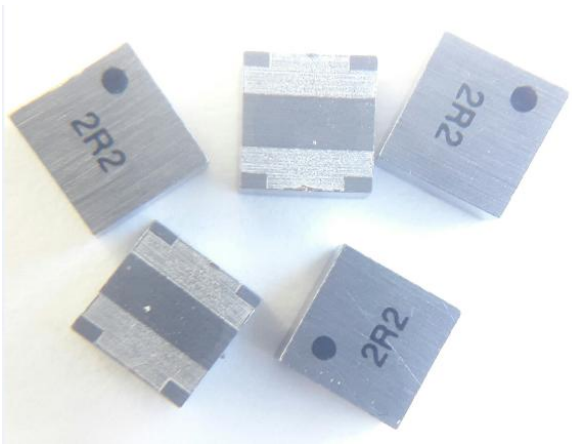
# SPECIFICATION SHEET

## SSMC – 404020 – S(Single) series

- **404020 series**




All specifications are subject to our final confirmation;
the data can be changed without any notice.
*(Please confirm your acceptance or not within 2 weeks;*
*If we receive no confirmation from you,*
*then we regard it as you accept our specifications)*

## ■ FEATURES

- Magnetic metal powder choke coil.
- **4040 Series -** 4.0 X 4.0mm square and 2.1mm(max) height for 404020 series.
- Large current, Low DC Resistance, High efficiency.
- Low acoustic noise and low leakage flux noise by shielded construction.
- Apply to DC/DC converter of notebook computer, iPad, wireless communication devices.
- Halogen Free, 100% Lead(Pb) Free, REACH(SVHC) and RoHS compliant.

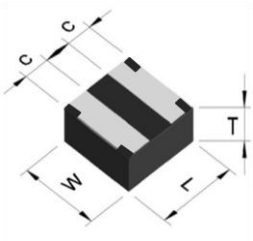
## ■ ORDERING CODE

SSMC - □□□□□□ - □□□ - □ □

(1) (2) (3) (4) (5)

(1) SST Type Code

(2) Dimensions




**404020 series** mm [inches]

| Type | L | W | T (max.) | C |
|---|---|---|---|---|
| SSMC-404020-□□□-S | 4.1 ± 0.2 [0.161 ±0.008] | 4.1 ± 0.2 [0.161 ±0.008] | 2.1 [0.083] | 1.25±0.2 [0.049 ± 0.008] |

P/S: please see the recommended land pattern design on page 7 for more information.

(3) Inductance

The unit in μH represented with 3 digits.

① First two digits: Indicate the rated inductance

② Last digits : For the number of zeros following the first two digits

③ Letter "R" represents the decimal point

Ex.) R33 : 0.33 μH

1R0 : 1.0 μH

100 : 10.0 μH

(4) Type

S : Single Type

A : 2 Array Type

(5) Material Code

## ■ SPECIFICATION

● SSMC-404020-SC Series. Measuring Equipments : (Agilent) LCR meter 4285A + (ADEX) AX-162D.

| Parts No. | Inductance *1 | | DCR (mΩ) *2 | | DC superimposition current (A) *3 | Temperature Rise current (A) *4 |
|---|---|---|---|---|---|---|
| | μH | Tolerance | typ. | max. | | |
| SSMC-404020-R33-SC | 0.33 | ± 30% | 6.5 | 9.0 | 12.4 | 9.6 |
| SSMC-404020-R56-SC | 0.56 | | 7.5 | 10.0 | 10.8 | 8.5 |
| SSMC-404020-R68-SC | 0.68 | | 8.0 | 11.0 | 9.4 | 8.2 |
| SSMC-404020-1R0-SC | 1.0 | | 13.0 | 17.0 | 9.0 | 7.2 |
| SSMC-404020-1R2-SC | 1.2 | ± 20% | 15.0 | 19.0 | 9.0 | 5.8 |
| SSMC-404020-1R5-SC | 1.5 | | 16.0 | 21.0 | 7.8 | 5.8 |
| SSMC-404020-1R8-SC | 1.8 | | 24.5 | 30.0 | 6.5 | 4.6 |
| SSMC-404020-2R2-SC | 2.2 | | 29.0 | 35.0 | 6.2 | 4.7 |
| SSMC-404020-3R3-SC | 3.3 | | 39.9 | 48.0 | 5.5 | 3.6 |
| SSMC-404020-4R7-SC | 4.7 | | 63.0 | 76.0 | 4.7 | 2.9 |
| SSMC-404020-5R6-SC | 5.6 | | 68.0 | 81.0 | 4.6 | 2.8 |

*1 Inductance is measured at 100 KHz, 1V.

