



### FEATURES



- Magnetic shielded structure
- Low DCR and high efficiency
- Low profile and small size
- High reliability
- AEC-Q200 qualified

### APPLICATIONS

- DC-DC converters and power suppliers
- LCD TV's, Blu-ray and gaming consoles
- Tablets, notebooks, servers and printers
- Smart phones, GPS, set top box and base stations
- LED lighting
- Automotive

### ELECTRICAL SPECIFICATIONS

| PART NO.       | INDUCTANCE<br>( $\mu$ H) | R <sub>dc</sub><br>( $\Omega$ ) $\pm 30\%$ | SATURATION<br>CURRENT <sup>5</sup><br>(A) | RMS<br>CURRENT <sup>4</sup><br>(A) | SRF<br>MHZ (REF) |
|----------------|--------------------------|--------------------------------------------|-------------------------------------------|------------------------------------|------------------|
| TYS50201R0N-10 | 1                        | 0.020                                      | 4.10                                      | 3.80                               | 114              |
| TYS50201R5N-10 | 1.5                      | 0.026                                      | 4.10                                      | 3.20                               | 68               |
| TYS50202R2N-10 | 2.2                      | 0.032                                      | 3.20                                      | 2.90                               | 57               |
| TYS50203R3N-10 | 3.3                      | 0.043                                      | 2.55                                      | 2.50                               | 46               |
| TYS50203R6N-10 | 3.6                      | 0.043                                      | 2.80                                      | 2.50                               | 43               |
| TYS50204R7M-10 | 4.7                      | 0.057                                      | 2.50                                      | 2.20                               | 37               |
| TYS50206R8M-10 | 6.8                      | 0.083                                      | 2.05                                      | 1.80                               | 30               |
| TYS5020100M-10 | 10                       | 0.110                                      | 1.70                                      | 1.55                               | 24               |
| TYS5020150M-10 | 15                       | 0.165                                      | 1.35                                      | 1.25                               | 20               |
| TYS5020220M-10 | 22                       | 0.226                                      | 1.15                                      | 1.10                               | 14               |

1 Electrical specifications at 20°C.

2 Tolerance: M:  $\pm 20\%$ , N:  $\pm 30\%$

3 Inductance tested at 100 KHz, 1V

4 RMS Current is defined based on temperature rise up to or less than 40°C from 20°C ambient.

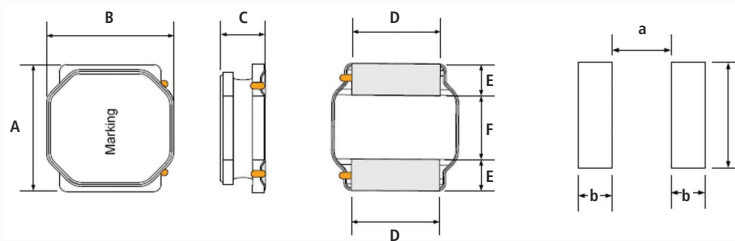
5 Saturation Current is the DC current at which the inductance drops approximate 30% from its value without current.

6 Operate temperature range: -40°C ~ +125°C (including self-temperature rise)

7 Storage temperature range (packaging conditions): -10°C ~ +40°C and RH 70%(MAX.)

### SHAPES AND DIMENSIONS

Unit: mm

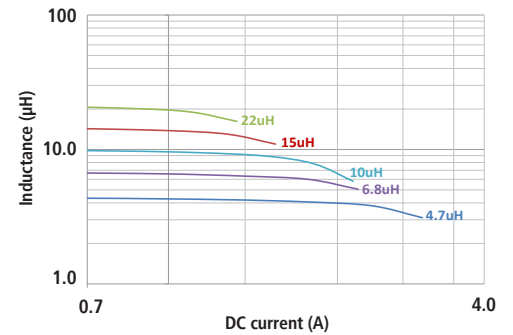
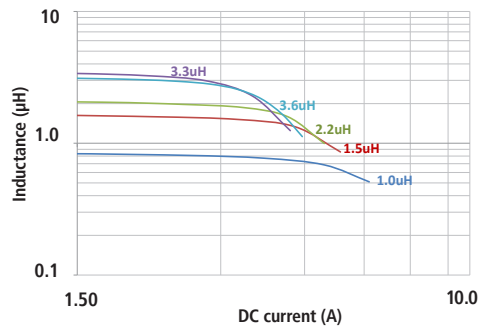


| A             | B             | C Max. | D             | E              | F             | a Typ. | b Typ. | c Typ. |
|---------------|---------------|--------|---------------|----------------|---------------|--------|--------|--------|
| 5.0 $\pm$ 0.2 | 5.0 $\pm$ 0.2 | 2.0    | 4.0 $\pm$ 0.2 | 1.25 $\pm$ 0.2 | 2.5 $\pm$ 0.2 | 2.3    | 1.4    | 4.2    |

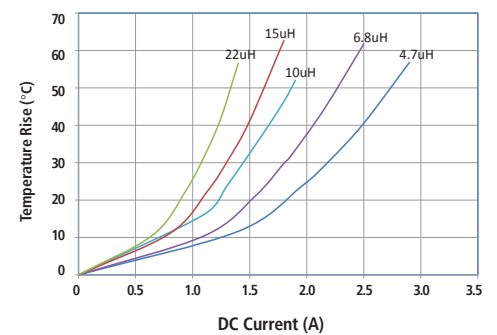
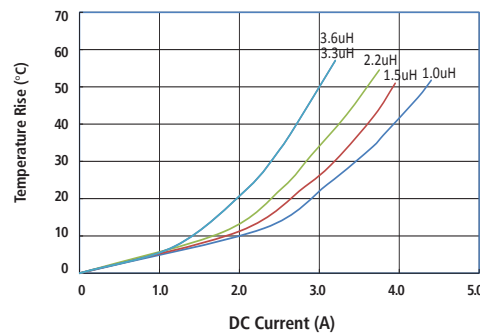
USA: +1.866.928.8181  
Europe: +49.0.8031.2460.0  
Asia: +86.755.2714.1166

### TYPICAL ELECTRICAL CHARACTERISTICS

Typical L vs Current



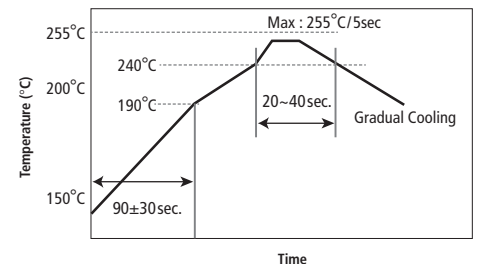
Characters of Temperature Rise



### PACKAGING INFORMATION

- Standard Tape and Reel Quantity (PCS) = 2500
- Reel Size = 13 inches

Temperature Profile of Reflow Soldering



### ORDERING INFORMATION

#### PART NUMBER EXAMPLE

|                     |   |   |                |   |   |                                            |   |   |                                        |   |                                    |   |   |
|---------------------|---|---|----------------|---|---|--------------------------------------------|---|---|----------------------------------------|---|------------------------------------|---|---|
| T                   | Y | S | 5              | 0 | 2 | 0                                          | 4 | R | 7                                      | M | -                                  | 1 | 0 |
| Product series code |   |   | Part size code |   |   | Inductance value code<br>(i.e. 4R7: 4.7μH) |   |   | Tolerance %<br>(i.e. M: ±20% ; N:±30%) |   | PB free code<br>(i.e. 10: PB free) |   |   |

SIP-DS-TYS 5020 0413

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