

AUTOMOTIVE GRADE MOLDED POWER INDUCTOR



ASPIAIG-F1x

11.0 x 10.0 x 3.8 mm
13.5 x 12.5 x 6.2 mm
MSL = 1

FEATURES

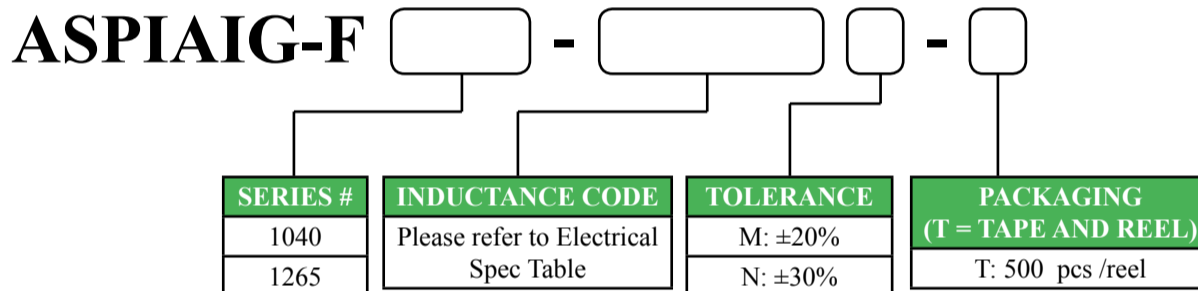
- PPAP ready and supported
- TS16949 production certified lines
- AEC-Q200 qualified
- Molded wire-wound construction with shielding
- High current up to 55A rms
- High saturation current up to 118A
- High inductance up to 82μH
- Low DCR down to 0.6mΩ
- Wide operating temperature range -40°C ~ +125°C

APPLICATIONS



- Automotive and extended temperature industrial
- Body electronics and comfort system
- High current and high power applications
- Infotainment and entertainment
- Electric vehicles
- Lighting
- Solar inverters and power
- Industrial and robotics
- Medium and high power switch mode power supplies
- Point of load (POL) applications
- Motor control and motor drivers
- Heavy machinery and transportation

OPTIONS AND PART IDENTIFICATION



ELECTRICAL SPECIFICATIONS

| OPERATING TEMPERATURE | STORAGE CONDITION |
|--|--------------------------------|
| -55°C ~ +125°C (including self-temperature rise) | -10°C ~ +40°C and R.H. 70% max |

| PART NUMBER | INDUCTANCE | TOLERANCE | DC RESISTANCE | SATURATION CURRENT | TEMPERATURE RISE CURRENT | TYPE |
|-------------------|-------------|-----------|---------------|--------------------|--------------------------|----------------|
| | 0.1MHz/0.1V | | Max | Max | Typ | |
| UNITS | μH | % | mΩ | A | A | |
| SYMBOL | L | M, N | DCR | Isat | Irms | |
| ASPIAIG-F1040-R15 | 0.15 | 30% | 0.6 | 75 | 43 | Non-Lead Frame |
| ASPIAIG-F1040-R19 | 0.19 | 30% | 0.9 | 70 | 36 | Non-Lead Frame |
| ASPIAIG-F1040-R20 | 0.20 | 30% | 0.95 | 70 | 35 | Non-Lead Frame |
| ASPIAIG-F1040-R22 | 0.22 | 20% | 1 | 60 | 35 | Non-Lead Frame |
| ASPIAIG-F1040-R24 | 0.24 | 20% | 1 | 60 | 34 | Non-Lead Frame |
| ASPIAIG-F1040-R27 | 0.27 | 20% | 1 | 60 | 33 | Non-Lead Frame |
| ASPIAIG-F1040-R30 | 0.30 | 20% | 1.1 | 60 | 32 | Non-Lead Frame |
| ASPIAIG-F1040-R36 | 0.36 | 20% | 1.2 | 60 | 31 | Non-Lead Frame |
| ASPIAIG-F1040-R39 | 0.39 | 20% | 1.3 | 60 | 30 | Non-Lead Frame |
| ASPIAIG-F1040-R45 | 0.45 | 20% | 1.5 | 45 | 29 | Non-Lead Frame |
| ASPIAIG-F1040-R47 | 0.47 | 20% | 1.5 | 43 | 28 | Non-Lead Frame |
| ASPIAIG-F1040-R56 | 0.56 | 20% | 1.8 | 40 | 25 | Non-Lead Frame |
| ASPIAIG-F1040-R68 | 0.68 | 20% | 2.7 | 39 | 22 | Non-Lead Frame |

