



Product Series Code:	WPA	Brand:	MOTTO
File Version:	WPA-V2	Editor:	Jack
Established Date:	2008.08.08	Description:	SMD Shielded Power Inductor
Latest Edit Date:	2010.11.26	Pages:	1

*** Features & Application:**

- 1.Power supply PWM circuit input / output inductor
- 2.Power line noise suppression
- 3.DC-DC Converter
- 4.To help you go pass CE/FCC standard
- 5.TFT/ WiFi/ MobilePhone/ MP3/ PDA.....etc. Application
- 6.Low Profile for all compact design

*** Product Identify:**

Pin Foot	EMI	Color	Made In
SMD	shield	Black	CHINA

RoHS Compliant – SGS Test Report

Pb	Cd	Hg	Cr+6	PBB	PBDE
<1000ppm	ND	ND	ND	ND	ND

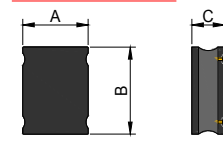
*** Part No. Example:**

WPA 3010 S 6R8 M
1 2 3 4 5

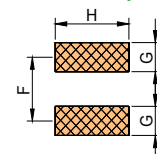
- 1 MOTTO Series Code
- 2 Dimension Code : 3010 = (L) 3.1 x (W) 3.1 x (H) 1.0 mm
- 3 Inductance : 6R8 = 6.8uH Ex: 100=10uH, 101=100uH
- 4 FEATURE TYPE STANDARD
- 5 Tolerance: M=20%, N=30%

*** Dimensions: [mm]**

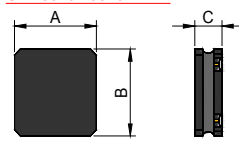
GNR2510 / 2512 TYPE



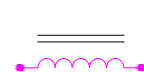
Recommend Pad Layout [mm]



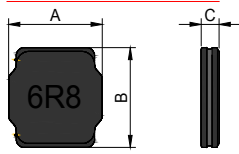
GNR3010 / 3015 TYPE



Schematic



GNR6012 / 6045 / 8040 TYPE



*** Operating & Storage Condition:**

- 1.Storage Condition -40 ~ +85 ° C / RH 65 ± 10%
- 2.Storage Life Time 6 Months @ 20 ° C / RH 65% (no seal off)
- 3.Operating Condition -40 ~ +105 ° C (Including self-temperature rise)

Attention & Caution:

- * Keep out of splashing water or salt water
- * Toxic Gas (Hydrogen sulfide, Sulfurous acid, Chlorine, Ammonia)
- * Vibrations or shocks which exceed the specified condition
- * Dew condense
- * Please be careful for the stress to this product by board flexure or something after the mounting.

Type	Size Code	A (Max)	B (Max)	C (Max)	D (Ref.)	E (Ref.)	F (Ref.)	G (Ref.)	H (Ref.)
WPA	2510	2.1	2.6	1.0	0.40	2.1	1.7	0.9	2.1
WPA	2512	2.1	2.6	1.2	0.40	2.1	1.7	0.9	2.1
WPA	3010	3.1	3.1	1.0	0.90	2.7	1.7	1.0	2.7
WPA	3015	3.1	3.1	1.5	0.90	2.7	1.7	1.0	2.7
WPA	6012	6.2	6.2	1.2	1.15	5.1	4.7	1.6	5.7
WPA	6045	6.2	6.2	4.5	1.15	5.1	4.7	1.6	5.7
WPA	8040	8.2	8.2	4.2	1.60	6.3	5.6	1.8	7.5

*** Test Condition:**

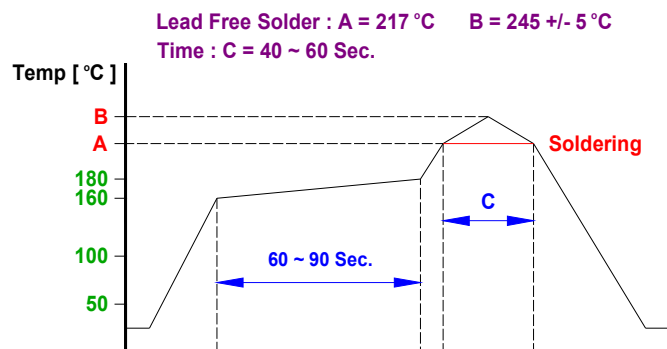
- Equipment**
- 1.L – WK3260 LCR Meter
 - 2.RDC – Twintex TM8089A
 - 3.IDC – WK3260+3265B DC-Bias
 - 4.Dimension - Mitutoyo
 - 5.Temperature – TECPEL 305A

