



# Shielded Surface Mount Power Inductor— SMRH2 Series



## FEATURES

- ROHS, Halogen free and REACH Compliance.
- Magnetic shielded surface mount inductor.
- High current rating, low DC resistance.
- Various package size and wide inductance range.

## APPLICATIONS

AP Routers, STBs and LCD TVs, LED televisions, TV,DC/DC converter and power supply for VTRs.

## PRODUCT IDENTIFICATION



01 Type	
SMRH2	Shielded Surface Mount Power Inductor

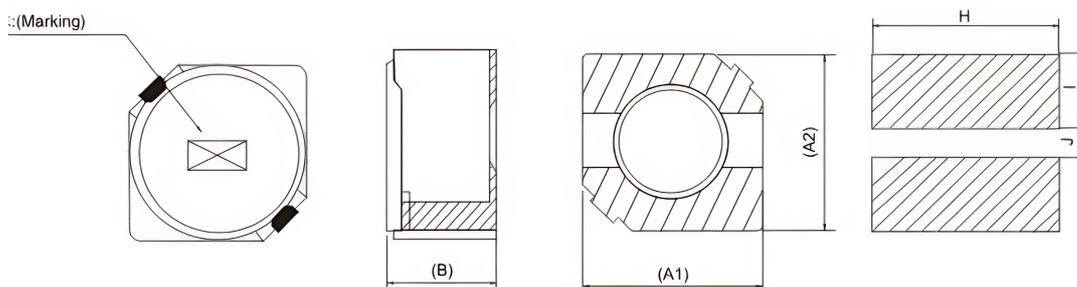
02 External Dimensions (LxW)(mm)	
2D11	3.3x 1.4
2D14	3.3x 1.7
2D18	3.3x 2.1
3D16	4.0x 1.9
3D18	4.0x 2.1
3D28	4.0x 3.1
4D18	5.0x 2.1
4D28	5.0x 3.1
5D18	6.0x 2.1
5D28	6.0x 3.1
6D28	7.0x 3.1
6D38	7.0x 4.1

04 Nominal Inductance	
Example	Nominal value
2R2	2.2uH
220	22uH
221	220uH

05 Tolerance	
K	±10%
M	±20%
N	±30%

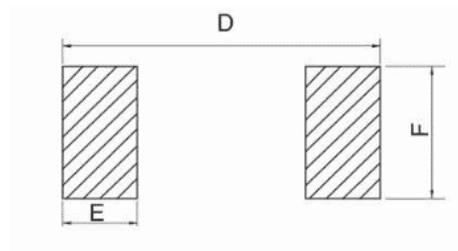
05 Packing	
T	Tape & Reel

## SHAPE AND DIMENSIONS



Part Number	Dimensions(mm)					
	A1(Max)	A2(Max)	B(Max)	H	I	J
SMRH2D11	3.3	3.3	1.4	3.5	1.35	0.8
SMRH2D14	3.3	3.3	1.7	3.5	1.35	0.8
SMRH2D18	3.3	3.3	2.1	3.5	1.35	0.8
SMRH3D16	4.0	4.0	1.9	4.5	1.5	1.2
SMRH3D18	4.0	4.0	2.1	4.5	1.5	1.2
SMRH3D28	4.0	4.0	3.1	4.5	1.5	1.2
SMRH4D18	5.0	5.0	2.1	5.3	1.9	1.5
SMRH4D28	5.0	5.0	3.1	5.3	1.9	1.5
SMRH5D18	6.0	6.0	2.1	6.3	2.2	2.0
SMRH5D28	6.0	6.0	3.1	6.3	2.2	2.0
SMRH6D28	7.0	7.0	3.1	7.3	2.7	2.0
SMRH6D38	7.0	7.0	4.1	7.3	2.7	2.0

## RECOMMENDED PC BOARD PATTERN



Part Number	Dimensions(mm)		
	D	E	F
SMRH2D11	3.5	1.35	3.5
SMRH2D14	3.5	1.35	3.5
SMRH2D18	3.5	1.35	3.5
SMRH3D16	4.2	1.5	4.5
SMRH3D18	4.2	1.5	4.5
SMRH3D28	4.2	1.5	4.5
SMRH4D18	5.3	1.9	5.3
SMRH4D28	5.3	1.9	5.3
SMRH5D18	6.4	2.2	6.3
SMRH5D28	6.4	2.2	6.3
SMRH6D28	7.4	2.7	7.3
SMRH6D38	7.4	2.7	7.3

