

# SHIELDED POWER INDUCTOR

# P7603 Family

## Features

- \* Lead-free (Pb-free)
- \* RoHS compliant
- \* Magnetic Shielding
- \* High Current (to 10A)
- \* Low DCR (to 7mΩ)
- \* Low profile (to 3mm)
- \* Surface Mount
- \* Flat top for pick & place

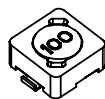
## Applications

- \* DC-DC Converters
- \* High Current/Low Voltage Converters
- \* Voltage Regulator Modules
- \* Notebook and handheld equipment
- \* LCD television displays

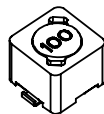
## DESCRIPTION

The P7603 family comprises high current, shielded power inductors. Components are available in eight mechanical sizes, suitable for low-profile high current applications.

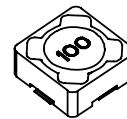
The family employs heavy gauge wire to minimize DCRs, and provides reliable self-leaded Pb-free terminations. Parts are compliant with RoHS Directive 2002/95/EC, and suitable for Pb-free and conventional placement and reflow.



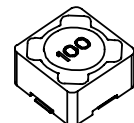
P7603-0603



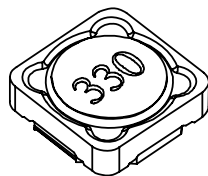
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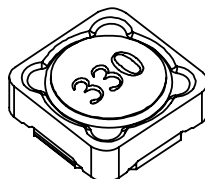
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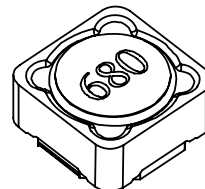
P7603-0704



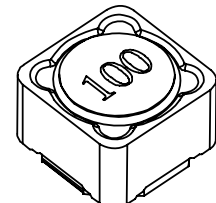
P7603-1203



P7603-1204



P7603-1205



P7603-1207



**RoHS**  
COMPLIANT

## SPECIFICATIONS

### Electrical

0603 size

Part Number	Inductance ( $\mu\text{H}$ ) <sup>(1)</sup>	DCR (m $\Omega$ ) Max	Rated Current $I_{\text{DC}}$ (A) <sup>(2)</sup>
P7603-0603-2R9M	2.9 $\pm$ 20%	0.07	1.9
P7603-0603-4R0M	4.0 $\pm$ 20%	0.08	1.6
P7603-0603-5R5M	5.5 $\pm$ 20%	0.09	1.4
P7603-0603-100M	10 $\pm$ 20%	0.15	1.1
P7603-0603-120M	12 $\pm$ 20%	0.20	1.0
P7603-0603-150M	15 $\pm$ 20%	0.23	0.90
P7603-0603-180M	18 $\pm$ 20%	0.27	0.80
P7603-0603-220M	22 $\pm$ 20%	0.34	0.74
P7603-0603-270M	27 $\pm$ 20%	0.38	0.66
P7603-0603-330M	33 $\pm$ 20%	0.45	0.59
P7603-0603-390M	39 $\pm$ 20%	0.49	0.54
P7603-0603-470M	47 $\pm$ 20%	0.69	0.50
P7603-0603-560M	56 $\pm$ 20%	0.78	0.46
P7603-0603-680M	68 $\pm$ 20%	1.1	0.42
P7603-0603-820M	82 $\pm$ 20%	1.2	0.38
P7603-0603-101M	100 $\pm$ 20%	1.4	0.34
P7603-0603-121M	120 $\pm$ 20%	1.9	0.31
P7603-0603-151M	150 $\pm$ 20%	2.2	0.28
P7603-0603-181M	180 $\pm$ 20%	2.8	0.26
P7603-0603-221M	220 $\pm$ 20%	3.1	0.23
P7603-0603-271M	270 $\pm$ 20%	4.4	0.22
P7603-0603-331M	330 $\pm$ 20%	4.9	0.19

### Notes

1. Inductance measured at 1kHz, 250mV (<10 $\mu\text{H}$ , 100kHz).
2. Rated current,  $I_{\text{DC}}$ , is the current at which the temperature rise is 40°C (max) or the DC current at which the zero-current inductance drops by 25%, whichever current is less.
3. Operating temperature -25°C to +85°C.
4. For non-standard inductance values, please contact Profec.

