



SPECIFICATION FOR APPROVAL

CUSTOMER : STD
CUSTOMER PART NO :
PRODUCTS : SMD Power Inductors
PART NO: MCSHI Series
DATE: 2019.09.05
SALES: 产品部
E-MAIL: Eily@szmorechance.com

APPROVAL SIGNATURE 客户承认签章	

APPROVAL	CHECK BY	DRAWN BY
Honey	Baron	Eily

苏州茂昌电子有限公司

Suzhou MoreChance Electronics Co.,Ltd

公司地址:苏州市吴中区宝带东路399号中润中心1419-1420(12B)

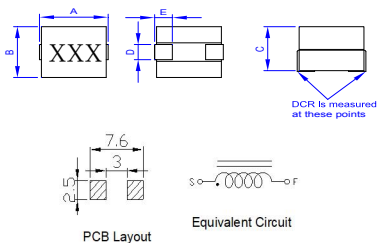
:Room1419-1420(12B) zhongRun center Building ,NO 399 Baodai East Rd , Wuzhoug District,Suzi

TEL:0512-68562977 FAX:0512-68563299

公司地址:深圳市宝安区沙井街道办中心路108号锐钧商务大厦19楼19J

TEL:0755-27389457 FAX:0755-23217683

SMD Power Inductors-MCSHI Series



Feature

1. High current handling capability in the smallest footprint & profile
2. Up to 2MHz operating frequency.
3. Extended operating temperature range:-40 °C to 125 °C

Application

1. Multi-Phase synchronous Buck Voltage Regulator designs.
2. Low voltage, high current, high frequency, DC-DC voltage regulator modules (LVRMs).
3. Server, Desktop, PDA, Graphic Cards, Notebook Computers, Telecom Switches and Routers.

Product Identification

MC **SHI** **1075Z** **R15** **L** **R29**
A **B** **C** **D** **E** **F**

A: Company code

B: Series Name.

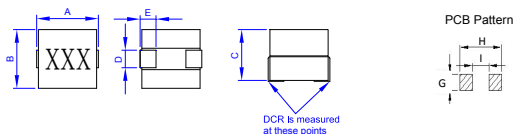
C: Dimension.

D: Inductance. (Exp. R15=0.15uH =150nH)

E: Inductance Tolerance. (M±20%,K±10%,L±15%)

F: DC Resistance.

SMD Power Inductors-MCSHI Series



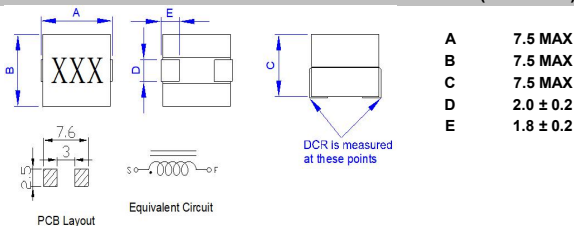
P/N	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	G (mm)	H (mm)	I (mm)
MCSHI777Z	7.5 MAX	7.5 MAX	7.5 MAX	2.0 ± 0.2	1.8 ± 0.2	2.50	7.60	3.00
MCSHI1075Z	10.5±0.5	7.0±0.5	7.2±0.3	1.7± 0.2	2.7± 0.5	2.60	11.20	4.00
MCSHI1077Z	11.0 MAX	7.5 MAX	7.0 MAX	1.6 ± 0.2	2.60 ± 0.3	2.00	11.00	4.30
MCSHI1086Z	10.41 MAX	8.0 MAX	6.5 MAX	2.3 ± 0.2	2.54 ± 0.3	2.79	10.42	4.32
MCSHI1088Z	11.0 MAX	8.0 MAX	8.5 MAX	1.55 ± 0.2	2.60 ± 0.3	2.00	11.50	4.50
MCSHI1177Z	11.5±0.5	7.2±0.5	7.0±0.5	2.0±0.2	3.2 ± 0.3	2.50	12.00	4.50
MCSHI1109Z	11.7 MAX	11.5 MAX	9.5 MAX	2.2 ± 0.2	3.2 ± 0.5	2.70	12.10	4.20
MCSHI1305Z	13.2±0.3	12.7±0.5	5.0±0.5	5.0 ± 0.2	2.0 ± 0.5	5.50	14.00	8.00
MCSHI1308Z	13.46 MAX	12.95 MAX	8.0 MAX	5.08 ± 0.3	2.54 ± 0.3	7.62	13.74	7.11
MCSHI1309Z	13.0 ± 0.3	12.8 ± 0.5	9.0 ± 0.5	3.0 ± 0.2	2.3 ± 0.5	3.50	14.50	9.00

