⊕ Feature

- •High current saturation.
- •Magnetically Shielded Structure.
- •Low profile construction and miniature size.

⊕ Applications

- •DC to DC converters.
- •Power line filtering.
- •DVC/DSC/PDA, LCD display.

⊕ Product Identification：

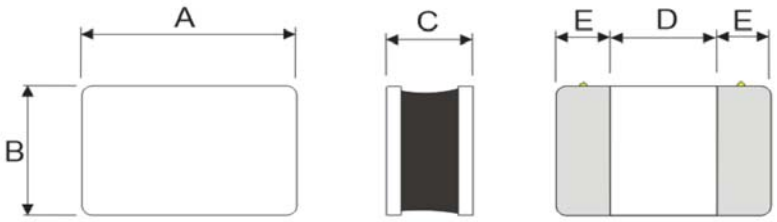
□□□ □□□□ □□ - □□□ □

1 2 3 4 5

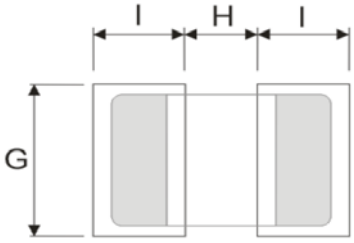
Series name	Dimensions(LxWxH)		Internal code
SNR	201610	2.0*1.6*1.00mm	ZR = Trapezoid
	252010	2.5*2.0*1.05mm	ZE = Octagonal
	252012	2.5*2.0*1.26mm	ZS = Square

Inductance		Tolerance	
1R0	1 μH	J	5%
100	10 μH	K	10%
101	100 μH	M	20%
102	1000 μH	N	30%

⊕ Shapes And Dimensions

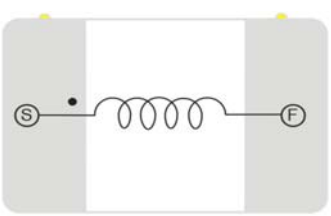


⊕Recommended PCB Pattern



Part No.	Dimensions(mm)								
	A	B	C	D	E		G	H	I
SNR201610ZS	2.0 ±0.20	1.6 ±0.20	1.00 Max.	0.8 ±0.20	0.60 ±0.20		1.60 Ref	0.70 Ref	0.65 Ref
SNR252010ZS	2.5 ±0.20	2.0 ±0.20	1.00 Max.	0.80 ±0.20	0.80 ±0.20		2.00 Ref	0.80 Ref	0.85 Ref
SNR252012ZS	2.5 ±0.20	2.0 ±0.20	1.20 Max.	0.80 ±0.20	0.80 ±0.20		2.00 Ref	0.80 Ref	0.85 Ref

⊕ Equivalent Circuit Schematic：



⊕ Material List：

No.	Location	Material
1	Core	Ferrite Ni-Zn core
2	Wire	Grade1 P180
3	Solder	Sn99.3 Cu0.7
4	Epoxy	Magnetic powder resin

1.Operating temperature -40℃ ~ +125℃

2.Storage conditions -40℃ ~ +125℃

⊕ Electrical Characteristics：

Part No.	Inductance (μH)	Isat (A)		Irms (A)		DCR (mΩ)		Test Frequuency
		Max	Typ	Max	Typ	Max	Typ	
SNR201610ZS-R47N	0.47 ± 30%	2.70	3.00	2.35	2.60	53	44	100KHz / 1V
SNR201610ZS-R68N	0.68 ± 30%	2.00	2.45	2.05	2.25	75	62	100KHz / 1V
SNR201610ZS-1R0M	1 ± 20%	1.80	1.95	1.60	1.75	96	80	100KHz / 1V
SNR201610ZS-1R5M	1.5 ± 20%	1.46	1.65	1.26	1.40	156	130	100KHz / 1V
SNR201610ZS-2R2M	2.2 ± 20%	1.26	1.45	1.20	1.35	174	145	100KHz / 1V
SNR201610ZS-3R3M	3.3 ± 20%	0.90	1.05	0.95	1.05	294	245	100KHz / 1V
SNR201610ZS-4R7M	4.7 ± 20%	0.77	0.85	0.90	1.00	432	360	100KHz / 1V
SNR201610ZS-6R8M	6.8 ± 20%	0.72	0.80	0.55	0.77	600	500	100KHz / 1V
SNR201610ZS-8R2M	8.2 ± 20%	0.63	0.72	0.50	0.60	720	600	100KHz / 1V
SNR201610ZS-100M	10 ± 20%	0.55	0.62	0.45	0.50	864	720	100KHz / 1V
SNR201610ZS-220M	22 ± 20%	0.33	0.38	0.27	0.32	2400	1800	100KHz / 1V

