

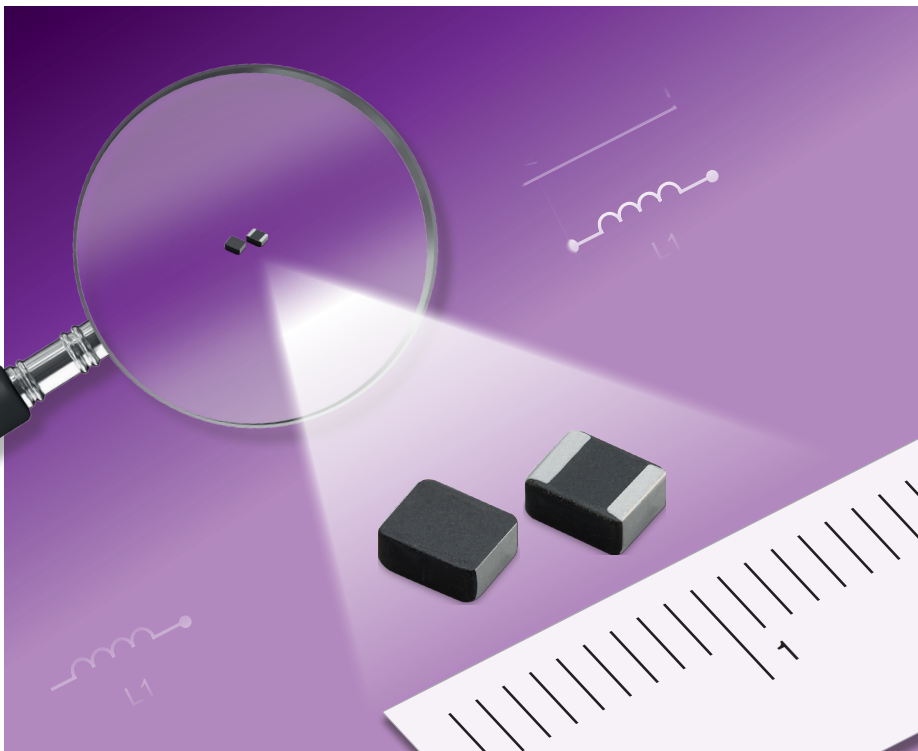
06/2023

endrich NEWS

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OUR PRODUCT OF THE MONTH

METAL ALLOY MOLDING / WIRE WOUND POWER
INDUCTOR WIP TYPE



Inpaq WIP series are wire-wound power inductors in most compact size

- Smallest size down to 2.0 x 1.2 x 0.8 mm
- Best saturation current by special metal alloy up to 10,5 A
- Best cost structure by array manufacturing and 600Mpcs/M output

Read more on page 4

IP68 WATERPROOF TEMPERATURE SENSORS

TTO series was designed and dedicated especially for hard environmental conditions.

High humidity, frequent process of refrigeration and thawing, or water can easily damage most of the conventional sensors. Although, these difficult conditions are not a problem for TTO series due to usage of overmoulding technology that assures very good barrier against moisture.

APPLICATIONS

- Refrigerators and freezers
- Cooling cabinets
- Air conditioning
- Underfloor heating
- Boilers and heat pumps
- Climate control systems
- Industrial process control

FEATURES

- Excellent insulation against moisture
- Degree of waterproof protection IP68
- Overmoulded tip diameters from 3.5 mm to 6.5 mm
- Available with steel cap for better mechanical protection
- Excellent resistance to UV (black insulation)
- RoHS compliant and halogen free
- Wide range of R/T characteristics
- Marking possible on request
- Cable remains flexible at minimum design temperature
- Wide range of sensing elements: NTC, PT100/500/1000, KTY, PTC etc

Specification	
Temperature range	-50 °C to +105 °C (continuous), version up to +150 °C is now available
Tight resistance tolerance	±0.1 °C, ±0.2 °C, or 1 % to 5 %
Beta (25/85) value	from 3187 K to 4262 K
Beta tolerance	from ±0.3 % to ±5 %
Cable	0.3 mm ² stranded copper, VDE approved
Cable length	from 100 mm to 100 m (others available)
Insulation resistance	100 MOhm at 1000 VDC
Dielectric strength	3750 V AC