P/N	Characteristic Range (nH) 100KHz 1.0V				I-sat (Amps)		DCR (mΩ)
	100	200	500	1000	25°C	125°C	
MCSHI777Z	120			220	27~50	20~40	0.290
MCSHI1075Z	120			220	30~65	24~50	0.325
MCSHI1077Z	120			400	21~80	16~70	0.370
MCSHI1086Z	120			300	30~74	25~63	0.480
MCSHI1088Z	150			450	20~72	15~65	0.500
MCSHI1177Z	150			400	23~65	16~50	0.290
MCSHI1109Z	230			540	26~60	18~50	0.300
MCSHI1305Z	220			520	13~40	9~35	0.155
MCSHI1308Z	210			500	28~71	23~55	0.320
MCSHI1309Z	320			450	43, 60	32, 48	0.300

SMD Power Inductors-MCSHI777Z Series

1.Mechanical & Dimensions

(UNIT: mm)



2.Electrical characteristics

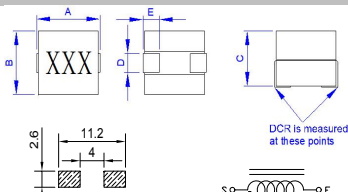
Part Number	Inductance L0	DCR	I-sat1(Amps)	I-sat2(Amps)	I-rms(Amps)
	100KHz/1V	@ 25°C	≥80%L0@25°C	≥80%L0@125°C	ΔT ≤ 40°C
MCSHI777ZR12LR29	120nH±15%	0.29mΩ±10%	50	40	35
MCSHI777ZR16LR29	160nH±15%	0.29mΩ±10%	40	27	35
MCSHI777ZR22LR29	220nH±15%	0.29mΩ±10%	27	20	35

3.Operating: -40°C ~ +125°C (Including self-temperature rise)

SMD Power Inductors-MCSHI1075Z Series

1.Mechanical & Dimensions

(UNIT: mm)



A	10.5±0.5
B	7.0±0.5
C	7.2±0.3
D	1.7±0.2
E	2.7±0.5

PCB Layout

Equivalent Circuit

2.Electrical characteristics

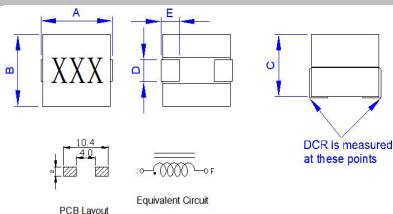
Part Number	Inductance L0	DCR	I-sat1(Amps)	I-sat2(Amps)	I-rms(Amps)
	100KHz/1V	@ 25°C	≥80%L0@25°C	≥80%L0@125°C	ΔT ≤ 40°C
MCSHI1075ZR12LR32	120nH±15%	0.325mΩ±7%	65	50	45
MCSHI1075ZR15LR32	150nH±15%	0.325mΩ±7%	45	35	45
MCSHI1075ZR20LR32	200nH±15%	0.325mΩ±7%	33	25	45
MCSHI1075ZR22LR32	220nH±15%	0.325mΩ±7%	30	24	45

3.Operating: -40°C ~ +125°C (Including self-temperature rise)

SMD Power Inductors-MCShI1077Z Series

1. Mechanical & Dimensions

(UNIT: mm)



A	11.0 MAX
B	7.50 MAX
C	7.00 MAX
D	1.60 ± 0.2
E	2.60 ± 0.3

2. Electrical characteristics

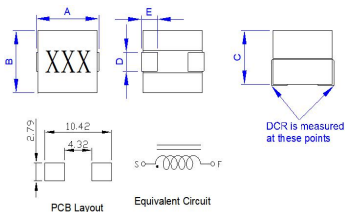
Part Number	Inductance L0	DCR	I-sat1(Amps)	I-sat2(Amps)	I-rms(Amps)
	100KHz/1V	@ 25°C	≥80%L0@25°C	≥80%L0@125°C	ΔT ≤ 40°C
MCShI1077ZR12MR37	120nH±20%	0.37mΩ±7%	80	70	37
MCShI1077ZR18MR37	180nH±20%	0.37mΩ±7%	50	45	37
MCShI1077ZR22MR37	220nH±20%	0.37mΩ±7%	40	35	37
MCShI1077ZR33MR37	330nH±20%	0.37mΩ±7%	28	20	37
MCShI1077ZR40MR37	400nH±20%	0.37mΩ±7%	21	16	37