0605 size

Part Number	Inductance ( $\mu\text{H}$ ) <sup>(1)</sup>	DCR (m $\Omega$ ) Max	Rated Current I <sub>DC</sub> (A) <sup>(2)</sup>
P7603-0605-100M	10 $\pm$ 20%	0.12	1.3
P7603-0605-120M	12 $\pm$ 20%	0.13	1.2
P7603-0605-150M	15 $\pm$ 20%	0.18	1.1
P7603-0605-180M	18 $\pm$ 20%	0.24	1.0
P7603-0605-220M	22 $\pm$ 20%	0.27	0.91
P7603-0605-270M	27 $\pm$ 20%	0.30	0.82
P7603-0605-330M	33 $\pm$ 20%	0.33	0.74
P7603-0605-390M	39 $\pm$ 20%	0.37	0.69
P7603-0605-470M	47 $\pm$ 20%	0.52	0.62
P7603-0605-560M	56 $\pm$ 20%	0.56	0.58
P7603-0605-680M	68 $\pm$ 20%	0.63	0.51
P7603-0605-820M	82 $\pm$ 20%	0.71	0.46
P7603-0605-101M	100 $\pm$ 20%	1.0	0.42
P7603-0605-121M	120 $\pm$ 20%	1.2	0.38
P7603-0605-151M	150 $\pm$ 20%	1.7	0.35
P7603-0605-181M	180 $\pm$ 20%	1.9	0.32
P7603-0605-221M	220 $\pm$ 20%	2.1	0.29
P7603-0605-271M	270 $\pm$ 20%	2.4	0.26
P7603-0605-331M	330 $\pm$ 20%	2.7	0.23
P7603-0605-391M	390 $\pm$ 20%	2.9	0.22
P7603-0605-471M	470 $\pm$ 20%	3.9	0.20
P7603-0605-561M	560 $\pm$ 20%	5.4	0.18
P7603-0605-681M	680 $\pm$ 20%	7.3	0.17
P7603-0605-821M	820 $\pm$ 20%	8.2	0.15
P7603-0605-102M	1000 $\pm$ 20%	9.3	0.14

**Notes**

1. Inductance measured at 1kHz, 250mV.
2. Rated current, I<sub>DC</sub>, is the current at which the temperature rise is 40°C (max) or the DC current at which the zero-current inductance drops by 25%, whichever current is less.
3. Operating temperature -25°C to +85°C.
4. For non-standard inductance values, please contact Profec.