⊕ Electrical Characteristics：

Part No.	Inductance (μH)	Isat (A)		Irms (A)		DCR (mΩ)		Test Frequuency
		Max	Typ	Max	Typ	Max	Typ	
SNR252010ZS-R47N	0.47 ± 30%	2.80	3.75	2.35	2.56	54	45	100KHz / 1V
SNR252010ZS-R68N	0.68 ± 30%	2.46	3.08	2.00	2.42	72	58	100KHz / 1V
SNR252010ZS-1R0M	1 ± 20%	2.07	2.46	1.65	1.98	110	84	100KHz / 1V
SNR252010ZS-1R5M	1.5 ± 20%	2.02	2.35	1.30	1.60	174	142	100KHz / 1V
SNR252010ZS-2R2M	2.2 ± 20%	1.46	1.79	1.20	1.32	199	162	100KHz / 1V
SNR252010ZS-3R3M	3.3 ± 20%	1.05	1.30	0.90	0.98	312	254	100KHz / 1V
SNR252010ZS-4R7M	4.7 ± 20%	1.06	1.29	0.70	0.88	536	437	100KHz / 1V
SNR252010ZS-6R8M	6.8 ± 20%	0.87	1.03	0.59	0.79	854	695	100KHz / 1V
SNR252010ZS-100M	10 ± 20%	0.73	0.87	0.50	0.64	1050	846	100KHz / 1V

⊕ Electrical Characteristics：

Part No.	Inductance (μH)	Isat (A)		Irms (A)		DCR (mΩ)		Test Frequuency
		Max	Typ	Max	Typ	Max	Typ	
SNR252012ZS-R47N	0.47 ± 30%	3.82	4.27	2.15	2.34	61	47	100KHz / 1V
SNR252012ZS-R68N	0.68 ± 30%	3.28	3.68	1.95	2.13	74	57	100KHz / 1V
SNR252012ZS-1R0N	1 ± 30%	2.59	2.90	1.93	2.10	90	69	100KHz / 1V
SNR252012ZS-1R2N	1.2 ± 30%	2.38	2.57	1.40	1.59	129	99	100KHz / 1V
SNR252012ZS-1R5M	1.5 ± 20%	2.24	2.51	1.40	1.53	147	113	100KHz / 1V
SNR252012ZS-2R2M	2.2 ± 20%	1.85	2.07	1.15	1.25	216	166	100KHz / 1V
SNR252012ZS-2R7M	2.7 ± 20%	1.72	1.92	1.09	1.19	239	184	100KHz / 1V
SNR252012ZS-3R3M	3.3 ± 20%	1.61	1.80	1.04	1.13	264	203	100KHz / 1V
SNR252012ZS-3R6M	3.6 ± 20%	1.46	1.64	0.90	0.98	348	268	100KHz / 1V
SNR252012ZS-4R3M	4.3 ± 20%	1.37	1.53	0.87	0.95	377	290	100KHz / 1V
SNR252012ZS-4R7M	4.7 ± 20%	1.12	1.25	0.84	0.92	377	290	100KHz / 1V
SNR252012ZS-5R1M	5.1 ± 20%	1.23	1.37	0.75	0.82	500	385	100KHz / 1V
SNR252012ZS-5R6M	5.6 ± 20%	1.10	1.25	0.73	0.80	538	414	100KHz / 1V
SNR252012ZS-6R2M	6.2 ± 20%	1.03	1.16	0.73	0.80	542	417	100KHz / 1V
SNR252012ZS-6R8M	6.8 ± 20%	0.98	1.09	0.69	0.75	581	447	100KHz / 1V
SNR252012ZS-7R5M	7.5 ± 20%	0.97	1.09	0.68	0.74	611	470	100KHz / 1V
SNR252012ZS-8R2M	8.2 ± 20%	0.98	1.10	0.65	0.71	658	506	100KHz / 1V
SNR252012ZS-9R1M	9.1 ± 20%	0.91	1.02	0.62	0.66	690	531	100KHz / 1V
SNR252012ZS-100M	10 ± 20%	0.79	0.88	0.62	0.68	690	531	100KHz / 1V