3. Operating: -40°C ~ +125°C (Including self-temperature rise)

SMD Power Inductors-MCSHI1086Z Series

1.Mechanical & Dimensions

(UNIT: mm)



A	10.41 MAX
B	8.00 MAX
C	6.50 MAX
D	2.30 ± 0.2
E	2.54 ± 0.3

2.Electrical characteristics

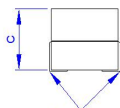
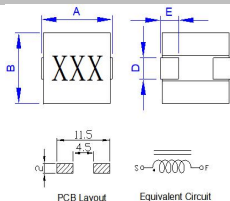
Part Number	Inductance L0	DCR	I-sat1(Amps)	I-sat2(Amps)	I-rms(Amps)
	100KHz/1V	@ 25°C	≥80%L0@25°C	≥80%L0@125°C	ΔT≤40°C
MCSHI1086ZR12LR48	120nH±15%	0.48mΩ ± 8%	74	63	40
MCSHI1086ZR14LR48	140nH±15%	0.48mΩ ± 8%	66	56	40
MCSHI1086ZR17LR48	170nH±15%	0.48mΩ ± 8%	55	48	40
MCSHI1086ZR22LR48	215nH±15%	0.48mΩ ± 8%	43	35	40
MCSHI1086ZR30LR48	300nH±15%	0.48mΩ ± 8%	30	25	40

3.Operating: -40°C ~ +125°C (Including self-temperature rise)

SMD Power Inductors-MCSHI1088Z Series

1.Mechanical & Dimensions

(UNIT: mm)



DCR is measured at these points

A	11.0 MAX
B	8.00 MAX
C	8.50 MAX
D	1.55 ± 0.2
E	2.60 ± 0.3

PCB Layout

Equivalent Circuit

2.Electrical characteristics

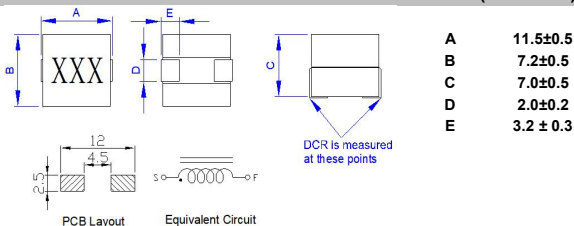
Part Number	Inductance L0	DCR	I-sat1(Amps)	I-sat2(Amps)	I-rms(Amps)
	100KHz/1V	@ 25°C	≥80%L0@25°C	≥80%L0@125°C	ΔT≤40°C
MCSHI1088ZR15LR50	150nH±15%	0.5mΩ ± 7%	72	65	40
MCSHI1088ZR18LR50	180nH±15%	0.5mΩ ± 7%	60	50	40
MCSHI1088ZR23LR50	230nH±15%	0.5mΩ ± 7%	52	40	40
MCSHI1088ZR30LR50	300nH±15%	0.5mΩ ± 7%	40	28	40
MCSHI1088ZR45LR50	450nH±15%	0.5mΩ ± 7%	20	15	40

3.Operating: -40°C ~ +125°C (Including self-temperature rise)

SMD Power Inductors-MCSHI1177Z Series

1.Mechanical & Dimensions

(UNIT: mm)



2.Electrical characteristics

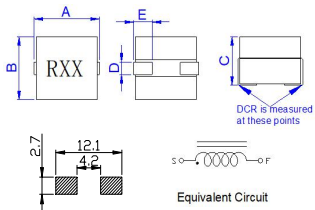
Part Number	Inductance L0	DCR	I-sat1(Amps)	I-sat2(Amps)	I-rms(Amps)
	100KHz/1V	@ 25°C	≥80%L0@25°C	≥80%L0@125°C	ΔT ≤ 40°C
MCSHI1177ZR15LR29	150nH±15%	0.29mΩ ± 7%	60	50	44
MCSHI1177ZR18LR29	180nH±15%	0.29mΩ ± 7%	58	40	44
MCSHI1177ZR22LR29	220nH±15%	0.29mΩ ± 7%	45	35	44
MCSHI1177ZR30LR29	300nH±15%	0.29mΩ ± 7%	30	23	44
MCSHI1177ZR40LR29	400nH±15%	0.29mΩ ± 7%	23	16	44

