.6	2.6	63	±10
	ETQP5M470YFK	48	±20	1.1	1.8	125	±10
PCC-M0850M [8.5×8.0×5.0(mm)]	ETQP5M101YGK	100	±20	0.74	1.2	302	±10

(*1) Inductance is measured at 100 kHz.
(*2) Rated current defines actual value of DC current which is case temperature rise becomes 15 K.
(*3) Reference current defines actual value of DC current which is case temperature rise becomes 40 K.

■ Performance Characteristics (Reference)

● Inductance vs DC Current

ETQP5M2R5YFK



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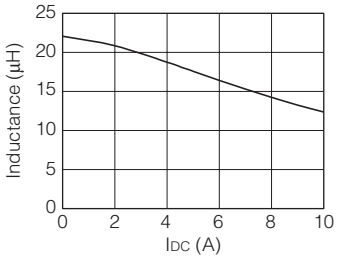

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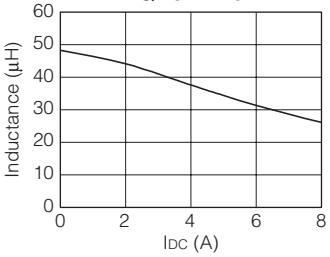
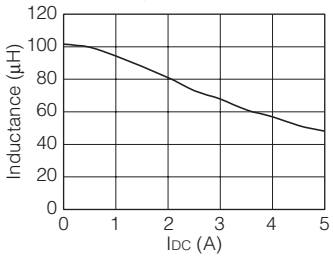


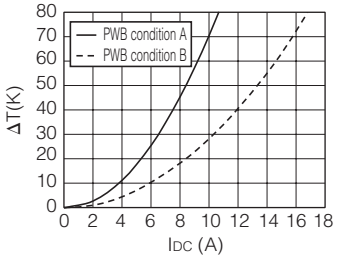
ETQP5M101YGK



● Case Temperature vs DC Current*

PWB condition A : FR4, single layer PWB, t=1.6mm ✻our specification
PWB condition B : FR4, four layer PWB, t=1.6mm

ETQP5M2R5YFK



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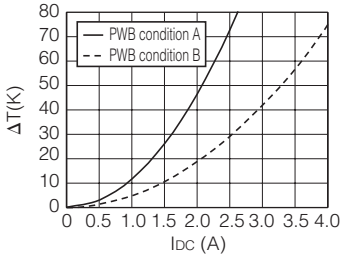

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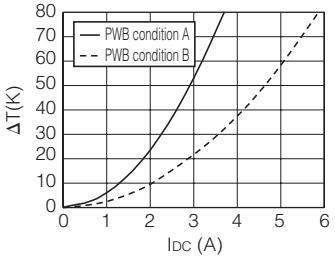
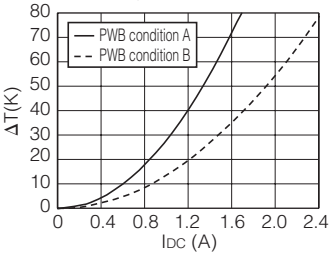


ETQP5M101YGK



✻ Our temperature rise is specified with measurement of single layer PWB(condition A). Please refer to temperature rise curve V.S. current for the rated current (ΔT=15K) and Reference value (ΔT=40K). and when four layer PWB (condition B) is used, temperature rise is different from single layer PWB(conditionA). Even we specify the rated current at our condition, the actual temperature rise of PCC may have different result due to thermal dissipation condition. We recommend customers to measure PCC temperature rise at application to confirm it.

3. PCC-M1054M/PCC-M1050M Series (ETQP5M□□□YFC/ETQP5M□□□YGC)

■ Standard Parts

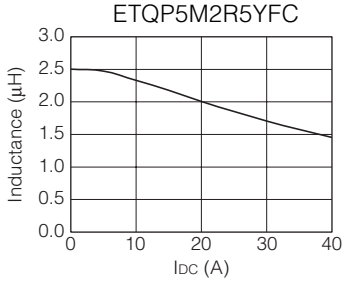
Series	Part No.	Inductance *1		Rated current	Reference current	DC resistance	
		L0 (μH)	Tolerance (%)	△T=15K*2 (A)	△T=40K*3 (A)	Typ. (mΩ)	Tolerance (%)
PCC-M1054M [10.5×10.5×5.4(mm)]	ETQP5M2R5YFC	2.5	±20	6.0	10	5.3	±10
	ETQP5M3R3YFC	3.3	±20	5.1	8.6	7.1	±10
	ETQP5M4R7YFC	4.7	±20	4.4	7.2	10.2	±10
	ETQP5M100YFC	10	±20	2.9	4.7	23.8	±10
	ETQP5M220YFC	21.5	±20	2.1	3.4	45	±10
PCC-M1050M [10.5×10.5×5.0(mm)]	ETQP5M101YGC	97	±20	1.0	1.6	208	±10

(*1) Inductance is measured at 100 kHz.
(*2) Rated current defines actual value of DC current which is case temperature rise becomes 15 K.
(*3) Reference current defines actual value of DC current which is case temperature rise becomes 40 K.