REVISED: 09.20.2018



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RoHS/RoHS II Compliant

| PART NUMBER | INDUCTANCE | TOLERANCE | DC RESISTANCE | SATURATION CURRENT | TEMPERATURE RISE CURRENT | TYPE |
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| SYMBOL | L | M, N | DCR | Isat | Irms | |
| ASPIAIG-F1040-R75 | 0.75 | 20% | 2.7 | 39 | 22 | Non-Lead Frame |
| ASPIAIG-F1040-R88 | 0.88 | 20% | 2.9 | 38 | 20 | Non-Lead Frame |
| ASPIAIG-F1040-1R0 | 1.00 | 20% | 3.3 | 36 | 18 | Non-Lead Frame |
| ASPIAIG-F1040-1R2 | 1.20 | 20% | 3.8 | 33 | 17 | Non-Lead Frame |
| ASPIAIG-F1040-1R5 | 1.50 | 20% | 4.6 | 33 | 16 | Non-Lead Frame |
| ASPIAIG-F1040-1R8 | 1.80 | 20% | 6.4 | 30 | 14 | Lead Frame |
| ASPIAIG-F1040-2R2 | 2.20 | 20% | 7 | 27 | 12 | Lead Frame |
| ASPIAIG-F1040-2R5 | 2.50 | 20% | 8.7 | 23 | 11.5 | Lead Frame |
| ASPIAIG-F1040-3R0 | 3.00 | 20% | 11.5 | 21 | 11.5 | Lead Frame |
| ASPIAIG-F1040-3R3 | 3.30 | 20% | 11.8 | 20 | 11 | Lead Frame |
| ASPIAIG-F1040-3R9 | 3.90 | 20% | 14.5 | 19 | 10.5 | Lead Frame |
| ASPIAIG-F1040-4R0 | 4.00 | 20% | 15 | 18 | 10.2 | Lead Frame |
| ASPIAIG-F1040-4R7 | 4.70 | 20% | 15.5 | 17 | 10 | Lead Frame |
| ASPIAIG-F1040-5R6 | 5.60 | 20% | 19.3 | 14 | 9 | Lead Frame |
| ASPIAIG-F1040-6R2 | 6.20 | 20% | 21.3 | 13.7 | 8.7 | Lead Frame |
| ASPIAIG-F1040-6R5 | 6.50 | 20% | 22.3 | 13.6 | 8.6 | Lead Frame |
| ASPIAIG-F1040-6R8 | 6.80 | 20% | 23.3 | 13.5 | 8.5 | Lead Frame |
| ASPIAIG-F1040-7R3 | 7.30 | 20% | 21.8 | 13 | 8.3 | Lead Frame |
| ASPIAIG-F1040-8R2 | 8.20 | 20% | 22.5 | 12.5 | 8 | Lead Frame |
| ASPIAIG-F1040-100 | 10.0 | 20% | 30 | 12 | 7.5 | Lead Frame |
| ASPIAIG-F1040-150 | 15.0 | 20% | 45 | 10 | 6.25 | Lead Frame |
| ASPIAIG-F1040-180 | 18.0 | 20% | 62 | 9 | 5.5 | Lead Frame |
| ASPIAIG-F1040-220 | 22.0 | 20% | 74 | 7 | 5 | Lead Frame |
| ASPIAIG-F1040-270 | 27.0 | 20% | 100 | 6 | 4 | Lead Frame |
| ASPIAIG-F1040-330 | 33.0 | 20% | 112 | 5 | 3.5 | Lead Frame |
| ASPIAIG-F1040-470 | 47.0 | 20% | 167 | 4.5 | 3 | Lead Frame |
| ASPIAIG-F1040-680 | 68.0 | 20% | 240 | 3 | 2 | Lead Frame |
| ASPIAIG-F1040-820 | 82.0 | 20% | 320 | 2.5 | 1.5 | Lead Frame |
| ASPIAIG-F1265-R15 | 0.15 | 20% | 0.6 | 118 | 55 | Non-Lead Frame |
| ASPIAIG-F1265-R22 | 0.22 | 20% | 0.6 | 112 | 53 | Non-Lead Frame |
| ASPIAIG-F1265-R30 | 0.30 | 20% | 0.72 | 72 | 48 | Non-Lead Frame |
| ASPIAIG-F1265-R33 | 0.33 | 20% | 0.8 | 68 | 46 | Non-Lead Frame |
| ASPIAIG-F1265-R36 | 0.36 | 20% | 0.9 | 66 | 45 | Non-Lead Frame |
| ASPIAIG-F1265-R40 | 0.40 | 20% | 1 | 64 | 44 | Non-Lead Frame |
| ASPIAIG-F1265-R45 | 0.45 | 20% | 1.2 | 63 | 42 | Non-Lead Frame |
| ASPIAIG-F1265-R47 | 0.47 | 20% | 1.2 | 63 | 41 | Non-Lead Frame |
| ASPIAIG-F1265-R50 | 0.50 | 20% | 1.25 | 60 | 40 | Non-Lead Frame |
| ASPIAIG-F1265-R56 | 0.56 | 20% | 1.2 | 58 | 37 | Non-Lead Frame |