0703 size

Part Number	Inductance ( $\mu\text{H}$ ) <sup>(1)</sup>	DCR (m $\Omega$ ) Max	Rated Current $I_{\text{DC}}$ (A) <sup>(2)</sup>
P7603-0703-100M	10 $\pm$ 20%	0.07	1.7
P7603-0703-120M	12 $\pm$ 20%	0.10	1.5
P7603-0703-150M	15 $\pm$ 20%	0.13	1.3
P7603-0703-180M	18 $\pm$ 20%	0.14	1.2
P7603-0703-220M	22 $\pm$ 20%	0.19	1.1
P7603-0703-270M	27 $\pm$ 20%	0.21	0.96
P7603-0703-330M	33 $\pm$ 20%	0.24	0.91
P7603-0703-390M	39 $\pm$ 20%	0.32	0.77
P7603-0703-470M	47 $\pm$ 20%	0.36	0.76
P7603-0703-560M	56 $\pm$ 20%	0.47	0.68
P7603-0703-680M	68 $\pm$ 20%	0.52	0.61
P7603-0703-820M	82 $\pm$ 20%	0.69	0.57
P7603-0703-101M	100 $\pm$ 20%	0.79	0.50
P7603-0703-121M	120 $\pm$ 20%	0.89	0.49
P7603-0703-151M	150 $\pm$ 20%	1.3	0.43
P7603-0703-181M	180 $\pm$ 20%	1.5	0.39
P7603-0703-221M	220 $\pm$ 20%	1.7	0.35
P7603-0703-271M	270 $\pm$ 20%	2.3	0.32
P7603-0703-331M	330 $\pm$ 20%	2.6	0.28
P7603-0703-391M	390 $\pm$ 20%	3.0	0.26
P7603-0703-471M	470 $\pm$ 20%	4.2	0.24
P7603-0703-561M	560 $\pm$ 20%	4.7	0.22
P7603-0703-681M	680 $\pm$ 20%	5.7	0.19
P7603-0703-821M	820 $\pm$ 20%	6.5	0.18
P7603-0703-102M	1000 $\pm$ 20%	9.5	0.16

**Notes**

1. Inductance measured at 1kHz, 250mV.
2. Rated current,  $I_{\text{DC}}$ , is the current at which the temperature rise is 40°C (max) or the DC current at which the zero-current inductance drops by 25%, whichever current is less.
3. Operating temperature -25°C to +85°C.
4. For non-standard inductance values, please contact Profec.

0704 size

Part Number	Inductance ( $\mu\text{H}$ ) <sup>(1)</sup>	DCR (m $\Omega$ ) Max	Rated Current I <sub>DC</sub> (A) <sup>(2)</sup>
P7603-0704-100M	10 $\pm$ 20%	0.05	1.8
P7603-0704-120M	12 $\pm$ 20%	0.06	1.7
P7603-0704-150M	15 $\pm$ 20%	0.08	1.5
P7603-0704-180M	18 $\pm$ 20%	0.09	1.3
P7603-0704-220M	22 $\pm$ 20%	0.11	1.2
P7603-0704-270M	27 $\pm$ 20%	0.15	1.1
P7603-0704-330M	33 $\pm$ 20%	0.17	0.96
P7603-0704-390M	39 $\pm$ 20%	0.23	0.91
P7603-0704-470M	47 $\pm$ 20%	0.26	0.88
P7603-0704-560M	56 $\pm$ 20%	0.35	0.75
P7603-0704-680M	68 $\pm$ 20%	0.38	0.69
P7603-0704-820M	82 $\pm$ 20%	0.43	0.61
P7603-0704-101M	100 $\pm$ 20%	0.61	0.60
P7603-0704-121M	120 $\pm$ 20%	0.66	0.52
P7603-0704-151M	150 $\pm$ 20%	0.88	0.46
P7603-0704-181M	180 $\pm$ 20%	0.98	0.42
P7603-0704-221M	220 $\pm$ 20%	1.2	0.36
P7603-0704-271M	270 $\pm$ 20%	1.6	0.34
P7603-0704-331M	330 $\pm$ 20%	1.9	0.32
P7603-0704-391M	390 $\pm$ 20%	2.9	0.29
P7603-0704-471M	470 $\pm$ 20%	3.0	0.26
P7603-0704-561M	560 $\pm$ 20%	3.6	0.23
P7603-0704-681M	680 $\pm$ 20%	4.6	0.22
P7603-0704-821M	820 $\pm$ 20%	5.2	0.20
P7603-0704-102M	1000 $\pm$ 20%	6.0	0.18

**Notes**

1. Inductance measured at 1kHz, 250mV (<10 $\mu\text{H}$ , 100kHz).
2. Rated current, I<sub>DC</sub>, is the current at which the temperature rise is 40°C (max) or the DC current at which the zero-current inductance drops by 25%, whichever current is less.
3. Operating temperature -25°C to +85°C.
4. For non-standard inductance values, please contact Profec.

