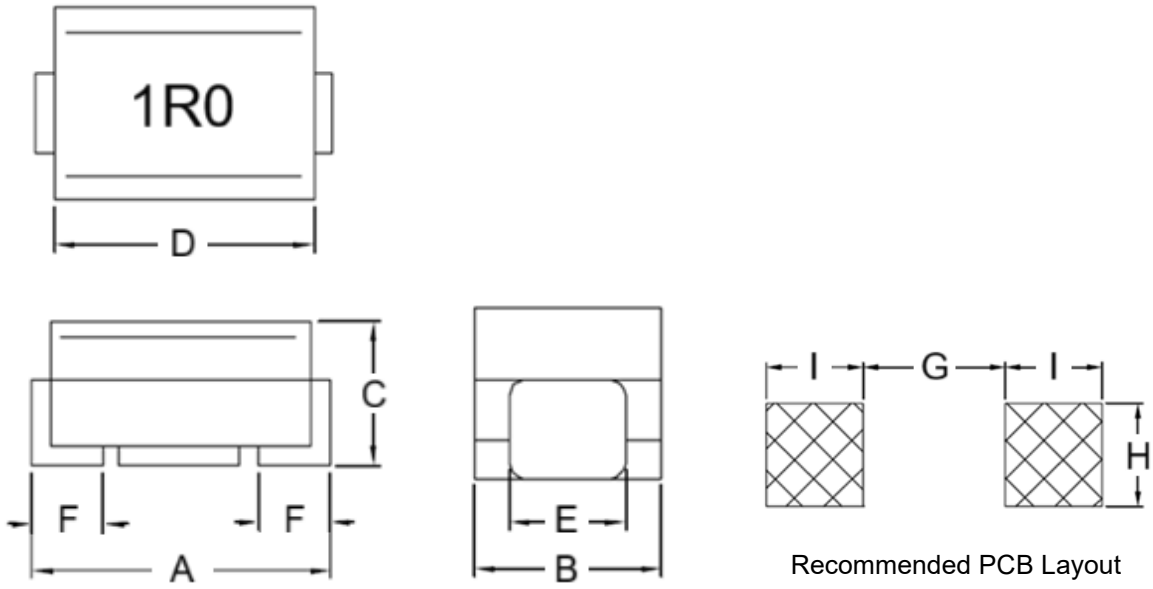
1. Part No. Expression

H W I 4 5 3 2 3 2 - 1 R 0 K F

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

(a) Series Code
(b) Dimension Code
(c) Inductance Code
(d) Tolerance Code
(e) Packaging Code

2. Configuration & Dimensions (Unit: mm)

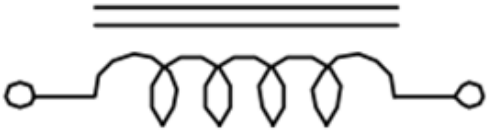


Recommended PCB Layout

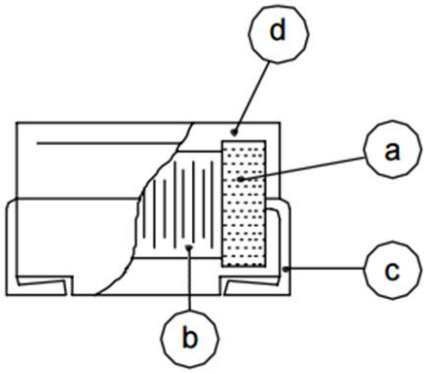
Note: 1. The above PCB layout reference only.
2. Marking: Inductance Code

A	B	C	D	E
4.5±0.3	3.2±0.2	3.2±0.2	4.2±0.2	1.2±0.2
F	G	H	I	-
1.0±0.2	2.2 Ref	1.6 Ref	1.5 Ref	-

3. Schematic



4. Material List



(a) Core
(b) Wire
(c) Terminal
(d) Capsulate

5. General Specifications

(a) Operating Temp.: - 40°C to + 125°C (including self-temperature rise)
(b) Storage Temp.: -40°C to +125°C (on board)
(c) All test data referenced to 25°C ambient.
(d) Saturation Current (Isat) will cause inductance L0 to drop approximately 10%.
(e) Storage Condition (Component in its packaging)
    i) Temperature: Less than 40°C
    ii) Humidity: Less than 60% RH