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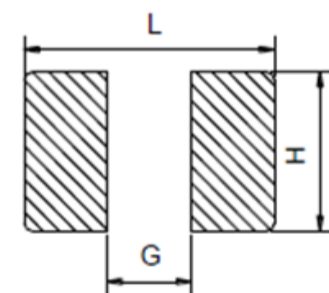
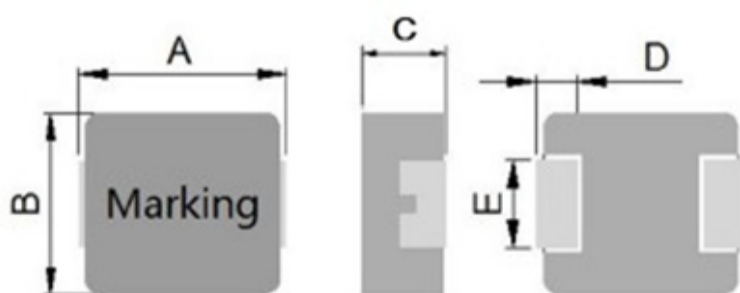
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| UNITS | μ H | % | m Ω | A | A | |
| SYMBOL | L | M, N | DCR | Isat | Irms | |
| ASPIAIG-F1265-R68 | 0.68 | 20% | 1.5 | 55 | 35 | Non-Lead Frame |
| ASPIAIG-F1265-R82 | 0.82 | 20% | 1.9 | 50 | 33 | Non-Lead Frame |
| ASPIAIG-F1265-1R0 | 1.00 | 20% | 2.3 | 48 | 30 | Non-Lead Frame |
| ASPIAIG-F1265-1R5 | 1.50 | 20% | 3 | 45 | 27 | Non-Lead Frame |
| ASPIAIG-F1265-1R8 | 1.80 | 20% | 4 | 40 | 24 | Lead Frame |
| ASPIAIG-F1265-2R2 | 2.20 | 20% | 4.2 | 37 | 22 | Lead Frame |
| ASPIAIG-F1265-3R3 | 3.30 | 20% | 6.8 | 30 | 18 | Lead Frame |
| ASPIAIG-F1265-4R7 | 4.70 | 20% | 8.4 | 28 | 13.5 | Lead Frame |
| ASPIAIG-F1265-5R6 | 5.60 | 20% | 10 | 23 | 12.5 | Lead Frame |
| ASPIAIG-F1265-6R8 | 6.80 | 20% | 11.5 | 18 | 11.5 | Lead Frame |
| ASPIAIG-F1265-7R0 | 7.00 | 20% | 12.3 | 17.7 | 11.2 | Lead Frame |
| ASPIAIG-F1265-8R2 | 8.20 | 20% | 15.5 | 16 | 10.5 | Lead Frame |
| ASPIAIG-F1265-100 | 10.0 | 20% | 16.5 | 15.5 | 10 | Lead Frame |
| ASPIAIG-F1265-120 | 12.0 | 20% | 20 | 14 | 9.5 | Lead Frame |
| ASPIAIG-F1265-130 | 13.0 | 20% | 24 | 13 | 9 | Lead Frame |
| ASPIAIG-F1265-150 | 15.0 | 20% | 28 | 12.5 | 9 | Lead Frame |
| ASPIAIG-F1265-220 | 22.0 | 20% | 37 | 12 | 9 | Lead Frame |
| ASPIAIG-F1265-330 | 33.0 | 20% | 58 | 11 | 8 | Lead Frame |
| ASPIAIG-F1265-470 | 47.0 | 20% | 90 | 9.5 | 6.5 | Lead Frame |