## SPECIFICATIONS



## SPECIFICATIONS

### ● SMRH2D11 TYPE

Part Number	Inductance (uH)	Tolerance	Test condition (KHz/V)	DCR Max( $\Omega$ )	Rated Current Max (mA)
SMRH2D11-1R5	1.5	K、M	100/0.25	0.08	880
SMRH2D11-2R2	2.2		100/0.25	0.12	700
SMRH2D11-3R3	3.3		100/0.25	0.155	580
SMRH2D11-4R7	4.7		100/0.25	0.21	500
SMRH2D11-5R6	5.6		100/0.25	0.29	440
SMRH2D11-6R8	6.8		100/0.25	0.33	390
SMRH2D11-8R2	8.2		100/0.25	0.37	350
SMRH2D11-100	10		100/0.25	0.40	320
SMRH2D11-120	12		100/0.25	0.55	300
SMRH2D11-150	15		100/0.25	0.78	260
SMRH2D11-220	22		100/0.25	1.05	210

**Note: When ordering, please specify tolerance code. Tolerance: K:  $\pm 10\%$ 、M:  $\pm 20\%$ ;**

1. Operating temperature range -40 -125°C

2. Isat for Inductance drop 30% from its value without current

### ● SMRRH2D14 TYPE

Part Number	Inductance (uH)	Tolerance	Test condition (KHz/V)	DCR Max( $\Omega$ )	Rated Current Max (mA)
SMRRH2D14-1R5	1.5	K、M	100/0.25	0.075	1000
SMRRH2D14-2R2	2.2		100/0.25	0.094	810
SMRRH2D14-3R3	3.3		100/0.25	0.125	680
SMRRH2D14-4R7	4.7		100/0.25	0.169	580
SMRRH2D14-5R6	5.6		100/0.25	0.188	510
SMRRH2D14-6R8	6.8		100/0.25	0.232	480
SMRRH2D14-8R2	8.2		100/0.25	0.281	430
SMRRH2D14-100	10		100/0.25	0.35	370
SMRRH2D14-120	12		100/0.25	0.40	360
SMRRH2D14-150	15		100/0.25	0.57	320
SMRRH2D14-220	22		100/0.25	0.87	270
SMRRH2D14-330	33		100/0.25	1.20	220



● **SMRH2D18 TYPE**

Part Number	Inductance (uH)	Tolerance	Test condition (KHz/V)	DCR Max(Ω)	Rated Current Max (mA)
SMRH2D18-1R5	1.5	K、M	100/0.25	0.049	1100
SMRH2D18-2R2	2.2		100/0.25	0.071	890
SMRH2D18-3R3	3.3		100/0.25	0.095	750
SMRH2D18-4R7	4.7		100/0.25	0.125	650
SMRH2D18-5R6	5.6		100/0.25	0.165	570
SMRH2D18-6R8	6.8		100/0.25	0.180	540
SMRH2D18-8R2	8.2		100/0.25	0.235	480
SMRH2D18-100	10		100/0.25	0.310	440
SMRH2D18-120	12		100/0.25	0.350	400
SMRH2D18-150	15		100/0.25	0.450	350
SMRH2D18-220	22		100/0.25	0.700	300
SMRH2D18-330	33		100/0.25	0.910	240
SMRH2D18-470	47		100/0.25	1.400	200

**Note: When ordering, please specify tolerance code. Tolerance: K: ±10%, M: ±20%;**

1. Operating temperature range -40 -125°C

2. Isat for Inductance drop 30% from its value without current

● **SMRH3D16 TYPE**

Part Number	Inductance (uH)	Tolerance	Test condition (KHz/V)	DCR Max(Ω)	Rated Current Max (mA)
SMRRH3D16-2R2	2.2	K、M	100/0.25	0.090	800
SMRRH3D16-3R3	3.3		100/0.25	0.110	680
SMRRH3D16-4R7	4.7		100/0.25	0.130	580
SMRRH3D16-5R6	5.6		100/0.25	0.180	510
SMRRH3D16-6R8	6.8		100/0.25	0.230	460
SMRRH3D16-8R2	8.2		100/0.25	0.270	420
SMRRH3D16-100	10		100/0.25	0.300	380
SMRRH3D16-120	12		100/0.25	0.390	340
SMRRH3D16-150	15		100/0.25	0.450	310
SMRRH3D16-220	22		100/0.25	0.560	280
SMRRH3D16-330	33		100/0.25	0.650	260
SMRRH3D16-470	47		100/0.25	1.00	210



