

Winding Type Chip Inductor

SNLU252018CV-SERIES

1. Features

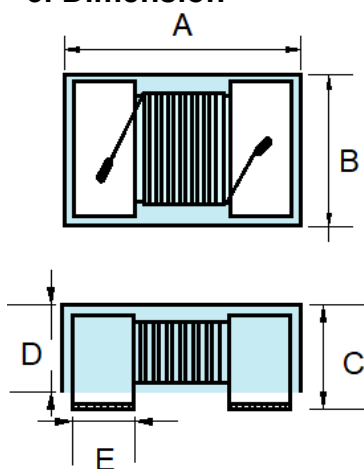
1. Ferrite core wire wound construction.
2. High Reliability due to wire wound type construction.
3. Small footprint as well as low profile.
4. 100% Lead(Pb) & Halogen-Free and RoHS compliant.
5. High reliability -Reliability tests comply with AEC-Q200
6. Operating temperature-40~+125°C (Including self - temperature rise)



2. Application

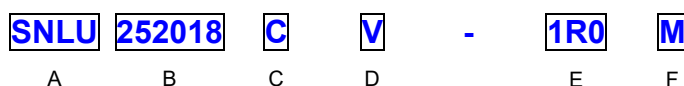
- a. Vehicle accessories (car navigation systems, car audio, ETC, other).
- b. Smart meters, AV equipment, xDSL, electronic devices for communications infrastructure such as mobile base stations, industrial equipment, other

3. Dimension



Size	A	B	C	D	E
SNLU252018	2.50±0.30	2.00±0.30	1.80±0.10	1.50±0.10	0.45ref

4. Part Numbering



- A: Series
 B: Dimension L x W x H
 C: Application DC Power Line
 D: Category Code V=Vehicle
 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
SNLU252018CV-1R0M	1.00	K,M	7.96M	20	300	0.140	0.475	1.000
SNLU252018CV-1R5M	1.50	K,M	7.96M	20	250	0.180	0.435	0.890
SNLU252018CV-2R2M	2.20	K,M	7.96M	20	200	0.270	0.390	0.730
SNLU252018CV-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
SNLU252018CV-4R7M	4.70	K,M	7.96M	20	60	0.570	0.285	0.500
SNLU252018CV-6R8M	6.80	K,M	7.96M	20	55	0.920	0.275	0.390
SNLU252018CV-100M	10.00	K,M	2.52M	15	40	1.690	0.210	0.360
SNLU252018CV-150M	15.00	K,M	2.52M	20	35	2.200	0.175	0.250
SNLU252018CV-220M	22.00	K,M	2.52M	20	20	2.800	0.160	0.200
SNLU252018CV-330M	33.00	K,M	2.52M	20	18	4.200	0.120	0.150

Winding Type Chip Inductor

SNLU252018QV-SERIES

1. Features

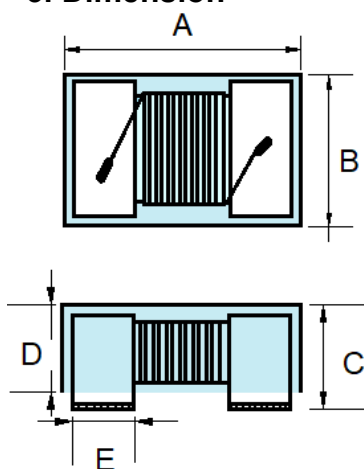
1. Ferrite core wire wound construction.
2. High Reliability due to wire wound type construction.
3. Small footprint as well as low profile.
4. 100% Lead(Pb) & Halogen-Free and RoHS compliant.
5. High reliability -Reliability tests comply with AEC-Q200
6. Operating temperature-40~+125°C (Including self - temperature rise)



2. Application

- a. Vehicle accessories (car navigation systems, car audio, ETC, other).
- b. Smart meters, AV equipment, xDSL, electronic devices for communications infrastructure such as mobile base stations, industrial equipment, other

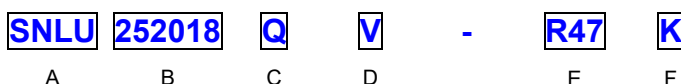
3. Dimension



Size	A	B	C	D	E
SNLU252018	2.50±0.30	2.00±0.30	1.80±0.10	1.50±0.10.	0.45ref

Unit:mm

4. Part Numbering



- A: Series
 B: Dimension L x WxH
 C: Application For Signal Use
 D: Category Code V=Vehicle
 E: Inductance 1R0=1.0uH
 F: Inductance Tolerance 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
SNLU252018QV-10N□	0.010	J,K	15	100M	2150	0.26	0.530
SNLU252018QV-12N□	0.012	J,K	15	100M	2050	0.27	0.500
SNLU252018QV-15N□	0.015	J,K	15	100M	2000	0.29	0.480
SNLU252018QV-18N□	0.018	J,K	15	100M	1850	0.31	0.450
SNLU252018QV-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
SNLU252018QV-27N□	0.027	J,K	15	100M	1550	0.40	0.410
SNLU252018QV-33N□	0.033	J,K	20	100M	1450	0.42	0.400
SNLU252018QV-39N□	0.039	J,K	20	100M	1350	0.45	0.380
SNLU252018QV-47N□	0.047	J,K	20	100M	1200	0.50	0.360
SNLU252018QV-56N□	0.056	J,K	20	100M	1100	0.60	0.340
SNLU252018QV-68N□	0.068	J,K	20	100M	1050	0.65	0.320
SNLU252018QV-82N□	0.082	J,K	20	100M	900	0.75	0.300
SNLU252018QV-R10□	0.10	J,K	20	100M	800	0.80	0.280
SNLU252018QV-R12□	0.12	J,K	30	25.2M	700	0.30	0.550
SNLU252018QV-R22□	0.22	J,K	30	25.2M	450	0.50	0.450
SNLU252018QV-R27□	0.27	J,K	30	25.2M	425	0.55	0.425
SNLU252018QV-R33□	0.33	J,K	30	25.2M	400	0.60	0.400
SNLU252018QV-R47□	0.47	J,K	30	25.2M	350	0.68	0.400
SNLU252018QV-R56□	0.56	J,K	30	25.2M	325	0.75	0.400
SNLU252018QV-R82□	0.82	J,K	30	25.2M	260	1.00	0.300
SNLU252018QV-1R0□	1.00	J,K	30	7.96M	245	1.10	0.245
SNLU252018QV-1R2□	1.20	J,K	30	7.96M	230	1.20	0.230
SNLU252018QV-2R2□	2.20	J,K	30	7.96M	105	1.55	0.200
SNLU252018QV-3R3□	3.30	J,K	30	7.96M	55	1.90	0.185
SNLU252018QV-4R7□	4.70	J,K	30	7.96M	43	2.30	0.175
SNLU252018QV-5R6□	5.60	J,K	25	7.96M	42	2.50	0.170
SNLU252018QV-6R8□	6.80	J,K	25	7.96M	39	2.70	0.165
SNLU252018QV-8R2□	8.20	J,K	25	7.96M	36	3.05	0.160
SNLU252018QV-100□	10.0	J,K	25	2.52M	33	3.50	0.155
SNLU252018QV-150□	15.0	J,K	25	2.52M	26	4.80	0.140
SNLU252018QV-220□	22.0	J,K	25	2.52M	22	5.50	0.125
SNLU252018QV-270□	27.0	J,K	25	2.52M	21	6.30	0.115
SNLU252018QV-330□	33.0	J,K	25	2.52M	20	7.10	0.110
SNLU252018QV-470□	47.0	J,K	20	2.52M	17	11.10	0.080
SNLU252018QV-560□	56.0	J,K	20	2.52M	16	12.10	0.075
SNLU252018QV-680□	68.0	J,K	20	2.52M	15	16.60	0.070
SNLU252018QV-820□	82.0	J,K	20	2.52M	13	19.00	0.066
SNLU252018QV-101□	100	J,K	15	0.796M	12	21.00	0.060

