

Specification for Approval

Date: 2023/08/04Customer : Digi-KeyTAI-TECH P/N: SNL-SERIES

CUSTOMER P/N: _____

DESCRIPTION: _____

QUANTITY: _____ pcs

REMARK:

Customer Approval Feedback

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APPROVED	CHECKED	DRAWN
楊祥忠 Mike Yang	徐鋒強 Gemini Hsu	林靜婷 Michelle Lim

TA834002

Winding Type Chip Inductor

SNL-SERIES

ECN HISTORY LIST

REV	DATE	DESCRIPTION	APPROVED	CHECKED	DRAWN
1.0	23/07/24	新 發 行	楊祥忠	徐鋒強	林靜婷
1.1	23/08/04	更正 SNL322522QF-22N 規格	楊祥忠	徐鋒強	林靜婷
備 註					

Winding Type Chip Inductor

SNL252018CF-SERIES

1. Features

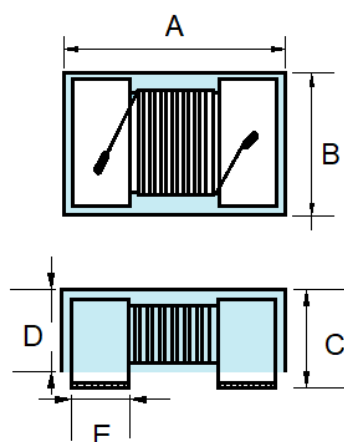
1. Ferrite core wire wound construction.
2. High Reliability due to wire wound type construction.
3. Small footprint as well as low profile.
4. 100% Lead(Pb) & Halogen-Free and RoHS compliant.
5. Operating temperature-40~+125°C (Including self - temperature rise)



2. Application

Smart meters, AV equipment, xDSL, electronic devices for communications infrastructure such as mobile base stations, industrial equipment, other

3. Dimension



Size	A	B	C	D	E
SNL252018	2.50±0.30	2.00±0.30	1.80±0.10	1.50±0.10	0.45ref

4. Part Numbering

SNL	252018	C	F	-	1R0	M
A	B	C	D		E	F

A: Series

B: Dimension

L x W x H

C: Application

DC Power Line

D: Lead free type

E: Inductance

1R0=1.0uH

F: Inductance Tolerance

K=±10%, M=±20%

5. Specification

TAI-TECH Part Number	Ls(uH)	Tolerance	L / Q Frequency	Q ref	SRF(MHz) ref	DCR(Ω) ±30%	IDC1(A) Max	IDC2(A) Max
SNL252018CF-1R0M	1.00	K,M	7.96M	20	300	0.140	0.475	1.000
SNL252018CF-1R5M	1.50	K,M	7.96M	20	250	0.180	0.435	0.890
SNL252018CF-2R2M	2.20	K,M	7.96M	20	200	0.270	0.390	0.730
SNL252018CF-3R3M	3.30	K,M	7.96M	20	100	0.440	0.340	0.570

TAI-TECH Part Number	Ls(uH)	Tolerance	L / Q Frequency	Q ref	SRF(MHz) ref	DCR(Ω) $\pm 30\%$	IDC1(A) Max	IDC2(A) Max
SNL252018CF-4R7M	4.70	K,M	7.96M	20	60	0.570	0.285	0.500
SNL252018CF-6R8M	6.80	K,M	7.96M	20	55	0.920	0.275	0.390
SNL252018CF-100M	10.00	K,M	2.52M	15	40	1.690	0.210	0.360
SNL252018CF-150M	15.00	K,M	2.52M	20	35	2.200	0.175	0.250
SNL252018CF-220M	22.00	K,M	2.52M	20	20	2.800	0.160	0.200
SNL252018CF-330M	33.00	K,M	2.52M	20	18	4.200	0.120	0.150

Winding Type Chip Inductor

SNL252018QF-SERIES

1. Features

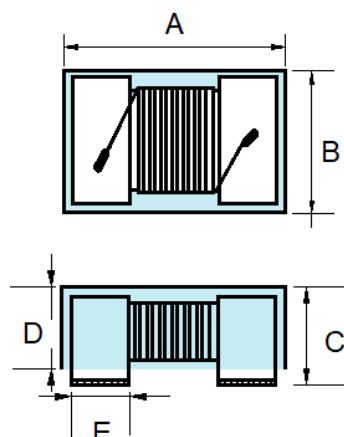
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2. High Reliability due to wire wound type construction.
3. Small footprint as well as low profile.
4. 100% Lead(Pb) & Halogen-Free and RoHS compliant.
5. Operating temperature -40~+125℃ (Including self - temperature rise)



2. Application

Smart meters, AV equipment, xDSL, electronic devices for communications infrastructure such as mobile base stations, industrial equipment, other

