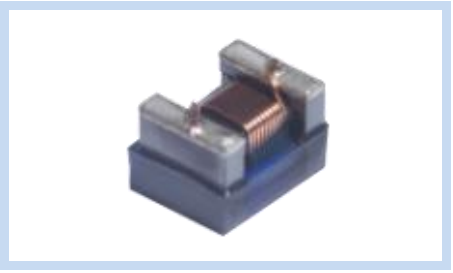
Signal Inductor
Wire Wound Ferrite Chip Type

SIF-18TSeries

MERITEK

FEATURE

- **Operating temperature: -40°C ~ +125°C (Including Self-temperature rise)**
- **Ferrite core wire wound construction**
- **Small footprint and low profile**
- **Application for power line and signal line use**



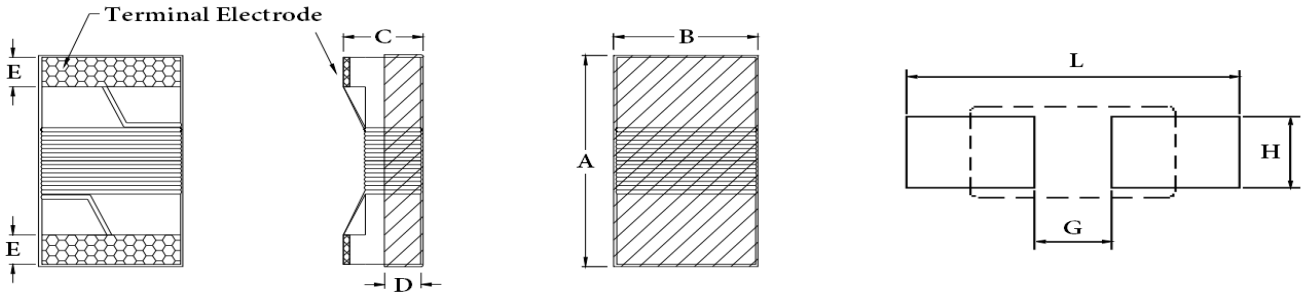
PART NUMBERING SYSTEM

SIF (1) 03 (2) 1H0 (3) K (4) C (5) 18T (6)

RoHS

No	item	Code	Description	Series Reference
(1)	**Meritek Series**	**SIF**	Signal Inductor series	Wire Wound Ferrite Chip type
(2)	**Size Code**	**03**	03: 0603	05:0805, 08:1008, 10:1210
(3)	**Inductance**	**1H0**	1H0: 1.0μH	47N: 47nH, H10: 0.10μH, 101: 100μH
(4)	**Tolerance**	**K**	K: ±10%	J: ±5%, M: ±20%
(5)	**Application Type**	**C**	C: Power line	S: Signal line
(6)	**Internal Code**	**18T**	Internal control code	Internal control or project reference

DIMENSIONS



(Unit: mm)

Item	A	B	C	D	E	L	G	H
SIF03-18T	1.80 Max.	1.20 Max.	1.20 Max.	0.38 Ref.	0.35±0.10	2.00	0.90	1.20
SIF05-18T	2.40 Max.	1.60 Max.	1.40 Max.	0.51 Ref.	0.44±0.10	2.60	1.30	1.60
SIF08-18T	2.90 Max.	2.50 Max.	2.10 Max.	1.20 Ref.	0.55±0.10	3.10	1.50	2.50
SIF10-18T	3.60 Max.	2.80 Max.	2.60 Max.	0.80 Ref.	0.55±0.10	3.82	2.00	2.80

ELECTRICAL CHARACTERISTICS

SIF03-C18TSeries (Power Line Use)