Winding Type Chip Inductor

SNLU322522CV-SERIES

1. Features

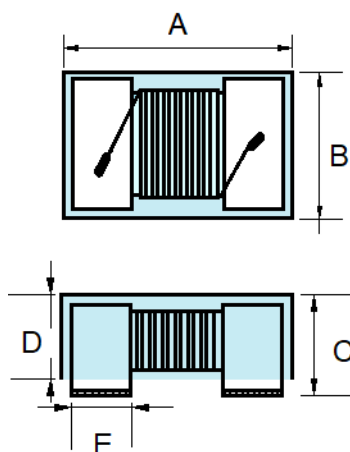
1. Ferrite core wire wound construction.
2. High Reliability due to wire wound type construction.
3. Small footprint as well as low profile.
4. 100% Lead(Pb) & Halogen-Free and RoHS compliant.
5. High reliability -Reliability tests comply with AEC-Q200
6. Operating temperature-40~+125°C (Including self - temperature rise)



2. Application

- a. Vehicle accessories (car navigation systems, car audio, ETC, other).
- b. 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
SNLU322522	3.20±0.30	2.50±0.30	2.20±0.20	1.80±0.10	0.55 ref

Unit:mm

4. Part Numbering

SNLU	322522	C	V	-	1R0	M
A	B	C	D		E	F

- A: Series
 B: Dimension L x WxH
 C: Application DC Power Line
 D: Category Code V=Vehicle
 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
SNLU322522CV-1R0M	1.0±20%	7.96M	15	300	0.055	1.000	1.700
SNLU322522CV-1R5M	1.5±20%	7.96M	15	200	0.095	0.830	1.400
SNLU322522CV-2R2M	2.2±20%	7.96M	15	100	0.115	0.770	1.200
SNLU322522CV-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) \pm 20%	IDC1 (A)Max	IDC2 (A)Max
SNLU322522CV-4R7M	4.7 \pm 20%	7.96M	15	70	0.200	0.620	0.900
SNLU322522CV-6R8M	6.8 \pm 20%	7.96M	15	38	0.270	0.530	0.700
SNLU322522CV-100K	10 \pm 10%	2.52M	15	30	0.360	0.450	0.600
SNLU322522CV-150K	15 \pm 10%	2.52M	15	26	0.560	0.390	0.500
SNLU322522CV-220K	22 \pm 10%	2.52M	15	21	0.770	0.300	0.400
SNLU322522CV-330K	33 \pm 10%	2.52M	15	17	1.100	0.240	0.350
SNLU322522CV-470K	47 \pm 10%	2.52M	15	14	1.640	0.180	0.250
SNLU322522CV-680K	68 \pm 10%	2.52M	15	12	2.800	0.140	0.200
SNLU322522CV-101K	100 \pm 10%	0.796M	20	10	3.700	0.120	0.150
SNLU322522CV-151K	150 \pm 10%	0.796M	20	8	6.100	0.100	0.125
SNLU322522CV-221K	220 \pm 10%	0.796M	20	7	8.400	0.080	0.100
SNLU322522CV-331K	330 \pm 10%	0.796M	20	6	12.300	0.070	0.090

Winding Type Chip Inductor

SNLU322522QV-SERIES

1. Features

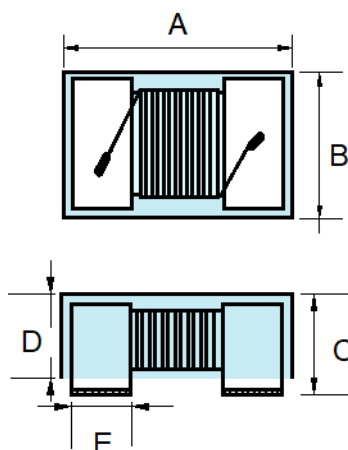
1. Ferrite core wire wound construction.
2. High Reliability due to wire wound type construction.
3. Small footprint as well as low profile.
4. 100% Lead(Pb) & Halogen-Free and RoHS compliant.
5. High reliability -Reliability tests comply with AEC-Q200
6. Operating temperature-40~+125°C (Including self - temperature rise)



2. Application

- a. Vehicle accessories (car navigation systems, car audio, ETC, other).
- b. Smart meters, AV equipment, xDSL, electronic devices for communications infrastructure such as mobile base stations, industrial equipment, other

