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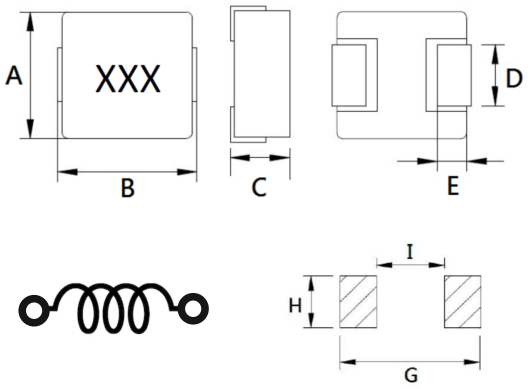
# DATASHEET - MTSMPI05030 SERIES

## FEATURES

- SMD Power Inductor
- High efficiency
- Perfect for high current application
- Soldering Profile: Reflow
- Low loss realized with low Rdc
- Low core losses
- Operating temperature: –55 °C to +125 °C
- Measurement frequency: 100KHz, 1V
- Measurement Ambient temperature : 25 °C
- Isat: DC current at which the inductance drops 30%(typ) from its value without current
- Irms: Average current for 40 °C temperature rise from 25 °C ambient(typical)
- Inductance tolerance: ±20%
- Packaging: Taping ; Quantity: 2000 Piece/reel

## MECHANICAL DIMENSIONS




A=5.40 mm
B=5.70 mm
C=3.00 mm
D=2.20 ± 0.3 mm
E=1.20 mm
G=6.0 mm
H=2.20 mm
I=2.50 mm

## APPLICATIONS

- Power Supplies (SMPS)
- High frequency charger
- High density DC-DC converter
- Battery Powered Equipments
- SEPIC Converters

## PRODUCT IMAGE

*Displayed Image only for reference


## ELECTRICAL CHARACTERISTICS

| Part Number | Inductance (uH) | Tol. | RDC (mΩ) Typ. | RDC (mΩ) max. | Isat (A) | Irms (A) |
|---|---|---|---|---|---|---|
| MTSMPI05030R47 | 0.47 | ±20% | 7.4 | 8.5 | 12 | 11 |
| MTSMPI05030R68 | 0.68 | ±20% | 11 | 12 | 11.5 | 9 |
| MTSMPI050301R0 | 1 | ±20% | 13 | 14 | 11 | 8.5 |
| MTSMPI050301R5 | 1.5 | ±20% | 20 | 25 | 8.5 | 8.2 |
| MTSMPI050302R2 | 2.2 | ±20% | 25 | 29 | 7.5 | 7 |
| MTSMPI050303R3 | 3.3 | ±20% | 32 | 38 | 6 | 5.5 |
| MTSMPI050304R7 | 4.7 | ±20% | 50 | 60 | 5 | 4.5 |
| MTSMPI050306R8 | 6.8 | ±20% | 75 | 90 | 4 | 3.5 |
| MTSMPI05030100 | 10 | ±20% | 110 | 125 | 3.5 | 3.2 |

TEST EQUIPMENT: CH1062A / CH1320

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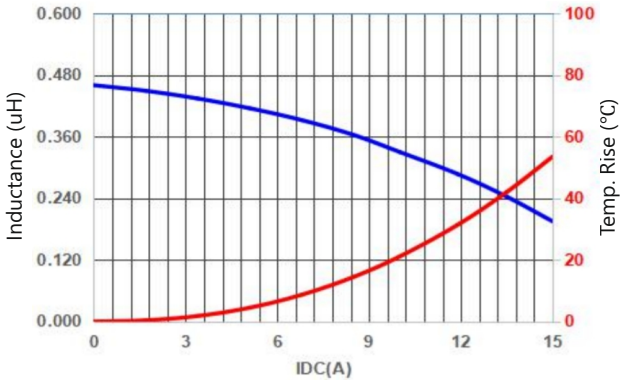
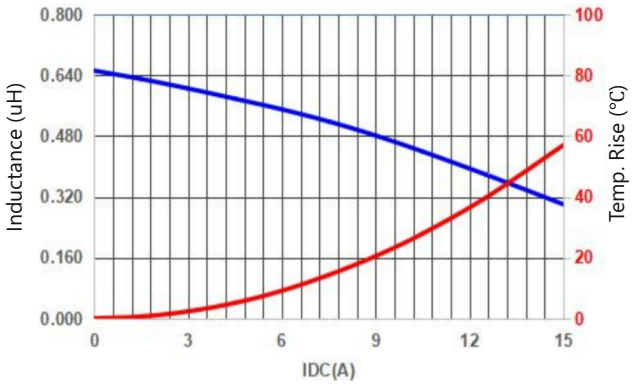
## TYPICAL ELECTRICAL CURVE: INDUCTANCE Vs Isat & Irms Vs TEMPERATURE