1203 size

Part Number	Inductance ( $\mu\text{H}$ ) <sup>(1)</sup>	DCR (m $\Omega$ ) Max	Rated Current $I_{\text{DC}}$ (A) <sup>(2)</sup>
P7603-1203-1R5M	1.5 $\pm$ 20%	13	7.8
P7603-1203-2R2	2.2 $\pm$ 20%	15	6.8
P7603-1203-3R9	3.9 $\pm$ 20%	26	5.5
P7603-1203-5R6M	5.6 $\pm$ 20%	32	4.8
P7603-1203-8R2M	8.2 $\pm$ 20%	45	4.1
P7603-1203-100M	10 $\pm$ 20%	50	3.9
P7603-1203-120M	12 $\pm$ 20%	60	3.5
P7603-1203-150M	15 $\pm$ 20%	80	3.0
P7603-1203-180M	18 $\pm$ 20%	100	2.7
P7603-1203-220M	22 $\pm$ 20%	110	2.5
P7603-1203-270M	27 $\pm$ 20%	130	2.2
P7603-1203-330M	33 $\pm$ 20%	160	2.1
P7603-1203-390M	39 $\pm$ 20%	180	2.0
P7603-1203-470M	47 $\pm$ 20%	220	1.8
P7603-1203-560M	56 $\pm$ 20%	260	1.6
P7603-1203-680M	68 $\pm$ 20%	310	1.5
P7603-1203-820M	82 $\pm$ 20%	360	1.4
P7603-1203-101M	100 $\pm$ 20%	400	1.3
P7603-1203-121M	120 $\pm$ 20%	530	1.1
P7603-1203-151M	150 $\pm$ 20%	610	1.0
P7603-1203-181M	180 $\pm$ 20%	800	0.90
P7603-1203-221M	220 $\pm$ 20%	970	0.85
P7603-1203-271M	270 $\pm$ 20%	1200	0.75
P7603-1203-331M	330 $\pm$ 20%	1350	0.70

**Notes**

1. Inductance measured at 1kHz, 1V.
2. Rated current,  $I_{\text{DC}}$ , is the current at which the temperature rise is 40°C (max) or the DC current at which the zero-current inductance drops by 20%, whichever current is less.
3. Operating temperature -25°C to +85°C.
4. For non-standard inductance values, please contact Profec.

1204 size

Part Number	Inductance ( $\mu\text{H}$ ) <sup>(1)</sup>	DCR (m $\Omega$ ) Max	Rated Current $I_{\text{DC}}$ (A) <sup>(2)</sup>
P7603-1204-3R3M	3.3 $\pm$ 20%	15	6.5
P7603-1204-4R7M	4.7 $\pm$ 20%	18	5.7
P7603-1204-6R8M	6.8 $\pm$ 20%	23	4.9
P7603-1204-100M	10 $\pm$ 20%	28	4.5
P7603-1204-120M	12 $\pm$ 20%	38	4.0
P7603-1204-150M	15 $\pm$ 20%	52	3.2
P7603-1204-180M	18 $\pm$ 20%	60	3.1
P7603-1204-220M	22 $\pm$ 20%	70	2.9
P7603-1204-270M	27 $\pm$ 20%	80	2.8
P7603-1204-330M	33 $\pm$ 20%	97	2.7
P7603-1204-390M	39 $\pm$ 20%	132	2.1
P7603-1204-470M	47 $\pm$ 20%	150	1.9
P7603-1204-560M	56 $\pm$ 20%	190	1.8
P7603-1204-680M	68 $\pm$ 20%	220	1.5
P7603-1204-820M	82 $\pm$ 20%	260	1.3
P7603-1204-101M	100 $\pm$ 20%	308	1.2
P7603-1204-121M	120 $\pm$ 20%	380	1.1
P7603-1204-151M	150 $\pm$ 20%	520	0.95
P7603-1204-181M	180 $\pm$ 20%	600	0.85
P7603-1204-221M	220 $\pm$ 20%	700	0.80
P7603-1204-271M	270 $\pm$ 20%	860	0.60
P7603-1204-331M	330 $\pm$ 20%	980	0.50