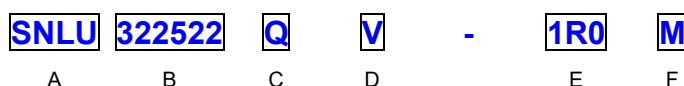
3. Dimension



Size	A	B	C	D	E
SNLU322522	3.20±0.30	2.50±0.30	2.20±0.20	1.80±0.10	0.55 ref

Unit:mm

4. Part Numbering



- A: Series
 B: Dimension L x WxH
 C: Application
 D: Category Code V=Vehicle
 E: Inductance 1R0=1.0uH
 F: Inductance Tolerance J=±5%, K=±10%

5. Specification

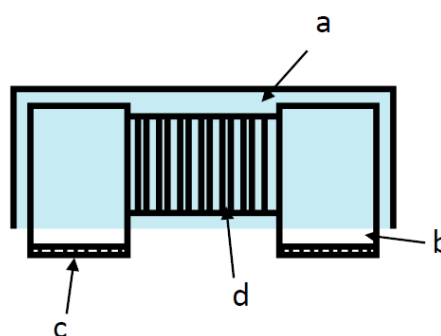
TAI-TECH Part Number	Ls (uH)	Tolerance	L / Q Frequency	Q Ref.	SRF (MHz) ref.	DCR (Ω)Max	IDC(A) Max
SNLU322522QV-10N□	0.010	J,K	100M	15	2500	0.13	0.450
SNLU322522QV-12N□	0.012	J,K	100M	17	2300	0.14	0.450
SNLU322522QV-15N□	0.015	J,K	100M	19	2100	0.16	0.450
SNLU322522QV-18N□	0.018	J,K	100M	21	1900	0.18	0.450
SNLU322522QV-22N□	0.01	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
SNLU322522QV-27N□	0.027	J,K	100M	23	1500	0.22	0.450
SNLU322522QV-33N□	0.033	J,K	100M	25	1400	0.24	0.450
SNLU322522QV-39N□	0.039	J,K	100M	25	1300	0.27	0.450
SNLU322522QV-47N□	0.047	J,K	100M	26	1200	0.30	0.450
SNLU322522QV-56N□	0.056	J,K	100M	26	1100	0.33	0.450
SNLU322522QV-68N□	0.068	J,K	100M	27	1000	0.36	0.450
SNLU322522QV-82N□	0.082	J,K	100M	28	900	0.40	0.450
SNLU322522QV-R10□	0.10	J,K	100M	28	700	0.44	0.450
SNLU322522QV-R12□	0.12	J,K	25.2M	30	500	0.22	0.450
SNLU322522QV-R15□	0.15	J,K	25.2M	30	450	0.25	0.450
SNLU322522QV-R22□	0.22	J,K	25.2M	30	350	0.32	0.450
SNLU322522QV-R27□	0.27	J,K	25.2M	30	320	0.36	0.450
SNLU322522QV-R33□	0.33	J,K	25.2M	30	300	0.40	0.450
SNLU322522QV-R47□	0.47	J,K	25.2M	30	220	0.50	0.450
SNLU322522QV-R56□	0.56	J,K	25.2M	30	180	0.55	0.450
SNLU322522QV-R68□	0.68	J,K	25.2M	30	160	0.60	0.450
SNLU322522QV-R82□	0.82	J,K	25.2M	30	140	0.65	0.450
SNLU322522QV-1R0□	1.0	J,K	7.96M	30	120	0.70	0.400
SNLU322522QV-1R5□	1.5	J,K	7.96M	30	85	0.85	0.370
SNLU322522QV-2R2□	2.2	J,K	7.96M	30	75	1.0	0.320
SNLU322522QV-3R3□	3.3	J,K	7.96M	30	60	1.2	0.260
SNLU322522QV-4R7□	4.7	J,K	7.96M	30	50	1.5	0.220
SNLU322522QV-5R6□	5.6	J,K	7.96M	30	45	1.6	0.200
SNLU322522QV-6R8□	6.8	J,K	7.96M	30	40	1.8	0.180
SNLU322522QV-8R2□	8.2	J,K	7.96M	30	30	2.0	0.170
SNLU322522QV-100□	10	J,K	2.52M	25	30	2.1	0.150
SNLU322522QV-220□	22	J,K	2.52M	25	20	3.7	0.110
SNLU322522QV-330□	33	J,K	2.52M	25	17	5.6	0.070
SNLU322522QV-470□	47	J,K	2.52M	25	15	7.0	0.060
SNLU322522QV-680□	68	J,K	2.52M	25	12	9.0	0.050
SNLU322522QV-820□	82	J,K	2.52M	25	11	10.0	0.045
SNLU322522QV-101□	100	J,K	0.796M	20	10	10.0	0.040
SNLU322522QV-121□	120	J,K	0.796M	20	10	11.0	0.040
SNLU322522QV-151□	150	J,K	0.796M	20	10	11.0	0.065

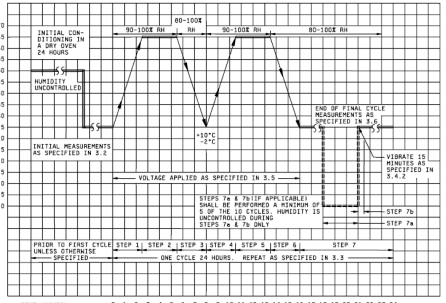
TAI-TECH Part Number	Ls (uH)	Tolerance	L / Q Frequency	Q Ref.	SRF (MHz) ref.	DCR (Ω)Max.	IDC(A) Max
SNLU322522QV-181□	180	J,K	0.796M	20	7	17.0	0.060
SNLU322522QV-221□	220	J,K	0.796M	20	7	21.0	0.050
SNLU322522QV-271□	270	J,K	0.796M	20	6	28.0	0.045
SNLU322522QV-331□	330	J,K	0.796M	20	5	34.0	0.040
SNLU322522QV-391□	390	J,K	0.796M	20	5	38.0	0.035
SNLU322522QV-471□	470	J,K	0.796M	20	4	40.0	0.025

