Multilayer Chip Inductors(Coils)

For DC to DC Converters

MLP (Closed Magnetic Circuit Core) series

Type:	**MLP2012**	**[0805 inch]***
	MLP2016	**[0806 inch]**
	MLP2520	**[1008 inch]**

*** Dimensions Code JIS[EIA]**

Issue date: May 2011

- All specifications are subject to change without notice.
- Conformity to RoHS Directive: This means that, in conformity with EU Directive 2002/95/EC, lead, cadmium, mercury, hexavalent chromium, and specific bromine-based flame retardants, PBB and PBDE, have not been used, except for exempted applications.

TDK

SMD Inductors(Coils)
For Power Line(Multilayer, Magnetic Shielded)

Conformity to RoHS Directive

MLP Series MLP2012

With its internal structure optimized, the MLP2012 type has achieved DC superimposition characteristics that are comparable to those of the existing MLP2520 type.
In addition, because low-loss materials are used, the core loss of the coil can be minimized within a wide frequency range.
MLP2012's choke coils are therefore best suited to several MHz-drive switching power supplies, the use of which is especially prominent in mobile devices.

FEATURES

- MLP2012 has DC super imposition characteristics that are comparable to that of the existing MLP2520 type.
- Optimized ferrite materials enable the reduction of losses.
- Magnetically shielded configuration allowing for high-density mounting.
- The products contain no lead and also support lead-free soldering.
- It is a product conforming to RoHS directive.

APPLICATIONS

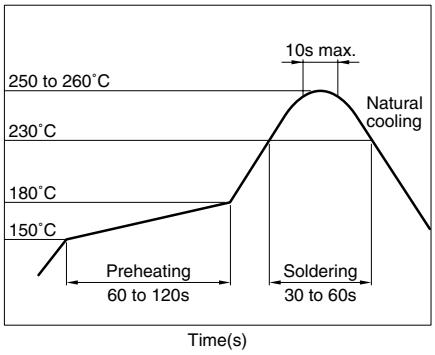
Cellular phones, DSCs, DVCs, HDDs, etc.

SPECIFICATIONS

Operating temperature range	–40 to +125°C [Including self-temperature rise]
Storage temperature range	–40 to +85°C

RECOMMENDED SOLDERING CONDITION

REFLOW SOLDERING



PRODUCT IDENTIFICATION

MLP	2012	S	2R2	M	T
(1)	(2)	(3)	(4)	(5)	(6)

(1) Series name

(2) Dimensions L×W

2012	2.0×1.25mm

(3) Product characteristics classification code

S	STD

(4) Inductance value

2R2	2.2μH

(5) Management number

T	t=0.5mm
M	t=0.85mm

(6) Packaging style

T	Taping [reel]

PACKAGING STYLE AND QUANTITIES

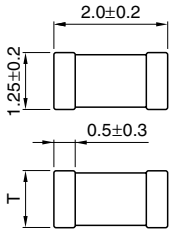
Packaging style	Quantity
Taping	4000 pieces/reel

HANDLING AND PRECAUTIONS

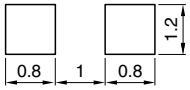
- Before soldering, be sure to preheat components. The preheating temperature should be set so that the temperature difference between the solder temperature and product temperature does not exceed 150°C.
- After mounting components onto the printed circuit board, do not apply stress through board bending or mishandling.
- The inductance value may change due to magnetic saturation if the current exceeds the rated maximum.
- Do not expose the inductors to stray magnetic fields.
- Avoid static electricity discharge during handling.
- When hand soldering, apply the soldering iron to the printed circuit board only. Temperature of the iron tip should not exceed 350°C. Soldering time should not exceed 3 seconds.

- Conformity to RoHS Directive: This means that, in conformity with EU Directive 2002/95/EC, lead, cadmium, mercury, hexavalent chromium, and specific bromine-based flame retardants, PBB and PBDE, have not been used, except for exempted applications.
- Please contact our Sales office when your application is considered the following:
  The device's failure or malfunction may directly endanger human life (e.g. application for automobile/aircraft/medical/nuclear power devices, etc.)