Inch/Metric 0603/1608	Inductance (μH)	Inductance Tolerance (%)	Q Min.	Inductance & Q Test Frequency (MHz)	Rated Current (mA) Max.	DCR (Ω) Max.	SRF (MHz) Min.
SIF0347N□C18T	0.047	K, M	10	7.96	1400	0.075	1500
SIF03H10□C18T	0.10	K, M	10	7.96	1400	0.13	1150
SIF03H12□C18T	0.12	K, M	10	7.96	1400	0.15	1100
SIF03H15□C18T	0.15	K, M	10	7.96	1300	0.15	1050
SIF03H18□C18T	0.18	K, M	10	7.96	1300	0.15	950
SIF03H22□C18T	0.22	K, M	10	7.96	950	0.15	800
SIF03H24□C18T	0.24	K, M	10	7.96	620	0.31	800
SIF03H27□C18T	0.27	K, M	10	7.96	710	0.20	775
SIF03H33□C18T	0.33	K, M	10	7.96	620	0.35	725
SIF03H39□C18T	0.39	K, M	10	7.96	600	0.39	620
SIF03H47□C18T	0.47	K, M	10	7.96	570	0.43	540
SIF03H56□C18T	0.56	K, M	10	7.96	550	0.47	525
SIF03H68□C18T	0.68	K, M	10	7.96	470	0.52	460
SIF03H82□C18T	0.82	K, M	10	7.96	400	0.69	410
SIF031H0□C18T	1.0	K, M	10	7.96	400	0.81	190
SIF031H2□C18T	1.2	K, M	10	7.96	370	0.87	160
SIF031H5□C18T	1.5	K, M	10	7.96	350	0.96	100
SIF031H8□C18T	1.8	K, M	10	7.96	350	1.10	80
SIF032H2□C18T	2.2	K, M	10	7.96	320	1.20	68
SIF033H3□C18T	3.3	K, M	10	7.96	280	1.50	42
SIF033H9□C18T	3.9	K, M	10	7.96	280	1.50	40
SIF034H7□C18T	4.7	K, M	10	7.96	260	2.10	34
SIF035H6□C18T	5.6	K, M	10	7.96	240	2.60	32
SIF036H8□C18T	6.8	K, M	10	7.96	200	3.10	31
SIF038H2□C18T	8.2	K, M	10	7.96	190	4.40	26
SIF0310H□C18T	10	K, M	10	2.52	180	4.80	25

Note:
1. □**:** Inductance tolerance K:±10%, M:±20%
2. Apply the rated current to the coil, the inductance shall drop less than 20% of initial value.

ELECTRICAL CHARACTERISTICS

SIF05-S18TSeries (Signal Line Use)

Inch/Metric 0805/2012	Inductance (μH)	Inductance Tolerance (%)	Inductance Test Frequency (MHz)	Q Min.	Q Test Frequency (MHz)	Rated Current (mA) Max.	DCR (Ω) Max.	SRF (MHz) Min.
SIF05H47□S18T	0.47	J, K	25.2	30	100	420	0.54	570
SIF05H56□S18T	0.56	J, K	25.2	30	100	400	0.64	560
SIF05H68□S18T	0.68	J, K	25.2	30	100	350	0.68	480
SIF05H82□S18T	0.82	J, K	25.2	30	100	325	0.77	449
SIF051H0□S18T	1.0	J, K	25.2	30	100	300	0.86	394
SIF051H2□S18T	1.2	J, K	25.2	25	100	260	0.97	297
SIF051H5□S18T	1.5	J, K	25.2	25	25.2	250	1.08	206
SIF051H8□S18T	1.8	J, K	25.2	25	25.2	230	1.18	177
SIF052H2□S18T	2.2	J, K	25.2	20	25.2	220	1.32	141
SIF052H7□S18T	2.7	J, K	25.2	20	25.2	210	1.42	128
SIF053H3□S18T	3.3	J, K	25.2	15	25.2	200	1.73	110
SIF053H9□S18T	3.9	J, K	25.2	15	25.2	195	1.72	103
SIF054H7□S18T	4.7	J, K	25.2	15	25.2	185	1.87	98
SIF055H6□S18T	5.6	J, K	7.96	15	7.96	180	2.18	60
SIF056H8□S18T	6.8	J, K	7.96	15	7.96	175	2.90	58
SIF058H2□S18T	8.2	J, K	7.96	15	7.96	140	3.31	40
SIF0510H□S18T	10	J, K	7.96	15	7.96	115	3.72	32

Note:
1. □: Inductance tolerance J:±5%, K:±10%
2. Apply the rated current to the coil, the inductance shall drop less than 20% of initial value.