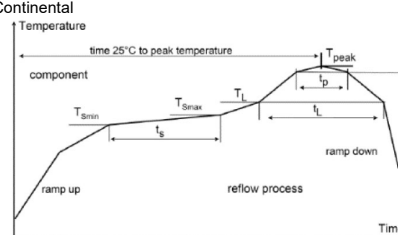
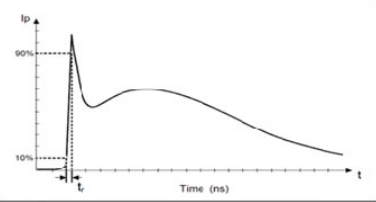
6. Materials

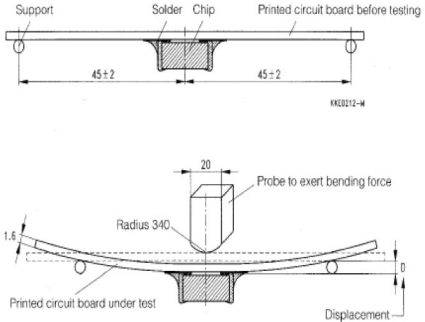
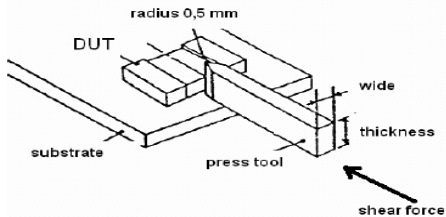
No.	Description	Specification
a.	Upper Plate	UV Glue
b.	Core	Ferrite Core
c.	Termination	Ag/Ni/Sn
d.	Wire	Enameled Copper Wire



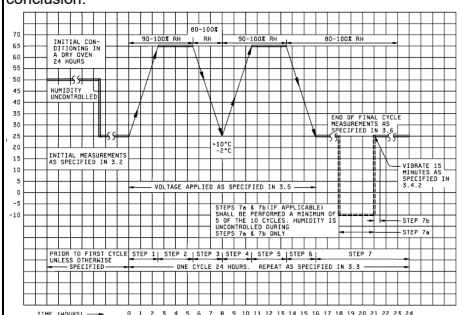
7. Reliability and Test Condition (SNLU252018CV, SNLU322522CV)

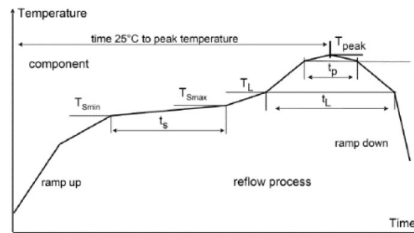
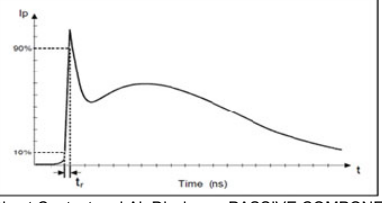
Item	Performance	Test Condition															
Operating temperature	-40~+125°C (Including self - temperature rise)																
Storage temperature	-40+125°C (on board)																
Electrical Performance Test																	
Inductance L	Refer to standard electrical characteristic list	Agilent E4991A , Keysight E4991B ,Keysight 4980AL															
Q		Agilent-4287, Agilent-4285															
SRF		Agilent E4991A , Keysight E4991B															
DC Resistance		Agilent-34420A Agilent-4338B															
IDC1	$\Delta L \leq 10\%$ $\Delta T \leq 20^\circ C$	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	$\Delta L \leq 30\%$ $\Delta T \leq 40^\circ C$	2. Heat Rated Current (Irms) will cause the coil temperature rise $\Delta T(^\circ C)$ without core loss. (1.)Applied the allowed DC current. (2.)Temperature measured by digital surface thermometer															
Reliability Test																	
High Temperature Exposure(Storage) AEC-Q200	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 : $125 \pm 2^\circ C$ Duration : 1000hrs Min. Measured at room temperature after placing for 24 \pm 4 hrs.															
Temperature Cycling AEC-Q200		Preconditioning: Run through reflow for 3 times.(IPC/JEDEC J-STD-020E Classification Reflow Profiles) Condition for 1 cycle Step1 : $-40 \pm 2^\circ C$ 30min Min. Step2 : $125 \pm 2^\circ C$ transition time 1min MAX. Step3 : $125 \pm 2^\circ C$ 30min Min. Step4 : Low temp. transition time 1min MAX. Number of cycles : 1000 Measured at room temperature after placing for 24 \pm 4 hrs.															
Moisture Resistance (AEC-Q200)		t=24 hours/cycle. Note: Steps 7a & 7b not required. Unpowered. Measurement at 24 \pm 2 hours after test conclusion. 															
Biased Humidity (AEC-Q200)		Preconditioning: Run through reflow for 3 times.(IPC/JEDEC J-STD-020E Classification Reflow Profiles) Humidity : $85 \pm 3\%$ R.H. Temperature : $85^\circ C \pm 2^\circ C$ Duration : 1000hrs Min. Measured at room temperature after placing for 24 \pm 4hrs.															
High Temperature Operational Life (AEC-Q200)		Preconditioning: Run through reflow for 3 times.(IPC/JEDEC J-STD-020E Classification Reflow Profiles) Temperature : $125 \pm 2^\circ C$ Duration : 1000hrs Min. with 100% rated current. Measured at room temperature after placing for 24 \pm 4hrs.															
External Visual	Appearance : No damage.	Inspect device construction, marking and workmanship. Electrical Test not required.															
Physical Dimension	According to the product specification size measurement	According to the product specification size measurement															
Resistance to Solvents		Add aqueous wash chemical - OKEM clean or equivalent.															
Mechanical Shock	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	<table border="1"> <thead> <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> </thead> <tbody> <tr> <td>SMD</td> <td>100</td> <td>6</td> <td>Half-sine</td> <td>12.3</td> </tr> <tr> <td>Lead</td> <td>100</td> <td>6</td> <td>Half-sine</td> <td>12.3</td> </tr> </tbody> </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	100	6	Half-sine	12.3	Lead	100	6	Half-sine	12.3
Type	Peak value (g's)	Normal duration (D) (ms)	Wave form	Velocity change (Vi)ft/sec													
SMD	100	6	Half-sine	12.3													
Lead	100	6	Half-sine	12.3													

