

# SMD POWER INDUCTOR

## ACKCS Series

Operating Temp. : -40°C~+125°C



### FEATURES:

- ⊙ High saturation current, low DC resistance.
- ⊙ Excellent temperature stability.
- ⊙ High reliability.
- ⊙ AEC-Q200 verified.

### APPLICATIONS:

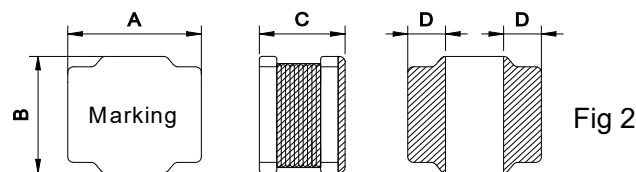
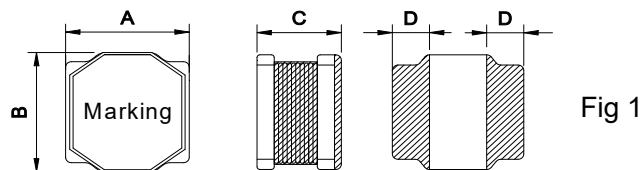
- ⊙ Infotainment system
- ⊙ LED lighting
- ⊙ Airbag
- ⊙ Internet of vehicle

### PART NUMBERING SYSTEM:

ACKCS 5040 - 22uH / M - D08

- ①: Automobile Type
- ②: External Dimensions (L\*H:5\*4mm)
- ③: Inductance Value
- ④: Inductance Tolerance (M = ±20%, N = ±30%)
- ⑤: Inter Code

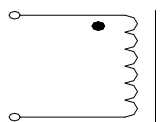
### SHAPES AND DIMENSIONS: (Unit:mm)




Recommended Land Pattern

| SERIES    | A       | B       | C       | D        | F   | G   | H   | Fig |
|-----------|---------|---------|---------|----------|-----|-----|-----|-----|
| ACKCS3015 | 3.0±0.2 | 3.0±0.2 | 1.7 Max | 0.9±0.3  | 0.7 | 1.4 | 3.0 | 2   |
| ACKCS4018 | 4.0±0.2 | 4.0±0.2 | 1.8 Max | 1.2±0.3  | 1.0 | 1.7 | 4.0 | 2   |
| ACKCS4030 | 4.0±0.2 | 4.0±0.2 | 3.0 Max | 1.2±0.3  | 1.0 | 1.7 | 4.0 | 2   |
| ACKCS5040 | 5.0±0.2 | 5.0±0.2 | 4.1 Max | 1.6±0.3  | 1.1 | 2.2 | 5.0 | 1   |
| ACKCS6045 | 6.0±0.3 | 6.0±0.3 | 4.7 Max | 1.85±0.3 | 1.8 | 2.4 | 6.0 | 1   |
| ACKCS6055 | 6.0±0.3 | 6.0±0.3 | 5.7 Max | 1.85±0.3 | 1.8 | 2.4 | 6.0 | 1   |

### SCHEMATIC:




**ACKCS3015 Series**

**SPECIFICATION TABLE:**

| Part No.          | Inductance (uH) | DCR ( $\Omega$ ) |       | Isat (A) |      | Irms (A) |      |
|-------------------|-----------------|------------------|-------|----------|------|----------|------|
|                   |                 | Typ              | Max   | Typ      | Max  | Typ      | Max  |
| ACKCS3015-1.0uH/N | 1.0 $\pm$ 30%   | 0.037            | 0.045 | 2.55     | 2.33 | 2.40     | 2.00 |
| ACKCS3015-1.5uH/N | 1.5 $\pm$ 30%   | 0.050            | 0.065 | 2.50     | 2.30 | 2.25     | 1.95 |
| ACKCS3015-2.2uH/M | 2.2 $\pm$ 20%   | 0.064            | 0.078 | 1.80     | 1.60 | 2.00     | 1.70 |
| ACKCS3015-3.3uH/M | 3.3 $\pm$ 20%   | 0.084            | 0.104 | 1.52     | 1.40 | 1.60     | 1.40 |
| ACKCS3015-4.7uH/M | 4.7 $\pm$ 20%   | 0.120            | 0.145 | 1.25     | 1.10 | 1.40     | 1.20 |
| ACKCS3015-6.8uH/M | 6.8 $\pm$ 20%   | 0.190            | 0.230 | 1.00     | 0.90 | 1.20     | 1.05 |
| ACKCS3015-10uH/M  | 10 $\pm$ 20%    | 0.260            | 0.300 | 0.90     | 0.80 | 0.95     | 0.85 |
| ACKCS3015-15uH/M  | 15 $\pm$ 20%    | 0.400            | 0.460 | 0.70     | 0.60 | 0.85     | 0.75 |
| ACKCS3015-22uH/M  | 22 $\pm$ 20%    | 0.460            | 0.550 | 0.58     | 0.52 | 0.70     | 0.60 |
| ACKCS3015-33uH/M  | 33 $\pm$ 20%    | 0.910            | 1.050 | 0.50     | 0.44 | 0.51     | 0.45 |
| ACKCS3015-47uH/M  | 47 $\pm$ 20%    | 1.100            | 1.300 | 0.45     | 0.38 | 0.48     | 0.42 |
| ACKCS3015-100uH/M | 100 $\pm$ 20%   | 3.150            | 3.450 | 0.32     | 0.28 | 0.28     | 0.25 |