3. Dimension



Size	A	B	C	D	E
SNL252018	2.50±0.30	2.00±0.30	1.80±0.10	1.50±0.10	0.45ref

Unit:mm

4. Part Numbering

SNL	252018	Q	F	-	R47	K
A	B	C	D		E	F

A: Series

B: Dimension

C: Application

D: Lead free type

E: Inductance

F: Inductance Tolerance

L x W x H

For Signal Use

1R0=1.0uH

J=±5%, K=±10%

5. Specification

TAI-TECH Part Number	Ls(uH)	Tolerance	Q ref.	L / Q Frequency	SRF(MHz) ref	DCR(Ω) Max	IDC(A) Max
SNL252018QF-10N□	0.010	J,K	15	100M	2150	0.26	0.530
SNL252018QF-12N□	0.012	J,K	15	100M	2050	0.27	0.500
SNL252018QF-15N□	0.015	J,K	15	100M	2000	0.29	0.480
SNL252018QF-18N□	0.018	J,K	15	100M	1850	0.31	0.450
SNL252018QF-22N□	0.022	J,K	15	100M	1650	0.37	0.420

TAI-TECH Part Number	Ls(uH)	Tolerance	Q ref.	L / Q Frequency	SRF(MHz) ref	DCR(Ω) Max	IDC(A) Max
SNL252018QF-27N□	0.027	J,K	15	100M	1550	0.40	0.410
SNL252018QF-33N□	0.033	J,K	20	100M	1450	0.42	0.400
SNL252018QF-39N□	0.039	J,K	20	100M	1350	0.45	0.380
SNL252018QF-47N□	0.047	J,K	20	100M	1200	0.50	0.360
SNL252018QF-56N□	0.056	J,K	20	100M	1100	0.60	0.340
SNL252018QF-68N□	0.068	J,K	20	100M	1050	0.65	0.320
SNL252018QF-82N□	0.082	J,K	20	100M	900	0.75	0.300
SNL252018QF-R10□	0.10	J,K	20	100M	800	0.80	0.280
SNL252018QF-R12□	0.12	J,K	30	25.2M	700	0.30	0.550
SNL252018QF-R22□	0.22	J,K	30	25.2M	450	0.50	0.450
SNL252018QF-R27□	0.27	J,K	30	25.2M	425	0.55	0.425
SNL252018QF-R33□	0.33	J,K	30	25.2M	400	0.60	0.400
SNL252018QF-R47□	0.47	J,K	30	25.2M	350	0.68	0.400
SNL252018QF-R56□	0.56	J,K	30	25.2M	325	0.75	0.400
SNL252018QF-R82□	0.82	J,K	30	25.2M	260	1.00	0.300
SNL252018QF-1R0□	1.00	J,K	30	7.96M	245	1.10	0.245
SNL252018QF-1R2□	1.20	J,K	30	7.96M	230	1.20	0.230
SNL252018QF-2R2□	2.20	J,K	30	7.96M	105	1.55	0.200
SNL252018QF-3R3□	3.30	J,K	30	7.96M	55	1.90	0.185
SNL252018QF-4R7□	4.70	J,K	30	7.96M	43	2.30	0.175
SNL252018QF-5R6□	5.60	J,K	25	7.96M	42	2.50	0.170
SNL252018QF-6R8□	6.80	J,K	25	7.96M	39	2.70	0.165
SNL252018QF-8R2□	8.20	J,K	25	7.96M	36	3.05	0.160
SNL252018QF-100□	10.0	J,K	25	2.52M	33	3.50	0.155
SNL252018QF-150□	15.0	J,K	25	2.52M	26	4.80	0.140
SNL252018QF-220□	22.0	J,K	25	2.52M	22	5.50	0.125
SNL252018QF-270□	27.0	J,K	25	2.52M	21	6.30	0.115
SNL252018QF-330□	33.0	J,K	25	2.52M	20	7.10	0.110
SNL252018QF-470□	47.0	J,K	20	2.52M	17	11.10	0.080
SNL252018QF-560□	56.0	J,K	20	2.52M	16	12.10	0.075
SNL252018QF-680□	68.0	J,K	20	2.52M	15	16.60	0.070
SNL252018QF-820□	82.0	J,K	20	2.52M	13	19.00	0.066
SNL252018QF-101□	100	J,K	15	0.796M	12	21.00	0.060

Winding Type Chip Inductor

SNL322522CF-SERIES

1. Features

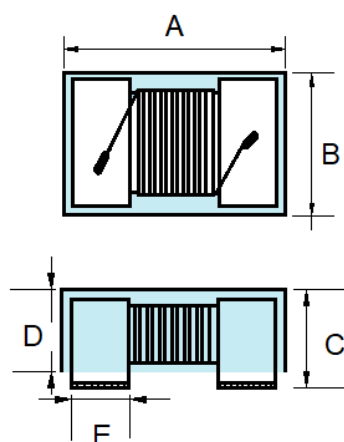
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2. Application

Smart meters, AV equipment, xDSL, electronic devices for communications infrastructure such as mobile base stations, industrial equipment, other