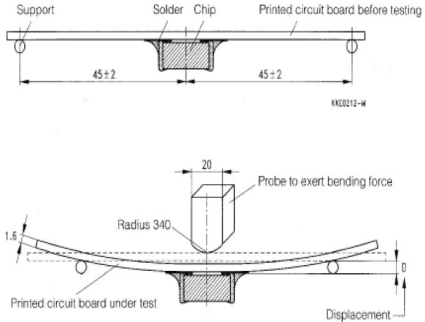
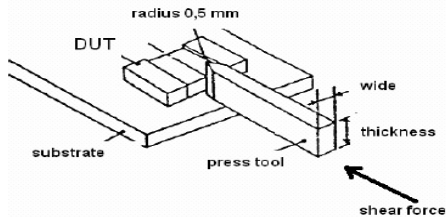
Item	Performance	Test Condition																																																				
Vibration		Preconditioning: Run through reflow for 3 times.(IPC/JEDEC J-STD-020E Classification Reflow Profiles) Oscillation Frequency : 10Hz~2kHz~10Hz for 20 minutes Equipment : Vibration checker Total Amplitude : 5g Testing Time : 12 hours (20 minutes, 12 cycles each of 3 orientations)																																																				
Resistance to Soldering Heat	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	Test condition : <table border="1" data-bbox="963 427 1423 539"> <thead> <tr> <th>Temperature(°C)</th> <th>Time(s)</th> <th>Temperature ramp/immersion rate</th> <th>Number of heat cycles</th> </tr> </thead> <tbody> <tr> <td>260 ±5 (solder temp)</td> <td>10 ±1</td> <td>25mm/s ±6 mm/s</td> <td>1</td> </tr> </tbody> </table> Depth: completely cover the termination Continental  <table border="1" data-bbox="963 857 1433 1032"> <thead> <tr> <th>Component Size</th> <th>Ramp up to 150°C</th> <th>T_{min}</th> <th>t_r</th> <th>T_{max}</th> <th>T_L</th> <th>t_L</th> <th>T_{peak}</th> <th>t_p</th> <th>Time 25°C to peak</th> <th>Ramp down</th> </tr> </thead> <tbody> <tr> <td>Thickness < 1.5mm or Thickness 1.6mm-2.5mm and volume < 350 mm³</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>≥250°C</td> <td>≥45s</td> <td></td> <td></td> </tr> <tr> <td>Thickness 1.6mm-2.5mm and volume 350-2000 mm³ or Thickness > 2.5mm and volume < 350 mm³</td> <td></td> <td>≥190°C</td> <td>≥110s</td> <td>≥200°C</td> <td>≥217°C</td> <td>≥30s</td> <td>≥250°C</td> <td>≥50s</td> <td>≥300s</td> <td></td> </tr> <tr> <td>Thickness 1.6mm-2.5mm and volume > 2000 mm³ or Thickness > 2.5mm and volume > 350 mm³</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>≥245°C</td> <td></td> <td></td> <td>6.0s @ 1°C/s (The component shall be specified for usage in serial production with up to 6.0°C/s)</td> </tr> </tbody> </table> Table 1: Minimum requirements for lead-free soldering *peak temperature is measured on the centre top of the component package ** t _p measured @ T _{peak} -5°C	Temperature(°C)	Time(s)	Temperature ramp/immersion rate	Number of heat cycles	260 ±5 (solder temp)	10 ±1	25mm/s ±6 mm/s	1	Component Size	Ramp up to 150°C	T _{min}	t _r	T _{max}	T _L	t _L	T _{peak}	t _p	Time 25°C to peak	Ramp down	Thickness < 1.5mm or Thickness 1.6mm-2.5mm and volume < 350 mm ³							≥250°C	≥45s			Thickness 1.6mm-2.5mm and volume 350-2000 mm ³ or Thickness > 2.5mm and volume < 350 mm ³		≥190°C	≥110s	≥200°C	≥217°C	≥30s	≥250°C	≥50s	≥300s		Thickness 1.6mm-2.5mm and volume > 2000 mm ³ or Thickness > 2.5mm and volume > 350 mm ³							≥245°C			6.0s @ 1°C/s (The component shall be specified for usage in serial production with up to 6.0°C/s)
Temperature(°C)	Time(s)	Temperature ramp/immersion rate	Number of heat cycles																																																			
260 ±5 (solder temp)	10 ±1	25mm/s ±6 mm/s	1																																																			
Component Size	Ramp up to 150°C	T _{min}	t _r	T _{max}	T _L	t _L	T _{peak}	t _p	Time 25°C to peak	Ramp down																																												
Thickness < 1.5mm or Thickness 1.6mm-2.5mm and volume < 350 mm ³							≥250°C	≥45s																																														
Thickness 1.6mm-2.5mm and volume 350-2000 mm ³ or Thickness > 2.5mm and volume < 350 mm ³		≥190°C	≥110s	≥200°C	≥217°C	≥30s	≥250°C	≥50s	≥300s																																													
Thickness 1.6mm-2.5mm and volume > 2000 mm ³ or Thickness > 2.5mm and volume > 350 mm ³							≥245°C			6.0s @ 1°C/s (The component shall be specified for usage in serial production with up to 6.0°C/s)																																												
Thermal shock (AEC-Q200)		Preconditioning: Run through reflow for 3 times.(IPC/JEDEC J-STD-020E Classification Reflow Profiles) Condition for 1 cycle Step1 : -40±2°C 15±1min Step2 : 125±2°C within 20Sec. Step3 : 125±2°C 15±1min Number of cycles : 300 Measured at room temperature after placing for 24±4hrs.																																																				
ESD	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	 Direct Contact and Air Discharge PASSIVE COMPONENT HBM ESD Discharge Waveform to a Coaxial Target Test method: AEC-Q200-002 Test mode : Contact Discharge Discharge level : 4 KV (Level: 2)																																																				
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																																																				
Electrical Characterization	Refer Specification for Approval	Summary to show Min, Max, Mean and Standard deviation .																																																				
Flammability	Electrical Test not required.	V-0 or V-1 are acceptable.																																																				