- ⊙ All test data is reference to 25°C ambient.
- ⊙ Inductance Tested at 1MHz,1Vrms.
- ⊙ Isat(Max): DC current at which the inductance drops less than 30% from its value without current;  
Isat(Typ): DC current at which the inductance drops approximate 30% from its value without current.
- ⊙ Irms(Max): DC current that causes the temperature rise ( $\Delta T \leq 40^\circ\text{C}$ ) from 25°C ambient.  
Irms(Typ): DC current that causes the temperature rise ( $\Delta T$  is approximate 40°C) from 25°C ambient.
- ⊙ 1uH~47uH Absolute maximum voltage: DC 50V.  
100uH Absolute maximum voltage: DC 15V.
- ⊙ Operating Temperature : -40°C ~ +125°C(Including self - temperature rise)  
Storage Temperature : -40°C ~ +125°C

### ACKCS4018 Series


**SPECIFICATION TABLE:**


| Part No.          | Inductance (uH) | DCR (Ω) |       | Isat (A) |      | Irms (A) |      |
|-------------------|-----------------|---------|-------|----------|------|----------|------|
|                   |                 | Typ     | Max   | Typ      | Max  | Typ      | Max  |
| ACKCS4018-1.0uH/N | 1.0±30%         | 0.031   | 0.038 | 5.80     | 5.50 | 3.00     | 2.70 |
| ACKCS4018-1.5uH/N | 1.5±30%         | 0.037   | 0.044 | 4.70     | 4.40 | 2.85     | 2.45 |
| ACKCS4018-2.2uH/M | 2.2±20%         | 0.058   | 0.070 | 3.80     | 3.60 | 2.40     | 2.00 |
| ACKCS4018-3.3uH/M | 3.3±20%         | 0.068   | 0.084 | 2.90     | 2.60 | 2.10     | 1.80 |
| ACKCS4018-4.7uH/M | 4.7±20%         | 0.095   | 0.113 | 2.60     | 2.30 | 1.80     | 1.50 |
| ACKCS4018-6.8uH/M | 6.8±20%         | 0.139   | 0.148 | 2.10     | 1.90 | 1.60     | 1.30 |
| ACKCS4018-10uH/M  | 10±20%          | 0.162   | 0.187 | 1.60     | 1.40 | 1.48     | 1.10 |
| ACKCS4018-15uH/M  | 15±20%          | 0.300   | 0.330 | 1.40     | 1.20 | 1.20     | 1.00 |
| ACKCS4018-22uH/M  | 22±20%          | 0.375   | 0.405 | 1.05     | 0.95 | 0.95     | 0.76 |
| ACKCS4018-33uH/M  | 33±20%          | 0.560   | 0.590 | 0.95     | 0.80 | 0.70     | 0.55 |
| ACKCS4018-47uH/M  | 47±20%          | 0.770   | 0.850 | 0.70     | 0.63 | 0.60     | 0.50 |
| ACKCS4018-68uH/M  | 68±20%          | 1.010   | 1.150 | 0.62     | 0.54 | 0.45     | 0.40 |
| ACKCS4018-100uH/M | 100±20%         | 1.460   | 1.600 | 0.55     | 0.48 | 0.41     | 0.35 |