**Notes**

1. Inductance measured at 100kHz, 1V.
2. Rated current,  $I_{\text{DC}}$ , is the current at which the temperature rise is 40°C (max) or the DC current at which the zero-current inductance drops by 20%, whichever current is less.
3. Operating temperature -25°C to +85°C.
4. For non-standard inductance values, please contact Profec.

1205 size

Part Number	Inductance ( $\mu\text{H}$ ) <sup>(1)</sup>	DCR ( $\text{m}\Omega$ ) Max	Rated Current $I_{\text{DC}}$ (A) <sup>(2)</sup>
P7603-1205-1R5Y	1.5 $\pm$ 25%	12	8.0
P7603-1205-2R2Y	2.2 $\pm$ 25%	14	7.0
P7603-1205-3R1Y	3.1 $\pm$ 25%	17	6.0
P7603-1205-4R4Y	4.4 $\pm$ 25%	20	5.0
P7603-1205-5R2Y	5.2 $\pm$ 25%	21	4.4
P7603-1205-7R5Y	7.5 $\pm$ 25%	24	4.2
P7603-1205-100M	10 $\pm$ 20%	25	4.0
P7603-1205-120M	12 $\pm$ 20%	27	3.5
P7603-1205-150M	15 $\pm$ 20%	30	3.3
P7603-1205-180M	18 $\pm$ 20%	34	3.0
P7603-1205-220M	2 $\pm$ 20%	36	2.8
P7603-1205-270M	27 $\pm$ 20%	51	2.3
P7603-1205-330M	33 $\pm$ 20%	57	2.1
P7603-1205-390M	39 $\pm$ 20%	68	2.0
P7603-1205-470M	47 $\pm$ 20%	75	1.8
P7603-1205-560M	56 $\pm$ 20%	110	1.7
P7603-1205-680M	68 $\pm$ 20%	120	1.5
P7603-1205-820M	82 $\pm$ 20%	140	1.4
P7603-1205-101M	100 $\pm$ 20%	160	1.3
P7603-1205-121M	120 $\pm$ 20%	170	1.1
P7603-1205-151M	150 $\pm$ 20%	230	1.0
P7603-1205-181M	180 $\pm$ 20%	290	0.90
P7603-1205-221M	220 $\pm$ 20%	400	0.80
P7603-1205-271M	270 $\pm$ 20%	460	0.75
P7603-1205-331M	330 $\pm$ 20%	510	0.68
P7603-1205-391M	390 $\pm$ 20%	690	0.65
P7603-1205-471M	470 $\pm$ 20%	770	0.58
P7603-1205-561M	560 $\pm$ 20%	860	0.54
P7603-1205-681M	680 $\pm$ 20%	1200	0.48
P7603-1205-821M	820 $\pm$ 20%	1340	0.43
P7603-1205-102M	1000 $\pm$ 20%	1530	0.40

**Notes**

1. Inductance measured at 1kHz, 1V (<10 $\mu\text{H}$ , 100kHz).
2. Rated current,  $I_{\text{DC}}$ , is the current at which the temperature rise is 40°C (max) or the DC current at which the zero-current inductance drops by 20%, whichever current is less.
3. Operating temperature -25°C to +85°C.
4. For non-standard inductance values, please contact Profec.



