

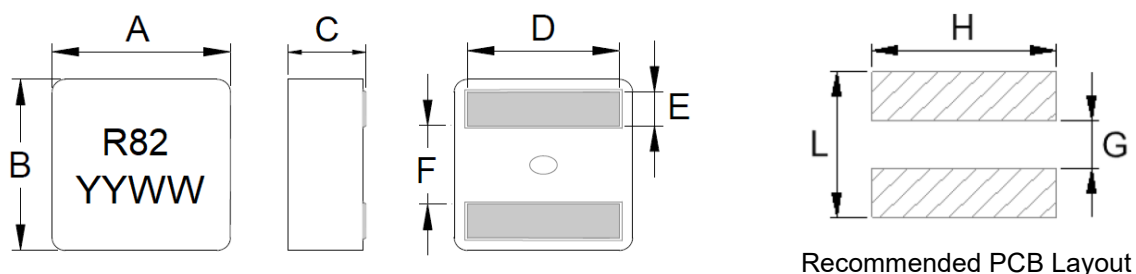
1. Part No. Expression

PIFQ0605AR82MN

(a) (b) (c) (d) (e) (f)

- | | |
|--------------------|---------------------|
| (a) Series Code | (d) Inductance Code |
| (b) Dimension Code | (e) Tolerance Code |
| (c) Material Code | (f) Special Code |

2. Configuration & Dimensions (Unit: mm)

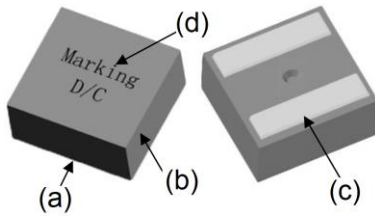


- Note:
1. The above PCB layout reference only.
 2. Recommend solder paste thickness at 0.15 mm and above.
 3. Marking: Top= Inductance Code, Bottom=YYWW (Year/World week), Black

| A | B | C | D | E |
|-----------|-----------|-----------|--------------------------------|-----------|
| 6.60±0.20 | 6.40±0.20 | 4.80±0.20 | See Electrical Characteristics | 1.40±0.20 |
| F | L | G | H | - |
| 2.60±0.25 | 5.60 Ref | 2.50 Ref | 5.60 Ref | - |

NOTE: Specifications subject to change without notice. Please check our website for latest information.

3. Material List



| NO | Items |
|-----|--------|
| (a) | Core |
| (b) | Wire |
| (c) | Solder |
| (d) | Ink |

4. General Specifications

- (a) Reliability test for this part meets AEC-Q200 standard.
- (b) Operating Temp.: -55°C to +155°C (including self-temperature rise)
- (c) Storage Temp.: -55°C to +155°C (on board)
- (d) All test data referenced to 25°C ambient.
- (e) Heat Rated Current (Irms) will cause the coil temperature rise approximately ΔT of 20°C & 40°C.
- (f) Saturation Current (Isat) will cause inductance L0 to drop approximately 30%.
- (g) Rated DC Current: The lower value of Irms and Isat.
- (h) Part Temperature (Ambient + Temp. Rise): Should not exceed 155°C under worst case operating conditions.
- (i) Maximum Operating Voltage: 40V
- (j) Storage Condition (Component in its packaging)
 - i) Temperature: Less than 40°C
 - ii) Humidity: Less than 60% RH

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5. Electrical Characteristics