NEWS

WCF SERIES WIDE TERMINAL CHIP R

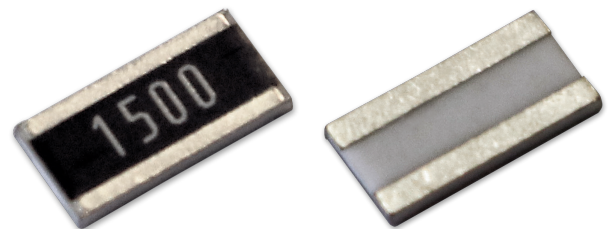
WCF series is a lineup of high rated power and compact size chip resistor from Prosperity Dielectrics Co. (PDC).

During operation, resistors create heat in the resistive element ($P=I^2 \cdot R$). The rated power of a chip resistor is determined by capability to dissipate the heat to PCB and ambience. The ability for heat dissipation is (amongst others) depending of the ratio chip size to terminal area. Comparing two resistors of the same chip size demonstrates that the resistor with the terminals on the wide side can dissipate more heat than the resistor with terminal on the short side.

This effect can bring different advantages to the end product:

- The power density can be increased without the need for larger PCB space
- The PCB space can be reduced by using smaller resistor package sizes or less number of pieces
- The safety margin can be increased, the aging effect can be reduced

In applications that are exposed to a wide ambient operating temperature range, special care should be taken when using larger chip sizes of resistors. This is because of the difference of CTE (Coefficient of Thermal Expansion) between the resistor and PCB, which can cause mechanical stress, can result in terminal crack after a certain usage time. Generally, the chip resistors with wide terminal contribute to down sizing which helps to avoid terminal crack. Even for the large sizes, wide terminal resistors have a better robustness against the stress caused by CTE because of the larger soldering area.



Series	L(mm)	W(mm)	T(mm)	Size Code	Rated Power (70deg.C.)	Max. RCWV	Avail. TCR	Avail Tol.	Resistance value Range
WCF06	1.60 ± 0.20	3.20 ± 0.20	0.6 ± 0.15	0612	1 W	200V	+/- 100 ppm +/- 200 ppm	+/- 1 % +/- 5 %	1 Ohm – 1Meg. Ohm
WCF25	3.10 ± 0.20	6.30 ± 0.20	0.6 ± 0.15	1225	2 W	200V	+/- 100 ppm +/- 200 ppm	+/- 1 % +/- 5 %	1 Ohm – 1Meg. Ohm

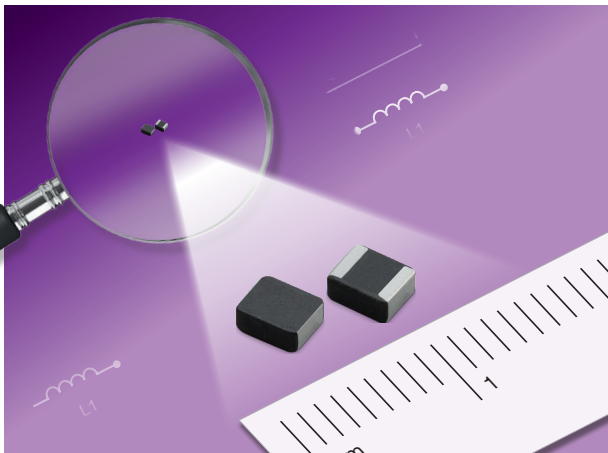
APPLICATIONS

- Power supplies
- Industrial application (e.g. for ECU boards)
- Automotive (e.g. for xEV Inverter)
- General purpose applications

FEATURES

- High power rating to 2 W and compact size
- High reliability and high precision (1 %)
- Compatible with wave and reflow soldering
- Suitable for lead free soldering
- Meet AEC-Q200, RoHS compliant & Halogen Free

METAL ALLOY MOLDING / WIRE WOUND POWER INDUCTOR WIP TYPE



The WIP series of Inpaq are wirewound power inductors in chip size

The construction consists of enamelled copper wire spring coil, molded inside a metal alloy powder paste. Core material with best permeability and lowest core loss, combined with a highly efficient production method result in coils with excellent performance and best competitiveness.