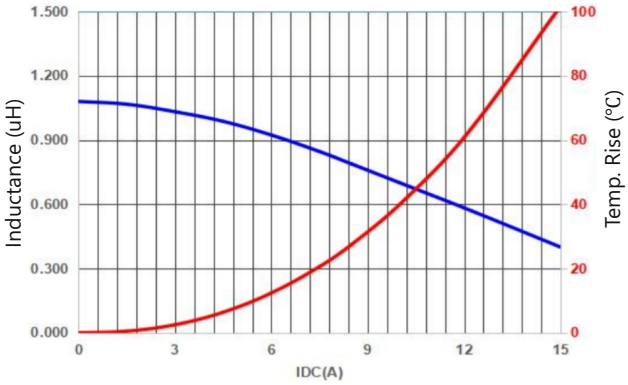
### MTSMPI05030R47



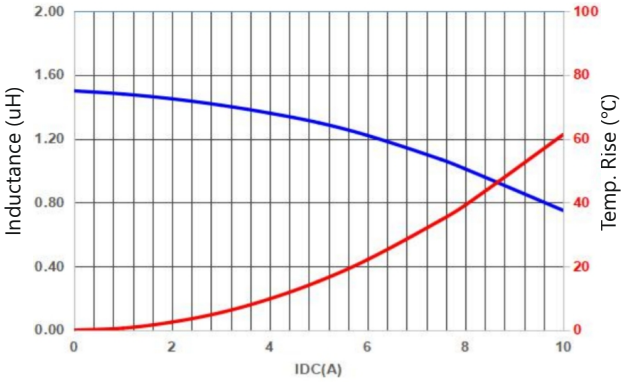

### MTSMPI05030R68



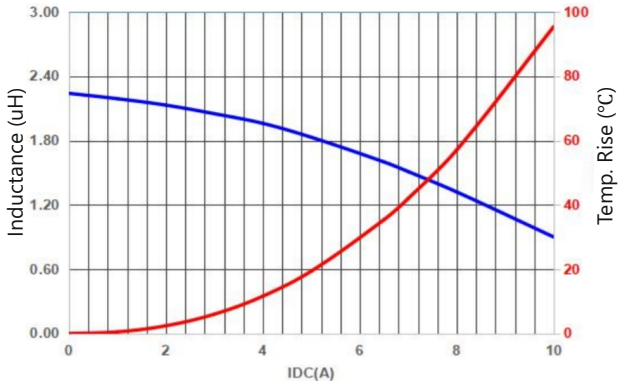

### MTSMPI050301R0



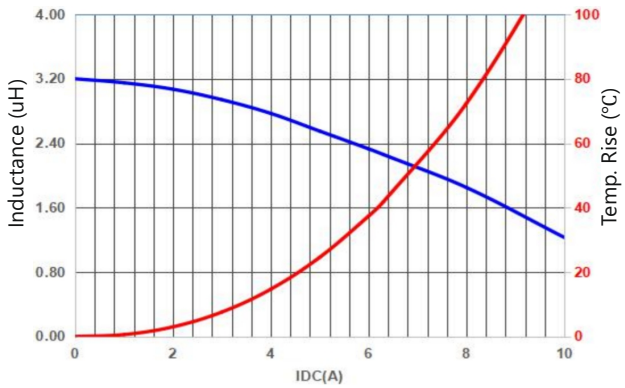

### MTSMPI050301R5




### MTSMPI050302R2




### MTSMPI050303R3



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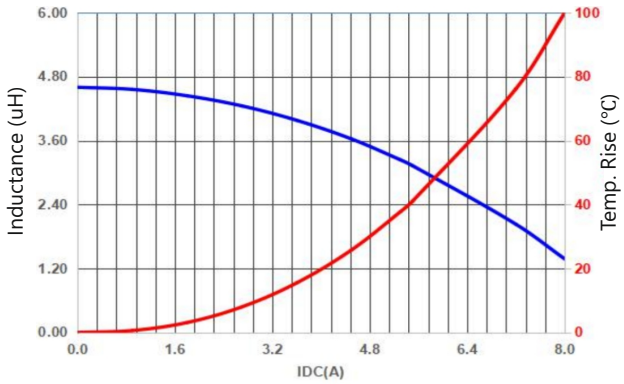
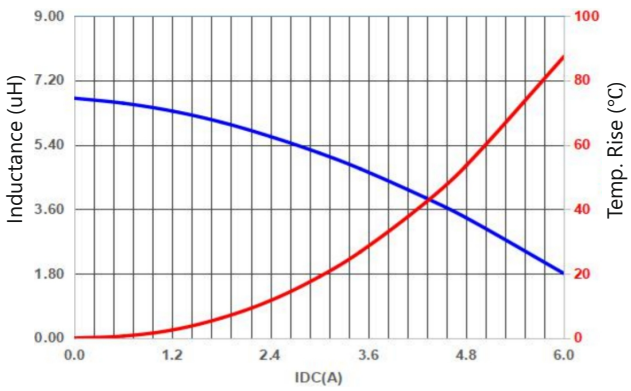
# DATASHEET - MTSMPI05030 SERIES

## TYPICAL ELECTRICAL CURVE: INDUCTANCE Vs Isat & Irms Vs TEMPERATURE

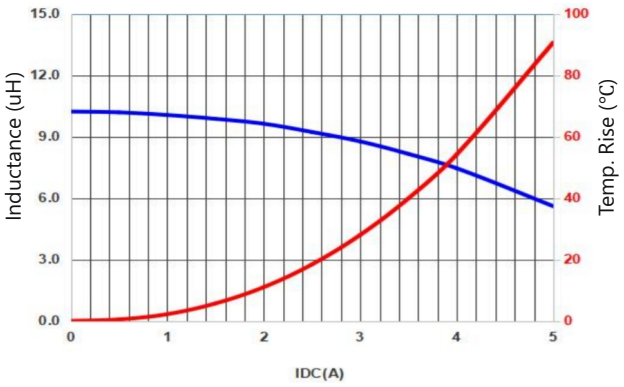
**MTSMPI050304R7**




**MTSMPI050306R8**




**MTSMPI05030100**




## RELIABILITY TEST

1. Operating temperature range: -55 ℃ ~ +125 ℃ (Includes temperature when the coil is heated)
2. External appearance: On visual inspection, the coil has no external defects.
3. Terminal strength: After soldering. Between copper plate and terminals of coil.
Push in two directions of X.Y withstanding at below conditions. Terminal should not peel off. (refer to figure at right)
4. Insulating resistance: Over 100MΩ at 100V D.C. between coil and core.
5. Dielectric strength: No dielectric breakdown at 100V D.C. for 1 minute between coil and core.
6. Temperature characteristics:
   Inductance coefficient (0~2,000)x10-6/℃(-25~+80℃)
   Inductance deviation within±5.0%, after 96 hours