*2 DC Resistance is measured at ambient temperature (Ta=25℃).

*3 DC Current based upon **20% inductance reduction** from the initial value (typ.) (Ta=25℃).

*4 DC Current based upon **40℃ temperature rise on a big PCB (120x30x1.55mm, FR4 with Cu traces 35 ㎛)**

*5 Operating temperature is -40℃ ~ 125℃ (includes coil heating).

## ■ RELIABILITY AND TEST CONDITION

| | Item | Requirements | Test Conditions |
|---|---|---|---|
| Ratings | Operating temp. range | -40 ~ +125℃ | * Including self temperature. |
| | Storage temp. range | +5 ~ +40℃. , 70% RH max. | * at packing condition. |
| Endurance characteristics | Solderability (Reflow) | 1. Appearance shall be without distinct damage.<br>2. Inductance & DC Resistance shall be Within± 15% of the initial value. | * Soldering conditions refer to page 7 profile.<br>* 5 times of recommended reflow temperature profile. |
| | Resistance to solder heat | 1. More than 95% of the terminal electrode shall be covered with new solder. | * Preheat Temperature : 160 ± 10 ℃<br>* Preheat Time : 90 sec.<br>* Solder Temperature : 245 ± 5 ℃<br>* Dipping Time : 3 ± 0.5 Sec. |
| Mechanical characteristics | Shear strength | 1. No peeling off PCB.<br>2. No abnormality in electrical characteristics | * The samples shall be gradually Pressurized by pressure fixture (tip dimension : 0.5) and held in static load of 10N (App. 1.0 kgf) for 10±1 sec. |
| | Bending strength | 1. No apparent mechanical damage affecting Electrical characteristics.. | * Product is mounted on PCB.<br>* Thereafter R340 pressure fixture is used to apply pressure backside of the board at a rate of approx.<br>* 1mm/ sec. until bending width becomes 3mm and keep it for 5 sec. |
| Environmental Test | Vibration | 1. Appearance shall be without distinct damage.<br>2. Inductance & DC Resistance shall be Within± 15% of the initial value. | * Frequency : 10-55-10Hz<br>* Amplitude : 1.52mm<br>* Direction and time : X,Y and Z directions for 2 hours. |
| | Heat resistance (High Temp. load) | | * Temperature :+120 ±3℃<br>* Time : 1,000 hours<br>* Measured at room ambient temperature after placing for 24 hours |

## ■ RELIABILITY AND TEST CONDITION

| | ITEM | REQUIREMENTS | TEST CONDITIONS |
|---|---|---|---|
| Environmental Test | Heat resistance (Low Temp. load) | 1. Appearance shall be without distinct damage.<br>2. Inductance & DC Resistance shall be Within ± 15% of the initial value. | * Temperature : -40 ± 3 ℃<br>* Time : 1,000 hours<br>* Measured at room ambient temperature after placing for 24 hours |
| | Humidity resistance | | * Temperature : 85 ± 3 ℃<br>* Humidity : 85 ± 5 % RH<br>* Time : 1,000 hours<br>* Measured at room ambient temperature after placing for 24 hours |

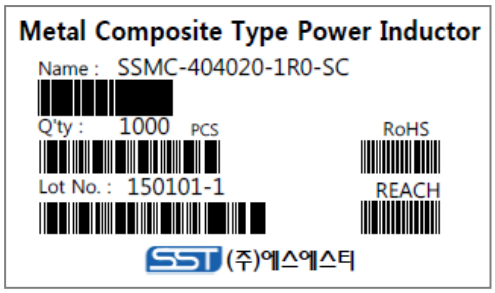
※ Measurement should be conducted at Temperature 20 ± 15 ℃. (Environmental Test)

## ■ PACKING

(1) Label (reel / inner & carton box)

1) Model name (Item)
2) Part Name.(Part No.)
3) Quantity.
4) Lot No.
5) RoHS& REACH Mark.
6) Manufacturer.