3. Dimension



Size	A	B	C	D	E
SNL322522	3.20±0.30	2.50±0.30	2.20±0.20	1.80±0.10	0.55 ref

Unit:mm

4. Part Numbering

SNL	322522	C	F	-	1R0	M
A	B	C	D		E	F

A: Series

B: Dimension

L x W x H

C: Application

DC Power Line

D: Lead free type

E: Inductance

1R0=1.0uH

F: Inductance Tolerance

K=±10%, M=±20%

5. Specification

TAI-TECH Part Number	Ls (uH)	L / Q Frequency	Q Ref.	SRF (MHz) ref.	DCR (Ω)±20%	IDC1 (A)Max	IDC2 (A)Max
SNL322522CF-1R0M	1.0±20%	7.96M	15	300	0.055	1.000	1.700
SNL322522CF-1R5M	1.5±20%	7.96M	15	200	0.095	0.830	1.400
SNL322522CF-2R2M	2.2±20%	7.96M	15	100	0.115	0.770	1.200
SNL322522CF-3R3M	3.3±20%	7.96M	15	80	0.160	0.690	1.000

TAI-TECH Part Number	Ls (uH)	L / Q Frequency	Q Ref.	SRF (MHz) ref.	DCR (Ω)±20%	IDC1 (A)Max	IDC2 (A)Max
SNL322522CF-4R7M	4.7±20%	7.96M	15	70	0.200	0.620	0.900
SNL322522CF-6R8M	6.8±20%	7.96M	15	38	0.270	0.530	0.700
SNL322522CF-100K	10±10%	2.52M	15	30	0.360	0.450	0.600
SNL322522CF-150K	15±10%	2.52M	15	26	0.560	0.390	0.500
SNL322522CF-220K	22±10%	2.52M	15	21	0.770	0.300	0.400
SNL322522CF-330K	33±10%	2.52M	15	17	1.100	0.240	0.350
SNL322522CF-470K	47±10%	2.52M	15	14	1.640	0.180	0.250
SNL322522CF-680K	68±10%	2.52M	15	12	2.800	0.140	0.200
SNL322522CF-101K	100±10%	0.796M	20	10	3.700	0.120	0.150
SNL322522CF-151K	150±10%	0.796M	20	8	6.100	0.100	0.125
SNL322522CF-221K	220±10%	0.796M	20	7	8.400	0.080	0.100
SNL322522CF-331K	330±10%	0.796M	20	6	12.30	0.070	0.090

Winding Type Chip Inductor

SNL322522QF-SERIES

1. Features

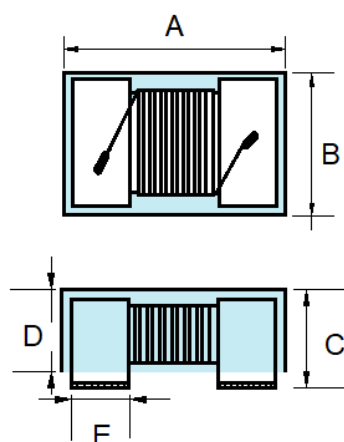
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2. Application

Smart meters, AV equipment, xDSL, electronic devices for communications infrastructure such as mobile base stations, industrial equipment, other

3. Dimension



Size	A	B	C	D	E
SNL322522	3.20±0.30	2.50±0.30	2.20±0.20	1.80±0.10	0.55 ref

Unit:mm

4. Part Numbering

SNL	322522	Q	F	-	1R0	K
A	B	C	D		E	F

A: Series

B: Dimension

L x WxH

C: Application

D: Lead free type

E: Inductance

1R0=1.0uH

F: Inductance Tolerance

J=±5%, K=±10%

5. Specification

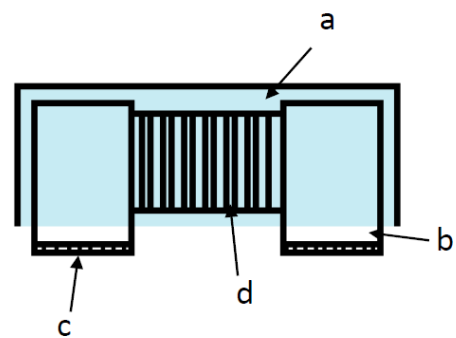
TAI-TECH Part Number	Ls (uH)	Tolerance	L / Q Frequency	Q Ref.	SRF (MHz) ref.	DCR (Ω)Max	IDC(A) Max
SNL322522QF-10N□	0.010	J,K	100M	15	2500	0.13	0.450
SNL322522QF-12N□	0.012	J,K	100M	17	2300	0.14	0.450
SNL322522QF-15N□	0.015	J,K	100M	19	2100	0.16	0.450
SNL322522QF-18N□	0.018	J,K	100M	21	1900	0.18	0.450
SNL322522QF-22N□	0.022	J,K	100M	23	1700	0.22	0.450

