TMPE0402LBD-Series-T Specification

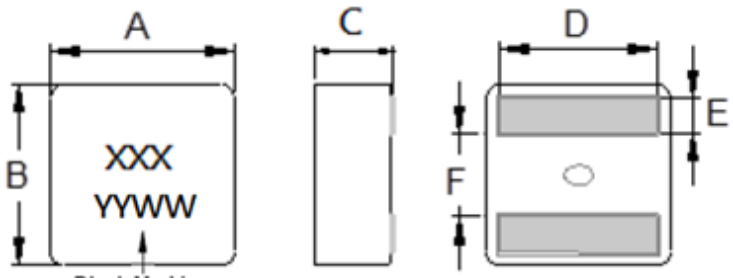
SMD Power Inductor

耕興股份有限公司
SPORTON INTERNATIONAL INC.

APPLICATION

Tablet terminals, HDDs, SSDs, DVCs, DSCs, mobile display panels, portable game devices, Telecommunications, Consumer electronics, Compact power supply modules, other

1. Shapes and Dimensions



Unit: mm

Type	A	B	C	D	E	F
TMPE0402LBD	4.4±0.2	4.4±0.20	1.9±0.20	3.4±0.30	0.88±0.2	1.6±0.25

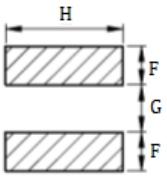
2. Ordering / Part Number Information

TMPE	0402	LBD	-	1R0	M	-	T
(1)	(2)	(3)		(4)	(5)		(6)

(1) Product Group
(2) Dimension Code
(3) Type Code
(4) Inductance Code
(5) Inductance Tolerance
(6) Control Code

3. Recommended Soldering Condition

3-1. Recommended Land Pattern

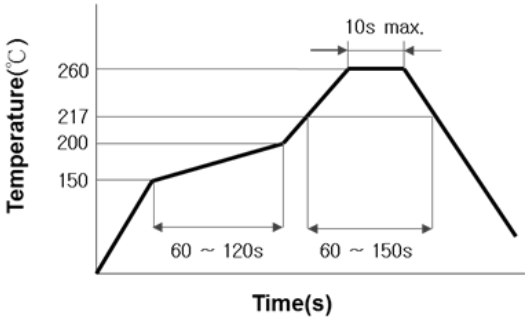


Unit : mm

Symbol	Dimension
F	1.00 Ref.
G	1.40 Ref.
H	3.80 Ref.

The Recommended Land pattern is for reference only.
Please consult your manufacturing partners to ensure your company's PCB design guidelines are met

3-2. Recommended Soldering Profile



Reflow times:2 times max.

4. Electrical Characteristics

4-1. Electrical Specification

Part Number	Inductance (L) @100KHz, 0.1V	DC Resistance (R_{DC}) Max.	Saturation Current (I_{SAT}) Max. / Typ.	Temperature Rise Current (I_{RMS}) Typ.	
				@20℃	@40℃
TMPE0402LBD-R47M-T	0.47μH±20%	6.80mΩ	12.5A / 14.0A	9.8A	13.2A
TMPE0402LBD-R56M-T	0.56μH±20%	7.80mΩ	11.3A / 13.0A	9.5A	12.6A
TMPE0402LBD-R60M-T	0.60μH±20%	7.80mΩ	11.1A / 12.8A	9.4A	12.4A
TMPE0402LBD-R68M-T	0.68μH±20%	8.20mΩ	10.0A / 11.6A	9.2A	12.0A
TMPE0402LBD-R82M-T	0.82μH±20%	9.50mΩ	9.0A / 10.2A	8.5A	11.5A
TMPE0402LBD-1R0M-T	1.00μH±20%	11.7mΩ	8.0A / 9.2A	8.0A	11.0A
TMPE0402LBD-1R2M-T	1.20μH±20%	13.4mΩ	7.5A / 8.6A	7.2A	9.5A
TMPE0402LBD-1R5M-T	1.50μH±20%	15.8mΩ	6.7A / 7.5A	6.7A	9.1A
TMPE0402LBD-2R0M-T	2.00μH±20%	23.3mΩ	5.0A / 6.2A	6.2A	8.2A
TMPE0402LBD-2R2M-T	2.20μH±20%	23.5mΩ	4.8A / 6.0A	6.0A	8.0A
TMPE0402LBD-3R3M-T	3.30μH±20%	38.3mΩ	4.4A / 5.3A	4.4A	5.5A

Note1: The saturation current is DC current value Inductance decrease down to 30%.
(Test by a short period of time to minimize the self-heating effect of the component.)
Note2: The part temperature (ambient + temp rise) should not exceed 125℃ under worst case operating conditions. Circuit design, component, PCB trace size and thickness, airflow and other cooling provisions all affect the part temperature. Part temperature should be verified in the end application.
Note3:Irms Testing：Temperature rise is highly dependent on many factors including PCB land pattern, trace size, and proximity to other components. Therefore temperature rise should be verified in application conditions.
Note4: Rated operating voltage (across inductor) 15V ref.