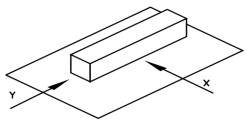


Figure 1

7. Humidity characteristics(Moisture Resistance): Inductance deviation within ±5%, after 96 hours in 90~95% relative humidity at 40 ±2℃ and 1 hour drying under normal condition.
8. Vibration resistance: Inductance deviation within ±5%, after vibration for 1 hour. In each of three orientations at sweep vibration (10~55~10 Hz) with 1.5mm P-P amplitudes.
9. Shock resistance: Inductance deviation within ±5%, after being dropped once with 981m/s2 (100G) shock attitude upon a rubber block method shock testing machine, in three different orientations.
10. Resistance to Soldering Heat: 260℃, 10 seconds(See attached recommend reflow)
11. Storage environment Storage condition: Temperature Range: 0℃ ~ 35℃ ； -55℃ ~ 125℃ (after PCB) Humidity Range: 50% ~ 70% RH Use components within 12 months. If 12 months or more have elapsed, check solderability before use.

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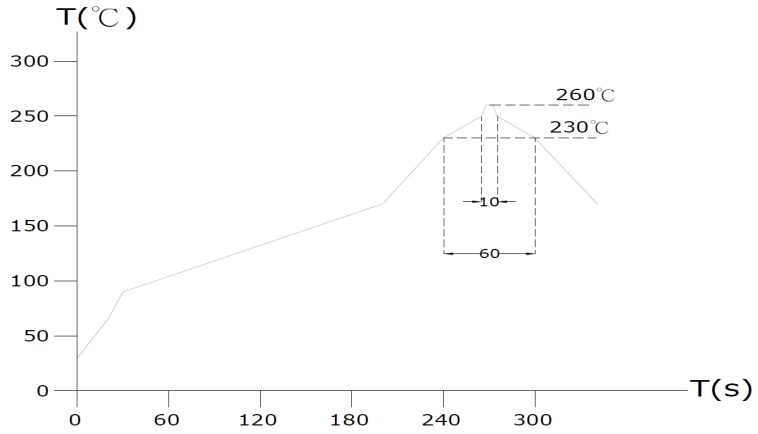
## GENERAL CHARACTERISTICS

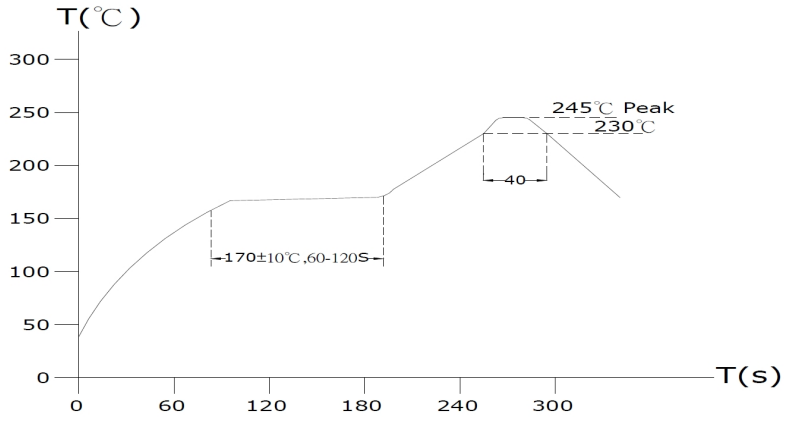
### LEAD-FREE HEAT ENDURANCE TEST

The test should be made under the conditions according to the chart, after the test it is kept for 2hours under the normal temperature and humidity. Then, no mechanical and electrical defect should be found out.
The reflow test can be done twice,but the interval should be more than one hour under the normal conditions.
The reflow test conditions are based on the testing instruments available in our company.




### LEAD-FREE THE RECOMMENDED REFLOW CONDITION

The reflow condition recommended above is according to the machine used by our company. Big differences will arise as a result of the type of machine ,reflow conditions, method, etc used. Hence, before setting up your reflow conditions, please confirm with the above.




NOTE:
This land pattern is for reference purposes only. Consult your manufacturing group to ensure your company's manufacturing guidelines are met.