Item	Performance	Test Condition
<p>Board Flex</p>	<p>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</p>	<p>Preconditioning: Run through reflow for 3 times.(IPC/JEDEC J-STD-020E Classification Reflow Profiles) Place the 100mm X 40mm board into a fixture similar to the one shown in below Figure with the component facing down. The apparatus shall consist of mechanical means to apply a force which will bend the board (D) x = 2 mm minimum. The duration of the applied forces shall be 60 (+ 5) sec. The force is to be applied only once to the board.</p> 
<p>Terminal Strength(SMD)</p>	<p>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</p>	<p>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 17.7 N (1.8 Kg) force 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.</p> 

7. Reliability and Test Condition (SNLU252018QV, SNLU322522QV)

Item	Performance	Test Condition															
Operating temperature	-40~+125°C (Including self - temperature rise)																
Storage temperature	-40+125°C (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) 2. Heat Rated Current (Irms) will cause the coil temperature rise $\Delta T(^{\circ}C)$ without core loss. (1.)Applied the allowed DC current. (2.)Temperature measured by digital surface thermometer															
	$\Delta T \leq 20^{\circ}C$																
Reliability Test																	
High Temperature Exposure(Storage) AEC-Q200		Preconditioning: Run through reflow for 3 times.(IPC/JEDEC J-STD-020E Classification Reflow Profiles) Temperature : 125±2°C Duration : 1000hrs Min. Measured at room temperature after placing for 24±4 hrs.															
Temperature Cycling AEC-Q200		Preconditioning: Run through reflow for 3 times.(IPC/JEDEC J-STD-020E Classification Reflow Profiles) Condition for 1 cycle Step1 : -40±2°C 30min Min. Step2 : 125±2°C transition time 1min MAX. Step3 : 125±2°C 30min Min. Step4 : Low temp. transition time 1min MAX. Number of cycles : 1000 Measured at room temperature after placing for 24±4 hrs.															
Moisture Resistance (AEC-Q200)	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	t=24 hours/cycle. Note: Steps 7a & 7b not required. Unpowered. Measurement at 24±2 hours after test conclusion. 															
Biased Humidity (AEC-Q200)		Preconditioning: Run through reflow for 3 times.(IPC/JEDEC J-STD-020E Classification Reflow Profiles) Humidity : 85±3% R.H, Temperature : 85°C ±2°C Duration : 1000hrs Min. Measured at room temperature after placing for 24±4hrs															
High Temperature Operational Life (AEC-Q200)		Preconditioning: Run through reflow for 3 times.(IPC/JEDEC J-STD-020E Classification Reflow Profiles) Temperature : 125±2°C Duration : 1000hrs Min. with 100% rated current. Measured at room temperature after placing for 24±4hrs															
External Visual	Appearance : No damage.	Inspect device construction, marking and workmanship. Electrical Test not required.															
Physical Dimension	According to the product specification size measurement	According to the product specification size measurement															
Resistance to Solvents		Add aqueous wash chemical - OKEM clean or equivalent.															
Mechanical 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 border="1"> <thead> <tr> <th>Type</th> <th>Peak value (g's)</th> <th>Normal duration (D) (ms)</th> <th>Wave form</th> <th>Velocity change (V)ft/sec</th> </tr> </thead> <tbody> <tr> <td>SMD</td> <td>100</td> <td>6</td> <td>Half-sine</td> <td>12.3</td> </tr> <tr> <td>Lead</td> <td>100</td> <td>6</td> <td>Half-sine</td> <td>12.3</td> </tr> </tbody> </table>	Type	Peak value (g's)	Normal duration (D) (ms)	Wave form	Velocity change (V)ft/sec	SMD	100	6	Half-sine	12.3	Lead	100	6	Half-sine	12.3
		Type	Peak value (g's)	Normal duration (D) (ms)	Wave form	Velocity change (V)ft/sec											
SMD	100	6	Half-sine	12.3													
Lead	100	6	Half-sine	12.3													
	3 shocks in each direction along 3 perpendicular axes. (18 shocks).																