⊕ Electrical Characteristics：

Part No.	Inductance (μH)	Isat (A)		Irms (A)		DCR (mΩ)		Test Frequuency
		Max	Typ	Max	Typ	Max	Typ	
SNR252012ZS-120M	12 ± 20%	0.78	0.88	0.51	0.56	1075	827	100KHz / 1V
SNR252012ZS-150M	15 ± 20%	0.68	0.77	0.42	0.46	1591	1224	100KHz / 1V
SNR252012ZS-220M	22 ± 20%	0.53	0.59	0.38	0.41	1976	1520	100KHz / 1V

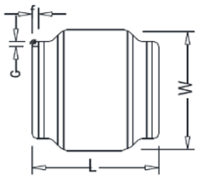
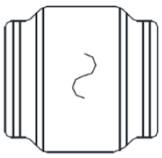
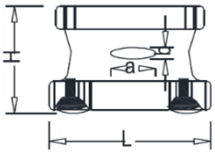
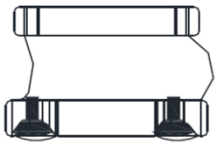
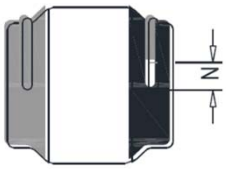
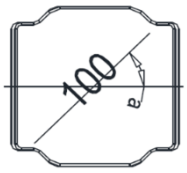
Note：Specifications which provide more details for the proper and safe use of the described product are available upon request. all specifications are subject to change without notice.

Isat：DC Saturation Current that will cause initial inductance to drop approximately 30% max.(at 20°C ambient.)

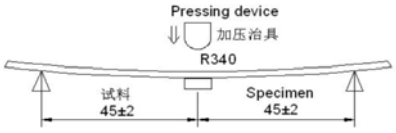
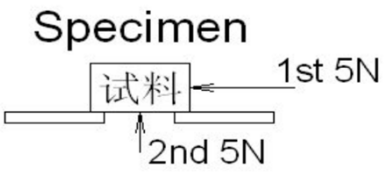
Irms：DC Current that will cause an approximate ΔT of 40 °C. (at 20°C ambient.)

Test Instrument：LCR(CH1062/HP4284A)、DCR(TH2511/CH502BC)、IDC(CH1320) or equivalent.

⊕ Visual Inspection Standard of Product

No.	Defect Item	Figure	Rejection Identification	Acceptance
1	Core Defect		The defect length (c or f) more than L/6 or W/L, NG	AQL = 0.65
2	Core Crack		Visual cracks, NG	AQL = 0.65
3	Starvation		(1)Resin starved length a more than L/2, NG (2)When L>2mm, b>H/2,NG (3)When L≦2mm,b don't control.	AQL = 0.65
4	Excessive glue		The length, width or height of product beyond specified value, NG	AQL = 0.65
5	Cold Solder		(1)For SNR2520XX Series, Cold solder N>0.5mm, NG (2)For other series, cold solder N>1mm, NG	AQL = 0.65
6	Marking Defect		The marking angle α>45°,NG	AQL = 0.65

⊕ General Characteristics

項目 Item	Conditions	Specification
温度特性 Temperature drift	在温度-40 ~ + 125℃之间测试。 To be measured in the range of -40℃ to 125℃.	Inductance temperature coefficient 2000 ppm/℃ or less
保存温度范围 Storage Temperature	在包装的状态下。 With taping.	- 40℃ ~ + 125℃
使用温度范围 Operating Temperature	包括制品的发热温度。 Including self temperature rise.	- 40℃ ~ + 125℃
弯曲测试 Bending test	试件焊接在基板上，按箭头方向以大约0.5mm/秒的速度加压，直到基板变形幅度到3mm 保持30 秒。 Apply pressure gradually in the direction of the arrow at a rate of about 0.5mm/s until bent depth reaches 3mm and hold for 30±5s.  基板Board: 40*100mm 厚Thickness: 1.0mm	Change from an initial value L : within±10%
固着强度 Adhesion strength	按箭头方向用R0.5 的加压棒在试件中施加一定的静力并保持60±5秒. A static load using a R0.5 pressing tool shall be applied the arrow and to the body of the specimen in the direction of the arrow and shall be hold for 60±5s. Measure after removing pressure. 	Change from an initial value L : within±10%