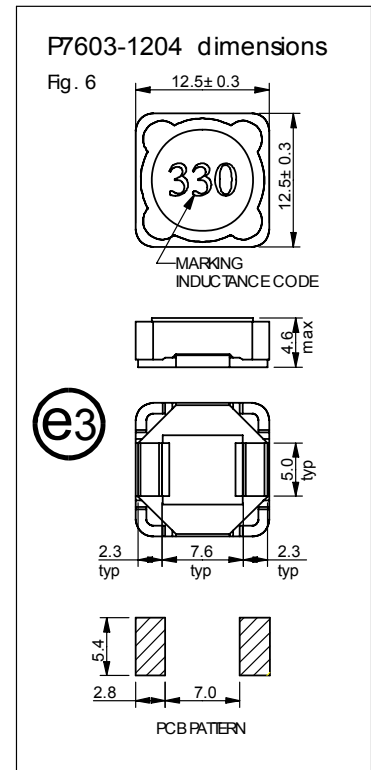
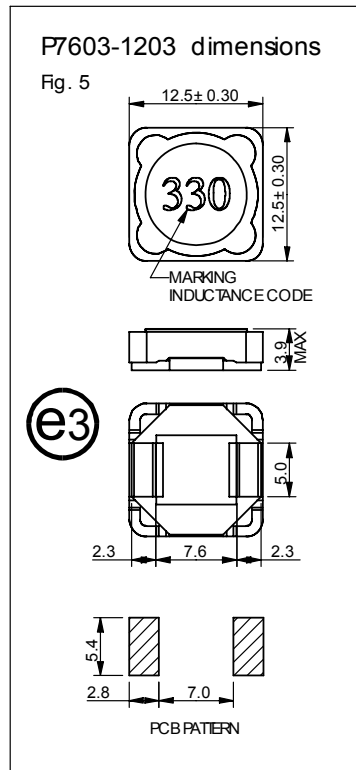
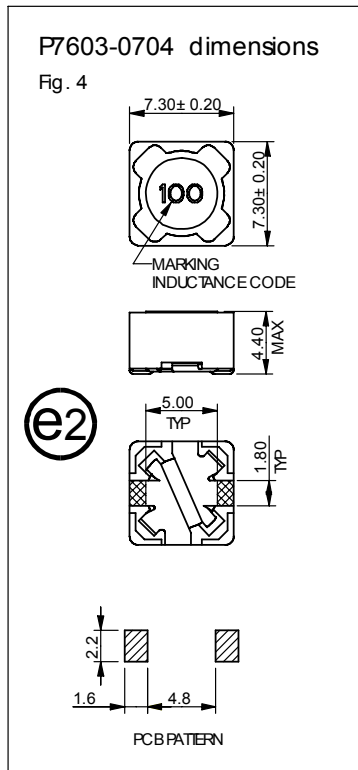
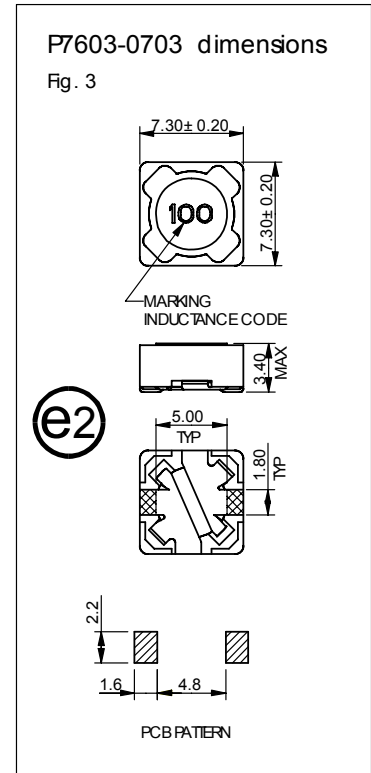
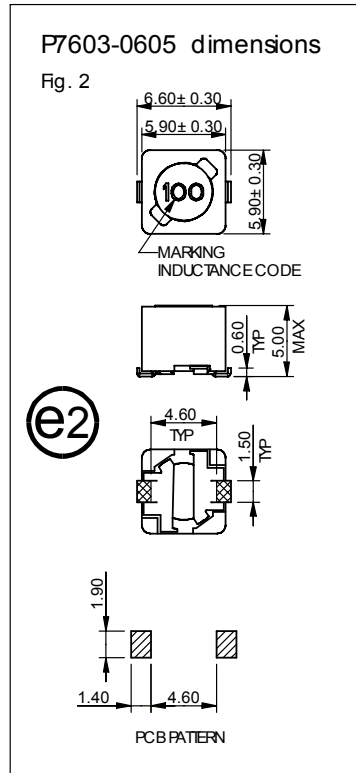
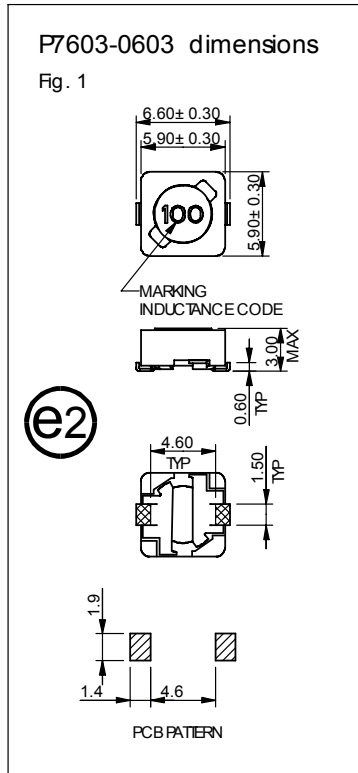
1207 size

