

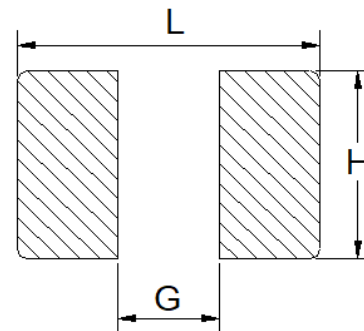
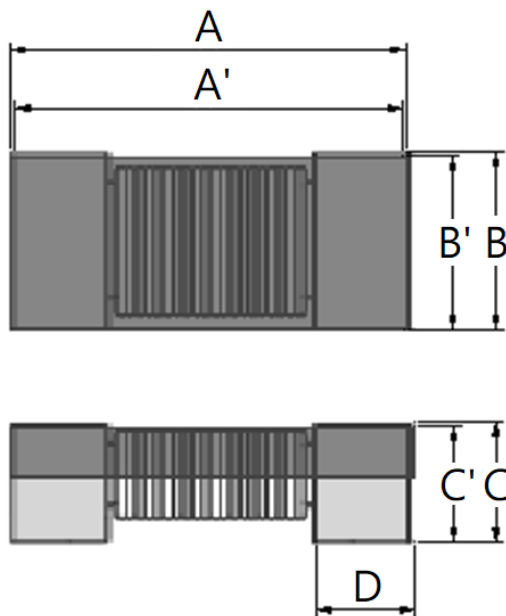
1. Part No. Expression

W Q 4 4 2 0 3 5 2 K F 1 0 D S

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

- | | |
|---------------------|--------------------|
| (a) Series Code | (d) Tolerance Code |
| (b) Dimension Code | (e) Frequency Code |
| (c) Inductance Code | (f) Category Code |

2. Configuration & Dimensions (Unit: mm)

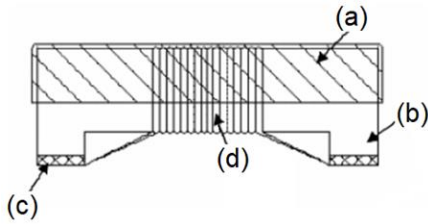


Recommended PCB Layout

A	A'	B	B'	C
4.55±0.25	4.20±0.20	2.20±0.25	1.80±0.20	2.00±0.20
C'	D	L	G	H
1.80±0.20	0.98 Ref	4.60 Ref	2.54 Ref	2.00 Ref

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

3. Material List



NO	Items
(a)	Upper plate
(b)	Core
(c)	Termination
(d)	Wire

4. General Specifications

- (a) Reliability test for this part meets AEC-Q200 standard.
- (b) Operating Temp.: -55°C to +125°C (including self-temperature rise)
- (c) Storage Temp.: -55°C to +125°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.
- (f) Storage Condition (Component in its packaging)
 - i) Temperature: Less than 40°C
 - ii) Humidity: Less than 60% RH

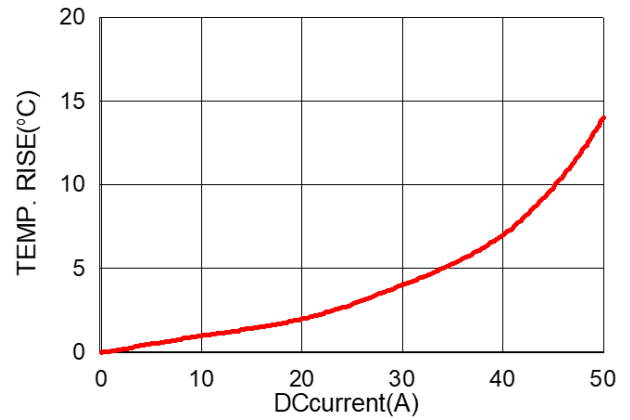
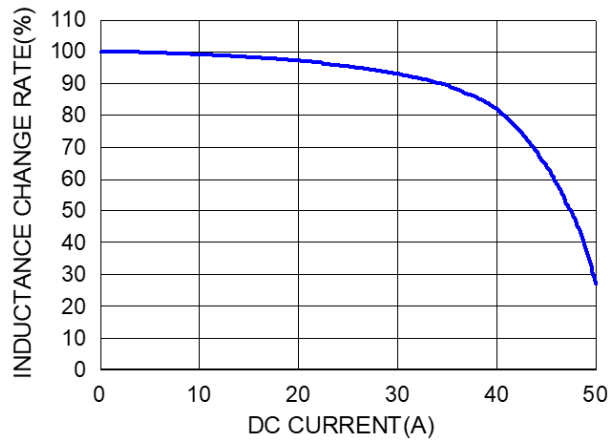
5. Electrical Characteristics