Series	Type	Inductance [μ H]	RDC [mOhm]	ISAT [A] Typ.	Size L x W x H [mm]
WIP201208Y	WIP-Y high current	0.74	29	4.6	2.0 x 1.2 x 0.8
WIP201610	WIP-Y high current	0.47 ~ 1.0	19 ~ 37	5.7 ~ 4.2	2.0 x 1.6 x 1.0
	WIP-S high performance	0.1 ~ 4.7	10 ~ 240	9 ~ 1.8	
	WIP-P standard	0.24 ~ 2.2	17 ~ 135	5.6 ~ 1.9	
WIP252010	WIP-A low DCR	0.47 ~ 1.0	17 ~ 35	6.4 ~ 4.4	2.5 x 2.0 x 1.0
	WIP-P standard	0.22 ~ 4.7	9 ~ 220	7.9 ~ 1.8	
	WIP-S high performance	0.22 ~ 4.7	10 ~ 200	10.5 ~ 2.2	
WIP252012	WIP-P standard	0.47 ~ 4.7	21 ~ 196	5.3 ~ 1.9	2.5 x 2.0 x 1.2
	WIP-S high performance	0.47 ~ 4.7	16 ~ 160	6.8 ~ 2.2	
WIP322512A	WIP-A low DCR	0.47 ~ 6.8	15 ~ 190	7.7 ~ 2.4	3.2 x 2.5 x 1.2

APPLICATIONS

- DC/DC converters with high switching frequency
- Portable devices
- Industrial application
- Automotive electronics (WPA type)
- Consumer products

FEATURES

- High saturation current, up to 10.5A
- Low DCR, down to 9 m Ω
- Very low core loss
- Suitable for frequency up to 10 MHz
- Excellent EMI (magnetically shielded)
- Referenced by Qualcomm / Snapdragon

NEWS

METAL ALLOY MOLDING / WIRE WOUND POWER INDUCTOR WIP TYPE

Inductance [μ H] (Type) RDC/ISAT/IDC (MAX)	2.0 x 1.2 x 0.8 [mm]	2.0 x 1.6 x 1.0 [mm]	2.5 x 2.0 x 1.0 [mm]	2.5 x 2.0 x 1.2 [mm]	3.2 x 2.5 x 1.2 [mm]
0.1		(S) 10 mOhm / 9.0A / 6.0A			
0.22			(S) 10 mOhm / 10.5A / 6.9A		
			(P) 9 mOhm / 7.9A / 5.9A		
0.24		(P) 17 mOhm / 5.6A / 5.0A	(S) 11.5 mOhm / 8.8A / 6.6A		
		(S) 17 mOhm / 6.8A / 5.8A			
0.33		(P) 24 mOhm / 5.0A / 4.1 A	(S) 17 mOhm / 7.8A / 5.6A		
		(S) 21 mOhm / 6.7A / 4.7A	(P) 21 mOhm / 6.6A / 4.4A		
0.47	(Y) 29 mOhm / 4.6A / 4.0A	(Y) 19 mOhm / 5.7A / 5.3A	(A) 17 mOhm / 6.6A / 5.8A	(S) 16 mOhm / 6.8A / 5.8A	(A) 15 mOhm / 7.7A / 5.8A
		(P) 33 mOhm / 4.4A / 3.5A	(S) 23 mOhm / 6.6A / 5.2A	(P) 21 mOhm / 5.3A / 4.6A	
		(S) 23 mOhm / 6.1A / 4.5A	(P) 27 mOhm / 5.0A / 3.9A		
0.68		(P) 41 mOhm / 3.7A / 3.4A	(S) 30 mOhm / 5.5A / 4.3A	(P) 29 mOhm / 5.0A / 3.7A	(A) 16 mOhm / 6.2A / 5.3A
		(S) 40 mOhm / 4.7A / 4.0A	x (P) 37 mOhm / 4.3A / 3.4A		
1		(Y) 37 mOhm / 4.2A / 3.4A	(A) 35 mOhm / 4.4A / 3.9A	(S) 36 mOhm / 4.8A / 3.9A	(A) 25 mOhm / 5.5A / 4.9A
		(P) 60 mOhm / 2.9A / 2.6A	(S) 41 mOhm / 4.4A / 3.4A	(P) 41 mOhm / 4.4A / 3.5A	
		(S) 48 mOhm / 3.9A / 3.2A	(P) 45 mOhm / 3.5A / 3.0A		
1.5		(P) 114 mOhm / 2.5A / 2.0A	(S) 62 mOhm / 3.8A / 2.9A	(S) 54 mOhm / 4.0A / 2.9A	
		(S) 86 mOhm / 3.4A / 2.4A	(P) 76 mOhm / 2.6A / 2.5A	(P) 64 mOhm / 3.2A / 2.5A	
2.2		(P) 135 mOhm / 1.9A / 1.7A	(S) 88 mOhm / 3.3A / 2.4A	(S) 74 mOhm / 3.5A / 2.5A	(A) 60 mOhm / 4.0A / 3.0A
		(S) 117 mOhm / 2.6A / 2.2A	(P) 99 mOhm / 2.4A / 2.3A	(P) 85 mOhm / 3.0A / 2.27A	
3.3			(S) 140 mOhm / 2.5A / 1.9A	(P) 125 mOhm / 2.1A / 2.0A	
4.7		(S) 240 mOhm / 1.8A / 1.3A	(S) 200 mOhm / 2.2A / 1.6A	(S) 160 mOhm / 2.2A / 1.8A	(A) 150 mOhm / 2.4A / 1.5A
			(P) 220 mOhm / 1.8A / 1.36A	(P) 196 mOhm / 1.9A / 1.61A	
6.8					(A) 190 mOhm / 2.4A / 1.5A