耐振性 Vibration	振动频率10～55～10Hz, 振幅1.5mm, 分X,Y,Z 方向各振动1 小时（共3 小时）。 The specimen shall be subjected to a vibration of 1.5mm amplitude, sweep frequency 10~55Hz (10Hz to 55Hz to 10Hz in a period of one minute) for 1 h in each of 3(X,Y,Z) axes.	Change from an initial value L : within±10%
耐冲击性 Mechanical shock	利用橡胶块式落下冲击试验机，分别在3 个互相垂直的方向以981m/S2 的冲击加速度落下。 Peak acceleration: 981 m/S2 Duration of pulse: 6ms 3 times in each of 3(X,Y,Z)axes. The specimen must be fixed on test board. Three successive shock shall be applied in the perpendicular direction of each surface of the specimen.	Change from an initial value L : within±10%
自然落下试验 Free fall test	试件安装在基板上，并固定在重500 克的盒中，由1 米高自由落体，3 个互相垂直的方向各3 次。 The specimen must be fixed on test board. It must be equipped with instruments of which weight is 500g. Then it shall be fallen freely from 1m height to rigid wood 3 times in each of three axes.	Change from an initial value L : within±10%
焊锡付着性 Solder ability	试验品的电极深布松香后， 在5 ～ 10 秒内焊锡， 焊锡槽温度245±5℃，时间：3±0.5 秒。 Terminals shall be immersed for 5 to 10 seconds in flux at room temperature. Dip sample into solder bath containing molten solder at 245±5℃ for 3±0.5 seconds.	90%以上的面积要被覆盖。 New solder shall cover 90% minimum of the surface immersed.
耐电压 Dielectric strength	在电极与磁材之间加入直流电压100V 通电时间1 分钟。 100V DC shall be applied for 60s between the terminal and the core.	没有损害。 Without damage.

焊锡耐热性 Resistance to soldering heat	试验方法Test method 热风炉焊接Reflow soldering method 预热Preheat 150~180℃ 90±30s 峰值温度Peak temp 250(+ 5,-0)℃ (230℃min , 30±10s) 试验板的厚度0.8mm 上按上面条件通过两次热风炉。 The specimen shall be subjected to the reflow process under the above condition 2 times.Test board shall be 0.8mm thick. Base material shall be glass epoxy resin. 测定Measurement 常温常湿中放置于1 小时以上测试。 The specimen shall be stored at standard atmospheric conditions for 1 h in prior to the measurement.	Change from an initial value L : within±10%
绝缘抵抗 Insulation resistance	在电极与磁材之间加入直流电压100V。 100V DC shall be applied between the terminal and the core.	100mΩ 以上 100mΩ or more.
耐寒性 Low temperature	在温度-40±3℃中放置500±12 小时后，常温常湿中放置1 小时以上2 小时以内测试。 The specimen shall be stored at a temperature of -40 ±3℃ for 500 ±12h. Then it shall be stabilized under standard atmospheric conditions for 1 h before measurement Measurement shall be made within 1h.	Change from an initial value L : within±10%
耐热性 Dry heat	在温度125±2℃中放置500±12 小时后，常温常湿中放置1 小时以上2 小时以内测试。 The specimen shall be stored at a temperature of 125 ± 2℃ for 500± 12h. Then it shall be stabilized under standard atmospheric conditions for 1 h before measurement. Measurement shall be made within 1h.	Change from an initial value L : within±10%

耐湿性 Dump heat	在温度60±2℃，湿度90～95%中放置500±12 小时后，常温常湿中放置1 小时以上2 小时以内测试。 The specimen shall be stored at a temperature of 60± 2℃ with relative humidity of 90 ~ 95% for 500 ± 2h. Then it shall be stabilized under standard atmospheric conditions for 1 h before measurement. Measurement shall be made within 1h.	Change from an initial value L : within±10%
温度循环 Temperature cycle	以温度-40℃中放置30 分钟，在125℃放置30 分钟，中间转换时间不超过2 分钟为一个循环。完成500 个循环后，常温常湿中放置1小时以上2 小时以内测试。 The specimen shall be subjected to 500 continuous cycles of temperature change of -40℃ for 30 min and 125℃ for 30 min with the transit period of 2min or less. Then it shall be stabilized under standard atmospheric conditions for 1 h before measurement. Measurement shall be made within 1h.	Change from an initial value L : within±10%