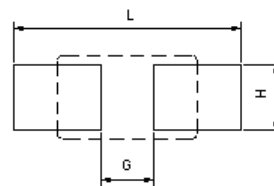
Item	Performance	Test Condition																																				
Vibration		IPC/JEDEC J-STD-020E Classification Reflow Profiles Oscillation Frequency:10Hz~2KHz~10Hz for 20 minute Equipment : Vibration checker Total Amplitude:5g Testing Time : 12 hours(20 minutes, 12 cycles each of 3 orientations)																																				
Resistance to Soldering Heat	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	Test condition : <table border="1" data-bbox="938 398 1401 517"> <thead> <tr> <th>Temperature(°C)</th> <th>Time(s)</th> <th>Temperature ramp/immersion and emersion rate</th> <th>Number of heat cycles</th> </tr> </thead> <tbody> <tr> <td>260 ±5 (solder temp)</td> <td>10 ±1</td> <td>25mm/s ±6 mm/s</td> <td>1</td> </tr> </tbody> </table> Depth: completely cover the termination Continental  <table border="1" data-bbox="938 837 1425 1021"> <thead> <tr> <th>Component Size</th> <th>Ramp up to 150°C</th> <th>T_{min}</th> <th>t_s</th> <th>T_{max}</th> <th>T_L</th> <th>t_L</th> <th>T_{peak}</th> <th>L[*]</th> <th>Time 25°C to peak</th> <th>Ramp down</th> </tr> </thead> <tbody> <tr> <td>Thickness < 1.6mm or Thickness 1.6mm-2.5mm and Volume < 300 mm³</td> <td rowspan="3">3.0s@ 1°C/s (The component shall be specified for usage in serial production with up to 3.0°C/s)</td> <td rowspan="3">≥190°C</td> <td rowspan="3">≥110s</td> <td rowspan="3">≥200°C</td> <td rowspan="3">≥217°C</td> <td rowspan="3">≥90s</td> <td>≥250°C</td> <td>≥40s</td> <td rowspan="3">≥300s</td> <td rowspan="3">6.5s@ 1°C/s (The component shall be specified for usage in serial production with up to 6.0°C/s)</td> </tr> <tr> <td>Thickness 1.6mm-2.5mm and Volume 300-2000 mm³ or Thickness > 2.5mm and Volume < 300 mm³</td> <td>≥250°C</td> <td>≥35s</td> </tr> <tr> <td>Thickness 1.6mm-2.5mm and Volume > 2000 mm³ or Thickness > 2.5mm and Volume > 300 mm³</td> <td>≥245°C</td> <td>≥35s</td> </tr> </tbody> </table> Table 1: Minimum requirements for lead-free soldering *peak temperature is measured on the centre top of the component package **tp measured @ T _{peak} -5°C	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	Component Size	Ramp up to 150°C	T _{min}	t _s	T _{max}	T _L	t _L	T _{peak}	L [*]	Time 25°C to peak	Ramp down	Thickness < 1.6mm or Thickness 1.6mm-2.5mm and Volume < 300 mm ³	3.0s@ 1°C/s (The component shall be specified for usage in serial production with up to 3.0°C/s)	≥190°C	≥110s	≥200°C	≥217°C	≥90s	≥250°C	≥40s	≥300s	6.5s@ 1°C/s (The component shall be specified for usage in serial production with up to 6.0°C/s)	Thickness 1.6mm-2.5mm and Volume 300-2000 mm ³ or Thickness > 2.5mm and Volume < 300 mm ³	≥250°C	≥35s	Thickness 1.6mm-2.5mm and Volume > 2000 mm ³ or Thickness > 2.5mm and Volume > 300 mm ³	≥245°C	≥35s
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																																			
Component Size	Ramp up to 150°C	T _{min}	t _s	T _{max}	T _L	t _L	T _{peak}	L [*]	Time 25°C to peak	Ramp down																												
Thickness < 1.6mm or Thickness 1.6mm-2.5mm and Volume < 300 mm ³	3.0s@ 1°C/s (The component shall be specified for usage in serial production with up to 3.0°C/s)	≥190°C	≥110s	≥200°C	≥217°C	≥90s	≥250°C	≥40s	≥300s	6.5s@ 1°C/s (The component shall be specified for usage in serial production with up to 6.0°C/s)																												
Thickness 1.6mm-2.5mm and Volume 300-2000 mm ³ or Thickness > 2.5mm and Volume < 300 mm ³							≥250°C	≥35s																														
Thickness 1.6mm-2.5mm and Volume > 2000 mm ³ or Thickness > 2.5mm and Volume > 300 mm ³							≥245°C	≥35s																														
Thermal shock (AEC-Q200)		Preconditioning: Run through reflow for 3 times.(IPC/JEDEC J-STD-020E Classification Reflow Profiles) Condition for 1 cycle Step1 : -40±2°C 15±1min Step2 : 125±2°C within 20Sec. Step3 : 125±2°C 15±1min Number of cycles : 300 Measured at room temperature after placing for 24±4hrs																																				
Thermal shock (AEC-Q200)		Preconditioning: Run through reflow for 3 times.(IPC/JEDEC J-STD-020E Classification Reflow Profiles) Condition for 1 cycle Step1 : -40±2°C 15±1min Step2 : 125±2°C within 20Sec. Step3 : 125±2°C 15±1min Number of cycles : 300 Measured at room temperature after placing for 24±4hrs																																				
ESD	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	 Direct Contact and Air Discharge PASSIVE COMPONENT HBM ESD Discharge Waveform to a Coaxial Target Test method: AEC-Q200-002 Test mode : Contact Discharge Discharge level : 4 KV (Level: 2)																																				
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																																				
Electrical Characterization	Refer Specification for Approval	Summary to show Min, Max, Mean and Standard deviation .																																				
Flammability	Electrical Test not required.	V-0 or V-1 are acceptable.																																				

Item	Performance	Test Condition
Board Flex	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) Place the 100mm X 40mm board into a fixture similar to the one shown in below Figure with the component facing down. The apparatus shall consist of mechanical means to apply a force which will bend the board (D) x = 2 mm minimum. The duration of the applied forces shall be 60 (+ 5) sec. The force is to be applied only once to the board. 
Terminal Strength(SMD)	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) With the component mounted on a PCB with the device to be tested, apply a 17.7 N (1.8 Kg) force 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)
SNLU	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
SNLU	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

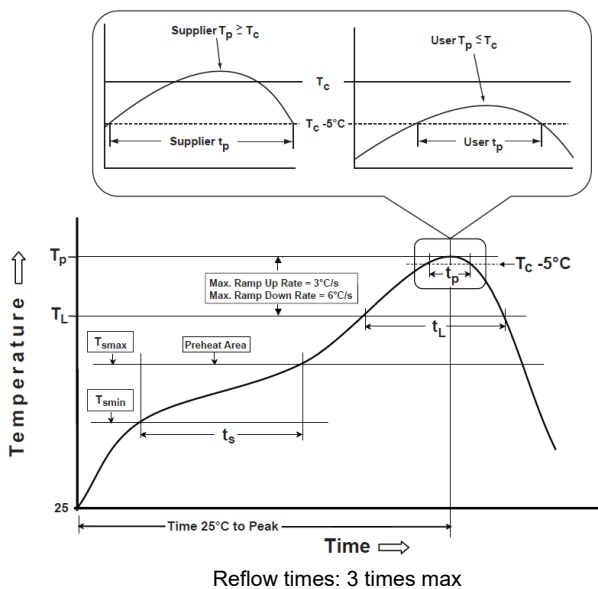


Fig.2 Iron soldering temperature profiles

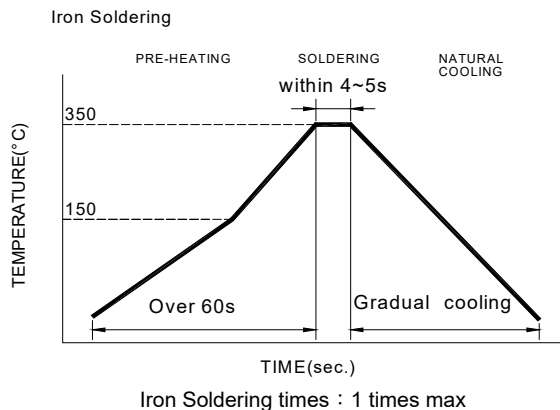


Table (1.1): Reflow Profiles

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 .

