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## Power Choke Coil for Automotive application

Series: **PCC-M1280MF (MC)**



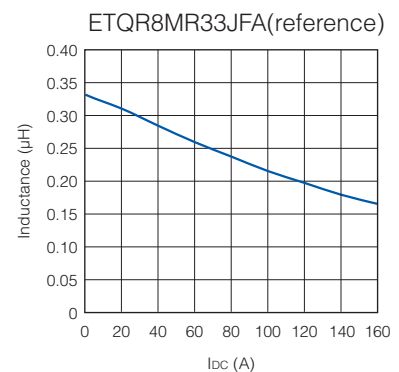
High heat resistance and high reliability  
Using metal composite core (MC)

Industrial Property : patents 3 (Registered 1/Pending 2)

### Features

- High heat resistance : Operation up to 160 °C including self-heating
- Large current Power : 53 A (R33 type)
- High vibration resistance : 30G
- 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 (Fig.1)
- 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

● Fig.1 Inductance v.s. DC current



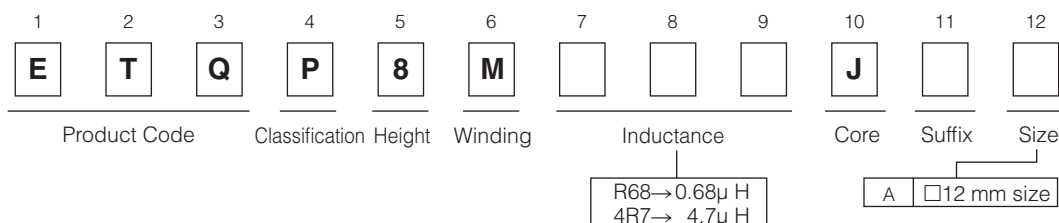
### Recommended Applications

- 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)

- 500 pcs./box (2 reel)

### Explanation of Part Numbers



### Temperature rating

Operating temperature range		T <sub>c</sub> : -40 °C to +160 °C (Including self-temperature rise)
Storage condition	After PWB mounting	
	Before PWB mounting	T <sub>a</sub> : -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% (*4)
						(*2)	(*3)	
PCC-M1280MF [12.6×13.2×8.0(mm)]	▲ ETQP8MR33JFA	0.33	±20	0.70 (0.77)	±10	44.4	53.5	84.5
	ETQP8MR68JFA	0.68		1.10 (1.21)		35.4	42.6	56.9
	ETQP8M1R0JFA	1.0		1.36 (1.50)		31.8	38.3	44.4
	ETQP8M1R5JFA	1.5		1.80 (1.98)		27.7	33.3	29.9
	ETQP8M2R5JFA	2.5		2.60 (2.86)		23.0	27.7	32.1
PCC-M1280MF [12.6×13.1×8.0(mm)]	ETQP8M3R3JFA	3.3		3.60 (3.96)		19.6	23.6	27.6
	ETQP8M4R7JFA	4.7		4.90 (5.39)		16.8	20.2	24.7

(\*1) Measured at 100k Hz.

▲ Under development

(\*2) DC current which causes temperature rise of 40K. 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 40K. Parts are soldered by reflow on multilayer PWB with high heat dissipation performance. Note: Heat radiation constant are approx. 20 K/W measured. See also (\*5)

(\*4) Saturation rated current : DC current which causes L(0) drop -30 %.