ELECTRICAL CHARACTERISTICS (CONTINUED)

SIF05-C18TSeries (Power Line Use)

Inch/Metric 0805/2012	Inductance (μH)	Inductance Tolerance (%)	Q Min.	Inductance & Q Test Frequency (MHz)	Rated Current (mA) Max.	DCR (Ω) Max.	SRF (MHz) Min.
SIF05H47□C18T	0.47	K, M	10	7.96	750	0.20	720
SIF05H56□C18T	0.56	K, M	10	7.96	730	0.21	665
SIF05H68□C18T	0.68	K, M	10	7.96	670	0.28	565
SIF05H82□C18T	0.82	K, M	10	7.96	650	0.31	545
SIF051H0□C18T	1.0	K, M	10	7.96	615	0.34	525
SIF051H2□C18T	1.2	K, M	10	7.96	550	0.39	473
SIF051H5□C18T	1.5	K, M	10	7.96	520	0.45	300
SIF051H8□C18T	1.8	K, M	10	7.96	500	0.48	230
SIF052H2□C18T	2.2	K, M	10	7.96	420	0.67	215
SIF052H7□C18T	2.7	K, M	10	7.96	410	0.74	140
SIF053H3□C18T	3.3	K, M	10	7.96	385	0.81	95
SIF053H9□C18T	3.9	K, M	10	7.96	372	0.88	57
SIF054H7□C18T	4.7	K, M	10	7.96	345	0.99	51
SIF055H6□C18T	5.6	K, M	10	7.96	335	1.06	44
SIF056H8□C18T	6.8	K, M	10	7.96	315	1.21	39
SIF058H2□C18T	8.2	K, M	10	7.96	295	1.33	33
SIF0510H□C18T	10	K, M	10	2.52	260	1.79	30
SIF0512H□C18T	12	K, M	10	2.52	250	1.98	27
SIF0515H□C18T	15	K, M	10	2.52	215	2.68	22
SIF0518H□C18T	18	K, M	10	2.52	195	3.12	20
SIF0522H□C18T	22	K, M	10	2.52	180	3.48	18
SIF0527H□C18T	27	K, M	10	2.52	170	3.84	16
SIF0533H□C18T	33	K, M	10	2.52	145	4.34	15

Note:
1. □: Inductance tolerance K:±10%, M:±20%
2. Apply the rated current to the coil, the inductance shall drop less than 20% of initial value.

ELECTRICAL CHARACTERISTICS

SIF08-S18TSeries (Signal Line Use)

Inch/Metric 1008/2520	Inductance (μH)	Inductance Tolerance (%)	Q Min.	Inductance & Q Test Frequency (MHz)	Rated Current (mA) Max.	DCR (Ω) Max.	SRF (MHz) Min.
SIF081H0□S18T	1.0	J, K	30	25.2	400	0.80	285
SIF081H2□S18T	1.2	J, K	25	25.2	300	0.87	265
SIF081H5□S18T	1.5	J, K	25	25.2	260	0.98	235
SIF081H8□S18T	1.8	J, K	25	25.2	245	1.10	226
SIF082H2□S18T	2.2	J, K	25	25.2	230	1.22	198
SIF082H7□S18T	2.7	J, K	25	25.2	220	1.33	180
SIF083H3□S18T	3.3	J, K	25	25.2	210	1.46	143
SIF083H9□S18T	3.9	J, K	25	25.2	200	1.63	136
SIF084H7□S18T	4.7	J, K	25	25.2	195	1.76	105
SIF085H6□S18T	5.6	J, K	25	25.2	185	1.97	88
SIF086H8□S18T	6.8	J, K	25	7.96	190	1.79	56
SIF088H2□S18T	8.2	J, K	25	7.96	180	2.03	48
SIF0810H□S18T	10	J, K	25	7.96	165	2.92	44
SIF0812H□S18T	12	J, K	25	7.96	160	3.11	42
SIF0815H□S18T	15	J, K	25	7.96	155	3.58	37
SIF0818H□S18T	18	J, K	20	2.52	150	3.89	32
SIF0822H□S18T	22	J, K	20	2.52	140	4.38	28
SIF0827H□S18T	27	J, K	20	2.52	130	4.92	24
SIF0833H□S18T	33	J, K	20	2.52	125	5.50	22