Ambient Temperature 20 ± 5 ° C
Humidity RH 65 ± 20%

If there may be any doubt on the test result, Measurement shall be made within the following limits:

Ambient Temperature 25 ± 5 ° C
Humidity RH 75 ± 10%

*** Recommend IR Reflow Curve: GTX-IR-FILE001**



Notice : Iron Soldering , Solder < 30 Watt , Direct touch the terminal x 3 Sec. Max. @ 350 ° C





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MOTTO P/N	Inductance (uH)	L-Tolerance	RDC (m Ohm) Typ.	RDC (m Ohm) Max.	Isat (mA) Typ.	Irms (mA) Typ.
WPA2510SR47 □	0.47	M,N	40	48	2800	2300
WPA2510S1R0 □	1.00	M,N	71	85	2000	1700
WPA2510S1R5 □	1.50	M,N	107	128	1700	1400
WPA2510S2R2 □	2.20	M	158	190	1400	1100
WPA2510S3R3 □	3.30	M	253	304	1200	940
WPA2510S4R7 □	4.70	M	367	440	980	780
WPA2510S6R8 □	6.80	M	451	541	820	700
WPA2510S100 □	10.00	M	712	854	650	520

- Inductance test Freq. : 100KHz / 0.1V
- L-Tolerance : N = 30% , M = 20%
- The saturation current value (Isat) is the DC current value having inductance decrease down to 30%. (at 20°C)
- The temperature rise current value (I rms) DC current value having temperature increase up to 40°C . (at 20°C)

MOTTO P/N	Inductance (uH)	L-Tolerance	RDC (m Ohm) Typ.	RDC (m Ohm) Max.	Isat (mA) Typ.	Irms (mA) Typ.
WPA2512SR47 □	0.47	M,N	47	56	3700	2200
WPA2512S1R0 □	1.00	M,N	73	88	2700	1800
WPA2512S1R5 □	1.50	M,N	105	126	2200	1500
WPA2512S2R2 □	2.20	M	129	155	2000	1300
WPA2512S3R3 □	3.30	M	227	272	1600	1000
WPA2512S4R7 □	4.70	M	338	406	1300	810
WPA2512S5R6 □	5.60	M	375	450	1150	720
WPA2512S6R8 □	6.80	M	510	612	1100	660
WPA2512S100 □	10.00	M	630	756	900	590

- Inductance test Freq. : 100KHz / 0.1V
- L-Tolerance : N = 30% , M = 20%
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MOTTO P/N	Inductance (uH)	L-Tolerance	RDC (m Ohm) Typ.	RDC (m Ohm) Max.	Isat (mA) Typ.	Irms (mA) Typ.
WPA3010S1R0 □	1.00	M,N	65	78	1950	1700
WPA3010S1R2 □	1.20	M,N	80	96	1900	1650
WPA3010S1R5 □	1.50	M,N	80	96	1600	1650
WPA3010S2R2 □	2.20	M	95	114	1450	1450
WPA3010S3R3 □	3.30	M	160	192	1050	1300
WPA3010S4R7 □	4.70	M	190	228	950	1100
WPA3010S6R8 □	6.80	M	300	360	760	850
WPA3010S100 □	10.00	M	450	540	610	720
WPA3010S150 □	15.00	M	740	888	480	560
WPA3010S220 □	22.00	M	980	1176	420	500
WPA3010S330 □	33.00	M	1550	1860	340	415
WPA3010S470 □	47.00	M	2000	2400	270	320

- Inductance test Freq. : 1MHz / 0.1V
- L-Tolerance : N = 30% , M = 20%
- The saturation current value (Isat) is the DC current value having inductance decrease down to 30%. (at 20°C)
- The temperature rise current value (Irms) DC current value having temperature increase up to 40°C . (at 20°C)