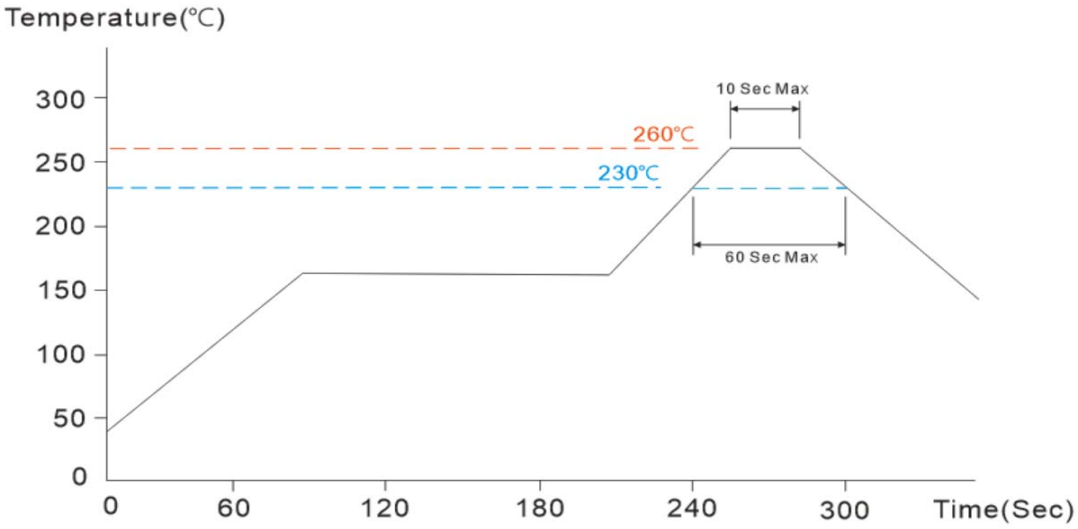
标准状态Standard atmospheric conditions

Unless otherwise specified, the standard range of atmospheric conditions in making measurements and test as follows;
Ambient temperature : 5℃ to 35℃, Relative humidity: 45% to 85%, Air pressure: 86kPa to 106kPa
If more strict measurement is required, measurement shall be made within following limits;
Ambient temperature : 20±2℃, Relative humidity: 65±5%, Air pressure: 86kPa to 106kPa

禁用物质Prohibited Subtances

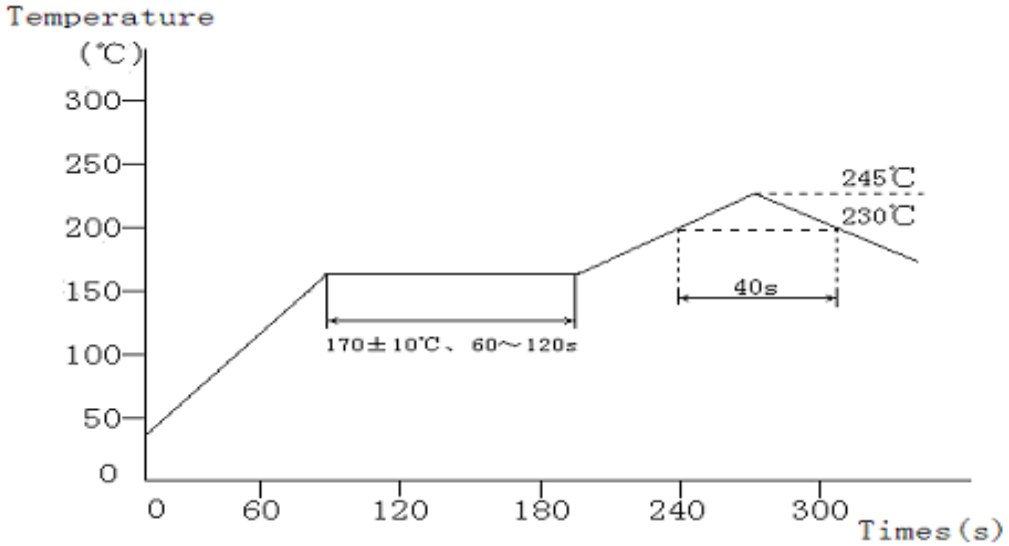
我公司保证我司的产品和生产过程符合“RoHS 规则”，所有产品中使用的材料均是化学物质生产规则中登记的材料。
We confirm that our products and our production process accord with "rule of RoHS". All materials used in this product are registered material under the law concerning the examination and Regulation of Manufacture of Chemical Substances.

⊕ Reflow Soldering Heat Endurance



No mechanical and electrical defects are found after testing based on the above profile and keeping under the conditions of room temperature and humidity for 2 hours.
Twice reflow test is acceptable with the test interval remaining 1 hour under the normal conditions.
The reflow test profile may vary with the testing instruments.