Note:
1. □**:** Inductance tolerance J:±5%, K:±10%
2. Apply the rated current to the coil, the inductance shall drop less than 20% of initial value.

ELECTRICAL CHARACTERISTICS

SIF08-C18TSeries (Power Line Use)

Inch/Metric 1008/2520	Inductance (μH)	Inductance Tolerance (%)	Q Min.	Inductance & Q Test Frequency (MHz)	Rated Current (mA) Max.	DCR (Ω) Max.	SRF (MHz) Min.
SIF081H0□C18T	1.0	K, M	12	7.96	1000	0.13	345
SIF081H5□C18T	1.5	K, M	12	7.96	850	0.17	100
SIF082H2□C18T	2.2	K, M	12	7.96	775	0.21	78
SIF083H3□C18T	3.3	K, M	12	7.96	715	0.26	48
SIF084H7□C18T	4.7	K, M	12	7.96	505	0.52	46
SIF086H8□C18T	6.8	K, M	12	7.96	432	0.72	33
SIF088H2□C18T	8.2	K, M	12	2.52	410	0.76	30
SIF0810H□C18T	10	K, M	12	2.52	392	0.86	28
SIF0815H□C18T	15	K, M	12	2.52	342	1.09	21
SIF0822H□C18T	22	K, M	12	2.52	260	1.96	18
SIF0833H□C18T	33	K, M	12	2.52	236	2.47	15

Note:
1. □**:** Inductance tolerance K:±10%, M:±20%
2. Apply the rated current to the coil, the inductance shall drop less than 20% of initial value.

ELECTRICAL CHARACTERISTICS

SIF10-S18TSeries (Signal Line Use)

Inch/Metric 1210/3225	Inductance (μH)	Inductance Tolerance (%)	Q Min.	Inductance & Q Test Frequency (MHz)	Rated Current (mA) Max.	DCR (Ω) Max.	SRF (MHz) Min.
SIF101H0□S18T	1.0	J, K	30	25.2	630	0.54	239
SIF101H2□S18T	1.2	J, K	30	25.2	630	0.54	221
SIF101H5□S18T	1.5	J, K	30	25.2	630	0.54	209
SIF101H8□S18T	1.8	J, K	30	25.2	630	0.62	203
SIF102H2□S18T	2.2	J, K	30	25.2	630	0.71	187
SIF102H7□S18T	2.7	J, K	30	25.2	630	0.74	157
SIF103H3□S18T	3.3	J, K	30	25.2	600	0.83	146
SIF103H9□S18T	3.9	J, K	30	25.2	380	1.74	139
SIF104H7□S18T	4.7	J, K	30	25.2	360	1.90	124
SIF105H6□S18T	5.6	J, K	30	25.2	330	2.05	114
SIF106H8□S18T	6.8	J, K	30	7.96	450	1.37	109
SIF108H2□S18T	8.2	J, K	30	7.96	420	1.50	104
SIF1010H□S18T	10	J, K	25	7.96	400	1.70	87
SIF1012H□S18T	12	J, K	25	7.96	360	1.88	76
SIF1015H□S18T	15	J, K	25	7.96	340	2.22	67
SIF1018H□S18T	18	J, K	25	7.96	330	2.42	57
SIF1022H□S18T	22	J, K	25	7.96	300	2.66	48
SIF1027H□S18T	27	J, K	25	2.52	250	2.99	38
SIF1033H□S18T	33	J, K	25	2.52	220	3.24	26

Note:
1. □: Inductance tolerance J:±5%, K:±10%
2. Apply the rated current to the coil, the inductance shall drop less than 20% of initial value.