(Sample)



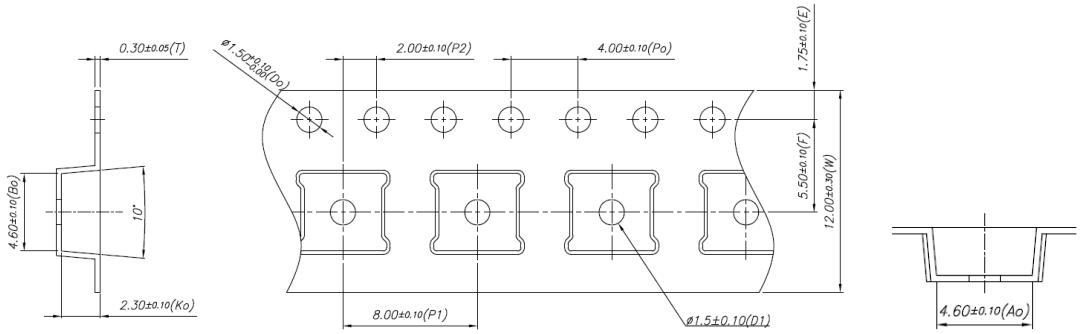

(2) Standard quantity for packing. Pcs

| Packing Type (EIA) | Tape & reel | | | Bulk |
|---|---|---|---|---|
| | Reel | Inner box | Carton box | Vinyl or Cassette |
| SSMC- 404020 Series | 1,000 | 6,000 | 24,000 | As per requested |

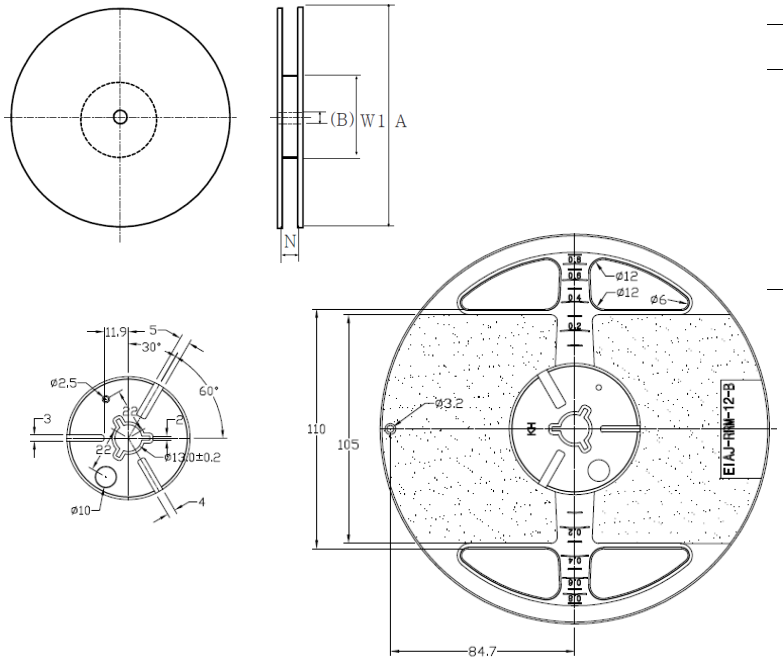
* Packing method can be changed, based on user's request.
* ESD Packing available for class "D" (Electrostatic Dissipative, for ≥$10^6$ ohm and ≤$10^{11}$ ohm) upon request.

## ■ TAPE DIMENSION / Embossing, 12mm, BLACK

(SSMC- 404020 Series)



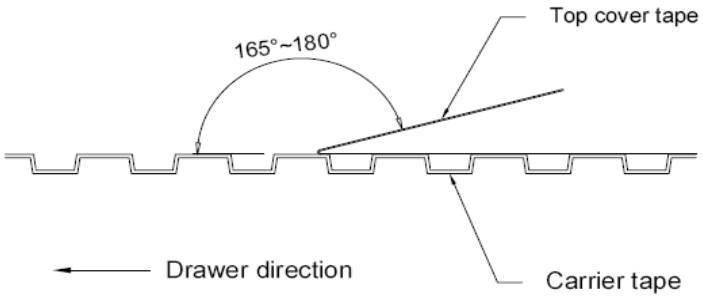
## ■ REEL DIMENSION (7" x 12mm, Black)