3.Operating: -40°C ~ +125°C (Including self-temperature rise)

SMD Power Inductors-MCSH1109Z Series

1.Mechanical & Dimensions

(UNIT: mm)



A	11.7 MAX
B	11.5 MAX
C	9.5 MAX
D	2.2 ± 0.2
E	3.2 ± 0.5

2.Electrical characteristics

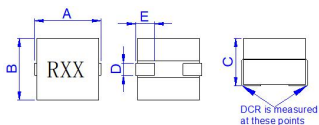
Part Number	Inductance L0	DCR	I-sat1(Amps)	I-sat2(Amps)	I-rms(Amps)
	100KHz/1V	@ 25°C	≥80% L0@25°C	≥80% L0@125°C	ΔT ≤ 40°C
MCSH1109ZR23MR30	230nH±20%	0.30mΩ±7%	60	50	40
MCSH1109ZR32MR30	320nH±20%	0.30mΩ±7%	45	40	40
MCSH1109ZR38MR30	380nH±20%	0.30mΩ±7%	40	30	40
MCSH1109ZR46MR30	460nH±20%	0.30mΩ±7%	32	22	40
MCSH1109ZR54MR30	540nH±20%	0.30mΩ±7%	26	18	40

3.Operating: -40°C ~ +125°C (Including self-temperature rise)

SMD Power Inductors-MCSHI1305Z Series

1.Mechanical & Dimensions

(UNIT: mm)



A	13.2 ± 0.3
B	12.7 ± 0.5
C	5.0 ± 0.2
D	5.0 ± 0.2
E	2.0 ± 0.5



PCB Layout



Equivalent Circuit

2.Electrical characteristics

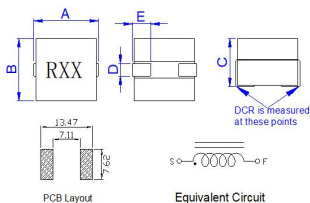
Part Number	Inductance L0 100KHz/1V	DCR @ 25°C	I-sat1(Amps) ≥80%L0@25°C	I-sat2(Amps) ≥80%L0@125°C	I-rms(Amps) ΔT ≤ 40°C
MCSHI1305ZR22LR15	220nH±15%	0.155mΩ ± 10%	40	35	50
MCSHI1305ZR28LR15	280nH±15%	0.155mΩ ± 10%	30	18	50
MCSHI1305ZR31LR15	310nH±15%	0.155mΩ ± 10%	24	15	50
MCSHI1305ZR40LR15	400nH±15%	0.155mΩ ± 10%	18	13	50
MCSHI1305ZR52LR15	520nH±15%	0.155mΩ ± 10%	13	9	50

3.Operating: -40°C ~ +125°C (Including self-temperature rise)

SMD Power Inductors-MCSHI1308Z Series

1.Mechanical & Dimensions

(UNIT: mm)



A	13.46 MAX
B	12.95 MAX
C	8.00 MAX
D	5.08 ± 0.2
E	2.54 ± 0.3

2.Electrical characteristics

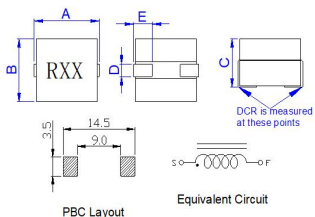
Part Number	Inductance L0	DCR	I-sat1(Amps)	I-sat2(Amps)	I-rms(Amps)
	100KHz/1V	@ 25°C	≥80%L0@25°C	≥80%L0@125°C	ΔT≤40°C
MCSHI1308ZR21MR32	210nH±20%	0.32mΩ±9.4%	71	55	45
MCSHI1308ZR26MR32	260nH±20%	0.32mΩ±9.4%	60	45	45
MCSHI1308ZR32MR32	320nH±20%	0.32mΩ±9.4%	50	35	45
MCSHI1308ZR44MR32	440nH±20%	0.32mΩ±9.4%	35	35	45
MCSHI1308ZR50MR32	500nH±20%	0.32mΩ±9.4%	28	23	45