MOTTO P/N	Inductance (uH)	L-Tolerance	RDC (m Ohm) Typ.	RDC (m Ohm) Max.	Isat (mA) Typ.	Irms (mA) Typ.
WPA3015S1R0 □	1.00	M,N	40	48	2350	2350
WPA3015S1R5 □	1.50	M,N	55	66	2000	2100
WPA3015S2R2 □	2.20	M	60	72	1650	1800
WPA3015S3R3 □	3.30	M	93	112	1400	1600
WPA3015S4R7 □	4.70	M	113	136	1200	1400
WPA3015S6R8 □	6.80	M	176	211	1050	1100
WPA3015S100 □	10.00	M	234	276	880	1000
WPA3015S150 □	15.00	M	352	422	680	800
WPA3015S220 □	22.00	M	510	622	580	600
WPA3015S330 □	33.00	M	799	959	460	500
WPA3015S470 □	47.00	M	1172	1406	380	400
WPA3015S101 □	100.00	M	2433	2920	270	290

- Inductance test Freq. : 1MHz / 0.1V
- L-Tolerance : N = 30% , M = 20%
- The saturation current value (Isat) is the DC current value having inductance decrease down to 30%. (at 20°C)
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MOTTO P/N	Inductance (uH)	L-Tolerance	RDC (m Ohm) Typ.	RDC (m Ohm) Max.	Isat (mA) Typ.	Irms (mA) Typ.
WPA6012S1R0 □	1.00	N	50	65	2800	2300
WPA6012S1R5 □	1.50	N	65	85	2400	2000
WPA6012S2R5 □	2.50	N	90	108	2100	1730
WPA6012S4R0 □	4.00	N	105	126	1800	1570
WPA6012S5R3 □	5.30	M	110	132	1500	1400
WPA6012S6R8 □	6.80	M	165	198	1300	1180
WPA6012S100 □	10.00	M	235	282	1000	1000
WPA6012S150 □	15.00	M	330	396	800	790
WPA6012S220 □	22.00	M	530	636	760	630
WPA6012S330 □	33.00	M	700	840	590	530
WPA6012S470 □	47.00	M	1050	1260	520	460
WPA6012S680 □	68.00	M	1350	1620	440	410
WPA6012S101 □	100.00	M	2180	2616	350	320

- Inductance test Freq. : 100KHz / 0.1V
- L-Tolerance : N = 30% , M = 20%
- The saturation current value (Isat) is the DC current value having inductance decrease down to 30%. (at 20°C)
- The temperature rise current value (I rms) DC current value having temperature increase up to 40°C . (at 20°C)

MOTTO P/N	Inductance (uH)	L-Tolerance	RDC (m Ohm) Typ.	RDC (m Ohm) Max.	Isat (mA) Typ.	Irms (mA) Typ.
WPA6045S1R0 □	1.00	N	14.0	18.2	8500	4200
WPA6045S1R5 □	1.50	N	16.0	20.8	8000	4000
WPA6045S2R2 □	2.20	N	21.0	27.3	6000	3500
WPA6045S3R3 □	3.30	N	24.0	31.2	5000	3200
WPA6045S4R7 □	4.70	M	31.0	40.3	4000	3000
WPA6045S6R3 □	6.30	M	38.0	49.4	3800	2800
WPA6045S100 □	10.00	M	47.0	61.1	3000	2500
WPA6045S150 □	15.00	M	77.0	100.1	2300	1900
WPA6045S220 □	22.00	M	115.0	149.5	1900	1500
WPA6045S330 □	33.00	M	145.0	188.5	1500	1400
WPA6045S470 □	47.00	M	220.0	286.0	1300	1100
WPA6045S680 □	68.00	M	330.0	429.0	1000	900
WPA6045S101 □	100.00	M	500.0	650.0	800	700