TAI-TECH Part Number	Ls (uH)	Tolerance	L / Q Frequency	Q Ref.	SRF (MHz) ref.	DCR (Ω)Max.	IDC(A) Max
SNL322522QF-27N□	0.027	J,K	100M	23	1500	0.22	0.450
SNL322522QF-33N□	0.033	J,K	100M	25	1400	0.24	0.450
SNL322522QF-39N□	0.039	J,K	100M	25	1300	0.27	0.450
SNL322522QF-47N□	0.047	J,K	100M	26	1200	0.30	0.450
SNL322522QF-56N□	0.056	J,K	100M	26	1100	0.33	0.450
SNL322522QF-68N□	0.068	J,K	100M	27	1000	0.36	0.450
SNL322522QF-82N□	0.082	J,K	100M	28	900	0.40	0.450
SNL322522QF-R10□	0.10	J,K	100M	28	700	0.44	0.450
SNL322522QF-R12□	0.12	J,K	25.2M	30	500	0.22	0.450
SNL322522QF-R15□	0.15	J,K	25.2M	30	450	0.25	0.450
SNL322522QF-R22□	0.22	J,K	25.2M	30	350	0.32	0.450
SNL322522QF-R27□	0.27	J,K	25.2M	30	320	0.36	0.450
SNL322522QF-R33□	0.33	J,K	25.2M	30	300	0.40	0.450
SNL322522QF-R47□	0.47	J,K	25.2M	30	220	0.50	0.450
SNL322522QF-R56□	0.56	J,K	25.2M	30	180	0.55	0.450
SNL322522QF-R68□	0.68	J,K	25.2M	30	160	0.60	0.450
SNL322522QF-R82□	0.82	J,K	25.2M	30	140	0.65	0.450
SNL322522QF-1R0□	1.0	J,K	7.96M	30	120	0.70	0.400
SNL322522QF-1R5□	1.5	J,K	7.96M	30	85	0.85	0.370
SNL322522QF-2R2□	2.2	J,K	7.96M	30	75	1.0	0.320
SNL322522QF-3R3□	3.3	J,K	7.96M	30	60	1.2	0.260
SNL322522QF-4R7□	4.7	J,K	7.96M	30	50	1.5	0.220
SNL322522QF-5R6□	5.6	J,K	7.96M	30	45	1.6	0.200
SNL322522QF-6R8□	6.8	J,K	7.96M	30	40	1.8	0.180
SNL322522QF-8R2□	8.2	J,K	7.96M	30	30	2.0	0.170
SNL322522QF-100□	10	J,K	2.52M	25	30	2.1	0.150
SNL322522QF-220□	22	J,K	2.52M	25	20	3.7	0.110
SNL322522QF-330□	33	J,K	2.52M	25	17	5.6	0.070
SNL322522QF-470□	47	J,K	2.52M	25	15	7.0	0.060
SNL322522QF-680□	68	J,K	2.52M	25	12	9.0	0.050
SNL322522QF-820□	82	J,K	2.52M	25	11	10.0	0.045
SNL322522QF-101□	100	J,K	0.796M	20	10	10.0	0.040
SNL322522QF-121□	120	J,K	0.796M	20	10	11.0	0.040
SNL322522QF-151□	150	J,K	0.796M	20	10	11.0	0.065

TAI-TECH Part Number	Ls (uH)	Tolerance	L / Q Frequency	Q Ref.	SRF (MHz) ref.	DCR (Ω)Max.	IDC(A) Max
SNL322522QF-181□	180	J,K	0.796M	20	7	17.0	0.060
SNL322522QF-221□	220	J,K	0.796M	20	7	21.0	0.050
SNL322522QF-271□	270	J,K	0.796M	20	6	28.0	0.045
SNL322522QF-331□	330	J,K	0.796M	20	5	34.0	0.040
SNL322522QF-391□	390	J,K	0.796M	20	5	38.0	0.035
SNL322522QF-471□	470	J,K	0.796M	20	4	40.0	0.025

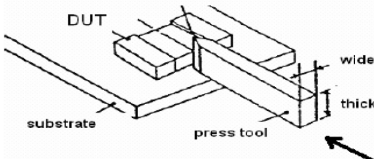
6. Materials

No.	Description	Specification
a.	Upper Plate	UV Glue
b.	Core	Ferrite Core
c.	Termination	Ag/Ni/Sn
d.	Wire	Enameled Copper Wire



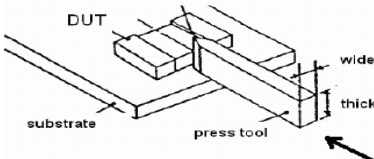
7. Reliability and Test Condition (SNL252018CF, SNL322522CF)