6. Electrical Characteristics

Part Number	Inductance (μH) @0A	Tolerance	Q Min	Test Frequency (MHz)	SRF (MHz) Min	DCR (Ω) Max	IDC (mA) Max
HWI453232-1R0□F	1.00	K	10	7.960	180.0	0.11	1050
HWI453232-1R2□F	1.20	K	10	7.960	160.0	0.12	1000
HWI453232-1R5□F	1.50	K	10	7.960	130.0	0.15	950
HWI453232-1R8□F	1.80	K	10	7.960	100.0	0.16	900
HWI453232-2R2□F	2.20	K	10	7.960	80.0	0.18	850
HWI453232-2R7□F	2.70	K	10	7.960	60.0	0.20	800
HWI453232-3R3□F	3.30	K	10	7.960	45.0	0.22	750
HWI453232-3R9□F	3.90	K	10	7.960	40.0	0.24	700
HWI453232-4R7□F	4.70	K	10	7.960	35.0	0.27	650
HWI453232-5R6□F	5.60	K	10	7.960	30.0	0.30	650
HWI453232-6R8□F	6.80	K	10	7.960	28.0	0.35	600
HWI453232-8R2□F	8.20	K	10	7.960	25.0	0.40	600
HWI453232-100□F	10.00	K	10	2.520	22.0	0.50	550
HWI453232-120□F	12.00	K	10	2.520	21.0	0.60	500
HWI453232-150□F	15.00	K	10	2.520	20.0	0.70	450
HWI453232-180□F	18.00	J	10	2.520	19.0	0.80	400
HWI453232-220□F	22.00	K	10	2.520	18.0	0.90	370
HWI453232-270□F	27.00	K	10	2.520	16.0	1.20	330
HWI453232-330□F	33.00	K	10	2.520	14.0	1.40	300
HWI453232-390□F	39.00	K	10	2.520	12.0	1.60	280

Note:
Tolerance: J=±5%, K=±10%

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

Part Number	Inductance (μH) @0A	Tolerance	Q Min	Test Frequency (MHz)	SRF (MHz) Min	DCR (Ω) Max	IDC (mA) Max
HWI453232-470□F	47.0	K	10	2.520	11.5	1.90	260
HWI453232-560□F	56.0	K	10	2.520	11.0	2.20	240
HWI453232-680□F	68.0	K	10	2.520	10.0	2.60	220
HWI453232-820□F	82.0	K	10	2.520	9.0	3.50	200
HWI453232-101□F	100	K	20	0.796	8.0	4.00	180
HWI453232-121□F	120	K	20	0.796	7.5	4.50	160
HWI453232-151□F	150	K	20	0.796	7.0	6.50	140
HWI453232-181□F	180	K	20	0.796	6.5	7.50	120
HWI453232-221□F	220	K	20	0.796	5.5	9.00	120
HWI453232-271□F	270	K	20	0.796	5.0	11.00	100
HWI453232-331□F	330	K	20	0.796	4.0	13.00	90
HWI453232-391□F	390	K	20	0.796	3.0	14.00	85
HWI453232-471□F	470	K	20	0.796	3.0	16.00	75
HWI453232-561□F	560	K	20	0.796	3.0	21.00	70
HWI453232-681□F	680	K	20	0.796	2.5	24.20	65

Note:
Tolerance: J=±5%, K=±10%

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:

(a) Preheat circuit and products to 150°C.

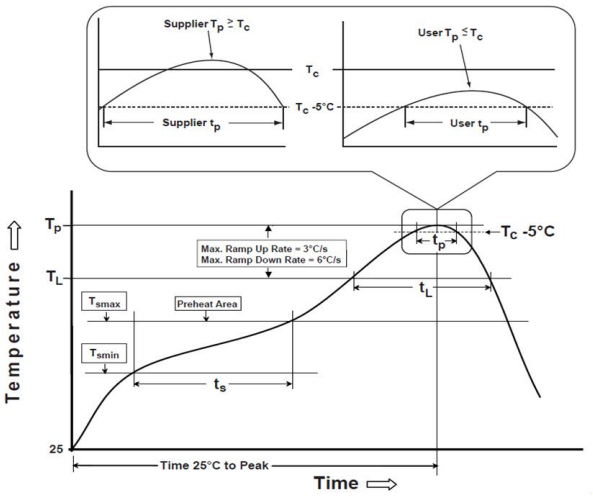
(b) 355°C tip temperature (Max.)

(c) Never contact the ceramic with the iron tip

(d) 1.0mm tip diameter (Max.)