SHAPES AND DIMENSIONS/RECOMMENDED PC BOARD PATTERN



T	Weight(mg)
0.5±0.05	7
0.85±0.15	10



Dimensions in mm

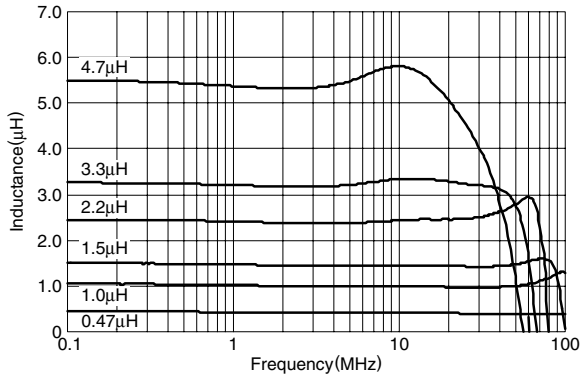
ELECTRICAL CHARACTERISTICS

Classification	Part No.	Inductance (μH)	Inductance tolerance	Test frequency (MHz)	DC resistance (Ω)±30%	Rated current (mA)max.	Thickness (mm)max.
STD	MLP2012SR47MT	0.47	±20%	2	0.09	1200	1
	MLP2012S1R0MT	1.0	±20%	2	0.16	1000	1
	MLP2012S1R5MT	1.5	±20%	2	0.16	1000	1
	MLP2012S2R2MT	2.2	±20%	2	0.23	800	1
	MLP2012S3R3MT	3.3	±20%	2	0.19	900	1
	MLP2012S4R7MT	4.7	±20%	2	0.26	700	1
Low profile	MLP2012SR47TT	0.47	±20%	6	0.13	1200	0.55
	MLP2012SR82TT	0.82	±20%	6	0.13	1200	0.55
	MLP2012S1R0TT	1.0	±20%	2	0.23	800	0.55
	MLP2012S1R5TT	1.5	±20%	2	0.27	700	0.55
	MLP2012S2R2TT	2.2	±20%	2	0.33	600	0.55

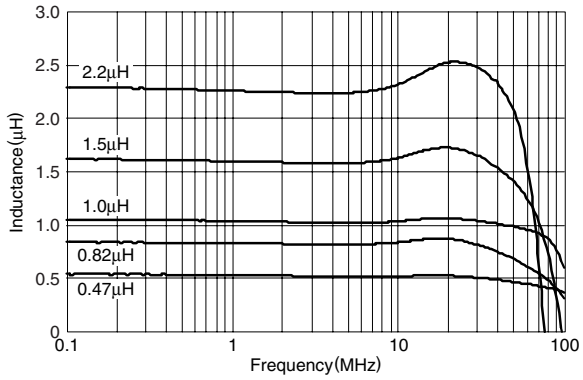
TYPICAL ELECTRICAL CHARACTERISTICS

INDUCTANCE vs. FREQUENCY CHARACTERISTICS

T=1.0mm max.

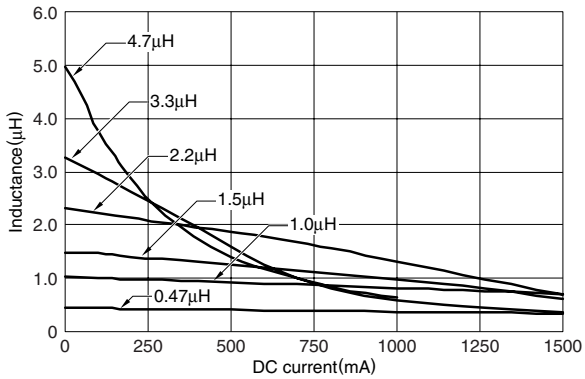


T=0.55mm max.

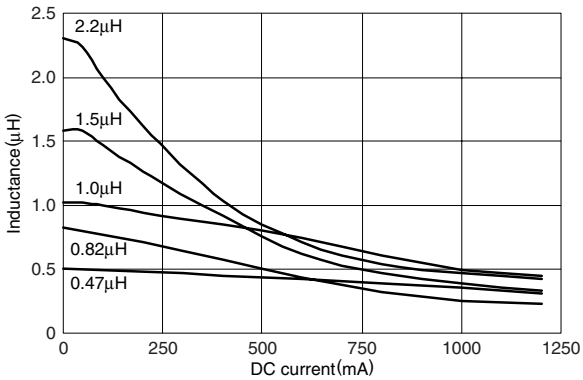


INDUCTANCE CHANGE vs. DC SUPERPOSITION CHARACTERISTICS

T=1.0mm max.