3.Operating: -40°C ~ +125°C (Including self-temperature rise)

SMD Power Inductors-MCSHI1309Z Series

1.Mechanical & Dimensions

(UNIT: mm)



A	13.0 ± 0.3
B	12.8 ± 0.5
C	9.0 ± 0.5
D	3.0 ± 0.2
E	2.3 ± 0.5

2.Electrical characteristics

Part Number	Inductance L0	DCR	I-sat1(Amps)	I-sat2(Amps)	I-rms(Amps)
	100KHz/1V	@ 25°C	≥80%L0@25°C	≥80%L0@125°C	ΔT ≤ 40°C
MCSHI1309ZR32MR30	320nH±20%	0.3mΩ±7%	60	48	45
MCSHI1309ZR45MR30	450nH±20%	0.3mΩ±7%	43	32	45

3.Operating: -40°C ~ +125°C (Including self-temperature rise)

SPECIFICATION FOR APPROVAL

4. Reliability and Testing Conditions / Pin Type Power Inductors

Item	Specification	Conditions															
Operating temperature range	-40°C ~ +125°C																
Storage temperature and humidity range	-40°C ~ +125°C , 70% RH Max																
Solderability	More than 90% of the terminal electrode should be covered with solder.	<p>Unit: Second</p>															
Solder Heat Resistance	Inductance within ±20% of initial value. No disconnection or short circuit. The appearance shall not break.	<p>Unit: Second</p>															
Heat resistance	Inductance within ±20% of initial value. No disconnection or short circuit. The appearance shall not break.	After 1000 hours in 125±5°C and 2 hour drying under normal condition.															
Cold resistance	Inductance within ±20% of initial value. No disconnection or short circuit. The appearance shall not break.	After 1000 hours in -40±5°C and 2 hour drying under normal condition.															
Thermal shock	Inductance within ±20% of initial value. No disconnection or short circuit. The appearance shall not break.	After 100 cycles of following condition. <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Step</th> <th>Temperature (°C)</th> <th>Times (min.)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>-40±5°C</td> <td>30</td> </tr> <tr> <td>2</td> <td>Room Temperature</td> <td>Within 3</td> </tr> <tr> <td>3</td> <td>125±5°C</td> <td>30</td> </tr> <tr> <td>4</td> <td>Room Temperature</td> <td>Within 3</td> </tr> </tbody> </table>	Step	Temperature (°C)	Times (min.)	1	-40±5°C	30	2	Room Temperature	Within 3	3	125±5°C	30	4	Room Temperature	Within 3
Step	Temperature (°C)	Times (min.)															
1	-40±5°C	30															
2	Room Temperature	Within 3															
3	125±5°C	30															
4	Room Temperature	Within 3															
Humidity Resistance	Inductance within ±20% of initial value. No disconnection or short circuit. The appearance shall not break.	After 1000 hours in 40±2°C and 90 to 95% humidity , and 2 hour drying under normal condition.															
Vibration Test	Inductance within ±5% of initial value and appearance shall not break.	After vibration for 1hour, In each of three orientations at sweep vibration (10~55~10Hz) with 1.52mm P-P Amplitudes.															
Terminal strength	The terminal electrode and the ferrite must not be damaged	Solder a chip to test substrate, and then laterally apply a load 10N in the arrow direction, Duration : 5s															

SMD Power Inductors-MCSHI Series

5.Recommended Soldering Conditions

Figure 1. Re-flow Soldering

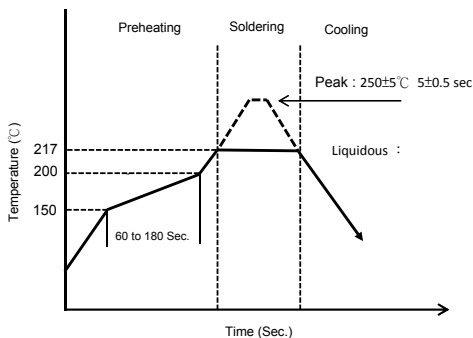
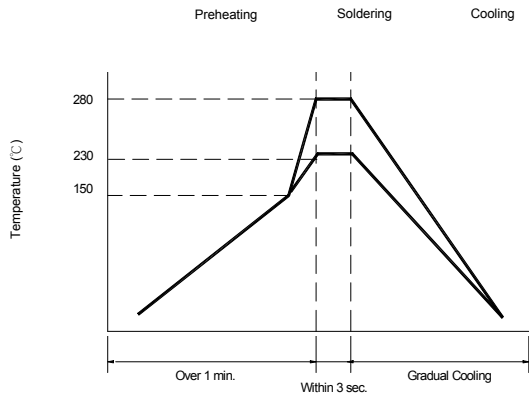
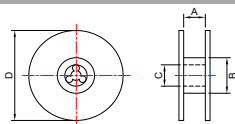