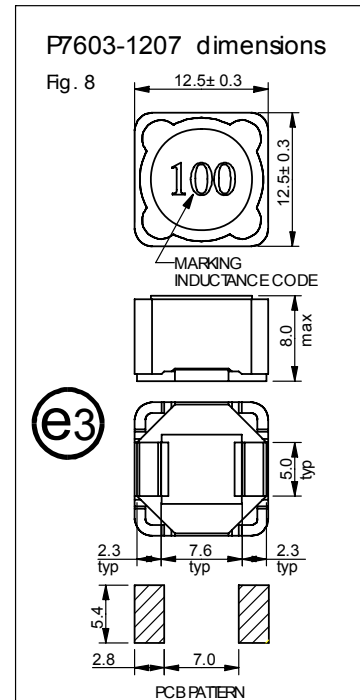
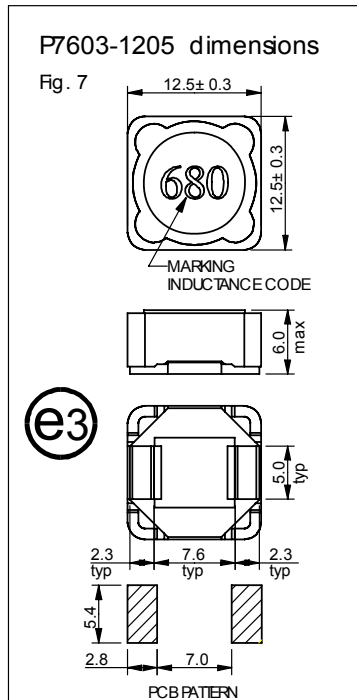
Part Number	Inductance ( $\mu\text{H}$ ) <sup>(1)</sup>	DCR ( $\text{m}\Omega$ ) Max	Rated Current $I_{\text{DC}}$ (A) <sup>(2)</sup>
P7603-1207-1R2Y	1.2 $\pm$ 30%	7.0	9.8
P7603-1207-2R7Y	2.7 $\pm$ 30%	11.5	8.0
P7603-1207-3R9Y	3.9 $\pm$ 30%	13.5	7.5
P7603-1207-4R7Y	4.7 $\pm$ 30%	15.8	6.8
P7603-1207-5R6Y	5.6 $\pm$ 30%	17.6	6.6
P7603-1207-7R6Y	7.6 $\pm$ 30%	20.0	5.9
P7603-1207-100M	10 $\pm$ 20%	21.6	5.4
P7603-1207-120M	12 $\pm$ 20%	24.3	4.9
P7603-1207-150M	15 $\pm$ 20%	27.0	4.5
P7603-1207-180M	18 $\pm$ 20%	39.2	3.9
P7603-1207-220M	22 $\pm$ 20%	43.2	3.6
P7603-1207-270M	27 $\pm$ 20%	45.9	3.4
P7603-1207-330M	33 $\pm$ 20%	64.8	3.0
P7603-1207-390M	39 $\pm$ 20%	72.9	2.7
P7603-1207-470M	47 $\pm$ 20%	100	2.5
P7603-1207-560L	56 $\pm$ 15%	110	2.3
P7603-1207-680L	68 $\pm$ 15%	140	2.1
P7603-1207-820L	82 $\pm$ 15%	160	1.9
P7603-1207-101L	100 $\pm$ 15%	220	1.7
P7603-1207-121L	120 $\pm$ 15%	250	1.6
P7603-1207-151L	150 $\pm$ 15%	280	1.4
P7603-1207-181K	180 $\pm$ 10%	350	1.3
P7603-1207-221K	220 $\pm$ 10%	390	1.1
P7603-1207-271K	270 $\pm$ 10%	560	1.0
P7603-1207-331K	330 $\pm$ 10%	640	0.95
P7603-1207-391K	390 $\pm$ 10%	700	0.88
P7603-1207-471K	470 $\pm$ 10%	980	0.79
P7603-1207-561K	560 $\pm$ 10%	1070	0.73
P7603-1207-681K	680 $\pm$ 10%	1460	0.67
P7603-1207-821K	820 $\pm$ 10%	1640	0.60
P7603-1207-102K	1000 $\pm$ 10%	1820	0.55