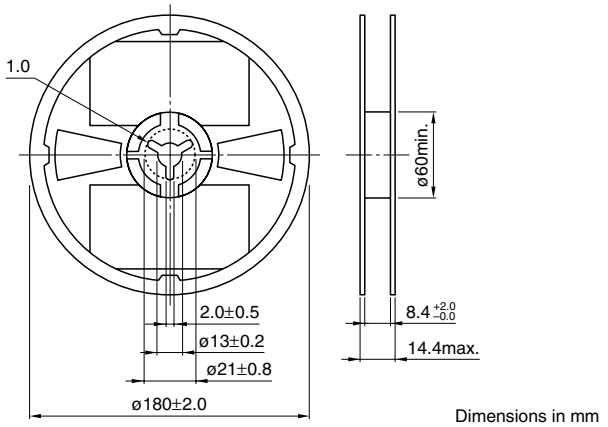
T=0.55mm max.



• All specifications are subject to change without notice.

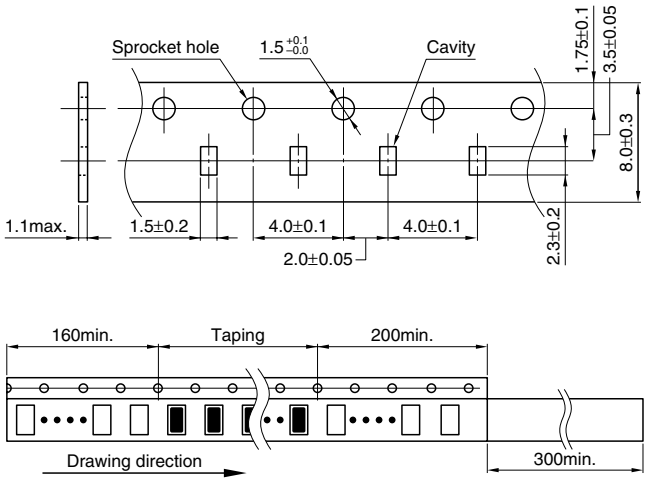
PACKAGING STYLES

REEL DIMENSIONS



Dimensions in mm

TAPE DIMENSIONS



Dimensions in mm

TDK

SMD Inductors(Coils)
For Power Line(Multilayer, Magnetic Shielded)

Conformity to RoHS Directive

MLP Series MLP2016

With its internal structure optimized, the MLP2016 type has achieved DC superimposition characteristics that are comparable to those of the existing MLP2520 type.
In addition, because low-loss materials are used, the core loss of the coil can be minimized within a wide frequency range.
MLP2016's choke coils are therefore best suited to several MHz-drive switching power supplies, the use of which is especially prominent in mobile devices.

FEATURES

- MLP2016 has DC super imposition characteristics that are comparable to that of the existing MLP2520 type.
- Optimized ferrite materials enable the reduction of losses.
- Magnetically shielded configuration allowing for high-density mounting.
- The products contain no lead and also support lead-free soldering.
- It is a product conforming to RoHS directive.

APPLICATIONS

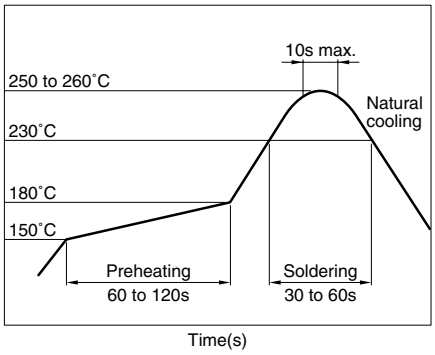
Cellular phones, DSCs, DVCs, HDDs, etc.

SPECIFICATIONS

Operating temperature range	–40 to +125°C [Including self-temperature rise]
Storage temperature range	–40 to +85°C

RECOMMENDED SOLDERING CONDITION

REFLOW SOLDERING



PRODUCT IDENTIFICATION

MLP	2016	S	2R2	M	T
(1)	(2)	(3)	(4)	(5)	(6)

(1) Series name

(2) Dimensions L×W

2016	2.0×1.6mm

(3) Product characteristics classification code

S	STD

(4) Inductance value

2R2	2.2μH

(5) Management number

M	t=0.85mm

(6) Packaging style

T	Taping [reel]

PACKAGING STYLE AND QUANTITIES

Packaging style	Quantity
Taping	3000 pieces/reel

HANDLING AND PRECAUTIONS

- Before soldering, be sure to preheat components. The preheating temperature should be set so that the temperature difference between the solder temperature and product temperature does not exceed 150°C.
- After mounting components onto the printed circuit board, do not apply stress through board bending or mishandling.
- The inductance value may change due to magnetic saturation if the current exceeds the rated maximum.
- Do not expose the inductors to stray magnetic fields.
- Avoid static electricity discharge during handling.
- When hand soldering, apply the soldering iron to the printed circuit board only. Temperature of the iron tip should not exceed 350°C. Soldering time should not exceed 3 seconds.