Item	Performance	Test Condition
Operating temperature	-40~+125℃ (Including self - temperature rise)	
Storage temperature	-40~+125℃ (on board)	
Electrical Performance Test		
Inductance L	Refer to standard electrical characteristic list	Agilent E4991A , Keysight E4991B ,Keysight 4980AL
Q		Agilent-4287, Agilent-4285
SRF		Agilent E4991A , Keysight E4991B
DC Resistance		Agilent-34420A Agilent-4338B
IDC1	$\Delta L \leq 10\%$ $\Delta T \leq 20^\circ\text{C}$	1.The coil is energized according to the specification, and the inductance change is smaller than the initial value (according to the specification value)
IDC2	$\Delta L \leq 30\%$ $\Delta T \leq 40^\circ\text{C}$	2. Heat Rated Current (Irms) will cause the coil temperature rise $\Delta T(^{\circ}\text{C})$ without core loss. (1.) Applied the allowed DC current. (2.)Temperature measured by digital surface thermometer
Reliability Test		
Life Test	Appearance : No damage. Inductance : within $\pm 10\%$ of initial value Q : Shall not exceed the specification value. RDC : within $\pm 15\%$ of initial value and shall not exceed the specification value	Preconditioning: Run through reflow for 3 times.(IPC/JEDEC J-STD-020E Classification Reflow Profiles) Temperature : $125 \pm 2^\circ\text{C}$ Applied current : rated current Duration : 1000 $\pm$ 12hrs Measured at room temperature after placing for 24 hrs.
Load Humidity		Preconditioning: Run through reflow for 3 times.(IPC/JEDEC J-STD-020E Classification Reflow Profiles) Humidity : $85 \pm 3\%$ R.H. Temperature : $85^\circ\text{C} \pm 2^\circ\text{C}$ Duration : 1000hrs Min. Bead : with 100% rated current Inductance : with 10% rated current Measured at room temperature after placing for 24 hrs.
Moisture Resistance		Preconditioning: Run through reflow for 3 times.(IPC/JEDEC J-STD-020E Classification Reflow Profiles) 1. Baked at 50°C for 25hrs, measured at room temperature after placing for 4 hrs. 2. Raise temperature to $65 \pm 2^\circ\text{C}$ 90-100%RH in 2.5hrs, and keep 3 hours, cool down to 25°C in 2.5hrs. 3. Raise temperature to $65 \pm 2^\circ\text{C}$ 90-100%RH in 2.5hrs, and keep 3 hours, cool down to 25°C in 2.5hrs, keep at 25°C for 2hrs then keep at -10°C for 3hrs. 4. Keep at 25°C 80-100%RH for 15min and vibrate at the frequency of 10 to 55 Hz to 10 Hz, measured at room temperature after placing for 1~2 hrs.
Thermal shock		Preconditioning: Run through reflow for 3 times.(IPC/JEDEC J-STD-020E Classification Reflow Profiles) Condition for 1 cycle Step1 : $-40 \pm 2^\circ\text{C}$ 30 $\pm$ 5min Step2 : $125 \pm 2^\circ\text{C}$ ≤ 0.5 min Step3 : $125 \pm 2^\circ\text{C}$ 30 $\pm$ 5min Number of cycles : 500 Measured at room temperature after placing for 24 hrs.
Vibration		Oscillation Frequency : 10Hz~2kHz~10Hz for 20 minutes Equipment : Vibration checker Total Amplitude:10g Testing Time : 12 hours(20 minutes, 12 cycles each of 3 orientations)

Item	Performance	Test Condition															
Bending		Shall be mounted on a FR4 substrate of the following dimensions: >=0805 inch(2012mm):40x100x1.2mm <0805 inch(2012mm):40x100x0.8mm Bending depth: >=0805 inch(2012mm):1.2mm <0805 inch(2012mm):0.8mm duration of 10 sec.															
Shock	Appearance : No damage. 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	<table><tr><th>Type</th><th>Peak value (g's)</th><th>Normal duration (D) (ms)</th><th>Wave form</th><th>Velocity change (Vi)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> 3 shocks in each direction along 3 perpendicular axes. (18 shocks).	Type	Peak value (g's)	Normal duration (D) (ms)	Wave form	Velocity change (Vi)ft/sec	SMD	50	11	Half-sine	11.3	Lead	50	11	Half-sine	11.3
Type	Peak value (g's)	Normal duration (D) (ms)	Wave form	Velocity change (Vi)ft/sec													
SMD	50	11	Half-sine	11.3													
Lead	50	11	Half-sine	11.3													
Solderability	More than 95% of the terminal electrode should be covered with solder	a. Method B, 4hrs @155°C dry heat @235°C±5°C Testing Time :5 +0/-0.5 seconds b. Method D category 3. (8hours ± 15 min)@ 260°C±5°C Testing Time :30 +0/-0.5 seconds															
Resistance to Soldering Heat		Depth: completely cover the termination <table><tr><th>Temperature(°C)</th><th>Time(s)</th><th>Temperature ramp/immersion and emersion rate</th><th>Number of heat cycles</th></tr><tr><td>260 ±5 (solder temp)</td><td>10 ±1</td><td>25mm/s ±6 mm/s</td><td>1</td></tr></table>	Temperature(°C)	Time(s)	Temperature ramp/immersion and emersion rate	Number of heat cycles	260 ±5 (solder temp)	10 ±1	25mm/s ±6 mm/s	1							
Temperature(°C)	Time(s)	Temperature ramp/immersion and emersion rate	Number of heat cycles														
260 ±5 (solder temp)	10 ±1	25mm/s ±6 mm/s	1														
Terminal Strength	Appearance : No damage. 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	Preconditioning: Run through reflow for 3 times.(IPC/JEDEC J-STD-020E Classification Reflow Profiles With the component mounted on a PCB with the device to be tested, apply a force (>0805:1kg , <=0805:0.5kg)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 apply a shock to the component being tested. 															