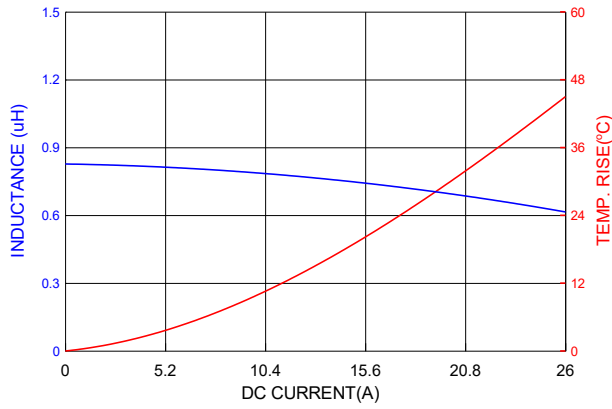
| Part Number | Inductance (μ H) @0A $\pm 20\%$ | I _{rms} (A) Typ | | I _{sat} (A) | | DCR (m Ω) | | D (mm) ± 0.3 |
|----------------|--|--------------------------------|--------------|-------------------------|------|----------------------|------|------------------------|
| | | 20°C rise | 40°C rise | Typ | Max | Typ | Max | |
| PIFQ0605AR82MN | 0.82 | 16 | 21 | 24.0 | 20.0 | 3.8 | 4.18 | 5.30 |
| PIFQ0605A1R0MN | 1.00 | 15 | 20 | 23.0 | 18.0 | 4.1 | 4.52 | 5.30 |
| PIFQ0605A1R2MN | 1.20 | 14 | 18 | 22.0 | 16.0 | 5.3 | 5.83 | 5.30 |
| PIFQ0605A1R5MN | 1.50 | 13 | 17 | 19.5 | 14.5 | 5.7 | 6.3 | 5.30 |
| PIFQ0605A1R8MN | 1.80 | 12 | 16 | 18.5 | 13.5 | 6.4 | 7.1 | 5.30 |
| PIFQ0605A2R2MN | 2.20 | 10 | 13 | 16.0 | 12.0 | 7.7 | 8.5 | 5.20 |
| PIFQ0605A3R3MN | 3.30 | 8.5 | 11 | 12.5 | 10.0 | 11.2 | 12.5 | 5.20 |
| PIFQ0605A4R3MN | 4.30 | 7.0 | 9.0 | 11.0 | 8.5 | 15.1 | 16.2 | 5.20 |
| PIFQ0605A4R7MN | 4.70 | 6.5 | 8.5 | 10.5 | 8.0 | 16.7 | 18.4 | 5.20 |
| PIFQ0605A5R6MN | 5.60 | 5.7 | 7.0 | 10.0 | 8.3 | 20 | 22 | 5.20 |

Test frequency: 0.1V/100KHz

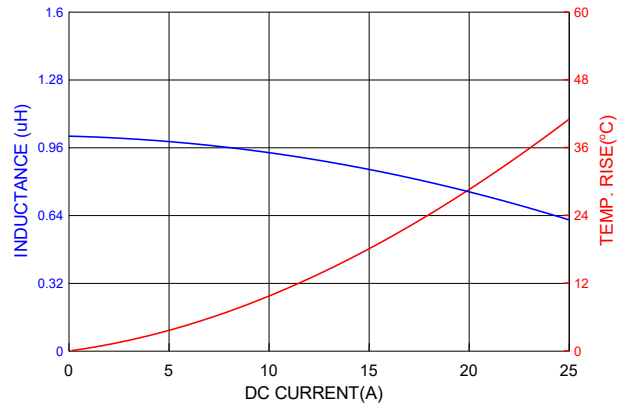
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6. Characteristics Curve