- Conformity to RoHS Directive: This means that, in conformity with EU Directive 2002/95/EC, lead, cadmium, mercury, hexavalent chromium, and specific bromine-based flame retardants, PBB and PBDE, have not been used, except for exempted applications.
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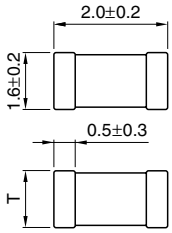
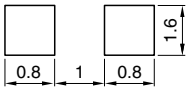
SHAPES AND DIMENSIONS/RECOMMENDED PC BOARD PATTERN



T	Weight(mg)
0.85±0.15	12



Dimensions in mm

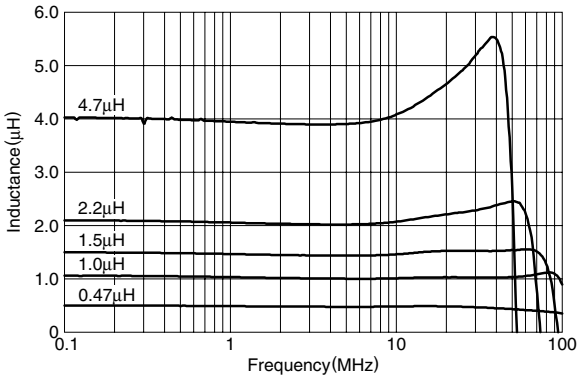
ELECTRICAL CHARACTERISTICS

Classification	Part No.	Inductance (μH)	Inductance tolerance	Test frequency (MHz)	DC resistance (Ω)±30%	Rated current (mA)max.	Thickness (mm)max.
STD	MLP2016SR47MT	0.47	±20%	2	0.05	1600	1
	MLP2016S1R0MT	1.0	±20%	2	0.09	1400	1
	MLP2016S1R5MT	1.5	±20%	2	0.09	1200	1
	MLP2016S2R2MT	2.2	±20%	2	0.11	1200	1
	MLP2016S4R7MT	4.7	±20%	2	0.27	800	1

TYPICAL ELECTRICAL CHARACTERISTICS

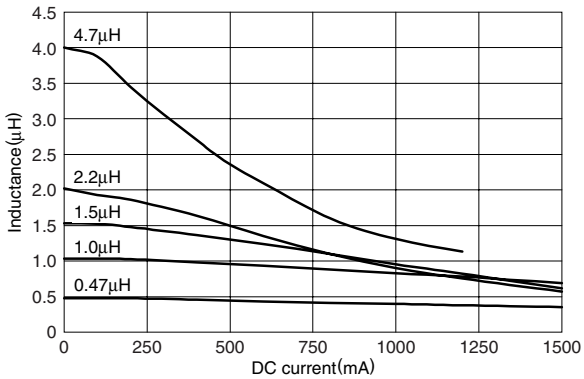
INDUCTANCE vs. FREQUENCY CHARACTERISTICS

T=1.0mm max.



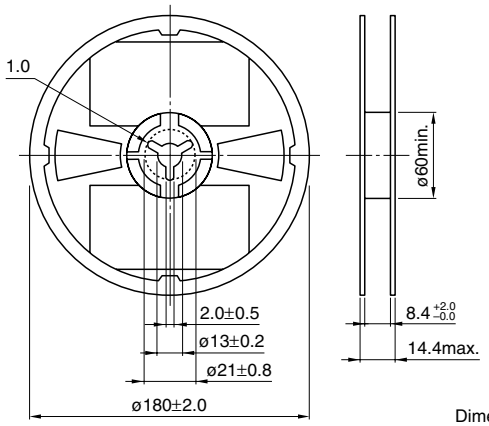
INDUCTANCE CHANGE vs. DC SUPERPOSITION CHARACTERISTICS

T=1.0mm max.