**Notes**

1. Inductance measured at 1kHz, 1V (<10 $\mu\text{H}$ , 100kHz).
2. Rated current,  $I_{\text{DC}}$ , is the current at which the temperature rise is 40°C (max) or the DC current at which the zero-current inductance drops by 20%, whichever current is less.
3. Operating temperature -25°C to +85°C.
4. For non-standard inductance values, please contact Profec.

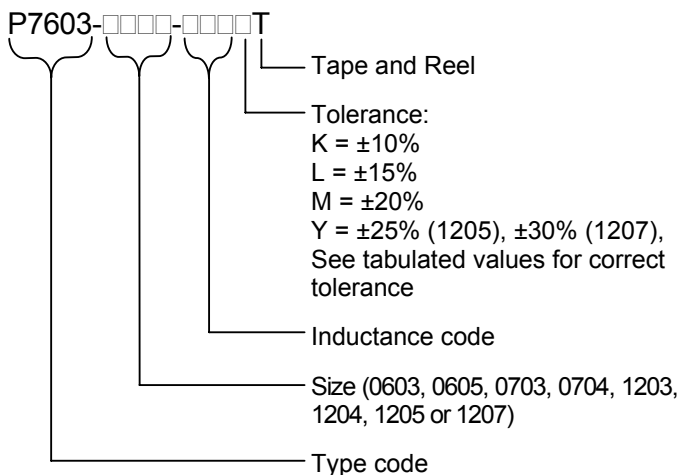
**CONSTRUCTION**





Dimensions shown are in millimetres  
Terminal plating JESD97 category = e2 or e3 as shown.  
Recommended reflow solder profile: 2 minutes @ 150-200°C, 10 seconds @ 260°C; time above 217°C 60 seconds maximum.

**ORDERING CODE**



**ABSOLUTE MAXIMUM RATINGS**

Storage temperature	-40°C to +125°C
Operating temperature	-25°C to +85°C
Soldering temperature profile peak	260°C 10s
Handle in accordance with IPC/JEDEC J-STD-033 procedure for components classified as IPC/JEDEC J-STD-020 Moisture Sensitivity Level 2.	