- Inductance test Freq. : 100KHz / 0.1V
- L-Tolerance : N = 30% , M = 20%
- The saturation current value (Isat) is the DC current value having inductance decrease down to 30%. (at 20°C)
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MOTTO P/N	Inductance (uH)	L-Tolerance	RDC (m Ohm) Typ.	RDC (m Ohm) Max.	Isat (mA) Typ.	Irms (mA) Typ.
WPA8040SR90 <input type="checkbox"/>	0.90	N	6	8	11000	7800
WPA8040S1R4 <input type="checkbox"/>	1.40	N	7	10	9000	7000
WPA8040S2R0 <input type="checkbox"/>	2.00	N	9	12	7400	6300
WPA8040S3R6 <input type="checkbox"/>	3.60	N	15	20	5300	4900
WPA8040S4R7 <input type="checkbox"/>	4.70	N	18	24	4700	4100
WPA8040S6R8 <input type="checkbox"/>	6.80	N	25	33	4000	3700
WPA8040S100 <input type="checkbox"/>	10.00	M	34	45	3400	3100
WPA8040S150 <input type="checkbox"/>	15.00	M	50	65	2700	2400
WPA8040S220 <input type="checkbox"/>	22.00	M	66	86	2200	2200
WPA8040S330 <input type="checkbox"/>	33.00	M	100	130	1900	1700
WPA8040S470 <input type="checkbox"/>	47.00	M	150	195	1500	1400
WPA8040S680 <input type="checkbox"/>	68.00	M	230	299	1200	1100
WPA8040S101 <input type="checkbox"/>	100.00	M	290	377	1000	1000

■ Inductance test Freq. : 100KHz / 0.1V

■ L-Tolerance : N = 30% , M = 20%

■ The saturation current value (Isat) is the DC current value having inductance decrease down to 30%. (at 20°C)

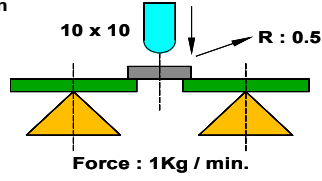
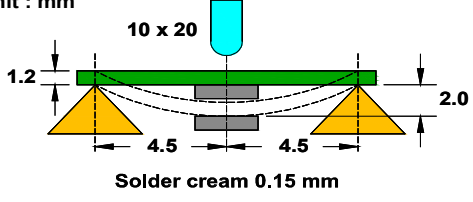
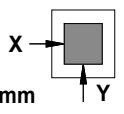
■ The temperature rise current value (Iirms) DC current value having temperature increase up to 40°C . (at 20°C)





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Reliability:

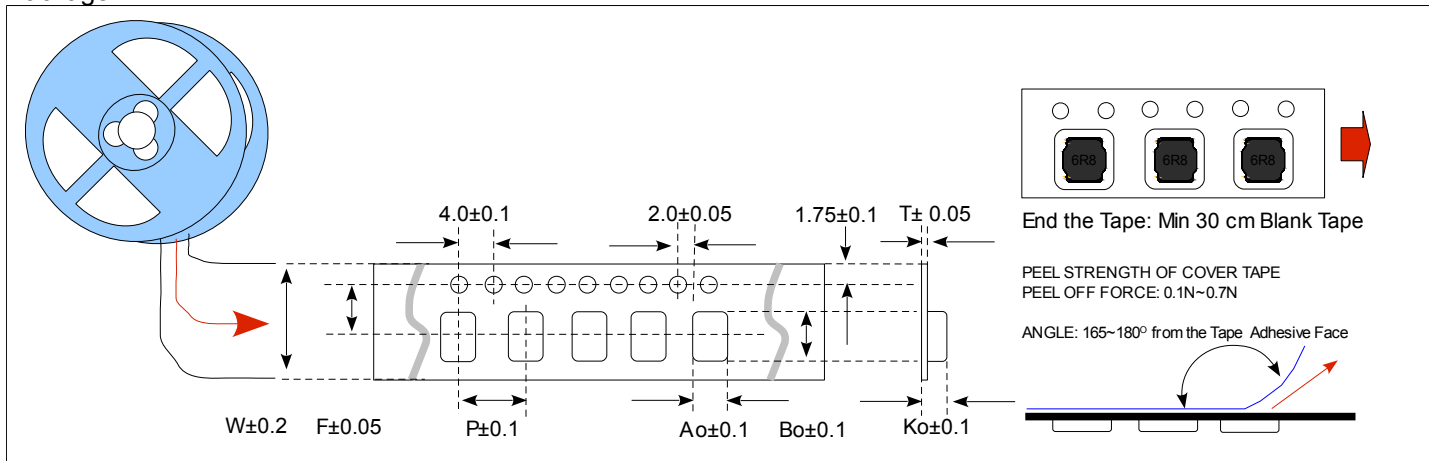
SN	Test Item	Test Condition	Specification	Sample Qty/pcs	Test Date	Result												
1	Dimension 本體相關呎吋	Actual Size ...	Meet Spec	10	2009/03/09~ 2009/03/09	Pass												
2	Thermal Shock (Temperature Cycle) 溫度循環試驗	Temperature:-40 °C / +85 °C kept stabilized for 30 minutes each Cycle: 100 Cycles (power off)	Elec. no variation Appearance no deformation	10	2009/03/09~ 2009/03/11	Pass												
3	Humidity Resistance 耐濕試驗	Humidity: 90%~ 95% RH Temperature: 40±2 °C Test Time: 96±2 Hours	Elec. no variation Appearance no deformation	10	2009/03/09~ 2009/03/13	Pass												
4	High Temperature 耐熱試驗	Temperature: 85±2 °C Testing Time: 96±2 Hours	Elec. no variation Appearance no deformation	10	2009/03/09~ 2009/03/13	Pass												
5	Low Temperature 耐寒試驗	Temperature: -40 ± 2 °C Time: 96±2 Hours	Elec. no variation Appearance	10	2009/03/09~ 2009/03/13	Pass												
6	Temperature and Humidity Cycle 溫/濕度循環試驗	<table border="1"> <thead> <tr> <th>Temperature</th> <th>Humidity</th> <th>Time</th> </tr> </thead> <tbody> <tr> <td>25 °C</td> <td>90%~ 95% RH</td> <td>3.0 Hr</td> </tr> <tr> <td>55 °C</td> <td>95%~ 96% RH</td> <td>5.0 Hr</td> </tr> <tr> <td>25 °C</td> <td>90%~ 95% RH</td> <td>3.0 Hr</td> </tr> </tbody> </table> Cycle: 20 Cycles	Temperature	Humidity	Time	25 °C	90%~ 95% RH	3.0 Hr	55 °C	95%~ 96% RH	5.0 Hr	25 °C	90%~ 95% RH	3.0 Hr	Elec. no variation Appearance no deformation	10	2009/03/09~ 2009/03/16	Pass
Temperature	Humidity	Time																
25 °C	90%~ 95% RH	3.0 Hr																
55 °C	95%~ 96% RH	5.0 Hr																
25 °C	90%~ 95% RH	3.0 Hr																
7	Vibration 振動性試驗	Frequency: 10Hz~55Hz Amplitude: 1.5mm Direction: X,Y,Z Time: 2 Hours each	Elec. no variation Appearance no deformation	10	2009/03/09~ 2009/03/09	Pass												
8	Solderability 焊錫性試驗	Go through real SMT IR-Reflow... The profile like our suggest profile. Preheat:160 ± 10 °C (90 sec) Peak:245±5 °C Peak Time: 50 Sec. / up 217 °C	Elec. no variation Appearance no deformation	10	2009/03/09~ 2009/03/09	Pass												
9	Soldering Heat Resistance 耐熱 焊性試驗	Preheat:160 ± 10 °C (90 sec) Solder:Sn/Ag/Cu(Pb Free) Solder Temp.: 260 ± 5 °C Time: 3±1 seconds	Elec. no variation Appearance no deformation	10	2009/03/09~ 2009/03/09	Pass												
10	Iron Solder Heat Resistance 手焊耐熱試驗	Solder Temp.: 350 ± 5 °C Flux: Rosin Time: 3±1 seconds	Elec. no variation Appearance no deformation	10	2009/03/09~ 2009/03/09	Pass												
11	Bending Strength 折斷力試驗	Unit : mm 	Elec. no variation Appearance no deformation	10	2009/03/09~ 2009/03/09	Pass												
12	Flexure Strength 彎曲試驗	Unit : mm 	Elec. no variation Appearance no deformation	10	2009/03/09~ 2009/03/09	Pass												
13	Terminal Strength 推/ 拉力試驗	 Push 10N force to X , Y direction Mount on PCB Solder Cream 0.15 mm	Must no crack and damage	10	2009/03/09~ 2009/03/09	Pass												
14	High-Voltage 高壓電擊試驗	100 V DC between core & winding	Elec. no variation Appearance no deformation	10	2009/03/09~ 2009/03/09	Pass												
15	Load life 負載電性試驗	Temperature: 25±3 °C Load: Allowed DC Current Test Time: 96±2 Hours	There Should Be No Evidence Of Short Or Open Circle	10	2009/03/09~ 2009/03/13	Pass												