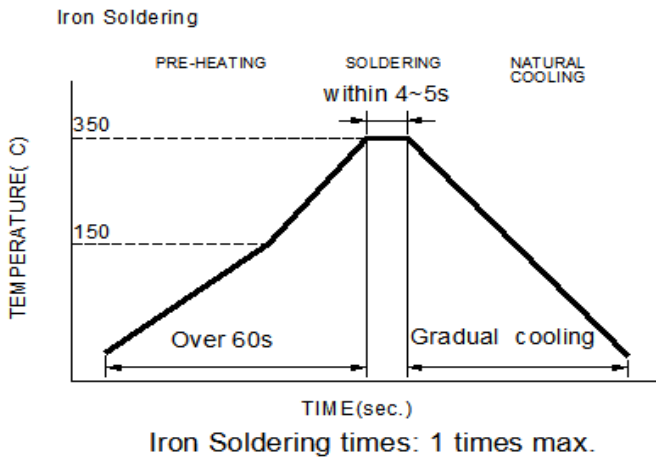
(e) Use a 20 watt soldering iron with tip diameter of 1.0mm

(f) 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

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

Table (1.1) Reflow Profiles

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

Tp: maximum peak package body temperature, **Tc**: the classification temperature.

For user (customer) **Tp** should be equal to or less than **Tc.**

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

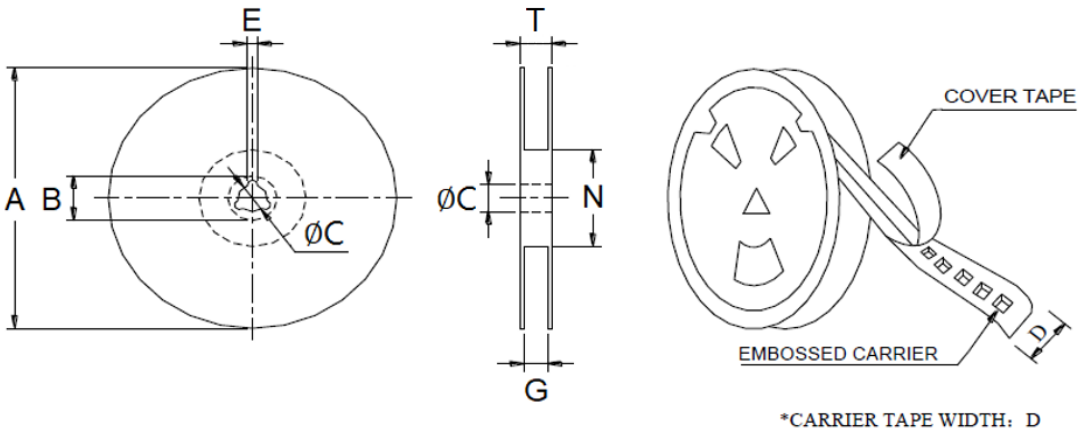
Table (1.2) Package Thickness/Volume and Classification Temperature (T_c)

	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.

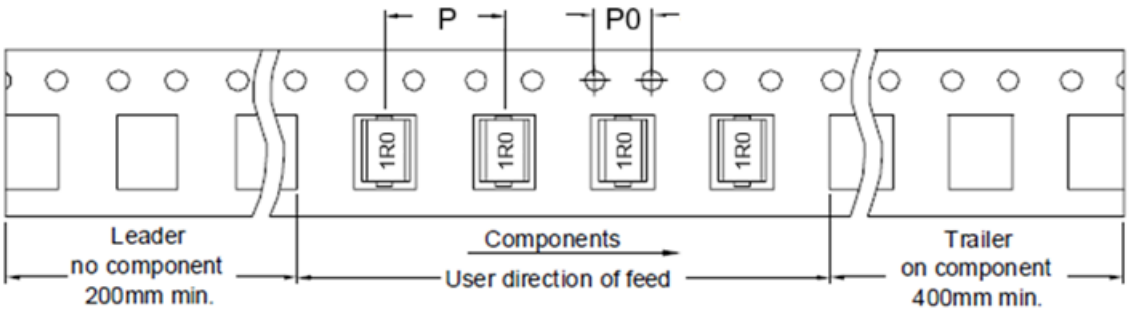
8. Packaging Information

8-1. Reel Dimension (Unit: mm)



Type	A	B	C	D
	178.0 Ref	21.0 Ref	13.0 Ref	12.0 Ref
7"x12mm	E	G	N	T
	2.0 Ref	14.0 Max	50 Min	16.5 Ref

8-2. Tape Dimension (Unit: mm)



* There is no differentiation or directions of polarity (marking) in the packaging method.

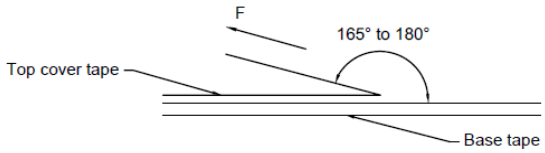
P	P0
8	4

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

8-3. Packaging Quantity (Unit: Pcs)

Chip/ Reel	500
Carton	20,000

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.