● SMRH3D18 TYPE

Part Number	Inductance (uH)	Tolerance	Test condition (KHz/V)	DCR Max(Ω)	Rated Current Max (mA)
SMRH3D18-1R0	1.0	K、M	100/0.25	0.045	1400
SMRH3D18-1R8	1.8		100/0.25	0.066	1050
SMRH3D18-2R2	2.2		100/0.25	0.072	950
SMRH3D18-3R3	3.3		100/0.25	0.100	800
SMRH3D18-4R7	4.7		100/0.25	0.132	680
SMRH3D18-5R6	5.6		100/0.25	0.164	620
SMRH3D18-6R8	6.8		100/0.25	0.200	580
SMRH3D18-8R2	8.2		100/0.25	0.240	510
SMRH3D18-100	10		100/0.25	0.275	460
SMRH3D18-120	12		100/0.25	0.350	420
SMRH3D18-150	15		100/0.25	0.400	380
SMRH3D18-180	18		100/0.25	0.500	340
SMRH3D18-220	22		100/0.25	0.600	310
SMRH3D18-270	27		100/0.25	0.700	280
SMRH3D18-330	33		100/0.25	0.900	260
SMRH3D18-390	39		100/0.25	1.05	240
SMRH3D18-470	47		100/0.25	1.47	210
SMRH3D18-560	56		100/0.25	2.10	190
SMRH3D18-680	68		100/0.25	2.40	170
SMRH3D18-820	82		100/0.25	2.90	150

**Note: When ordering, please specify tolerance code. Tolerance: K: ±10%, M: ±20%;**

1. Operating temperature range -40 -125°C

2. Isat for Inductance drop 30% from its value without current

● SMRH3D28 TYPE

Part Number	Inductance (uH)	Tolerance	Test condition (KHz/V)	DCR Max(Ω)	Rated Current Max (mA)
SMRRH3D28-1R0	1.0	K、M	100/0.25	0.040	2300
SMRRH3D28-1R2	1.2		100/0.25	0.045	2200
SMRRH3D28-1R8	1.8		100/0.25	0.058	2200
SMRRH3D28-2R2	2.2		100/0.25	0.062	2100



Part Number	Inductance (uH)	Tolerance	Test condition (KHz/V)	DCR Max(Ω)	Rated Current Max (mA)
SMRH3D28-2R5	2.5	K、M	100/0.25	0.070	2000
SMRH3D28-2R7	2.7		100/0.25	0.073	1950
SMRH3D28-3R3	3.3		100/0.25	0.087	1800
SMRH3D28-3R9	3.9		100/0.25	0.082	1600
SMRH3D28-4R7	4.7		100/0.25	0.100	1500
SMRH3D28-5R6	5.6		100/0.25	0.110	1350
SMRH3D28-6R8	6.8		100/0.25	0.150	1200
SMRH3D28-8R2	8.2		100/0.25	0.160	1100
SMRH3D28-100	10		100/0.25	0.170	1050
SMRH3D28-120	12		100/0.25	0.175	900
SMRH3D28-150	15		100/0.25	0.230	850
SMRH3D28-180	18		100/0.25	0.250	750
SMRH3D28-220	22		100/0.25	0.335	680
SMRH3D28-270	27		100/0.25	0.420	620
SMRH3D28-330	33		100/0.25	0.600	560
SMRH3D28-390	39		100/0.25	0.750	510
SMRH3D28-470	47		100/0.25	0.900	481
SMRH3D28-560	56		100/0.25	1.20	430
SMRH3D28-680	68		100/0.25	1.40	400
SMRH3D28-820	82		100/0.25	1.80	360
SMRH3D28-101	100		100/0.25	2.00	330
SMRH3D28-121	120		100/0.25	2.20	300
SMRH3D28-151	150		100/0.25	3.20	270
SMRH3D28-181	180		100/0.25	3.50	250
SMRH3D28-221	220		100/0.25	4.00	220
SMRH3D28-271	270		100/0.25	5.60	200