unit : mm

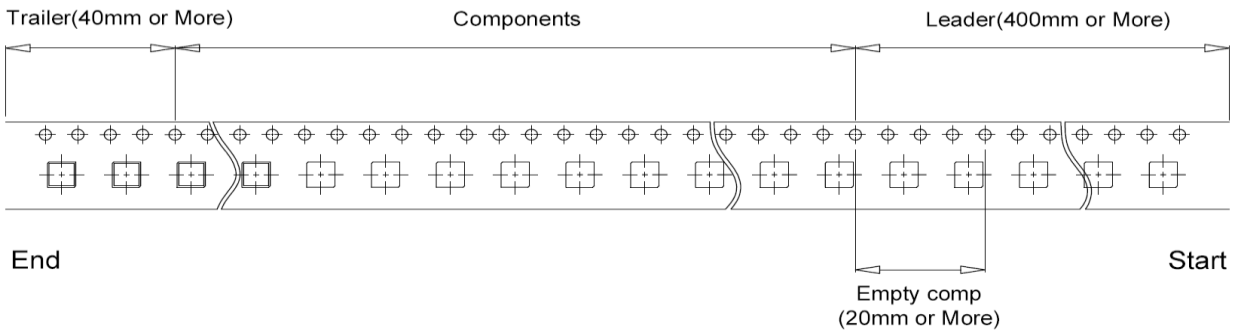
| Type | W (㎜) |
|---|---|
| A | 180 +0.0/-3.0 |
| W1 | 60 +1.0/-0.0 |
| N | 13.0 ± 0.5 |
| B | 13.0 ± 0.2 |

## ■ TOP COVER TAPE STRENGTH




The force for tearing off top cover tape is 20 to 70 grams in the arrow direction

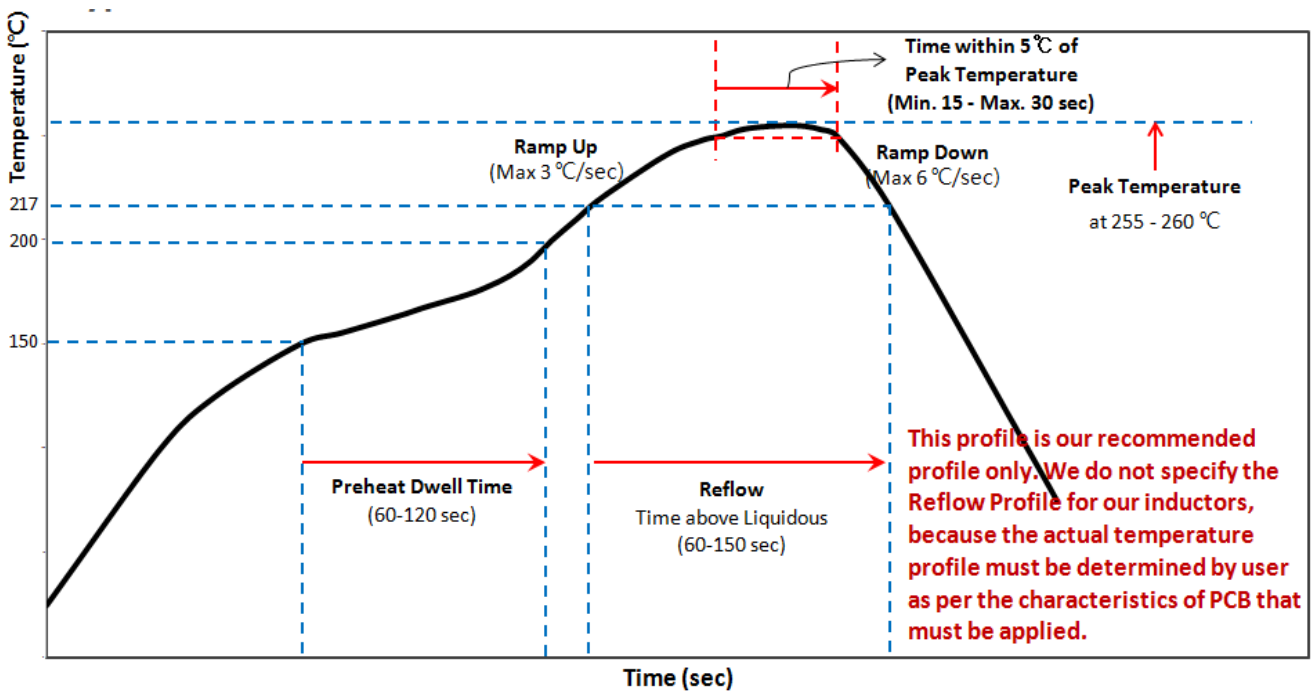
## ■ LEADER AND BLANK PORTION




Taping condition

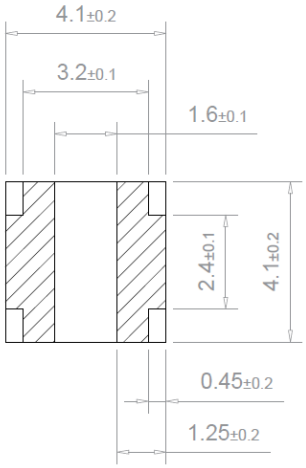
## ■ RECOMMENDED REFLOW SOLDERING CONDITION.