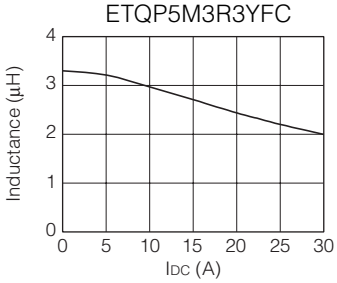
■ Performance Characteristics (Reference)

● Inductance vs DC Current

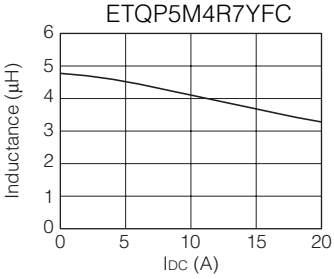
ETQP5M2R5YFC



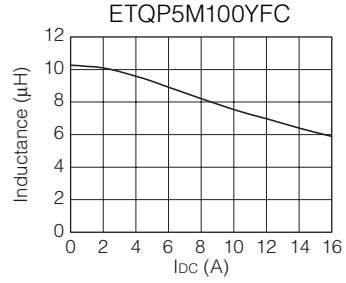
ETQP5M3R3YFC



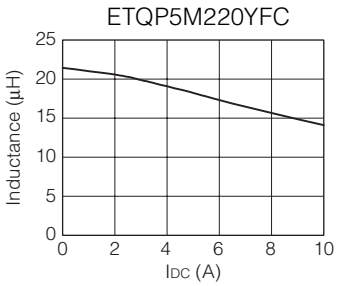
ETQP5M4R7YFC



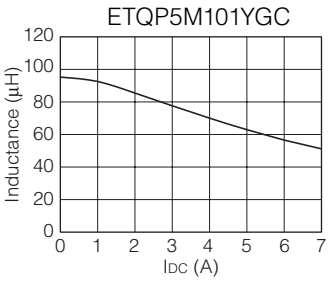
ETQP5M100YFC



ETQP5M220YFC



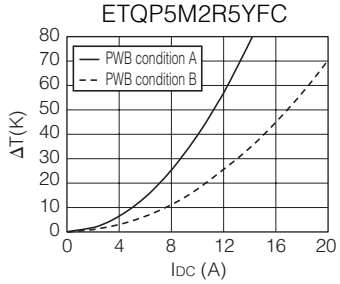
ETQP5M101YGC



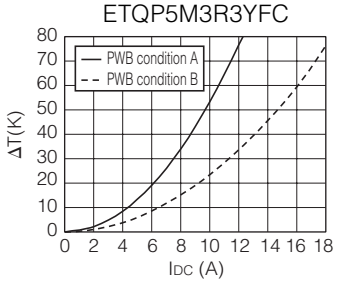
● Case Temperature vs DC Current*

PWB condition A : FR4, single layer PWB, t=1.6mm ✻our specification
PWB condition B : FR4, four layer PWB, t=1.6mm

ETQP5M2R5YFC



ETQP5M3R3YFC



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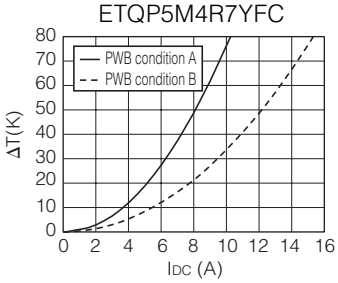

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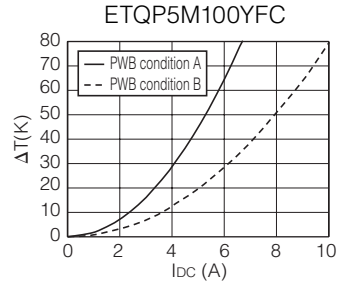

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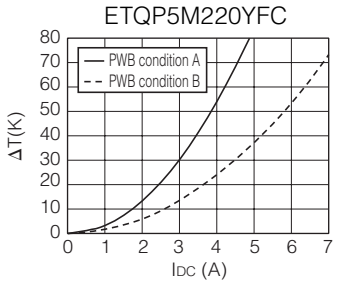
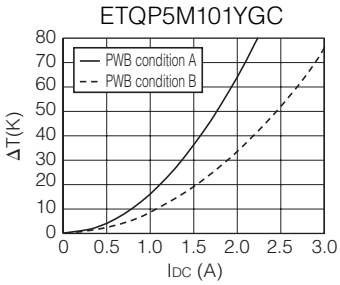