ELECTRICAL CHARACTERISTICS

SIF10-C18TSeries (Power Line Use)

Inch/Metric 1210/3225	Inductance (μH)	Inductance Tolerance (%)	Q Min.	Inductance & Q Test Frequency (MHz)	Rated Current (mA) Max.	DCR (Ω) Max.	SRF (MHz) Min.
SIF101H0□C18T	1.0	K, M	10	7.96	1200	0.12	290
SIF101H5□C18T	1.5	K, M	10	7.96	1000	0.13	260
SIF102H2□C18T	2.2	K, M	10	7.96	880	0.17	190
SIF103H3□C18T	3.3	K, M	10	7.96	775	0.22	64
SIF104H7□C18T	4.7	K, M	10	7.96	710	0.26	54
SIF106H8□C18T	6.8	K, M	10	7.96	660	0.30	34
SIF1010H□C18T	10	K, M	10	2.52	570	0.39	25
SIF1015H□C18T	15	K, M	10	2.52	440	0.66	17
SIF1022H□C18T	22	K, M	10	2.52	400	0.82	16
SIF1033H□C18T	33	K, M	10	2.52	285	1.50	12
SIF1039H□C18T	39	K, M	10	2.52	270	1.66	12
SIF1047H□C18T	47	K, M	10	2.52	260	1.90	10
SIF1068H□C18T	68	K, M	10	2.52	235	2.29	9.0
SIF10101□C18T	100	K, M	10	1.00	190	3.48	7.0
SIF10151□C18T	150	K, M	10	1.00	140	6.55	5.0
SIF10221□C18T	220	K, M	10	1.00	115	8.23	4.0
SIF10331□C18T	330	K, M	10	1.00	98	13.7	2.8
SIF10471□C18T	470	K, M	10	1.00	86	18.1	2.6
SIF10681□C18T	680	K, M	10	1.00	76	22.0	2.3

Note:
1. □: Inductance tolerance K:±10%, M:±20%
2. Apply the rated current to the coil, the inductance shall drop less than 20% of initial value.