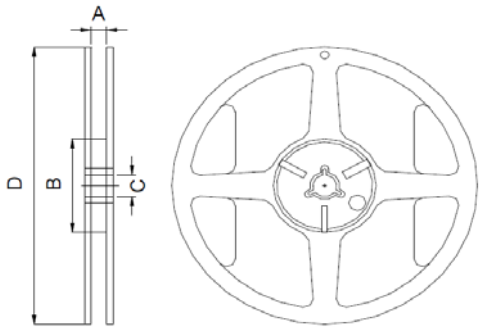
⊕ Recommended Reflow Conditions



The recommended reflow profile is based on the testing instruments used. Solder ability will depend on the testing equipments, reflow conditions, testing method, etc. So it is necessary to make a confirmation of them when the reflow conditions are set up.

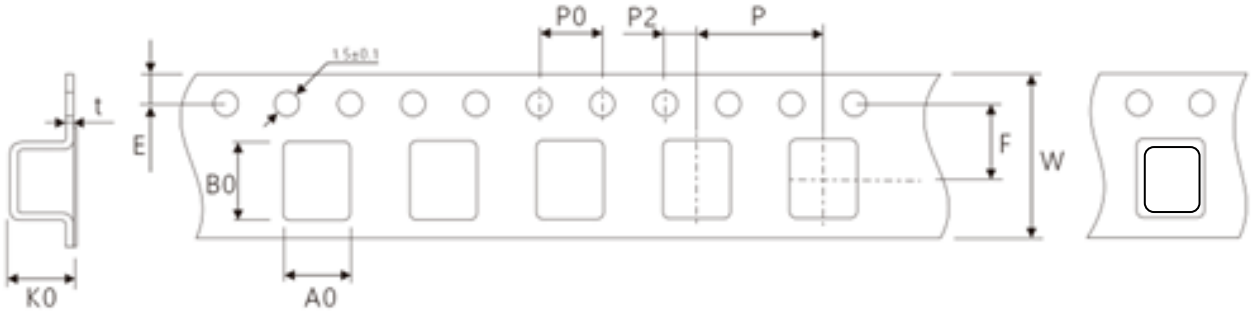
However halogen lamp shall be used, side heat will be beyond range of resistance heat,
so we can't recommend it.

⊕Reel Dimension(m/m)



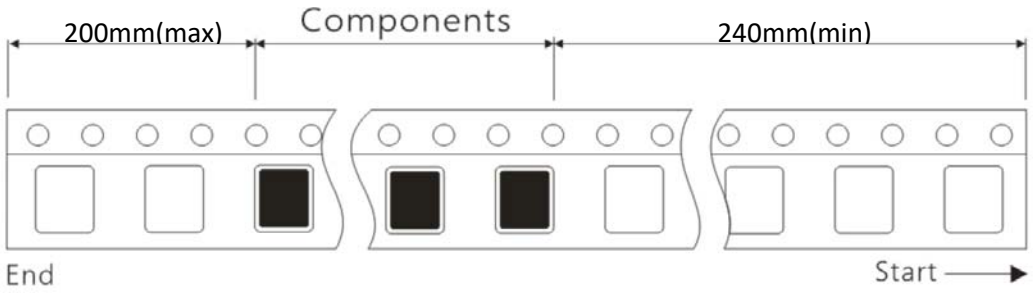
Item	A	B	C	D	Applicable Models
7"x8	8±1	75±1	13±1	178±1	SNR201610、SNR252010、SNR252012

⊕Taping Dimension(m/m)



Item	W	Ao	Bo	Ko	E	F	P	P0	P2	t
SNR201610ZS	8.0±0.3	1.9±0.1	2.3±0.1	1.2±0.1	1.75±0.1	3.5±0.1	4.0±0.1	4.0±0.1	2.0±0.1	0.25±0.05
SNR252010ZS	8.0±0.3	2.2±0.1	2.7±0.1	1.2±0.1	1.75±0.1	3.5±0.1	4.0±0.1	4.0±0.1	2.0±0.1	0.25±0.05
SNR252012ZS	8.0±0.3	2.35±0.1	2.65±0.1	1.4±0.1	1.75±0.1	3.5±0.1	4.0±0.1	4.0±0.1	2.0±0.1	0.25±0.05

⊕Taping method



⊕ Packaging Carton

Item	Reel Packing	Inner Box Packing	Carton Packing
SNR201610ZS	2,000 PCS / Reel	20,000 PCS / Box	80,000 PCS / Box
SNR252010ZS	2,000 PCS / Reel	20,000 PCS / Box	80,000 PCS / Box
SNR252012ZS	2,000 PCS / Reel	20,000 PCS / Box	80,000 PCS / Box