### ACKCS4018-D08 Series

| Part No.              | Inductance (uH) | DCR (Ω) |       | Isat (A) |      | Irms (A) |      |
|-----------------------|-----------------|---------|-------|----------|------|----------|------|
|                       |                 | Typ     | Max   | Typ      | Max  | Typ      | Max  |
| ACKCS4018-1.0uH/N-D08 | 1.0±30%         | 0.028   | 0.035 | 5.10     | 4.80 | 3.20     | 3.00 |
| ACKCS4018-1.5uH/N-D08 | 1.5±30%         | 0.033   | 0.040 | 4.00     | 3.70 | 2.90     | 2.50 |
| ACKCS4018-2.2uH/M-D08 | 2.2±20%         | 0.053   | 0.065 | 3.30     | 3.10 | 2.50     | 2.10 |
| ACKCS4018-3.3uH/M-D08 | 3.3±20%         | 0.060   | 0.075 | 2.50     | 2.20 | 2.30     | 2.00 |
| ACKCS4018-4.7uH/M-D08 | 4.7±20%         | 0.090   | 0.108 | 2.30     | 2.00 | 1.90     | 1.70 |
| ACKCS4018-6.8uH/M-D08 | 6.8±20%         | 0.130   | 0.138 | 1.90     | 1.70 | 1.70     | 1.40 |
| ACKCS4018-10uH/M-D08  | 10±20%          | 0.152   | 0.180 | 1.50     | 1.30 | 1.52     | 1.20 |
| ACKCS4018-15uH/M-D08  | 15±20%          | 0.285   | 0.320 | 1.30     | 1.10 | 1.05     | 0.95 |
| ACKCS4018-22uH/M-D08  | 22±20%          | 0.290   | 0.348 | 0.90     | 0.75 | 0.97     | 0.80 |
| ACKCS4018-33uH/M-D08  | 33±20%          | 0.525   | 0.570 | 0.85     | 0.70 | 0.75     | 0.60 |
| ACKCS4018-47uH/M-D08  | 47±20%          | 0.600   | 0.720 | 0.60     | 0.54 | 0.65     | 0.53 |
| ACKCS4018-68uH/M-D08  | 68±20%          | 0.950   | 1.080 | 0.56     | 0.50 | 0.48     | 0.43 |
| ACKCS4018-100uH/M-D08 | 100±20%         | 1.360   | 1.500 | 0.46     | 0.42 | 0.46     | 0.40 |

- ⊙ All test data is reference to 25°C ambient.
- ⊙ Inductance Tested at 100kHz,1Vrms.
- ⊙ Isat(Max): DC current at which the inductance drops less than 30% from its value without current;  
Isat(Typ): DC current at which the inductance drops approximate 30% from its value without current.
- ⊙ Irms(Max): DC current that causes the temperature rise ( $\Delta T \leq 40^\circ C$ ) from 25°C ambient.  
Irms(Typ): DC current that causes the temperature rise ( $\Delta T$  is approximate 40°C) from 25°C ambient.
- ⊙ 100uH Absolute maximum voltage: DC 50V.
- ⊙ Operating Temperature : -40°C ~ +125°C(Including self - temperature rise)  
Storage Temperature : -40°C ~ +125°C

### ACKCS4030 Series


**SPECIFICATION TABLE:**

| Part No.          | Inductance (uH) | DCR ( $\Omega$ ) |       | Isat (A) |      | Irms (A) |      |
|-------------------|-----------------|------------------|-------|----------|------|----------|------|
|                   |                 | Typ              | Max   | Typ      | Max  | Typ      | Max  |
| ACKCS4030-1.0uH/N | 1.0 $\pm$ 30%   | 0.014            | 0.019 | 7.00     | 6.50 | 4.50     | 4.00 |
| ACKCS4030-1.5uH/N | 1.5 $\pm$ 30%   | 0.020            | 0.026 | 5.20     | 5.00 | 3.90     | 3.30 |
| ACKCS4030-2.2uH/M | 2.2 $\pm$ 20%   | 0.032            | 0.042 | 4.90     | 4.50 | 3.50     | 3.00 |
| ACKCS4030-3.3uH/M | 3.3 $\pm$ 20%   | 0.040            | 0.048 | 3.75     | 3.60 | 2.90     | 2.40 |
| ACKCS4030-4.7uH/M | 4.7 $\pm$ 20%   | 0.060            | 0.072 | 3.20     | 3.00 | 2.45     | 2.10 |
| ACKCS4030-5.6uH/M | 5.6 $\pm$ 20%   | 0.065            | 0.085 | 2.90     | 2.60 | 2.10     | 1.95 |
| ACKCS4030-6.8uH/M | 6.8 $\pm$ 20%   | 0.090            | 0.117 | 2.85     | 2.55 | 1.90     | 1.70 |
| ACKCS4030-10uH/M  | 10 $\pm$ 20%    | 0.110            | 0.132 | 2.10     | 2.00 | 1.85     | 1.55 |
| ACKCS4030-15uH/M  | 15 $\pm$ 20%    | 0.190            | 0.228 | 1.80     | 1.70 | 1.45     | 1.25 |
| ACKCS4030-22uH/M  | 22 $\pm$ 20%    | 0.250            | 0.290 | 1.50     | 1.30 | 1.30     | 1.10 |
| ACKCS4030-33uH/M  | 33 $\pm$ 20%    | 0.360            | 0.420 | 1.20     | 1.10 | 1.05     | 0.90 |
| ACKCS4030-47uH/M  | 47 $\pm$ 20%    | 0.520            | 0.590 | 1.05     | 0.95 | 0.90     | 0.75 |
| ACKCS4030-68uH/M  | 68 $\pm$ 20%    | 0.740            | 0.890 | 0.80     | 0.75 | 0.70     | 0.60 |
| ACKCS4030-100uH/M | 100 $\pm$ 20%   | 1.090            | 1.300 | 0.65     | 0.60 | 0.60     | 0.50 |