RELIABILITY TEST CONDITON AND REQUIREMENT

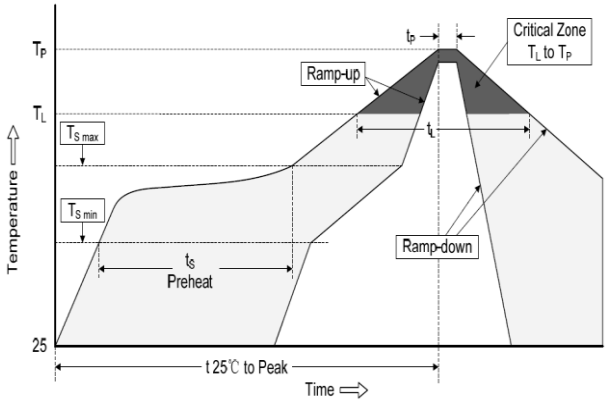
<table>
<tr><th>Item</th><th>Test Standards / Conditions / Equipment</th><th>Requirement</th></tr>
<tr><td>Rated Current</td><td>Applied the current to coils, the inductance change shall be less than 20% to initial value.</td><td>Refer to standard electrical characteristic spec.</td></tr>
<tr><td>Solderability</td><td>Preheat: 150℃for 60sec.
Solder: Sn:96.5% - Ag:3% - Cu:0.5%
Solder temperature: 245±5℃
Flux for lead free: Rosin. 9.5%
Depth: completely cover the termination.
Dip time: 4±1sec.</td><td>More than 95% of the terminal electrode should be covered with solder.</td></tr>
<tr><td>Resistance to Soldering Heat</td><td>Solder temperature: 260±5°C for 10 seconds.
Temperature ramp/immersion and emersion rate 25±6 mm/s.
Completely cover the termination.</td><td>Appearance: no damage.
Impedance: within±15%of initial value.
Inductance: within±10%of initial value.
Q: shall not exceed the specification value.
RDC: within ±15% of initial value and shall not exceed the specification value.</td></tr>
<tr><td>Vibration</td><td>Oscillation Frequency: 10～2K～10 Hz for 20 minutes
Equipment：Vibration checker
Total Amplitude:1.52mm ± 10%
Testing Time：12 hours(20 minutes, 12 cycles each of 3 orientations)</td><td>Appearance: no damage.
Impedance: within±15%of initial value.
Inductance: within±10%of initial value.
Q: shall not exceed the specification value.
RDC: within ±15% of initial value and shall not exceed the specification value.</td></tr>
<tr><td>Shock</td><td>Test condition:
<table>
<tr><th>Type</th><th>Peak Value (g's)</th><th>Normal duration (ms)</th><th>Wave From</th><th>Velocity change (ft/sec)</th></tr>
<tr><td>SMD</td><td>50</td><td>11</td><td>Half-sine</td><td>11.3</td></tr>
<tr><td>Lead</td><td>50</td><td>11</td><td>Half-sine</td><td>11.3</td></tr>
</table></td><td>Appearance: no damage.
Impedance: within±15%of initial value.
Inductance: within±10%of initial value.
Q: shall not exceed the specification value.
RDC: within ±15% of initial value and shall not exceed the specification value.</td></tr>
<tr><td>Terminal strength</td><td>Preconditioning: Run through IR reflow for 2 times.
With component mounted on a PCB apply a force
• >0805inch(2012mm):1kg
• <=0805inch(2012mm):0.5kg
to the side of a device being tested. This force shall be applied for 60 +1 seconds. Also the force shall be applied gradually as not to shock the component being tested.</td><td>Appearance: no damage.
Impedance: within±15%of initial value.
Inductance: within±10%of initial value.
Q: shall not exceed the specification value.
RDC: within ±15% of initial value and shall not exceed the specification value.</td></tr>
<tr><td>Thermal Shock</td><td>Preconditioning: Run through IR reflow for 2 times.
Number of cycles: 500. Condition for 1 cycle:
<table>
<tr><th>No.</th><th>Temp. (°C)</th><th>Time (min.)</th></tr>
<tr><td>1</td><td>-40±2℃</td><td>30±5</td></tr>
<tr><td>2</td><td>25±2℃</td><td>≤30 seconds</td></tr>
<tr><td>3</td><td>+125±2℃</td><td>30±5</td></tr>
</table>
Measured at room temperature after placing for 24±2 hrs.</td><td>Appearance: no damage.
Impedance: within±15%of initial value.
Inductance: within±10%of initial value.
Q: shall not exceed the specification value.
RDC: within ±15% of initial value and shall not exceed the specification value.</td></tr>
<tr><td>Bending</td><td>Shall be mounted on a FR4 substrate of the following dimensions:
<table>
<tr><th>Dimensions</th><th>Bending depth</th></tr>
<tr><td>>=0805inch(2012mm):40x100x1.2mm</td><td>1.2mm</td></tr>
<tr><td><0805inch(2012mm):40x100x0.8mm</td><td>0.8mm</td></tr>
</table>
Duration of 10 sec for a min.</td><td>Appearance: no damage.
Impedance: within±15%of initial value.
Inductance: within±10%of initial value.
Q: shall not exceed the specification value.
RDC: within ±15% of initial value and shall not exceed the specification value.</td></tr>
<tr><td>Load Humidity</td><td>Preconditioning: Run through IR reflow for 2 times. Humidity: 85±2%R.H. Temperature: 85±2℃.
Duration: 1000hrs Min. with 100% rated current.
Measured at room temperature after 24±2 hrs.</td><td>Appearance: no damage.
Impedance: within±15%of initial value.
Inductance: within±10%of initial value.
Q: shall not exceed the specification value.
RDC: within ±15% of initial value and shall not exceed the specification value.</td></tr>
</table>