Figure 2. Hand Soldering

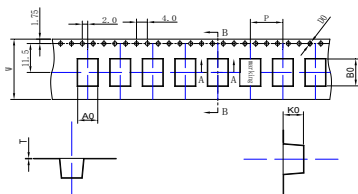


SMD Power Inductors-MCSHI Series

6. Packaging

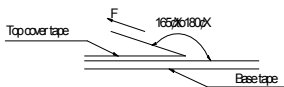


Type	A(mm)	B(mm)	C(mm)	D(mm)
13" x 24mm	24.0 ± 0.5	100 ± 2	13.5 ± 0.5	330



P/N	Ao(mm)	Bo(mm)	Ko(mm)	P(mm)	T(mm)	W(mm)	PCS/REEL
MCSHI777Z Series	7.45±0.1	7.85±0.1	7.4±0.1	12.0±0.1	0.4±0.05	24.0±0.3	500
MCSHI1075Z Series	7.6±0.1	11.5±0.1	5.7±0.1	12.0±0.1	0.4±0.05	24.0±0.3	640
MCSHI1077Z Series	7.3±0.1	11.6±0.1	7.65±0.1	16.0±0.1	0.4±0.05	24.0±0.3	500
MCSHI1086Z Series	8.0±0.1	11.1±0.1	7.2±0.1	12.0±0.1	0.4±0.05	24.0±0.3	600
MCSHI1088Z Series	7.85±0.1	11.0±0.1	8.75±0.1	16.0±0.1	0.4±0.05	24.0±0.3	450
MCSHI1177Z Series	7.55±0.1	11.85±0.1	7.75±0.1	20.0±0.1	0.4±0.05	24.0±0.3	500
MCSHI1109Z Series	11.6±0.1	12.0±0.1	9.5±0.1	20.0±0.1	0.4±0.05	24.0±0.3	300
MCSHI1305Z Series	13.2±0.1	13.5±0.1	5.5±0.1	20.0±0.1	0.4±0.05	24.0±0.3	500
MCSHI1308Z Series	13.0±0.1	13.5±0.1	8.05±0.1	16.0±0.1	0.4±0.05	24.0±0.3	450
MCSHI1309Z Series	13.2±0.1	14.7±0.1	9.4±0.1	20.0±0.1	0.4±0.05	24.0±0.3	300

P/N	Chip/Reel	Inner Box	Carton	P/N	Chip/Reel	Inner Box	Carton
MCSHI777Z Series	500pcs	1000pcs	5000pcs	MCSHI1177Z Series	500pcs	1000pcs	4000pcs
MCSHI1075Z Series	640pcs	1280pcs	5120pcs	MCSHI1109Z Series	300pcs	600pcs	2400pcs
MCSHI1077Z Series	640pcs	1280pcs	5120pcs	MCSHI1305Z Series	500pcs	1000pcs	4000pcs
MCSHI1086Z Series	600pcs	1200pcs	4800pcs	MCSHI1308Z Series	450pcs	900pcs	3600pcs
MCSHI1088Z Series	450pcs	900pcs	3600pcs	MCSHI1309Z Series	300pcs	600pcs	2400pcs



※Storage Conditions

1. Temperature and humidity conditions: Less than 40°C and 70% RH.
2. Recommended products should be used within 6 months from the time of delivery.
3. The packaging material should be kept where no chlorine or sulfur exists in the air.

The force tearing off cover tape is 15 to 60 grams in the arrow direction under the following conditions

Room Temp (°C)	Room Humidity (%)	Room atm (hPa)	Teaming Speed
5-35	45-85	860-1060	300.0

※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.