TEST CONDITIONS

Isat: DC current at which the inductance drops 30% from its value without current

Irms: DC current that causes the temperature rise (ΔT , approximate 40 °C) from 20°C ambient

MECHANICAL DIMENSIONS



| SERIES | A | B | C | D | E |
|---------------|------------|------------|-----------|-----------|-----------|
| ASPIAIG-F1040 | 11.0 ± 0.5 | 10.0 ± 0.3 | 3.8 ± 0.2 | 2.3 ± 0.3 | 3.0 ± 0.3 |
| ASPIAIG-F1265 | 13.5 ± 0.5 | 12.5 ± 0.3 | 6.2 ± 0.3 | 2.3 ± 0.3 | 4.7 ± 0.3 |

| SERIES | L TYP. | G TYP. | H TYP. |
|---------------|--------|--------|--------|
| ASPIAIG-F1040 | 13.6 | 5.4 | 3.5 |
| ASPIAIG-F1265 | 14.2 | 8.0 | 5.0 |

Dimension: mm



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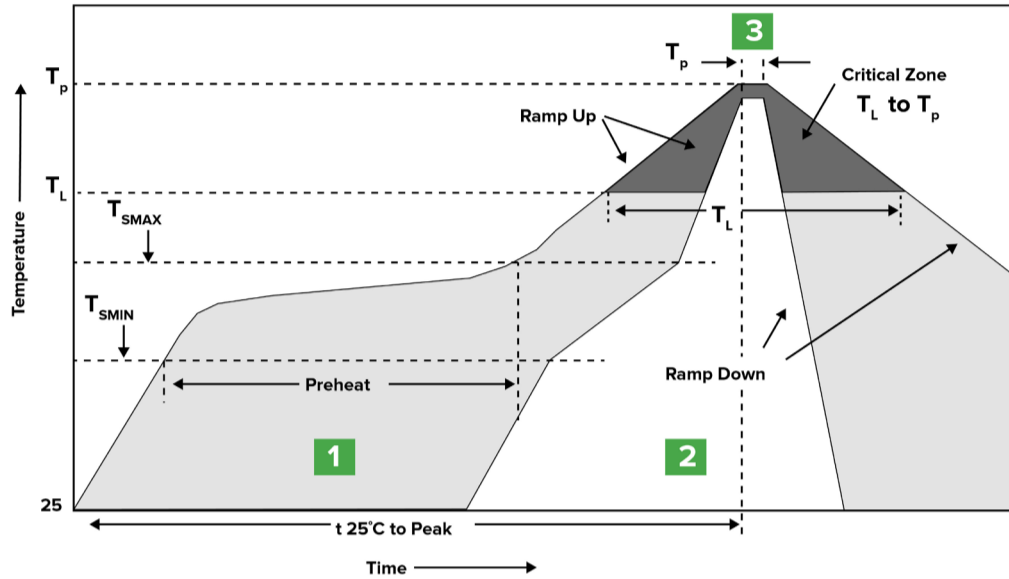