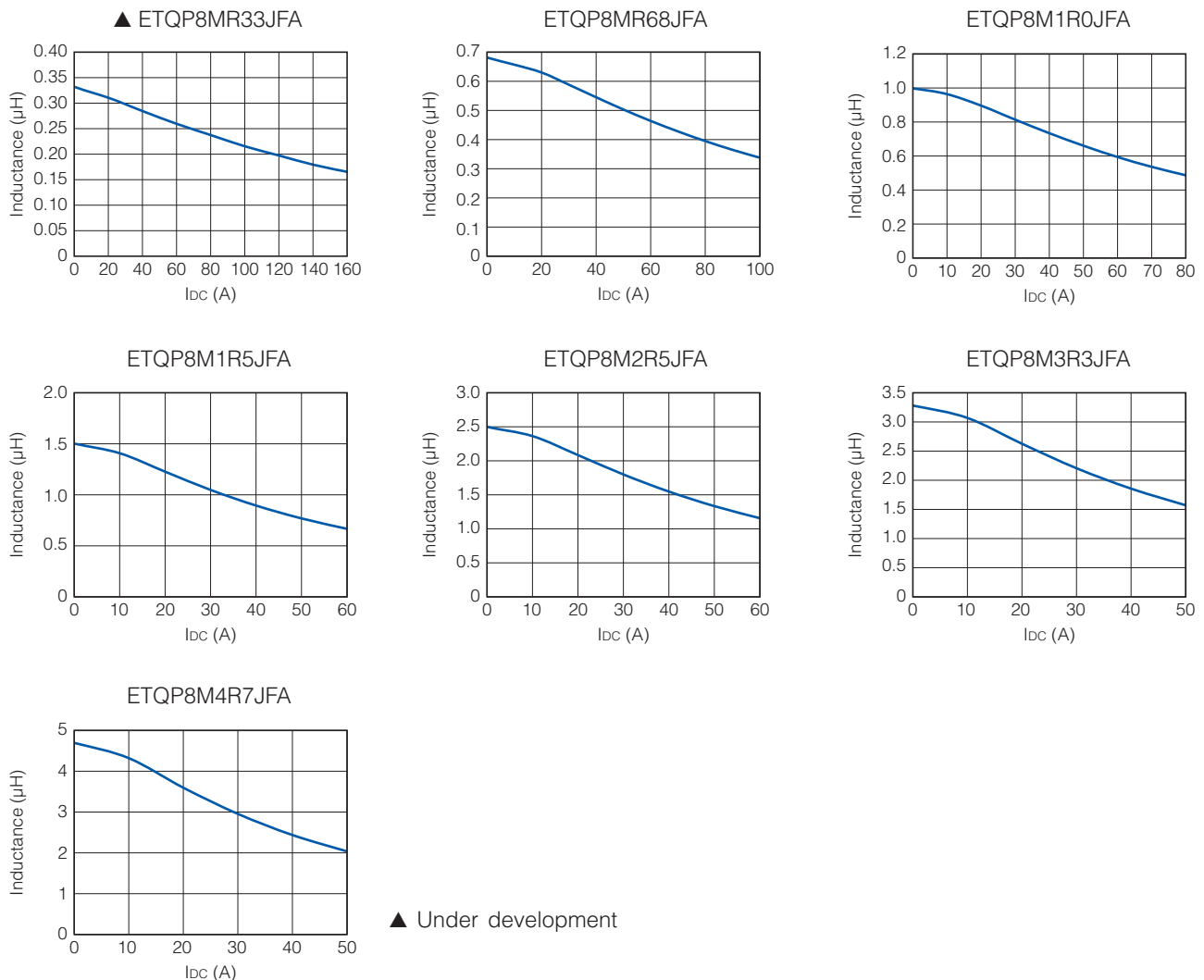
(\*5) Within a suitable application, the part's temperature depends on circuit design and certain heat dissipation conditions. This should be double checked in a worst case operation mode.

In normal case, the max.standard operating temperature of +160 °C should not be exceeded.

For higher operating temperature conditions, please contact Panasonic representative in your area.

## Performance Characteristics (Reference)

### ● Inductance vs DC Current



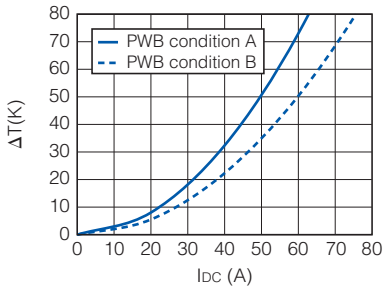
## Performance Characteristics (Reference)

### ● Case Temperature vs DC Current

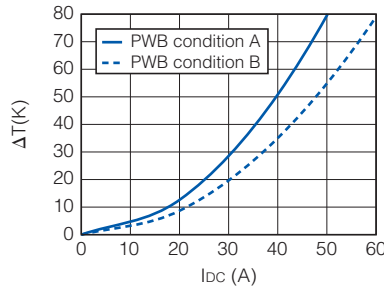
PWB condition A : Four-layer PWB (1.6 mm FR4), See also (\*2)

PWB condition B : Multilayer PWB with high heat dissipation performance. See also (\*3)