The following profile is just our recommended profile only. We do NOT specify the Reflow Profile for our inductors, because the actual temperature profile must be determined by user as per the characteristics of PCB that must be applied.




## ■ RECOMMENDED LAND PATTERN DESIGN.

(SSMC- 404020 Series)

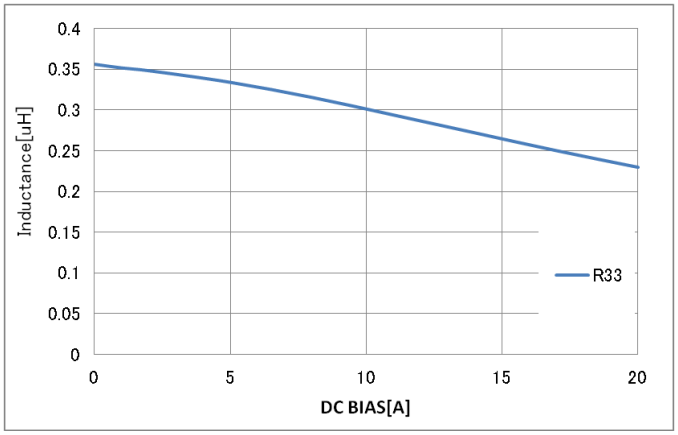


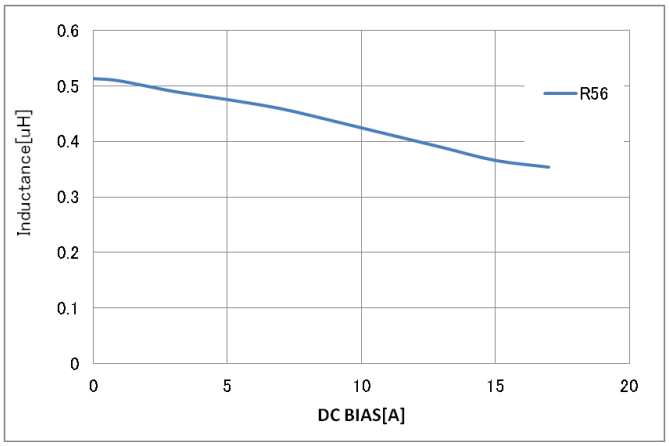

## ■ RoHS / HF / REACH (SVHC) CONDITIONS.

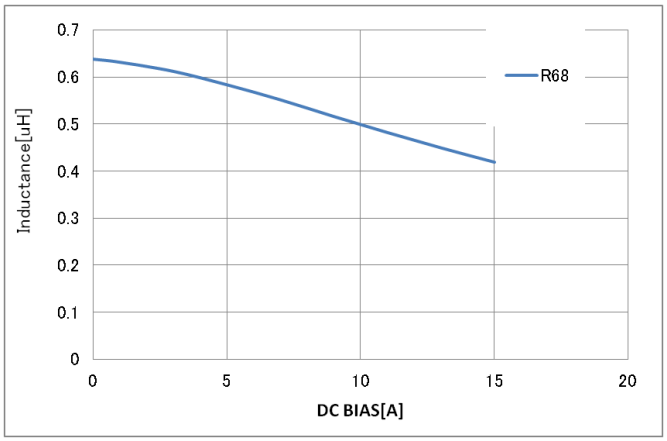
N.D. : Not detected

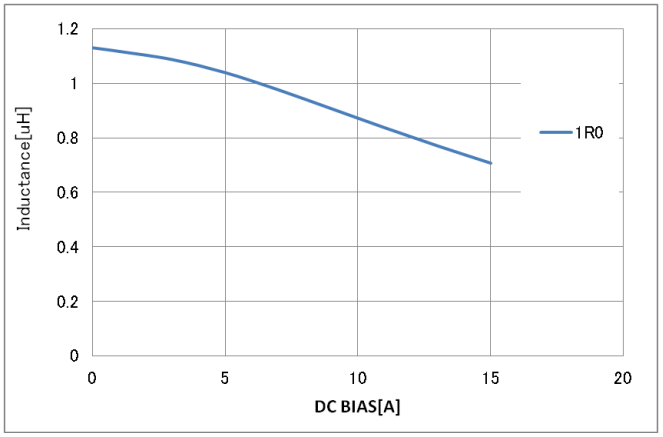
| Parts No. | Pb | Cd | Hg | Cr+6 | PBBs | PBDEs | F | Cl | Br | I | Sb | SVHC (168⁺kinds) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SSMC-4040□□ – S□ series | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |

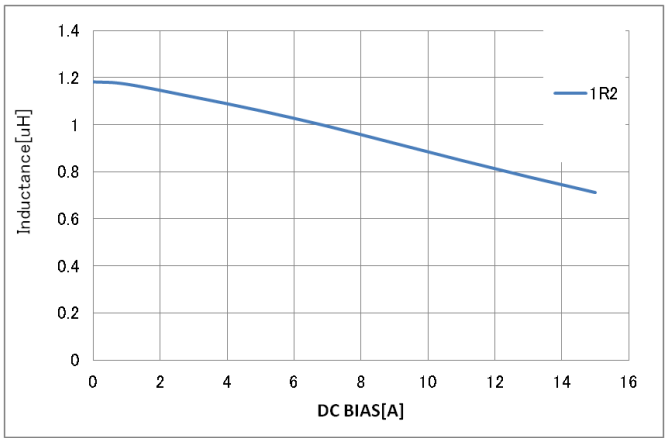
## ■ CHARACTERISTIC GRAPHS (404020 series) / DC Superimposition Current (Isat)

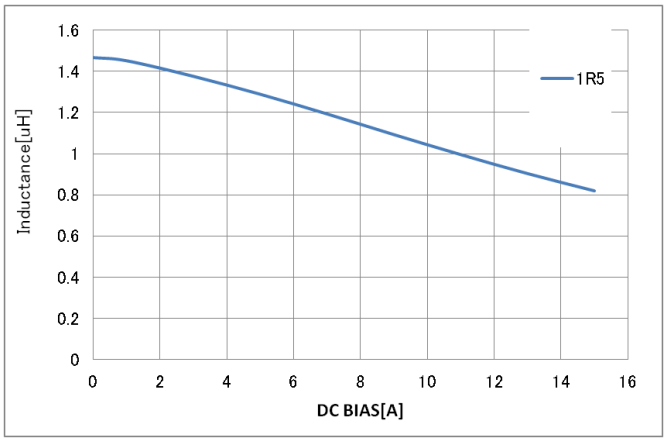


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