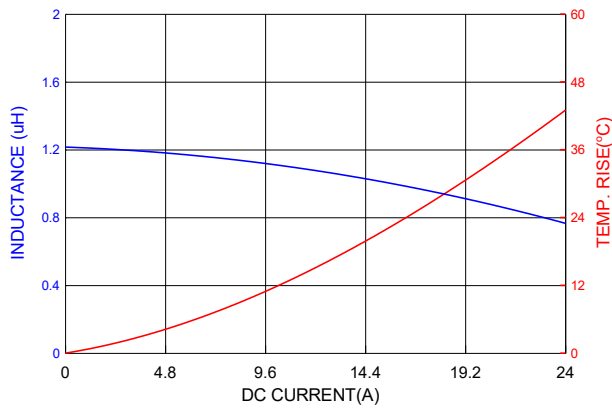
PIFQ0605AR82MN



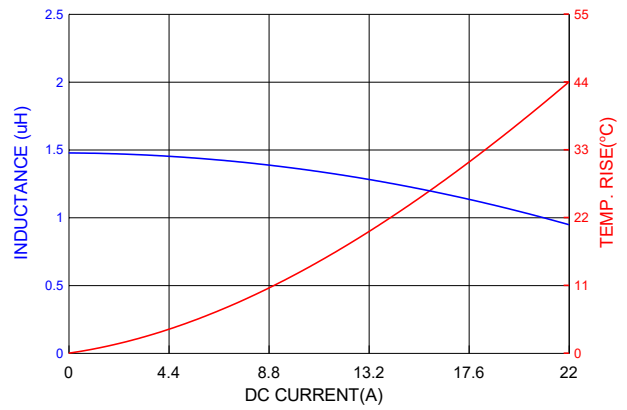
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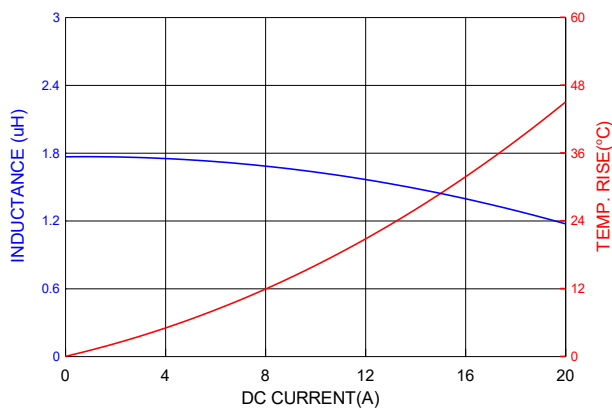
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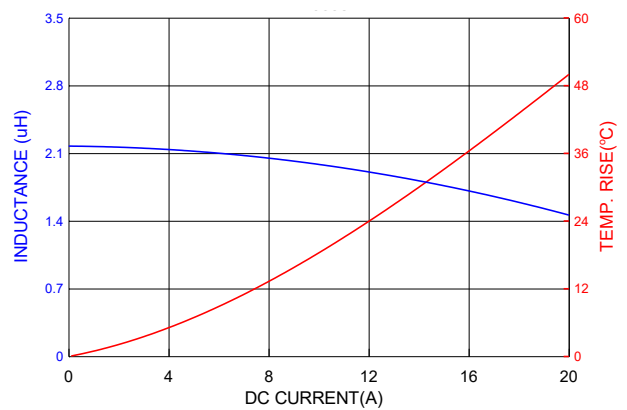
PIFQ0605A1R5MN