4-2. Operating Temperature Range

-40℃ to +85℃(Including self - temperature rise)

4-3. Storage Temperature Range

Store this product under the condition of 5℃ to 40℃, 20% to 70%RH and use within 6 months

5. Packaging Information

Standard Quantity for Packaging:3,000pcs/Reel

Note

1. Please make sure that your product is has been evaluated and confirmed against your specifications when our product is mounted to your product.
2. Do not knock nor drop.
3. All the items and parameters in this product specification have been prescribed on the premise that our product is used for the purpose, under the condition and in the environment agreed upon between you and us. You are requested not to use our product deviating from such agreement.
4. Please keep the distance between transformer/coil and other components (refer to the standard IEC 950)

5. Limitation of Applications

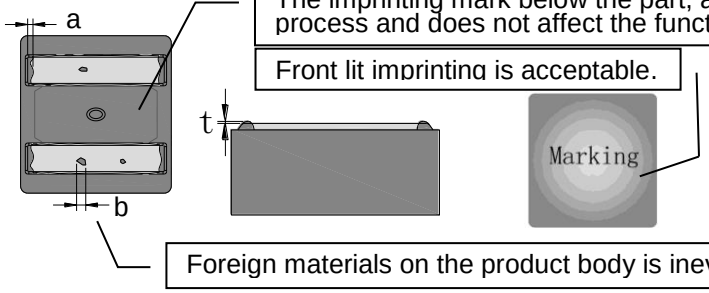
Please contact us before using our products for the applications listed below which require especially high reliability for the prevention of defects, which might directly cause damage to the third party's life, body or property.

Aircraft equipment, Aerospace equipment, Undersea equipment, Medical equipment, Disaster prevention / crime prevention equipment, Traffic signal equipment, Transportation equipment (vehicles, trains, ships, etc.)

Applications of similar complexity and /or reliability requirements to the applications listed in the above.

6. PAD residual powder、imprinting

The residual powder on both side of pad is norm and within following criteria are acceptable.



The imprinting mark below the part, are norm in manufacturing process and does not affect the function and it is acceptable.

Front lit imprinting is acceptable.

a	10% max of the length of pad.
b	5% of the area on one single pad.
t	0.08mm max.

Foreign materials on the product body is inevitable and accepted.

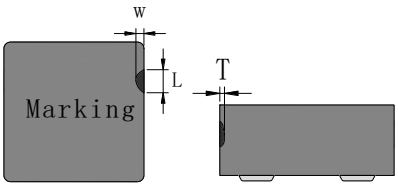
7. Defects

Chip off is generated during molding and manufacturing process.

Chip off acceptance limits subjected to the product size.

Our current Defect limit is based on the IPC-A-610.

Some chip off does not impact the product function, see the IPC standard 1 & 2.



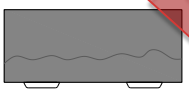
T	25 % of the thickness
W	25 % of the width
L	50 % of the length

Defects usually occur at the corners and edges of the product, There will be a slight defect black and rough, but not exposed copper, and does not affect the product performance and reliability.

8. Crack

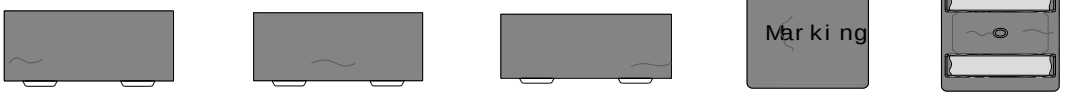
Production process of cracks appearing in the body is inevitable, some slight crack is caused because the molding, is not oxidized, crack on the product will not affect product performance.

We have done a reliability test of crack products, even if cracks is more than 0.13mm also will not affect the electrical properties of the product, crack limits as follows.



Severely crack: not acceptable.
More obvious cracks extended from side to side.

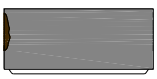
Moderate crack: not acceptable.
Very obvious and may result in powder come off and exposed of copper wire.



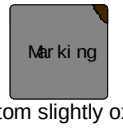
Slight crack: acceptable. Products from a slight crack in the baking process due to thermal expansion, and it is not obvious by visual inspection.

9. oxidation(rust)

the contains iron composite, although the resin has a protective effect of oxidation, but there will be small amount of product that may occur oxidation.it is recommend that customer use this product in humidity controlled environment. The basic steps should be to protect the surface oxidation, including the sealed packages to PCB mount inductors. To avoid the adverse effects caused by oxidation, Oxidation occurs at the surface only allows the internal oxidation is not allowed, oxidized surface will not affect the reliability of the product.



4sides slightly oxidized side:
Accetable



Top and bottom slightly oxidized side:
Acceptable

Ps: Spray printing effect :
can be accepted if recognizable