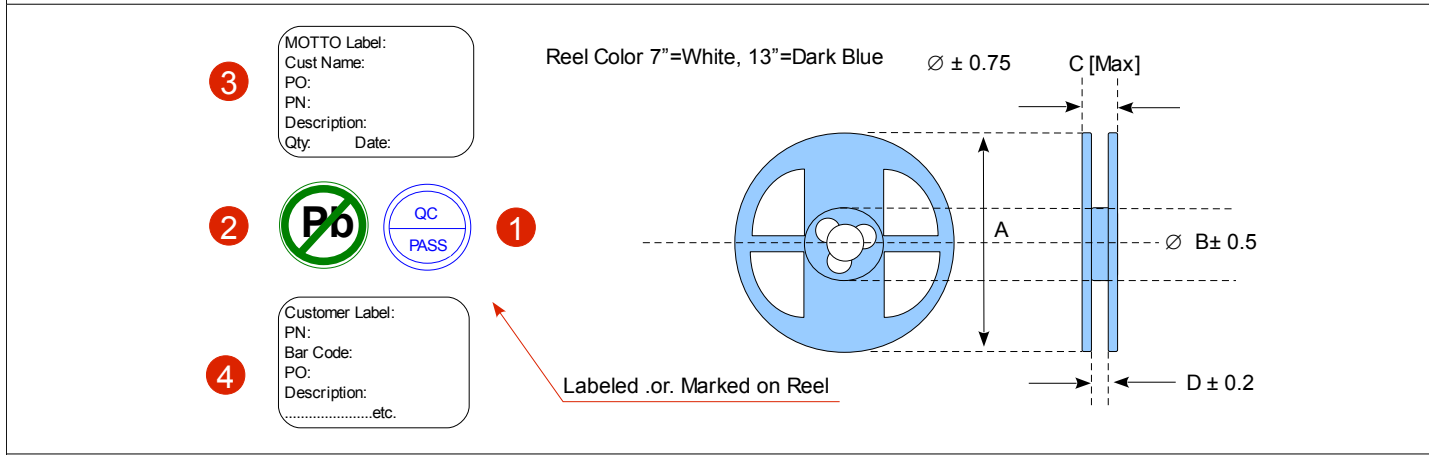


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Package :



Size / mm	W	P	Ao	Bo	Ko	T	F
2510	8	4	2.1	2.6	1.2	0.3	3.5
2512	8	4	2.1	2.6	1.4	0.3	3.5
3010	8	4	3.2	3.2	1.4	0.3	3.5
3015	8	4	3.2	3.2	1.9	0.3	3.5
6012	16	12	6.3	6.3	1.4	0.35	7.5
6045	16	8	6.3	6.3	4.6	0.35	7.5
8040	16	12	8.3	8.3	4.3	0.35	7.5



Size / mm	A	B	C	D	Reel Size	Qty / Reel
2510	180	60	14.5	10	7"	2000
2512	180	60	14.5	10	7"	2000
3010	180	60	14.5	10	7"	2000
3015	180	60	14.5	10	7"	2000
6012	330	100	20.9	16.5	13"	3000
6045	330	100	20.9	16.5	13"	1500
8040	330	100	20.9	16.5	13"	1000

Unit: [cm]

5 Inner Small Box in Outer Large Box