PIFQ0605A1R8MN

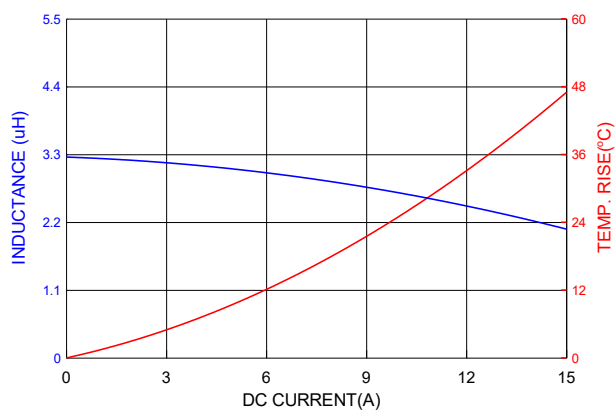


PIFQ0605A2R2MN

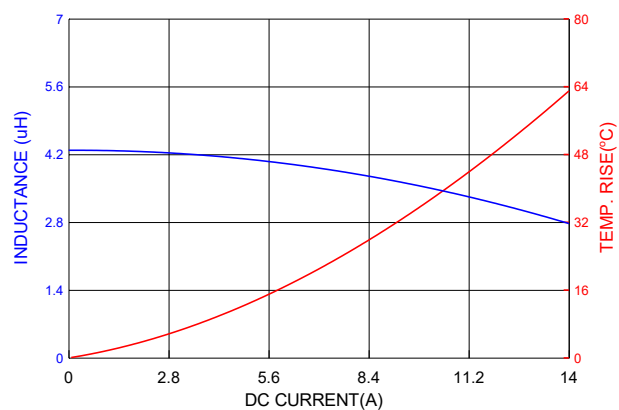


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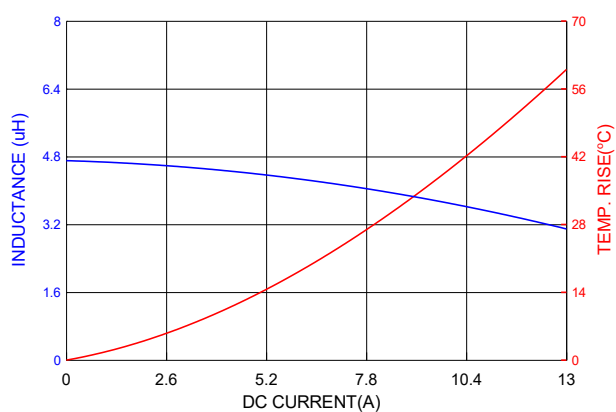
PIFQ0605A3R3MN



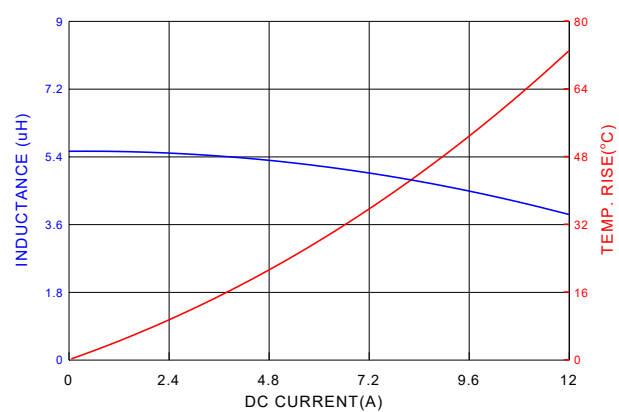
PIFQ0605A4R3MN



PIFQ0605A4R7MN



PIFQ0605A5R6MN



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7. Soldering Specification

Mildly activated rosin fluxes are preferred. Our terminations are suitable for re-flow soldering systems. If hand soldering cannot be avoided, the preferred technique is the utilization of hot air soldering tools.

7-1. IR Soldering Reflow

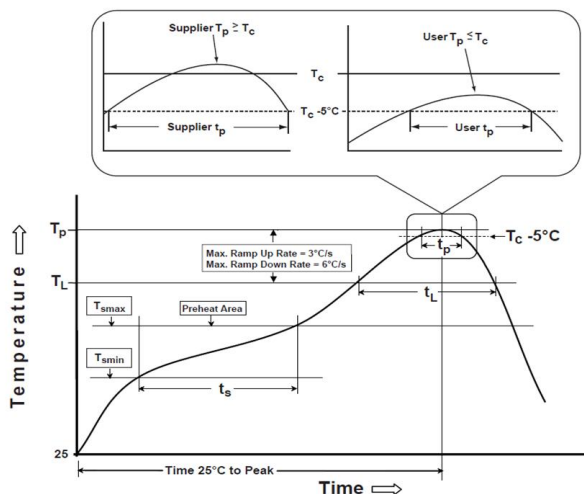
Recommended temperature profiles for lead free re-flow soldering in Figure 1, Table 1.1 & 1.2 (J-STD-020E).

7-2. Iron Reflow

Products attachment with a soldering iron is discouraged due to the inherent process control limitations. In the event that a soldering iron must be employed the following precautions are recommended (Figure 2).