### ACKCS5040 Series

| Part No.          | Inductance (uH) | DCR ( $\Omega$ ) |       | Isat (A) |      | Irms (A) |      |
|-------------------|-----------------|------------------|-------|----------|------|----------|------|
|                   |                 | Typ              | Max   | Typ      | Max  | Typ      | Max  |
| ACKCS5040-1.0uH/N | 1.0 $\pm$ 30%   | 0.016            | 0.020 | 7.80     | 7.50 | 5.00     | 4.70 |
| ACKCS5040-2.2uH/M | 2.2 $\pm$ 20%   | 0.020            | 0.027 | 5.50     | 5.20 | 4.30     | 3.80 |
| ACKCS5040-3.3uH/M | 3.3 $\pm$ 20%   | 0.024            | 0.031 | 4.60     | 4.40 | 3.90     | 3.40 |
| ACKCS5040-4.7uH/M | 4.7 $\pm$ 20%   | 0.033            | 0.041 | 4.00     | 3.70 | 3.30     | 3.00 |
| ACKCS5040-6.8uH/M | 6.8 $\pm$ 20%   | 0.047            | 0.058 | 3.30     | 3.10 | 2.70     | 2.50 |
| ACKCS5040-10uH/M  | 10 $\pm$ 20%    | 0.065            | 0.078 | 2.60     | 2.40 | 2.40     | 2.10 |
| ACKCS5040-15uH/M  | 15 $\pm$ 20%    | 0.088            | 0.112 | 2.30     | 2.00 | 2.10     | 2.00 |
| ACKCS5040-22uH/M  | 22 $\pm$ 20%    | 0.130            | 0.162 | 1.80     | 1.60 | 1.60     | 1.50 |
| ACKCS5040-33uH/M  | 33 $\pm$ 20%    | 0.180            | 0.220 | 1.50     | 1.30 | 1.40     | 1.20 |
| ACKCS5040-47uH/M  | 47 $\pm$ 20%    | 0.280            | 0.324 | 1.23     | 1.10 | 1.10     | 1.00 |

- ⊙ All test data is reference to 25°C ambient.
- ⊙ Inductance Tested at 100kHz,1Vrms.
- ⊙ Isat(Max): DC current at which the inductance drops less than 30% from its value without current;  
Isat(Typ): DC current at which the inductance drops approximate 30% from its value without current.
- ⊙ Irms(Max): DC current that causes the temperature rise ( $\Delta T \leq 40^{\circ}\text{C}$ ) from 25°C ambient.  
Irms(Typ): DC current that causes the temperature rise ( $\Delta T$  is approximate 40°C) from 25°C ambient.
- ⊙ 100uH Absolute maximum voltage: DC 50V.
- ⊙ Operating Temperature : -40°C ~ +125°C(Including self - temperature rise)  
Storage Temperature : -40°C ~ +125°C