**Note: When ordering, please specify tolerance code. Tolerance: K: ±10%, M: ±20%;**

1. Operating temperature range -40 -125°C

2. Isat for Inductance drop 30% from its value without current



● SMRH4D18 TYPE

Part Number	Inductance (uH)	Tolerance	Test condition (KHz/V)	DCR Max(Ω)	Rated Current Max (mA)
SMRH4D18-1R0	1.0	M	100/0.25	0.030	2300
SMRH4D18-1R2	1.2		100/0.25	0.035	2000
SMRH4D18-1R8	1.8		100/0.25	0.037	1960
SMRH4D18-2R2	2.2		100/0.25	0.040	1900
SMRH4D18-2R5	2.5		100/0.25	0.044	1840
SMRH4D18-2R7	2.7		100/0.25	0.062	1770
SMRH4D18-3R3	3.3		100/0.25	0.070	1650
SMRH4D18-3R9	3.9		100/0.25	0.095	1450
SMRH4D18-4R7	4.7		100/0.25	0.100	1400
SMRH4D18-5R6	5.6		100/0.25	0.150	1200
SMRH4D18-6R8	6.8		100/0.25	0.153	980
SMRH4D18-8R2	8.2		100/0.25	0.165	940
SMRH4D18-100	10		K、M	100/0.25	0.180
SMRH4D18-120	12	100/0.25		0.240	760
SMRH4D18-150	15	100/0.25		0.300	730
SMRH4D18-180	18	100/0.25		0.340	680
SMRH4D18-220	22	100/0.25		0.400	630
SMRH4D18-270	27	100/0.25		0.440	560
SMRH4D18-330	33	100/0.25		0.695	520
SMRH4D18-390	39	100/0.25		0.700	480
SMRH4D18-470	47	100/0.25		0.920	420
SMRH4D18-560	56	100/0.25		1.08	370
SMRH4D18-680	68	100/0.25		1.30	320
SMRH4D18-820	82	100/0.25		1.55	300
SMRH4D18-101	100	100/0.25		1.75	270
SMRH4D18-121	120	100/0.25		2.00	250
SMRH4D18-151	150	100/0.25		2.80	200
SMRH4D18-181	180	100/0.25	3.10	180	

**Note: When ordering, please specify tolerance code. Tolerance: K: ±10%, M: ±20%;**

1. Operating temperature range -40 -125°C

2. Isat for Inductance drop 30% from its value without current



● SMRH4D28 TYPE

Part Number	Inductance (uH)	Tolerance	Test condition (KHz/V)	DCR Max(Ω)	Rated Current Max (mA)
SMRH4D28-1R2	1.2	M	100/0.25	0.025	2500
SMRH4D28-1R8	1.8		100/0.25	0.035	2200
SMRH4D28-2R2	2.2		100/0.25	0.040	2000
SMRH4D28-2R7	2.7		100/0.25	0.050	1600
SMRH4D28-3R3	3.3		100/0.25	0.060	1500
SMRH4D28-3R9	3.9		100/0.25	0.065	1400
SMRH4D28-4R7	4.7		100/0.25	0.070	1300
SMRH4D28-5R6	5.6		100/0.25	0.075	1200
SMRH4D28-6R8	6.8		100/0.25	0.080	1100
SMRH4D28-8R2	8.2		100/0.25	0.090	1000
SMRH4D28-100	10		100/0.25	0.100	900
SMRH4D28-120	12		100/0.25	0.130	800
SMRH4D28-150	15	K、M	100/0.25	0.160	750
SMRH4D28-180	18		100/0.25	0.190	700
SMRH4D28-220	22		100/0.25	0.210	650
SMRH4D28-270	27		100/0.25	0.250	600
SMRH4D28-330	33		100/0.25	0.260	500
SMRH4D28-390	39		100/0.25	0.320	500
SMRH4D28-470	47		100/0.25	0.450	450
SMRH4D28-560	56		100/0.25	0.500	400
SMRH4D28-680	68		100/0.25	0.650	350
SMRH4D28-820	82		100/0.25	0.750	300
SMRH4D28-101	100		100/0.25	0.850	280
SMRH4D28-121	120		100/0.25	1.200	260
SMRH4D28-151	150	100/0.25	1.400	230	
SMRH4D28-181	180	100/0.25	1.500	210	

**Note: When ordering, please specify tolerance code. Tolerance: K: ±10%, M: ±20%;**  
 1. Operating temperature range -40 -125°C  
 2. Isat for Inductance drop 30% from its value without current