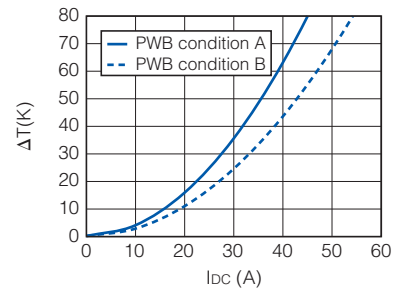
▲ ETQP8MR33JFA



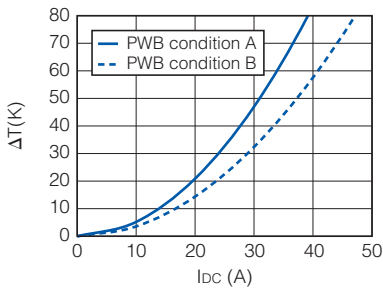
ETQP8MR68JFA



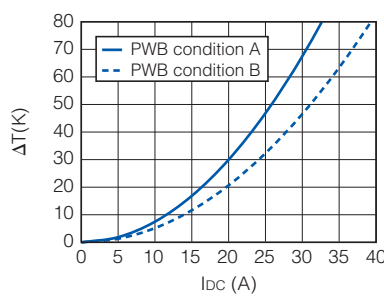
ETQP8M1R0JFA



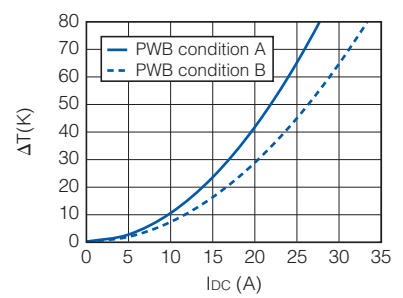
ETQP8M1R5JFA



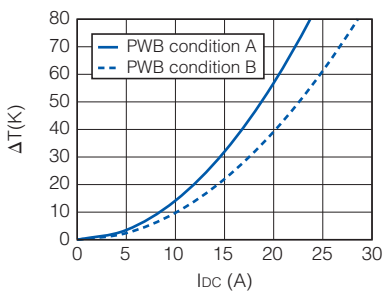
ETQP8M2R5JFA



ETQP8M3R3JFA



ETQP8M4R7JFA

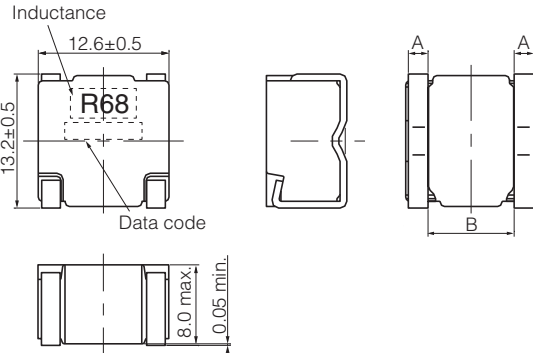


▲ Under development

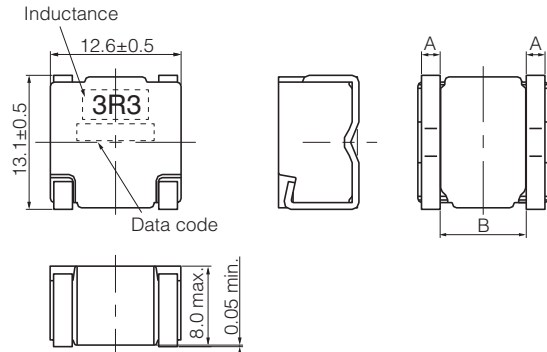
## Dimensions in mm (not to scale)

Dimensional tolerance unless noted :  $\pm 0.5$

- ETQP8MR33JFA**
- ETQP8M1R5JFA**
- ETQP8M3R3JFA**
- ETQP8MR68JFA**
- ETQP8M2R5JFA**
- ETQP8M4R7JFA**
- ETQP8M1R0JFA**



Part No.	A	B
ETQP8MR33JFA	2.25±0.2	7.3±1.0
ETQP8MR68JFA	2.1±0.4	8.0±1.0
ETQP8M1R0JFA	2.1±0.4	8.0±1.0
ETQP8M1R5JFA	2.1±0.4	8.0±1.0
ETQP8M2R5JFA	1.8±0.4	8.6±0.85

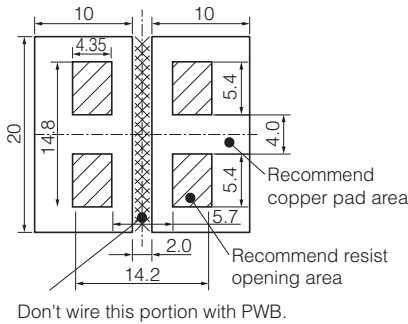


Part No.	A	B
ETQP8M3R3JFA	1.5±0.4	8.8±1.05
ETQP8M4R7JFA	1.25±0.4	9.0±1.25

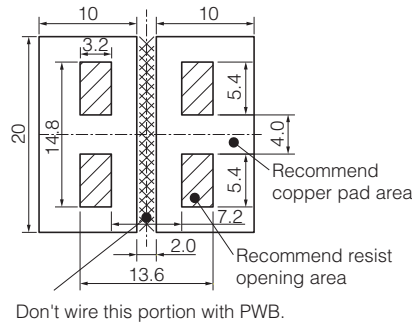
## Recommended Land Pattern in mm (not to scale)