Part Number	Inductance (μ H) $\pm 10\%$	Test Frequency	DCR (Ω) Max	Rated Current (mA) Max	SRF (MHz) Min
WQ4420352KF10DS	3500	0.1V/10KHz	85	20	1.00
WQ4420492KF10DS	4900	0.1V/10KHz	109	20	0.65

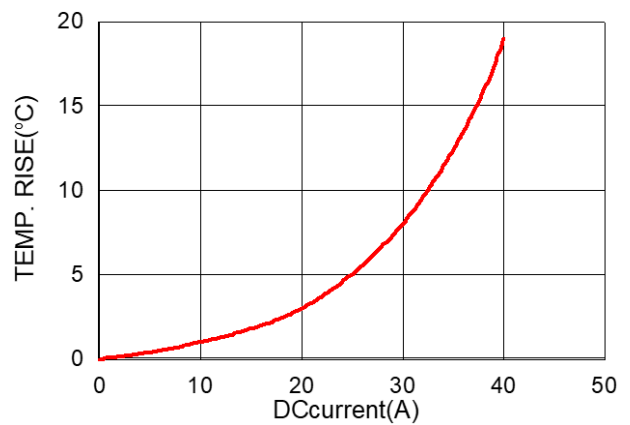
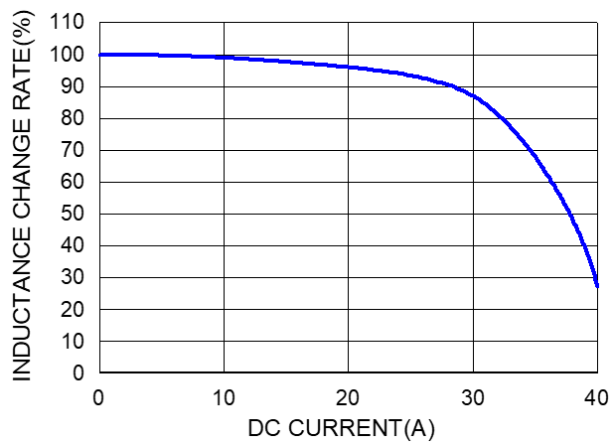
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6. Characteristics Curve

WQ4420352KF10DS



WQ4420492KF10DS



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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

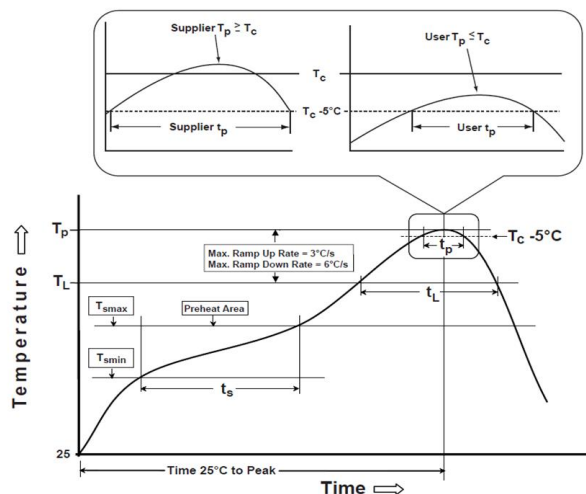
Recommended temperature profiles for lead free re-flow soldering in Figure 1, Table 1.1 & 1.2 (J-STD-020E).

7-2. Iron Reflow

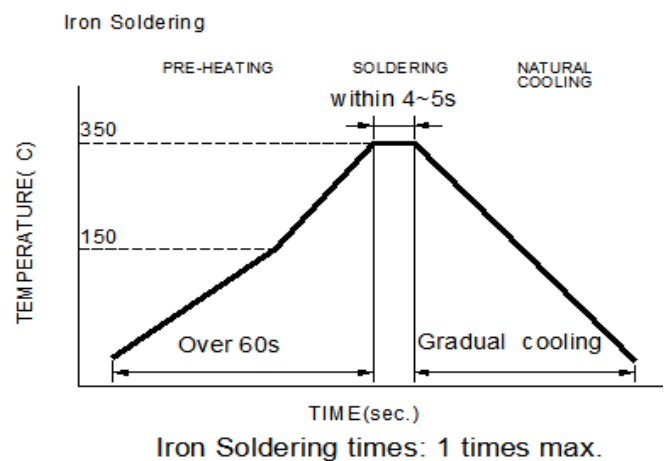
Products attachment with a soldering iron is discouraged due to the inherent process control limitations. In the event that a soldering iron must be employed the following precautions are recommended (Figure 2).