7. Reliability and Test Condition (SNL252018QF, SNL322522QF)

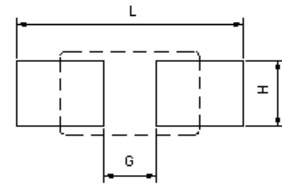
Item	Performance	Test Condition
Operating temperature	-40~+125℃ (Including self - temperature rise)	
Storage temperature	-40~+125℃ (on board)	
Electrical Performance Test		
Inductance L	Refer to standard electrical characteristic list	Agilent E4991A , Keysight E4991B ,Keysight 4980AL
Q		Agilent-4287, Agilent-4285
SRF		Agilent E4991A , Keysight E4991B
DC Resistance		Agilent-34420A Agilent-4338B
IDC	$\Delta L \leq 10\%$	1.The coil is energized according to the specification, and the inductance change is smaller than the initial value (according to the specification value)
	$\Delta T \leq 20^{\circ}\text{C}$	2. Heat Rated Current (Irms) will cause the coil temperature rise $\Delta T(^{\circ}\text{C})$ without core loss. (1.)Applied the allowed DC current. (2.)Temperature measured by digital surface thermometer
Reliability Test		
Life Test	Appearance : No damage. Inductance : within $\pm 10\%$ of initial value Q : Shall not exceed the specification value. RDC : within $\pm 15\%$ of initial value and shall not exceed the specification value	Preconditioning: Run through reflow for 3 times.(IPC/JEDEC J-STD-020E Classification Reflow Profiles) Temperature : $125 \pm 2^{\circ}\text{C}$ Applied current : rated current Duration : 1000 $\pm$ 12hrs Measured at room temperature after placing for 24 hrs.
Load Humidity		Preconditioning: Run through reflow for 3 times.(IPC/JEDEC J-STD-020E Classification Reflow Profiles) Humidity : $85 \pm 3\%$ R.H, Temperature : $85^{\circ}\text{C} \pm 2^{\circ}\text{C}$ Duration : 1000hrs Min. Bead : with 100% rated current Inductance : with 10% rated current Measured at room temperature after placing for 24 hrs.
Moisture Resistance		Preconditioning: Run through reflow for 3 times.(IPC/JEDEC J-STD-020E Classification Reflow Profiles) 1. Baked at 50°C for 25hrs, measured at room temperature after placing for 4 hrs. 2. Raise temperature to $65 \pm 2^{\circ}\text{C}$ 90-100%RH in 2.5hrs, and keep 3 hours, cool down to 25°C in 2.5hrs. 3. Raise temperature to $65 \pm 2^{\circ}\text{C}$ 90-100%RH in 2.5hrs, and keep 3 hours, cool down to 25°C in 2.5hrs, keep at 25°C for 2hrs then keep at -10°C for 3hrs. 4. Keep at 25°C 80-100%RH for 15min and vibrate at the frequency of 10 to 55 Hz to 10 Hz, measured at room temperature after placing for 1~2 hrs.
Thermal shock		Preconditioning: Run through reflow for 3 times.(IPC/JEDEC J-STD-020E Classification Reflow Profiles) Condition for 1 cycle Step1 : $-40 \pm 2^{\circ}\text{C}$ 30 $\pm$ 5min Step2 : $125 \pm 2^{\circ}\text{C}$ ≤ 0.5 min Step3 : $125 \pm 2^{\circ}\text{C}$ 30 $\pm$ 5min Number of cycles : 500 Measured at room temperature after placing for 24 hrs.
Vibration		Oscillation Frequency : 10Hz~2kHz~10Hz for 20 minutes Equipment : Vibration checker Total Amplitude : 10g Testing Time : 12 hours(20 minutes, 12 cycles each of 3 orientations)

Item	Performance	Test Condition															
Bending		Shall be mounted on a FR4 substrate of the following dimensions: >=0805 inch(2012mm):40x100x1.2mm <0805 inch(2012mm):40x100x0.8mm Bending depth: >=0805 inch(2012mm):1.2mm <0805 inch(2012mm):0.8mm duration of 10 sec.															
Shock	Appearance : No damage. 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	<table><tr><th>Type</th><th>Peak value (g's)</th><th>Normal duration (D) (ms)</th><th>Wave form</th><th>Velocity change (Vi)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> 3 shocks in each direction along 3 perpendicular axes. (18 shocks).	Type	Peak value (g's)	Normal duration (D) (ms)	Wave form	Velocity change (Vi)ft/sec	SMD	50	11	Half-sine	11.3	Lead	50	11	Half-sine	11.3
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Solderability	More than 95% of the terminal electrode should be covered with solder	a. Method B, 4hrs @155°C dry heat @235°C±5°C Testing Time :5 +0/-0.5 seconds b. Method D category 3. (8hours ± 15 min)@ 260°C±5°C Testing Time :30 +0/-0.5 seconds															
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Terminal Strength	Appearance : No damage. 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	Preconditioning: Run through reflow for 3 times.(IPC/JEDEC J-STD-020E Classification Reflow Profiles With the component mounted on a PCB with the device to be tested, apply a force (>0805:1kg , <=0805:0.5kg)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 apply a shock to the component being tested. 															

8. Soldering and Mounting

8-1. Recommended PC Board Pattern

Chip size						Land Patterns For Reflow Soldering			
Series	Type	A(mm)	B(mm)	C(mm)	D(mm)	E(mm)	L(mm)	G(mm)	H(mm)
SNL	252018	2.50±0.3	2.10±0.3	1.80±0.1	1.50±0.1	0.45ref	3.50	1.50	1.50
SNL	322522	3.20±0.3	2.50±0.3	2.20±0.2	1.80±0.1	0.55 ref	4.40	2.00	2.00



8-2. Soldering

Mildly activated rosin fluxes are preferred. TAI-TECH 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.