● **SMRH5D18 TYPE**

Part Number	Inductance (uH)	Tolerance	Test condition (KHz/V)	DCR Max(Ω)	Rated Current Max (mA)
SMRH5D18-4R1	4.1	K、M	100/0.25	0.075	2000
SMRH5D18-5R4	5.4		100/0.25	0.085	1600
SMRH5D18-6R2	6.2		100/0.25	0.096	1400
SMRH5D18-8R9	8.9		100/0.25	0.130	1250
SMRH5D18-100	10		100/0.25	0.140	1200
SMRH5D18-120	12		100/0.25	0.180	1100
SMRH5D18-150	15		100/0.25	0.230	970
SMRH5D18-180	18		100/0.25	0.250	850
SMRH5D18-220	22		100/0.25	0.290	800
SMRH5D18-270	27		100/0.25	0.330	750
SMRH5D18-330	33		100/0.25	0.386	650
SMRH5D18-390	39		100/0.25	0.520	570
SMRH5D18-470	47		100/0.25	0.654	540
SMRH5D18-560	56		100/0.25	0.750	500
SMRH5D18-680	68		100/0.25	0.845	430
SMRH5D18-820	82		100/0.25	1.090	410
SMRH5D18-101	100		100/0.25	1.350	260

**Note: When ordering, please specify tolerance code. Tolerance: K: ±10%、M: ±20%;**

1. Operating temperature range -40 -125°C

2. Isat for Inductance drop 30% from its value without current

● **SMRH5D28 TYPE**

Part Number	Inductance (uH)	Tolerance	Test condition (KHz/V)	DCR Max(Ω)	Rated Current Max (mA)
SMRH5D28-2R6	2.6	M	100/0.25	0.025	2500
SMRH5D28-3R0	3.0		100/0.25	0.030	2400
SMRH5D28-4R2	4.2		100/0.25	0.040	2200
SMRH5D28-5R3	5.3		100/0.25	0.045	1800
SMRH5D28-6R2	6.2		100/0.25	0.055	1700
SMRH5D28-8R2	8.2		100/0.25	0.065	1500
SMRH5D28-100	10		100/0.25	0.075	1300



Part Number	Inductance (uH)	Tolerance	Test condition (KHz/V)	DCR Max(Ω)	Rated Current Max (mA)
SMRH5D28-120	12	K、 M	100/0.25	0.085	1200
SMRH5D28-150	15		100/0.25	0.120	1100
SMRH5D28-180	18		100/0.25	0.140	1000
SMRH5D28-220	22		100/0.25	0.180	900
SMRH5D28-270	27		100/0.25	0.200	800
SMRH5D28-330	33		100/0.25	0.210	700
SMRH5D28-390	39		100/0.25	0.250	600
SMRH5D28-470	47		100/0.25	0.280	550
SMRH5D28-560	56		100/0.25	0.320	500
SMRH5D28-680	68		100/0.25	0.380	450
SMRH5D28-820	82		100/0.25	0.500	400
SMRH5D28-101	100		100/0.25	0.600	350

**Note: When ordering, please specify tolerance code. Tolerance: K: ±10%, M: ±20%;**

1. Operating temperature range -40 -125°C

2. Isat for Inductance drop 30% from its value without current

● **SMRH6D28 TYPE**

Part Number	Inductance (uH)	Tolerance	Test condition (KHz/V)	DCR Max(Ω)	Rated Current Max (mA)
SMRH6D28-3R0	3.0	M	100/0.25	0.024	3000
SMRH6D28-3R3	3.3		100/0.25	0.025	2800
SMRH6D28-3R9	3.9		100/0.25	0.027	2600
SMRH6D28-5R0	5.0		100/0.25	0.031	2400
SMRH6D28-6R0	6.0		100/0.25	0.035	2250
SMRH6D28-6R8	6.8		100/0.25	0.055	2000
SMRH6D28-7R3	7.3		100/0.25	0.056	1900
SMRH6D28-8R6	8.6	K、 M	100/0.25	0.058	1850
SMRH6D28-100	10		100/0.25	0.065	1700
SMRH6D28-120	12		100/0.25	0.070	1550
SMRH6D28-150	15		100/0.25	0.084	1400
SMRH6D28-180	18		100/0.25	0.095	1320
SMRH6D28-220	22		100/0.25	0.128	1200



Part Number	Inductance (uH)	Tolerance	Test condition (KHz/V)	DCR Max(Ω)	Rated Current Max (mA)
SMRH6D28-270	27	K、M	100/0.25	0.142	1050
SMRH6D28-330	33		100/0.25	0.165	970
SMRH6D28-390	39		100/0.25	0.210	860
SMRH6D28-470	47		100/0.25	0.238	8000
SMRH6D28-560	56		100/0.25	0.277	730
SMRH6D28-680	68		100/0.25	0.304	650
SMRH6D28-820	82		100/0.25	0.390	600