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_{\min})	150°C
-Temperature Max (T_{\max})	200°C
-Time (t_s) from (T_{\min} to T_{\max})	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

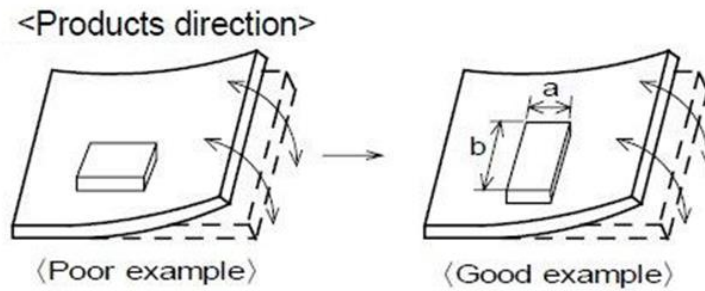
Reflow is referred to standard IPC/JEDEC J-STD-020E.

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7-3. Attention regarding P.C.B. bending

The following shall be considered when designing P.C.B.'S

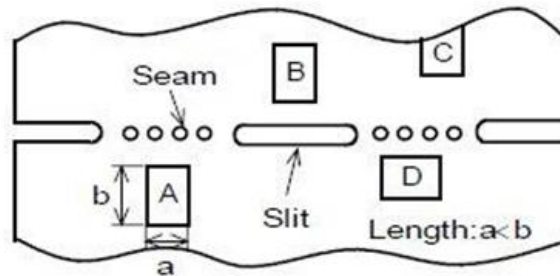
- (a) P.C.B. shall be designed so that products are not subjected to the mechanical stress for board warpage.



Products shall be located in the sideways direction (Length: $a < b$) to against the mechanical stress.

- (b) Products location on P.C.B.:

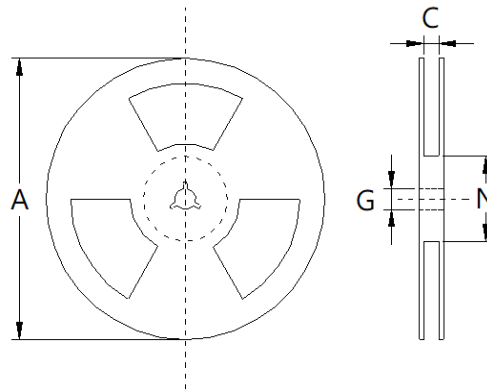
Products (A,B,C,D) shall be located carefully to prevent mechanical stress when warping the board. Products may be subjected to the mechanical stress in the order of $A > C > B \approx D$.



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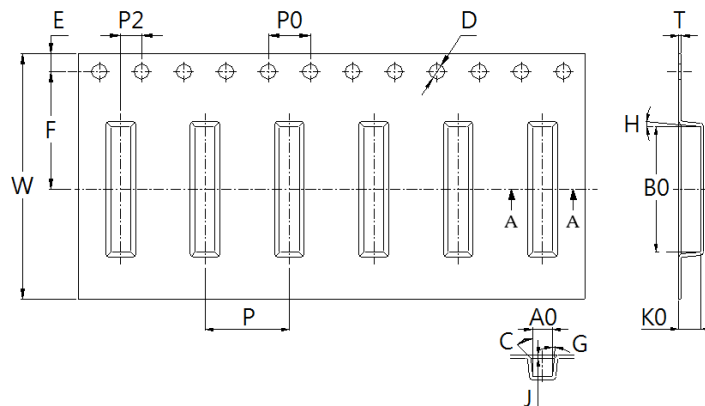
8. Packaging Information

8-1. Reel Dimension (Unit: mm)



Type	A	C	G	N
7"x12mm	180.0±2.0	16.5±1.0	13.5±0.5	100.0±2.0

8-2. Tape Dimension (Unit: mm)



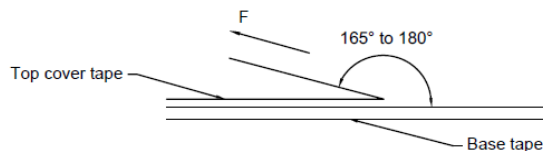
P	P0	P2	B0	A0
8.00±0.10	4.00±0.10	2.00±0.10	5.00±0.10	2.50±0.10
K0	D	E	F	W
2.10±0.10	1.50+0.10/-0.00	1.75±0.10	5.50±0.10	12.00±0.30
T	C	G	H	J
0.30±0.05	45°	5°	5°	0.30

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8-3. Packaging Quantity (Unit: Pcs)

Chip/ Reel	1,000
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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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