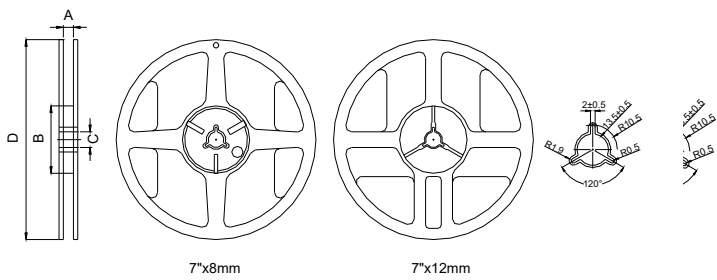
Table (1.2) Package Thickness/Volume and Classification Temperature (T_c)

	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 ◦

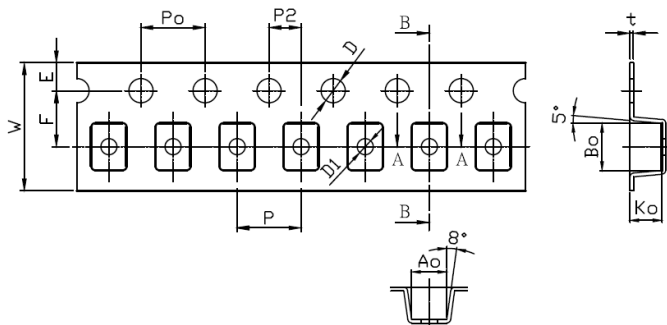
9. Packaging Information

9-1. Reel Dimension



Type	A(mm)	B(mm)	C(mm)	D(mm)
7"x8mm	9.0±0.5	60.0±2.0	13.5±0.5	178.0±2.0

9-2. Tape Dimension / 8mm

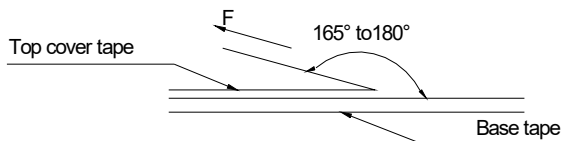


Series	Size	W(mm)	P(mm)	E(mm)	F(mm)	P2(mm)	D(mm)	D1(mm)	Bo(mm)	Ao(mm)	Ko(mm)	Po(mm)	t(mm)
SNLU	252018	8.00±0.10	4.00±0.10	1.75±0.10	3.50±0.05	2.00±0.05	1.50+0.10-0.00	1.00±0.10	2.95±0.10	2.20±0.10	2.00±0.10	4.00±0.10	0.24±0.05

9-3. Packaging Quantity

SNLU	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.

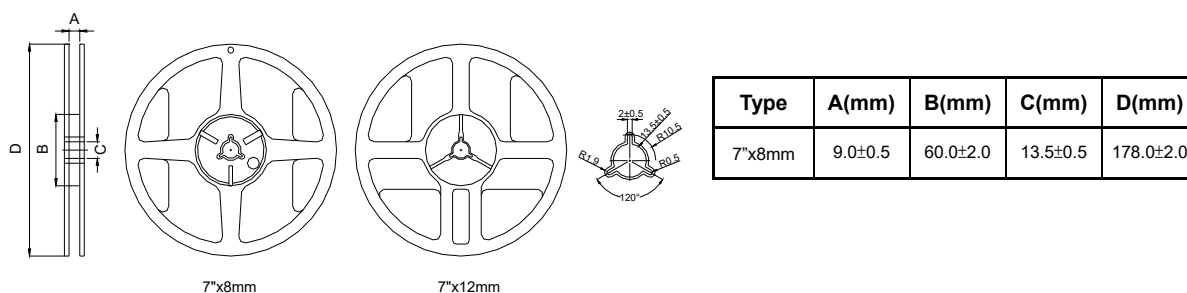
Room Temp. (°C)	Room Humidity (%)	Room atm (hPa)	Tearing Speed mm/min
5~35	45~85	860~1060	300

Application Notice

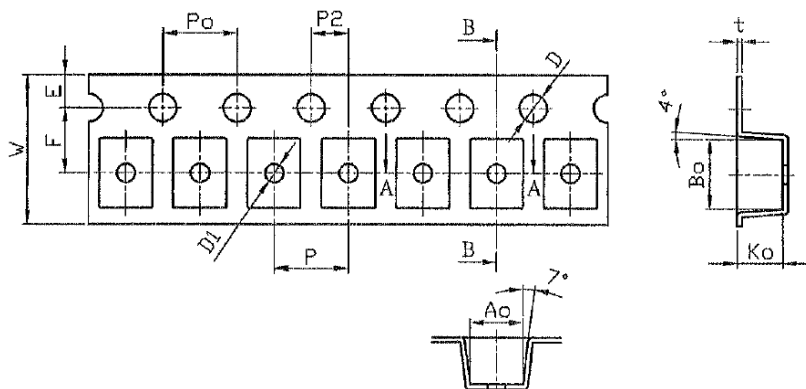
- Storage Conditions(component level)
 - To maintain the solderability of terminal electrodes:
 - 1. TAI-TECH products meet IPC/JEDEC J-STD-020E standard-MSL, level 1.
 - 2. Temperature and humidity conditions: Less than 40°C and 60% RH.
 - 3. Recommended products should be used within 12 months form 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

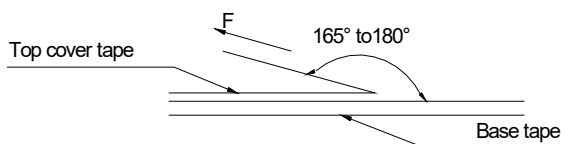


Series	Size	W(mm)	P(mm)	E(mm)	F(mm)	P2(mm)	D(mm)	D1(mm)	Bo(mm)	Ao(mm)	Ko(mm)	Po(mm)	t(mm)
SNLU	322522	8.00±0.10	4.00±0.10	1.75±0.10	3.50±0.05	2.00±0.05	1.50+0.10-0.00	1.00±0.10	3.72±0.10	2.88±0.10	2.50±0.10	4.00±0.10	0.26±0.05

9-3. Packaging Quantity

SNLU	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
 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.