**Note: When ordering, please specify tolerance code. Tolerance: K: ±10%, M: ±20%;**

1. Operating temperature range -40 -125°C

2. Isat for Inductance drop 30% from its value without current

● **SMRH6D38 TYPE**

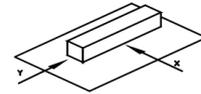
Part Number	Inductance (uH)	Tolerance	Test condition (KHz/V)	DCR Max(Ω)	Rated Current Max (mA)
SMRH6D38-3R3	3.3	K、M	100/0.25	0.030	3500
SMRH6D38-5R0	5.0		100/0.25	0.040	2900
SMRH6D38-6R0	6.0		100/0.25	0.050	2500
SMRH6D38-7R3	7.3		100/0.25	0.055	2300
SMRH6D38-8R6	8.6		100/0.25	0.060	2200
SMRH6D38-100	10		100/0.25	0.070	2000
SMRH6D38-120	12		100/0.25	0.075	1700
SMRH6D38-150	15		100/0.25	0.080	1600
SMRH6D38-180	18		100/0.25	0.110	1500
SMRH6D38-220	22		100/0.25	0.130	1300
SMRH6D38-270	27		100/0.25	0.160	1200
SMRH6D38-330	33		100/0.25	0.180	1100
SMRH6D38-390	39		100/0.25	0.190	1000
SMRH6D38-470	47		100/0.25	0.200	950
SMRH6D38-560	56		100/0.25	0.240	850
SMRH6D38-680	68		100/0.25	0.260	750
SMRH6D38-820	82		100/0.25	0.310	700
SMRH6D38-101	100		100/0.25	0.350	650



## DETAIL ELECTRICAL CHARACTERISTICS

1. Operating temperature range: -40 to + 105°C(Includes temperature when the coil is heated) .
2. External appearance: On visual inspection, the coil has no external defects.
3. Terminal strength: After soldering. Between copper plate and terminals of coil. Push in two directions of X.Y

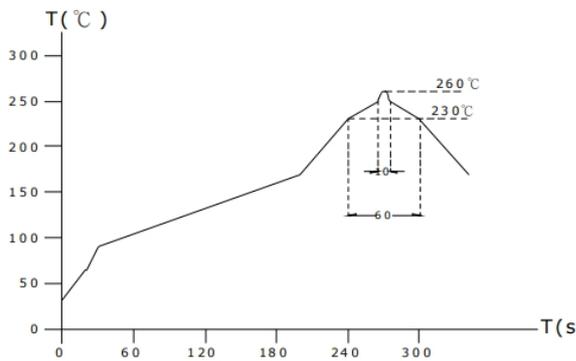
withstanding at below conditions.



Terminal should not peel off. (refer to figure at right) 5. 0N 60 sec.

4. Insulating resistance: Over 100MΩ at 100V D.C. between coil and core.
5. Dielectric strength: No dielectric breakdown at 100V D.C. for 1 minute between coil and core.
6. Temperature characteristics: Inductance coefficient  $(0\sim 2,000)\times 10^{-6}/^{\circ}\text{C}$  (-25~+80°C degree Celsius), inductance deviation within  $\pm 5.0\%$ , after 96 hours.
7. Humidity characteristics(Moisture Resistance): Inductance deviation within  $\pm 5\%$ , after 96 hours in 90~95% relative humidity at  $40 \pm 2^{\circ}\text{C}$  and 1 hour drying under normal condition.
8. Vibration resistance: Inductance deviation within  $\pm 5\%$ , after vibration for 1 hour. In each of three orientations at sweep vibration (10~55~10 Hz) with 1.5mm P-P amplitudes.
9. Shock resistance: Inductance deviation within  $\pm 5\%$ , after being dropped once with  $981\text{m/s}^2$  (100G) shock attitude upon a rubber block method shock testing machine, in three different orientations.
10. Resistance to Soldering Heat: 260°C, 10 seconds(See attached recommend reflow) .
11. Storage condition: Temperature Range: 0°C ~ 35°C; -40°C ~ 105°C (after PCB), Humidity Range: 50% ~ 70% RH.
12. Use components within 12 months. If 12 months or more have elapsed, check solderability before use.
13. Reflow profile recommend:

Lead-free heat endurance test



Lead-free the recommended reflow condition