8-2.1 Soldering Reflow:

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

8-2.2 Soldering Iron:

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.)

- Preheat circuit and products to 150°C
- Never contact the ceramic with the iron tip
- Use a 20 watt soldering iron with tip diameter of 1.0mm
- 350°C tip temperature (max)
- 1.0mm tip diameter (max)
- Limit soldering time to 4~5sec.

Fig.1 Soldering Reflow

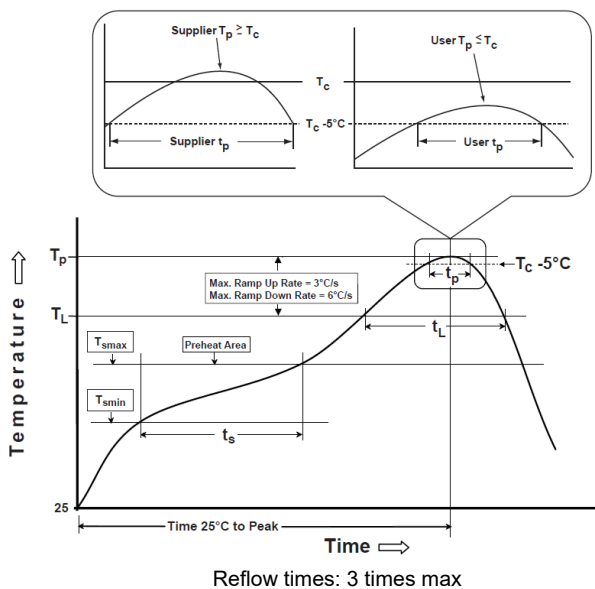


Fig.2 Iron soldering temperature profiles

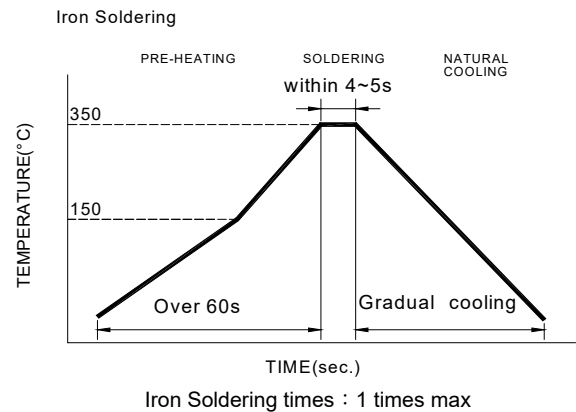


Table (1.1): Reflow Profiles

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.
Liquidus 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 $T_c - 5^\circ\text{C}$ (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 .

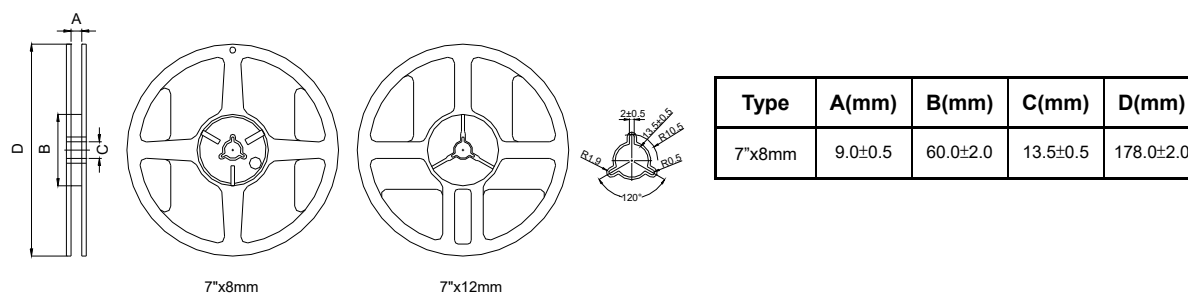
Table (1.2) Package Thickness/Volume and Classification Temperature (T_c)

	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

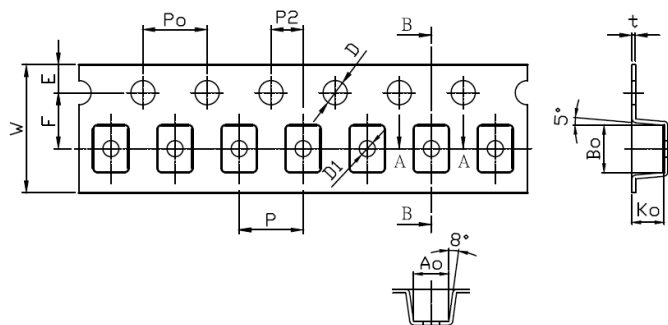
Reflow is referred to standard IPC/JEDEC J-STD-020E .