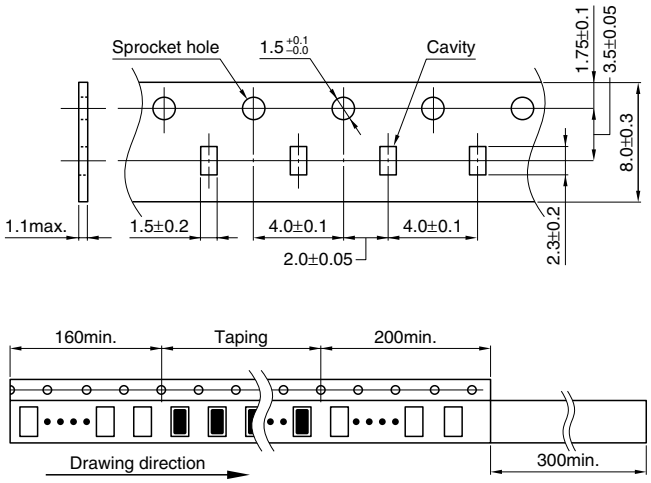
PACKAGING STYLES

REEL DIMENSIONS



Dimensions in mm

TAPE DIMENSIONS



Dimensions in mm

• All specifications are subject to change without notice.

TDK

SMD Inductors(Coils)
For Power Line(Multilayer, Magnetic Shielded)

Conformity to RoHS Directive

MLP Series MLP2520

In response to market demands for smaller mobile devices with a longer lasting life, mounted switching supply circuits with even higher frequencies are now being developed.
With optimized materials the MLP2520 type contributes to the improved efficiency of power sources, and reduces the losses caused by ferrite, even if the products are used for supply circuits with high drive frequencies.

FEATURES

- Optimized ferrite materials enable the reduction of losses.
- Compared to the existing MLP2520 type, DC superposition characteristics have been substantially improved.
- The products contain no lead and also support lead-free soldering.
- It is a product conforming to RoHS directive.

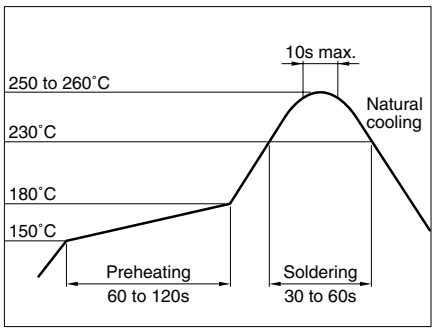
APPLICATIONS

Cellular phones, DSCs, DVCs, HDs, etc.

SPECIFICATIONS

Operating temperature range	–40 to +125°C [Including self-temperature rise]
Storage temperature range	–40 to +85°C

RECOMMENDED SOLDERING CONDITION
REFLOW SOLDERING



PRODUCT IDENTIFICATION

MLP	2520	S	1R0	M	T
(1)	(2)	(3)	(4)	(5)	(6)

(1) Series name

(2) Dimensions L×W

2520	2.5×2.0mm

(3) Product characteristics classification code

S	STD

(4) Inductance value

1R0	1.0μH
1R5	1.5μH
2R2	2.2μH
3R3	3.3μH
4R7	4.7μH

• S1R0S: 1.2μH, S2R2S: 2.5μH

(5) Management number

M	t=1.0mm max.
S	t=1.2mm max.

(6) Packaging style

T	Taping [reel]

PACKAGING STYLE AND QUANTITIES

Packaging style	Thickness T(mm)	Quantity
Taping	1.0mm max.	3000 pieces/reel
	1.2mm max.	3000 pieces/reel

HANDLING AND PRECAUTIONS

- Before soldering, be sure to preheat components. The preheating temperature should be set so that the temperature difference between the solder temperature and product temperature does not exceed 150°C.
- After mounting components onto the printed circuit board, do not apply stress through board bending or mishandling.
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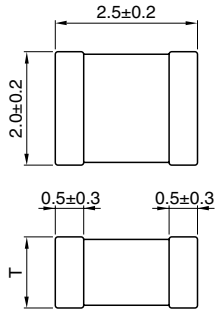
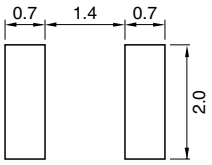
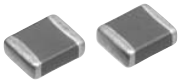
SHAPES AND DIMENSIONS/RECOMMENDED PC BOARD PATTERN