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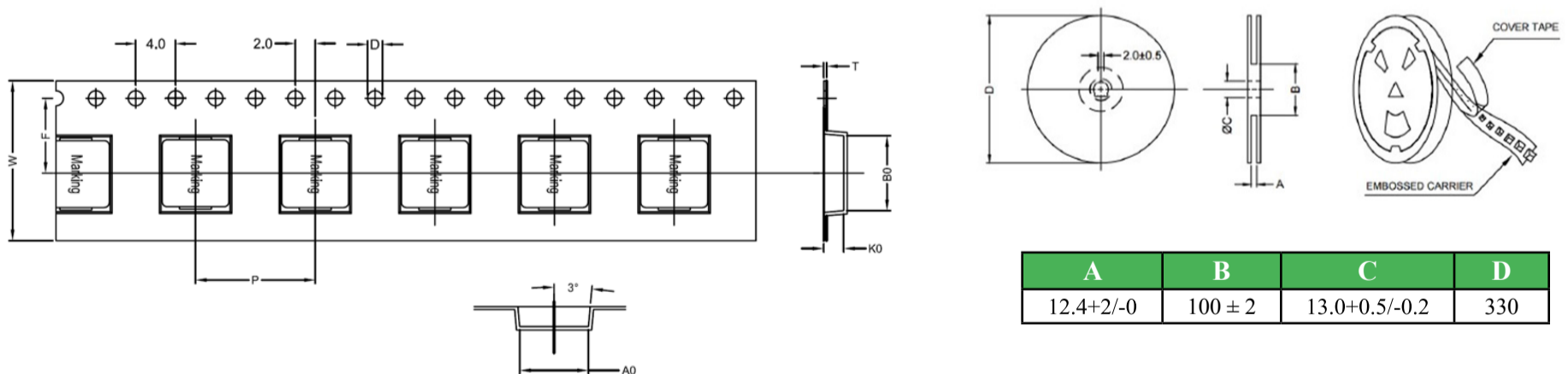
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REFLOW



| Zone | Description | Temperature | Times |
|------|-------------|---|---------------|
| 1 | Preheat | $T_{SMIN} \sim T_{SMAX}$ 150°C ~ 200°C | 60 ~ 180 sec. |
| 2 | Reflow | T_L 217°C | 60 ~ 150 sec. |
| 3 | Peak heat | T_P 260°C | 10 sec. MAX |

PACKING (TAPE & REEL: 500 PCS/REEL)



| SERIES | W | F | P | D | A ₀ | B ₀ | T | K ₀ |
|---------------|----------|----------|----------|---------|----------------|----------------|-----------|----------------|
| ASPIAIG-F1040 | 24.0±0.3 | 11.5±0.1 | 16.0±0.1 | 1.5±0.1 | 10.4±0.1 | 11.6±0.1 | 0.35±0.05 | 4.5±0.1 |
| ASPIAIG-F1265 | 24.0±0.3 | 11.5±0.1 | 16.0±0.1 | 1.5±0.1 | 12.9±0.1 | 13.0±0.1 | 0.35±0.05 | 7.0±0.1 |



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