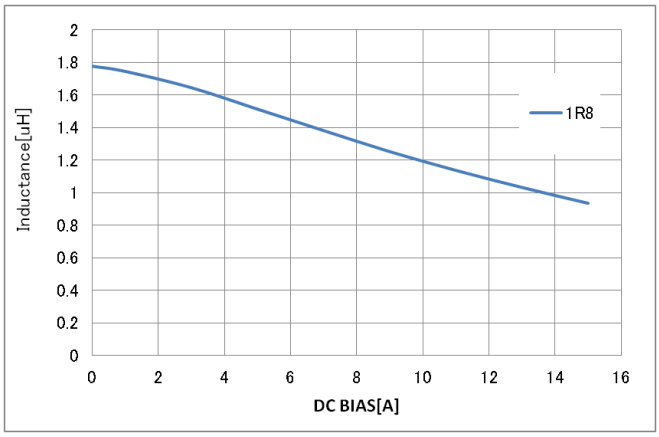
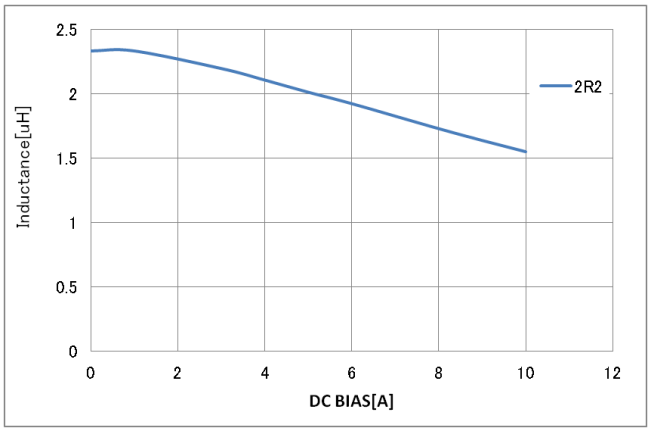
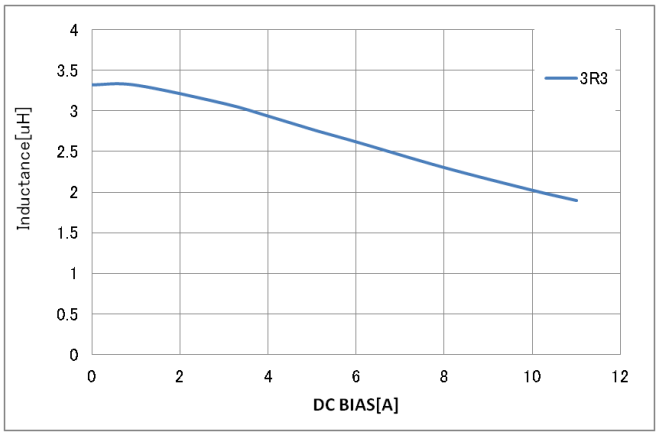
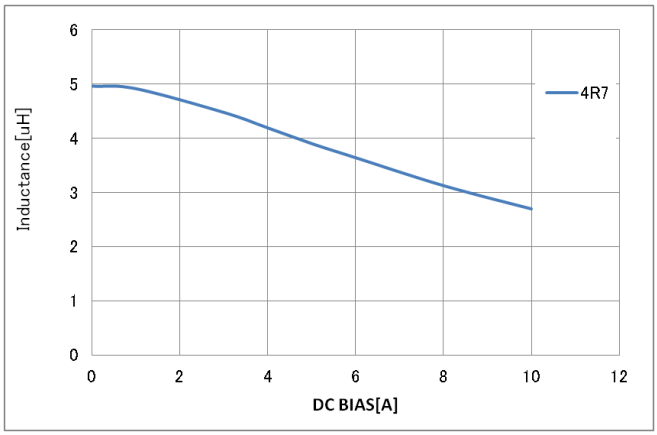
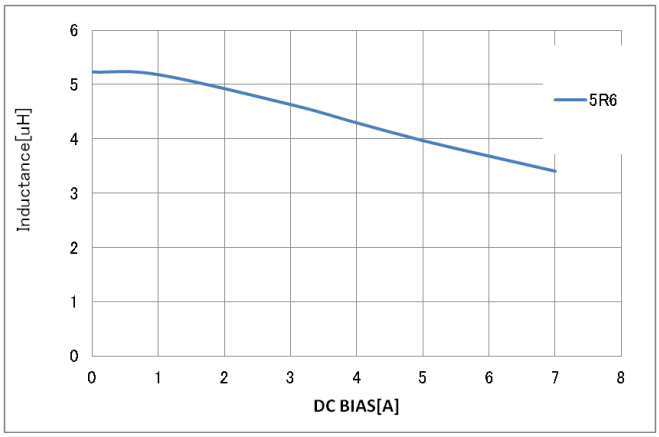