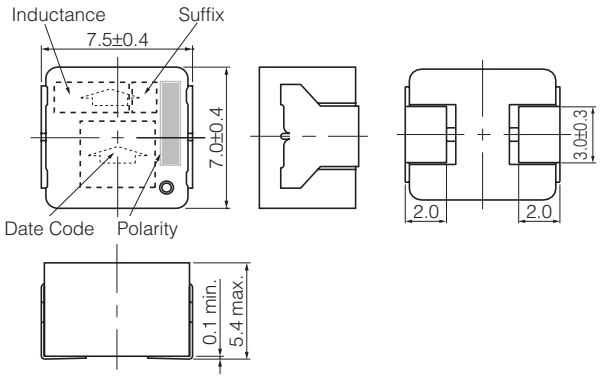
ETQP5M101YGC



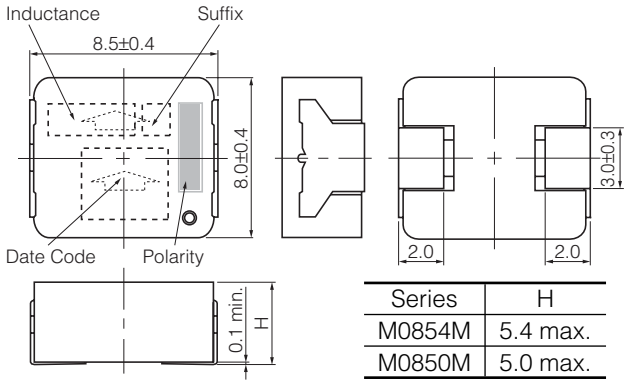
✻ Our temperature rise is specified with measurement of single layer PWB(condition A). Please refer to temperature rise curve V.S. current for the rated current (ΔT=15K) and Reference value (ΔT=40K). and when four layer PWB (condition B) is used, temperature rise is different from single layer PWB(conditionA). Even we specify the rated current at our condition, the actual temperature rise of PCC may have different result due to thermal dissipation condition. We recommend customers to measure PCC temperature rise at application to confirm it.

■ Dimensions in mm (not to scale)
Dimensional tolerance unless noted : ±0.5

PCC-M0754M Series
(ETQP5M□□□YFM)

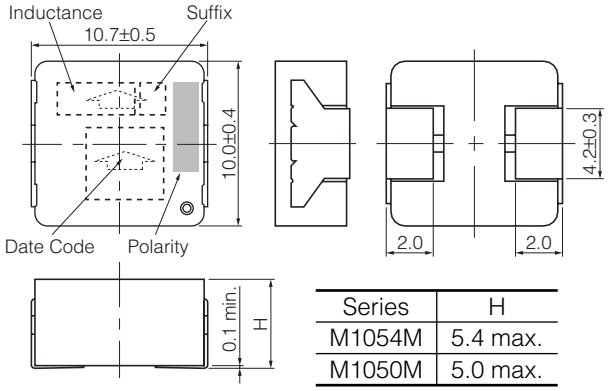


PCC-M0854M Series
PCC-M0850M Series
(ETQP5M□□□YFK/YGK)



Series	H
M0854M	5.4 max.
M0850M	5.0 max.

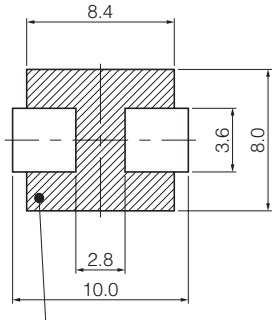
PCC-M1054M Series
PCC-M1050M Series
(ETQP5M□□□YFC/YGC)



Series	H
M1054M	5.4 max.
M1050M	5.0 max.

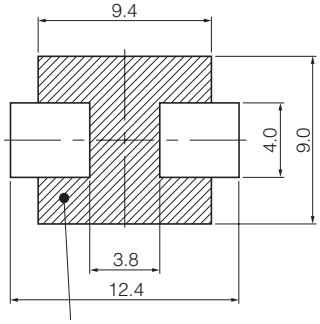
■ Recommended Land Pattern in mm (not to scale)
Dimensional tolerance unless noted : ±0.5

PCC-M0754M Series
(ETQP5M□□□YFM)



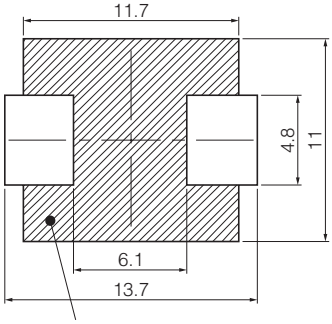
Don't wire on the pattern on shaded portion the PWB.

PCC-M0854M Series
PCC-M0850M Series
(ETQP5M□□□YFK/YGK)



The same as the left.

PCC-M1054M Series
PCC-M1050M Series
(ETQP5M□□□YFC/YGC)



The same as the left.

■Packaging Methods Please see Pages 202 to 203

■Soldering Conditions Please see Page 204

■⚠Safety Precautions Please see Pages 177 to 178