Dimensional tolerance unless noted :  $\pm 0.5$

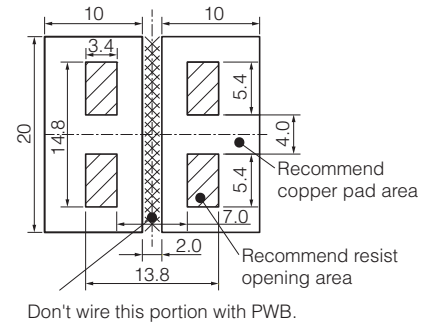
### ● ETQP8MR33JFA



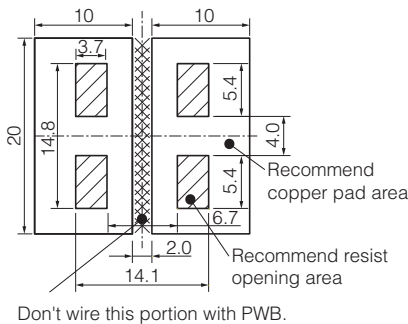
### ● ETQP8M4R7JFA



### ● ETQP8M3R3JFA



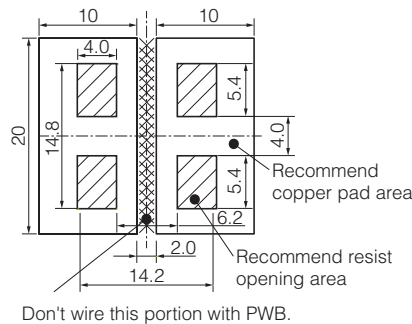
### ● ETQP8M2R5JFA



### ● ETQP8MR68JFA

### ● ETQP8M1R0JFA

### ● ETQP8M1R5JFA

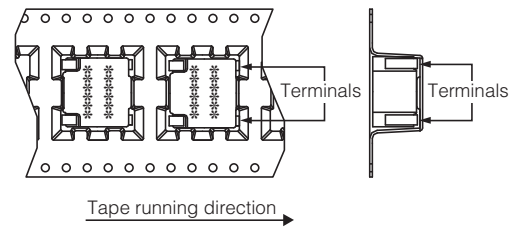
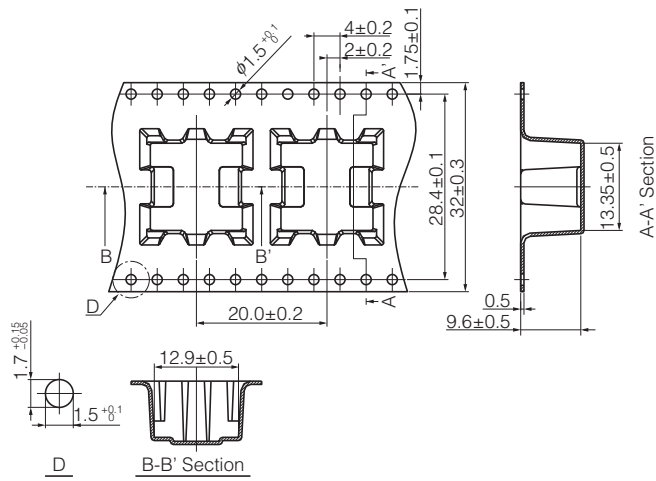


## ■ As for Soldering Conditions and Safety Precautions (Power Choke Coils for Automotive application),

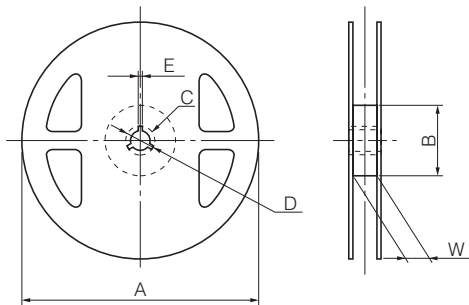
Please see Data Files

## Packaging Methods (Taping)

- Embossed Carrier Tape Dimensions in mm (not to scale)
- Component Placement (Taping)



- Taping Reel Dimensions in mm (not to scale)



Standard Reel Dimensions

Series	A	B	C	D	E	W
PCC-M1280MF	330	(100)	13	21	2	33.5