9. Packaging Information

9-1. Reel Dimension



9-2. Tape Dimension / 8mm

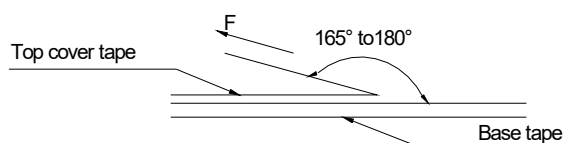


Series	Size	W(mm)	P(mm)	E(mm)	F(mm)	P2(mm)	D(mm)	D1(mm)	Bo(mm)	Ao(mm)	Ko(mm)	Po(mm)	t(mm)
SNL	252018	8.00±0.10	4.00±0.10	1.75±0.10	3.50±0.05	2.00±0.05	1.50+0.10-0.00	1.00±0.10	2.95±0.10	2.20±0.10	2.00±0.10	4.00±0.10	0.24±0.05

9-3. Packaging Quantity

SNL	252018
Chip / Reel	2000
Reel Size	7"x8mm

9-4. Tearing Off Force



The force for tearing off cover tape is 15 to 80 grams in the arrow direction under the following conditions.

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

Application Notice

• Storage Conditions(component level)

To maintain the solderability of terminal electrodes:

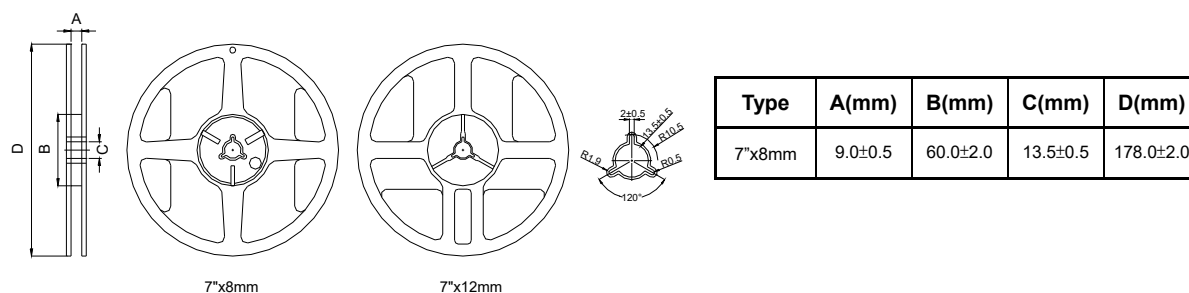
- 1.TAI-TECH products meet IPC/JEDEC J-STD-020E standard-MSL, level 1.
2. Temperature and humidity conditions: Less than 40°C and 60% RH.
3. Recommended products should be used within 12 months form the time of delivery.
4. The packaging material should be kept where no chlorine or sulfur exists in the air.

• Transportation

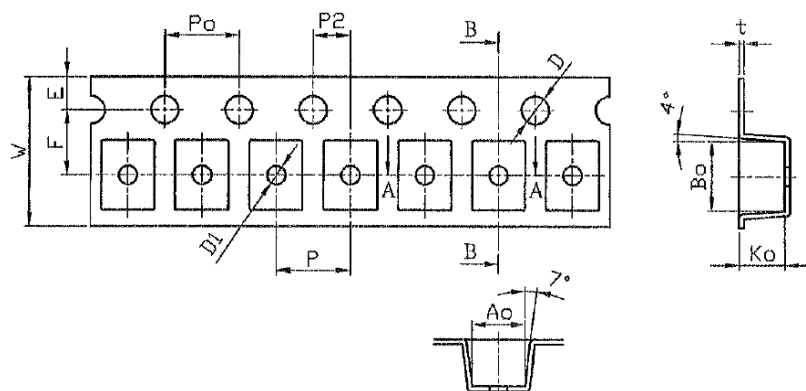
1. Products should be handled with care to avoid damage or contamination from perspiration and skin oils.
2. The use of tweezers or vacuum pick up is strongly recommended for individual components.
3. Bulk handling should ensure that abrasion and mechanical shock are minimized.

9. Packaging Information

9-1. Reel Dimension



9-2. Tape Dimension / 8mm

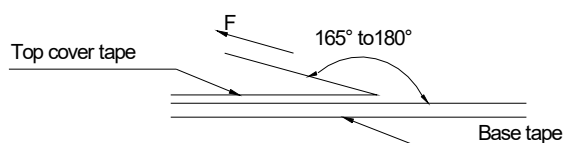


Series	Size	W(mm)	P(mm)	E(mm)	F(mm)	P2(mm)	D(mm)	D1(mm)	Bo(mm)	Ao(mm)	Ko(mm)	Po(mm)	t(mm)
SNL	322522	8.00±0.10	4.00±0.10	1.75±0.10	3.50±0.05	2.00±0.05	1.50+0.10-0.00	1.00±0.10	3.72±0.10	2.88±0.10	2.50±0.10	4.00±0.10	0.26±0.05

9-3. Packaging Quantity

SNL	322522
Chip / Reel	2000
Reel Size	7"x8mm

9-4. Tearing Off Force



The force for tearing off cover tape is 15 to 80 grams in the arrow direction under the following conditions.

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

Application Notice

• Storage Conditions(component level)

To maintain the solderability of terminal electrodes:

- 1.TAI-TECH products meet IPC/JEDEC J-STD-020E standard-MSL, level 1.
2. Temperature and humidity conditions: Less than 40°C and 60% RH.
3. Recommended products should be used within 12 months form the time of delivery.
4. The packaging material should be kept where no chlorine or sulfur exists in the air.

• Transportation

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