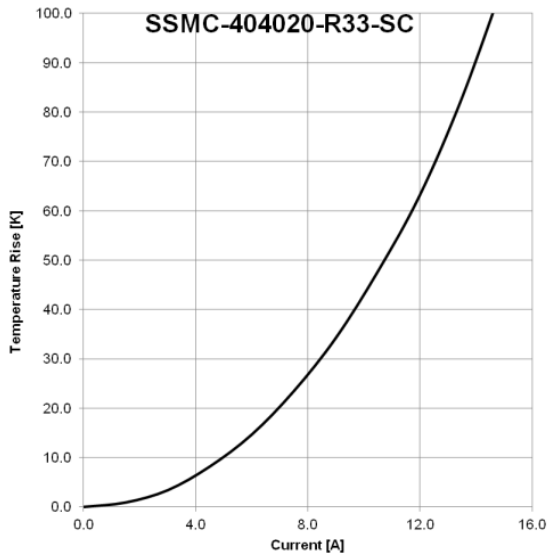



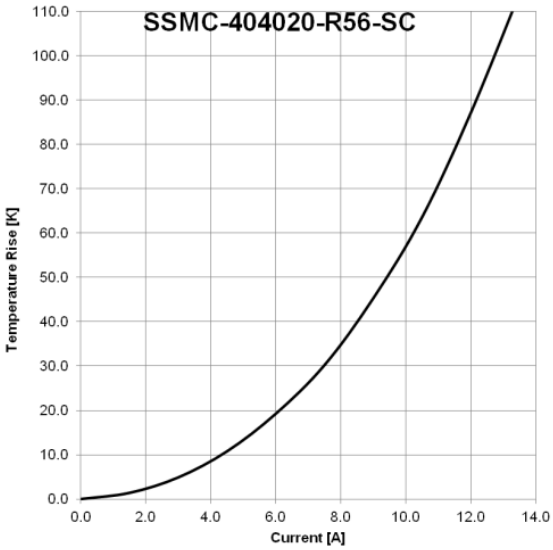



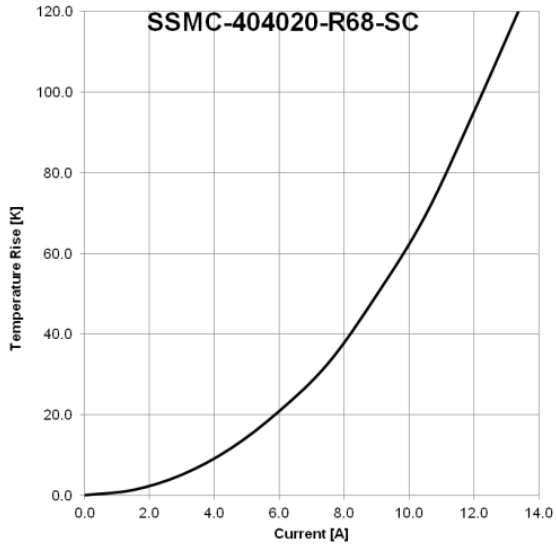



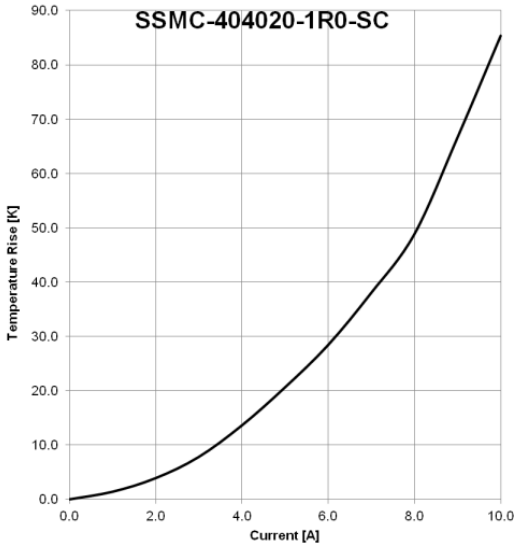



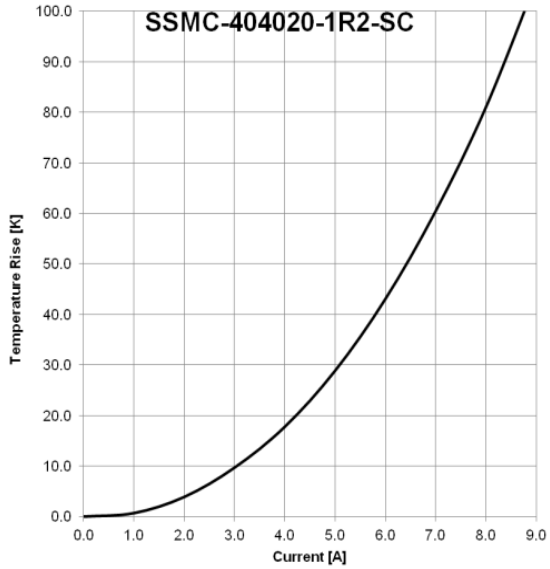
## ■ CHARACTERISTIC GRAPHS (404020 series) / Temperature Rise Current (Ir@40K)

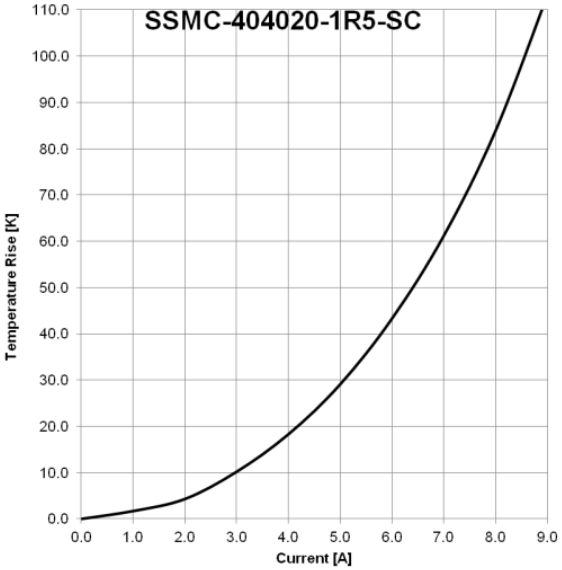


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