**SPECIFICATION  
TABLE:**
**ACKCS6045 Series**

| Part No.          | Inductance (uH) | DCR (Ω) |       | Isat (A) |       | Irms (A) |      |
|-------------------|-----------------|---------|-------|----------|-------|----------|------|
|                   |                 | Typ     | Max   | Typ      | Max   | Typ      | Max  |
| ACKCS6045-1.0uH/N | 1.0±30%         | 0.009   | 0.013 | 12.00    | 10.80 | 6.50     | 5.80 |
| ACKCS6045-1.5uH/N | 1.5±30%         | 0.011   | 0.016 | 10.00    | 9.00  | 6.00     | 5.30 |
| ACKCS6045-2.2uH/M | 2.2±20%         | 0.014   | 0.020 | 7.60     | 7.00  | 5.10     | 4.60 |
| ACKCS6045-3.3uH/M | 3.3±20%         | 0.021   | 0.027 | 6.70     | 6.20  | 4.50     | 4.00 |
| ACKCS6045-4.7uH/M | 4.7±20%         | 0.026   | 0.034 | 5.50     | 5.10  | 4.00     | 3.50 |
| ACKCS6045-6.8uH/M | 6.8±20%         | 0.040   | 0.052 | 5.20     | 4.70  | 3.50     | 3.00 |
| ACKCS6045-10uH/M  | 10±20%          | 0.050   | 0.062 | 3.80     | 3.40  | 2.70     | 2.50 |
| ACKCS6045-15uH/M  | 15±20%          | 0.071   | 0.090 | 3.20     | 2.90  | 2.30     | 2.00 |
| ACKCS6045-22uH/M  | 22±20%          | 0.100   | 0.130 | 2.80     | 2.50  | 1.90     | 1.70 |
| ACKCS6045-33uH/M  | 33±20%          | 0.150   | 0.180 | 2.20     | 2.00  | 1.60     | 1.40 |
| ACKCS6045-47uH/M  | 47±20%          | 0.220   | 0.280 | 1.90     | 1.70  | 1.30     | 1.10 |
| ACKCS6045-68uH/M  | 68±20%          | 0.330   | 0.390 | 1.55     | 1.40  | 1.00     | 0.90 |
| ACKCS6045-100uH/M | 100±20%         | 0.450   | 0.540 | 1.30     | 1.10  | 0.85     | 0.70 |

**ACKCS6055 Series**

| Part No.          | Inductance (uH) | DCR (Ω) |       | Isat (A) |      | Irms (A) |      |
|-------------------|-----------------|---------|-------|----------|------|----------|------|
|                   |                 | Typ     | Max   | Typ      | Max  | Typ      | Max  |
| ACKCS6055-3.3uH/M | 3.3±20%         | 0.020   | 0.026 | 7.50     | 6.50 | 4.60     | 4.10 |
| ACKCS6055-4.7uH/M | 4.7±20%         | 0.022   | 0.028 | 6.00     | 5.50 | 4.30     | 3.80 |
| ACKCS6055-6.8uH/M | 6.8±20%         | 0.030   | 0.041 | 5.20     | 4.70 | 4.10     | 3.60 |
| ACKCS6055-10uH/M  | 10±20%          | 0.045   | 0.054 | 4.00     | 3.60 | 3.20     | 2.70 |
| ACKCS6055-15uH/M  | 15±20%          | 0.066   | 0.074 | 3.30     | 2.80 | 2.80     | 2.40 |
| ACKCS6055-22uH/M  | 22±20%          | 0.092   | 0.110 | 2.80     | 2.50 | 2.35     | 2.00 |
| ACKCS6055-33uH/M  | 33±20%          | 0.130   | 0.170 | 2.20     | 1.90 | 1.80     | 1.60 |
| ACKCS6055-47uH/M  | 47±20%          | 0.220   | 0.250 | 1.90     | 1.70 | 1.50     | 1.30 |
| ACKCS6055-100uH/M | 100±20%         | 0.417   | 0.458 | 1.30     | 1.10 | 1.10     | 0.90 |

- ⊙ All test data is reference to 25°C ambient.
- ⊙ Inductance Tested at 100kHz,1Vrms.
- ⊙ Isat(Max): DC current at which the inductance drops less than 30% from its value without current;  
Isat(Typ): DC current at which the inductance drops approximate 30% from its value without current.
- ⊙ Irms(Max): DC current that causes the temperature rise ( $\Delta T \leq 40^{\circ}\text{C}$ ) from 25°C ambient.  
Irms(Typ): DC current that causes the temperature rise ( $\Delta T$  is approximate 40°C) from 25°C ambient.
- ⊙ 100uH Absolute maximum voltage: DC 50V.
- ⊙ Operating Temperature : -40°C ~ +125°C(Including self - temperature rise)  
Storage Temperature : -40°C ~ +125°C