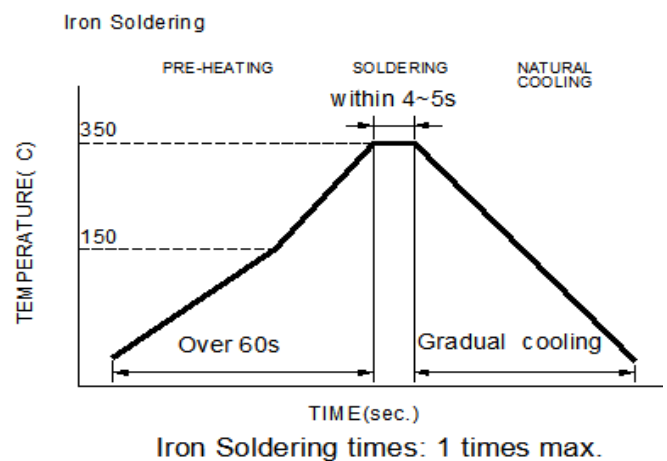
Note:

- Preheat circuit and products to 150°C.
- 355°C tip temperature (Max.)
- Never contact the ceramic with the iron tip
- 1.0mm tip diameter (Max.)
- Use a 20 watt soldering iron with tip diameter of 1.0mm
- Limit soldering time to 4~5 sec.



Reflow times: 3 times Max

Figure 1: IR Soldering Reflow



Soldering iron method: 350±5°C Max

Figure 2: Iron soldering temperature profiles

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Table (1.1) Reflow Profiles

| | |
|--|------------------|
| Profile Type: | Pb-Free Assembly |
| Preheat | |
| -Temperature Min (T_{smin}) | 150°C |
| -Temperature Max (T_{smax}) | 200°C |
| -Time (t_s) from (T_{smin} to T_{smax}) | 60-120seconds |
| Ramp-up rate (T_L to T_p) | 3°C /second max. |
| Liquids temperature (T_L) | 217°C |
| Time (t_L) maintained above T_L | 60-150 seconds |
| Classification temperature (T_c) | See Table (1.2) |
| Time (t_p) at $T_c - 5^\circ\text{C}$ (T_p should be equal to or less than T_c .) | * < 30 seconds |
| Ramp-down rate (T_p to T_L) | 6°C /second max. |
| Time 25°C to peak temperature | 8 minutes max. |

T_p: maximum peak package body temperature, **T_c**: the classification temperature.

For user (customer) **T_p** should be equal to or less than **T_c**.

*Tolerance for peak profile temperature (T_p) is defined as a supplier minimum and a user maximum.

Table (1.2) Package Thickness/Volume and Classification Temperature (T_c)

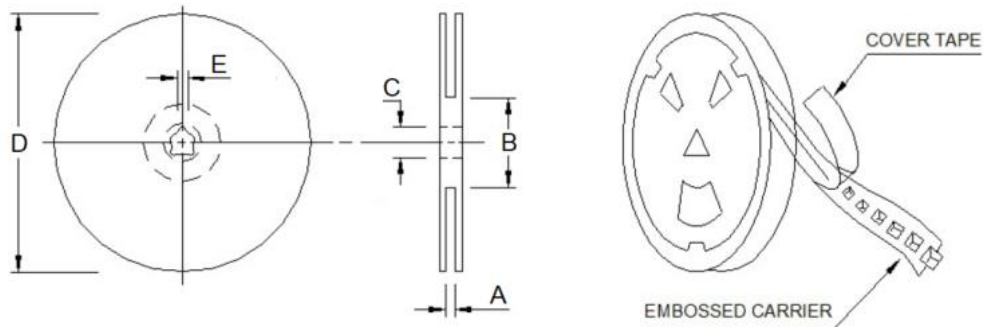
| | Package Thickness | Volume mm ³ <350 | Volume mm ³ 350-2000 | Volume mm ³ >2000 |
|------------------|-------------------|-----------------------------|---------------------------------|------------------------------|
| PB-Free Assembly | <1.6mm | 260°C | 260°C | 260°C |
| | 1.6-2.5mm | 260°C | 250°C | 245°C |
| | ≥2.5mm | 250°C | 245°C | 245°C |

Reflow is referred to standard IPC/JEDEC J-STD-020E.