Dimensions in mm

T(Thickness)	Weight(mg)
1.0max.	15
1.2max.	25



ELECTRICAL CHARACTERISTICS

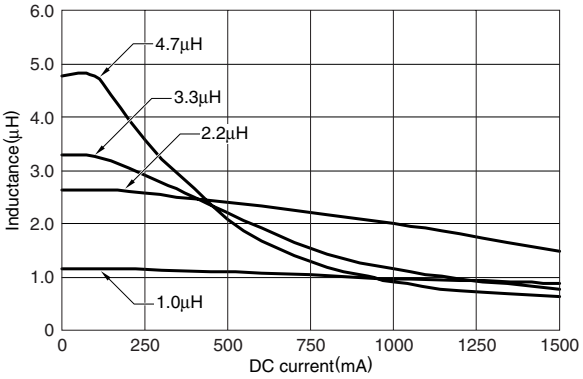
Type	Part No.	Inductance (μH)	Inductance tolerance	Test frequency (MHz)	DC resistance (Ω)±30%	Rated current (mA)	Thickness (mm)max.
General	MLP2520S1R0M	1.0	±20%	2	0.085	1500	1.0
	MLP2520S1R5M	1.5	±20%	2	0.09	1200	1.0
	MLP2520S2R2M	2.2	±20%	2	0.09	1200	1.0
	MLP2520S3R3M	3.3	±20%	2	0.13	1000	1.0
	MLP2520S4R7M	4.7	±20%	2	0.13	1000	1.0
	MLP2520S1R0S	1.2	±20%	2	0.08	1500	1.2
	MLP2520S2R2S	2.5	±20%	2	0.11	1200	1.2
	MLP2520S3R3S	3.3	±20%	2	0.11	1000	1.2
	MLP2520S4R7S	4.7	±20%	2	0.11	1000	1.2

TYPICAL ELECTRICAL CHARACTERISTICS

INDUCTANCE CHANGE vs. DC SUPERPOSITION CHARACTERISTICS

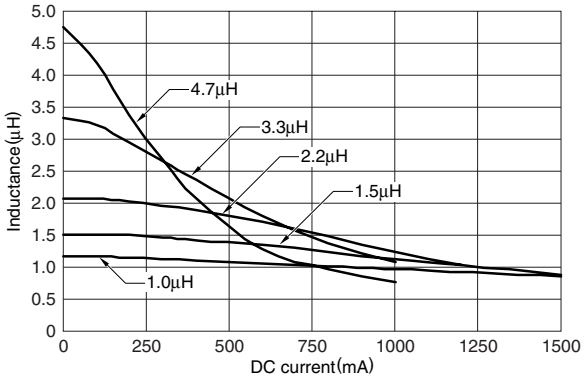
T=1.2mm max.

MLP2520S-S series



T=1.0mm max.

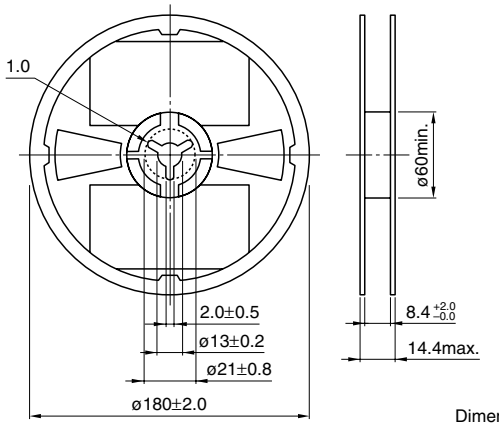
MLP2520S-M series



• All specifications are subject to change without notice.

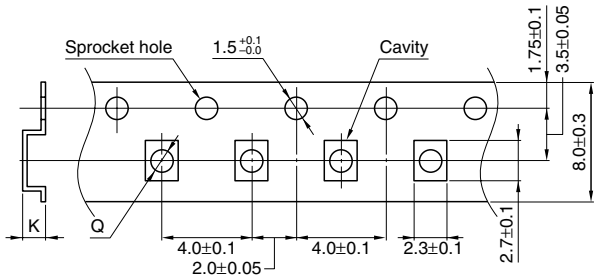
PACKAGING STYLES

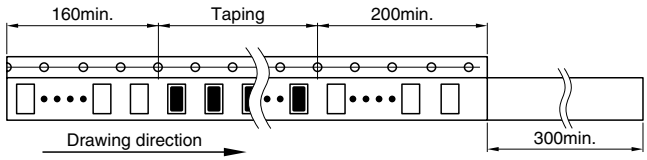
REEL DIMENSIONS



Dimensions in mm

TAPE DIMENSIONS





Dimensions in mm

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