RELIABILITY TEST CONDITON AND REQUIREMENT (CONTINUED)

Item	Test Conditions / Equipment	Requirement
Moisture Resistance	Preconditioning: Run through IR reflow for 2 times. 1. Baked at 50℃ for 25hrs, measured at room temperature after placing for 4hrs. 2. Raise temperature to 65±2℃, 90~100%R.H. in 2.5hrs, and keep 3hrs, cool down to 25℃ in 2.5hrs. 3. Raise temperature to 65±2℃, 90~100%R.H. in 2.5hrs, and keep 3hrs, cool down to 25℃ in 2.5hrs, keep at 25℃ for 2hrs then keep at -10℃ for 3hrs. 4. Keep at 25℃, 80~100%R.H. for 15min and vibrate at the frequency of 10 to 55Hz to 10Hz, measure at room temperature after placing for 1~2hrs.	Appearance: no damage. Impedance: within±15%of initial value. Inductance: within±10%of initial value. Q: shall not exceed the specification value. RDC: within ±15% of initial value and shall not exceed the specification value.
Life Test	Preconditioning: Run through IR reflow for 2 times. Temperature: 125±2℃ Applied current: rated current. Duration: 1000±12 Hrs. Measured at room temperature after 24±2 Hrs.	Appearance: no damage. Impedance: within±15%of initial value. Inductance: within±10%of initial value. Q: shall not exceed the specification value. RDC: within ±15% of initial value and shall not exceed the specification value.

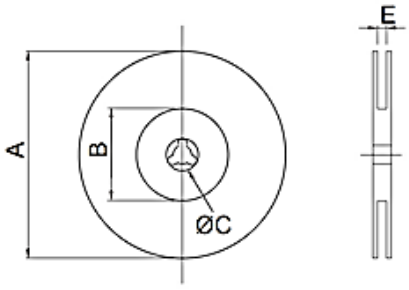
RECOMMENDED SOLDERING PROFILES

Reflow Condition		
Pre Heat	**Temp. Min $T_{s(min)}$**	150°C
	Temp. Max $T_{s(max)}$	200°C
	Time (min. to max.) (t_s)	60 ~180 seconds
Reflow	**Temp. (T_L)**	217°C
	Time (min. to max.) (t_L)	60 ~150 seconds
Peak Temperature (T_P)		260°C
Time within 5°C of actual peak Temperature (t_p)		10 seconds max.
Reflow times:		3 times Max.

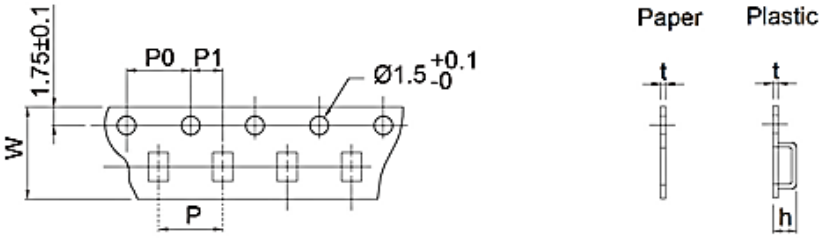


PACKAGING

CARRIER TAPE REELS



TAPE DIMENSION (mm)



Series	Reel Dimension (mm)				Tape Dimensions (mm)						Parts Per Reel
	A ±2.0	B ±2.0	C ±0.5	E ±0.5	W ±0.10	P ±0.10	P0 ±0.10	P1 ±0.05	t ±0.05	h ±0.10	
SIF03-18T	178.0	60.0	13.5	9.0	8.00	4.00	4.00	2.00	-	-	3,000
SIF05-18T	178.0	60.0	13.5	9.0	8.00	4.00	4.00	2.00	-	-	2,000
SIF08-18T	178.0	60.0	13.5	9.0	8.00	4.00	4.00	2.00	-	-	2,000
SIF10-18T	178.0	60.0	13.5	9.0	8.00	4.00	4.00	2.00	0.26	2.50	2,000

*Specifications subject to change without notice.