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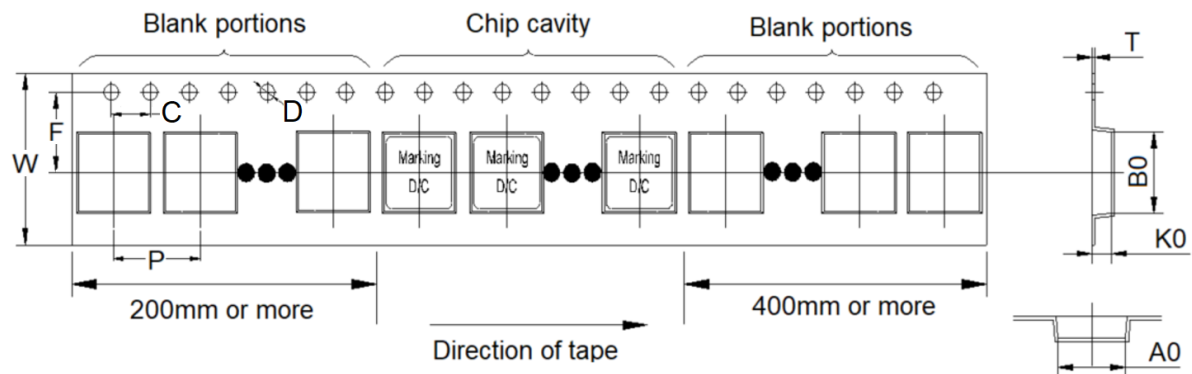
8. Packaging Information

8-1. Reel Dimension (Unit: mm)



| Type | A | B | C | D | E |
|----------|---------------|-----------|---------------|-------|---------|
| 13"x16mm | 16.4+2.0/-0.0 | 100.0±2.0 | 13.0+0.5/-0.2 | 330.0 | 2.0±0.5 |

8-2. Tape Dimension (Unit: mm)



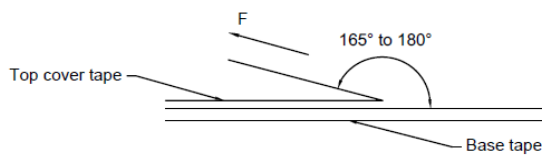
| A0 | B0 | K0 | P | W |
|-----------|-----------|-----------|------------|------------|
| 7.00±0.10 | 6.80±0.10 | 5.30±0.10 | 12.00±0.10 | 16.00±0.30 |
| F | T | D | C | - |
| 7.50±0.10 | 0.35±0.10 | 1.50±0.10 | 4.00 | - |

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8-3. Packaging Quantity (Unit: Pcs)

| | |
|------------|-------|
| Chip/ Reel | 800 |
| Inner Box | 1,600 |
| Carton | 6,400 |

8-4. Tearing Off Force



The force for tearing off cover tape is according to the follow table, in the arrow direction under the following conditions.

(Referenced ANSI/EIA-481-D-2008 of 4.11 standard)

| Room Temp. (°C) | Room Humidity (%) | Room atm (hPa) | Tearing Speed (mm/min) |
|-----------------|-------------------|----------------|------------------------|
| 5~35 | 45~85 | 860~1060 | 300±10 |

| Tape Size | 8 mm | 12 to 56 mm | 72 mm or Wider |
|---------------------------|--------|-------------|----------------|
| Tearing Off Force (grams) | 10~100 | 10~130 | 10~150 |

Application Notice

1. Storage Conditions

To maintain the solderability of terminal electrodes:

- (a) Recommended products should be used within 12 months from the time of delivery.
- (b) The packaging material should be kept where no chlorine or sulfur exists in the air.

2. Transportation

- (a) Products should be handled with care to avoid damage or contamination from perspiration and skin oils.
- (b) Vacuum pick up is strongly recommended for individual components.
- (c) Bulk handling should ensure that abrasion and mechanical shock are minimized.

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