P= standard, S= high performance, Y= high current, WPA= for automotive

ENHANCED 240/480 W EXPLOSION-PROOF AC/DC DIN RAIL POWER SUPPLIES

- ✓ 150-200% peak load for 5 s
(240 W-200%, 480 W-150%)
- ✓ Easy fuse tripping –
6 times rated current for 15 ms
- ✓ Support 5 + 1 bus high precision
parallel current sharing

Based on the AC/DC DIN rail power supplies of the LIMF series, MORNSUN developed an enhanced version with advanced function: the LIHF series (LIHF240/480-23Bxx) meets the needs for special features in different high-end applications.

The LIHF series comes with a universal input voltage range of 85-277VAC/120-390VDC, 305VAC/2H and offers high performance features like efficiency up to 95%, wide operating temperature range of -40°C to +85°C (full load at 60°C), 150-200% peak load for 5 s, an easy fuse tripping (6 times rated current for 15 ms), 5 + 1 bus high precision parallel current sharing and much more.

Beside that, it supports RS485 communication, DC OK, AC OK, and offers a remote control function.



The high reliable vacuum plating case offers a double-sided conformal coating, is 48 h salt-spray, G3 corrosive & 5 G antivibration proof. They can be also used for mining applications according to its ATEX, IECEx increased safety type explosion-proof certification and in highly polluted environments.

The power supplies comply with IEC/EN/UL/BS EN62368, IEC/EN/UL/BS EN61010, EN61558/62477, GB4943, IEC60079, GB3836, NB/T31017 standards.

Part No.	Output Power (W)	Nominal Output Voltage and Current (Vo/Io)	Output Voltage Adjustable Range (V)	Efficiency at 230VAC (%) Typ.	Max. Capacitive Load (µF)
LIHF240-23B24	240	24V/10A	24-28	94.5	50000
LIHF240-23B48	240	48V/5A	48-55	95	25000

LIHF480-23B24	480	24V/20A	24-28	94.5	50000
LIHF480-23B48	480	48V/10A	48-55	95	25000

NEWS

ENHANCED 240/480 W EXPLOSION-PROOF AC/DC DIN RAIL POWER SUPPLIES

Typical application:

High reliability DIN rail power supply



LIHF Series



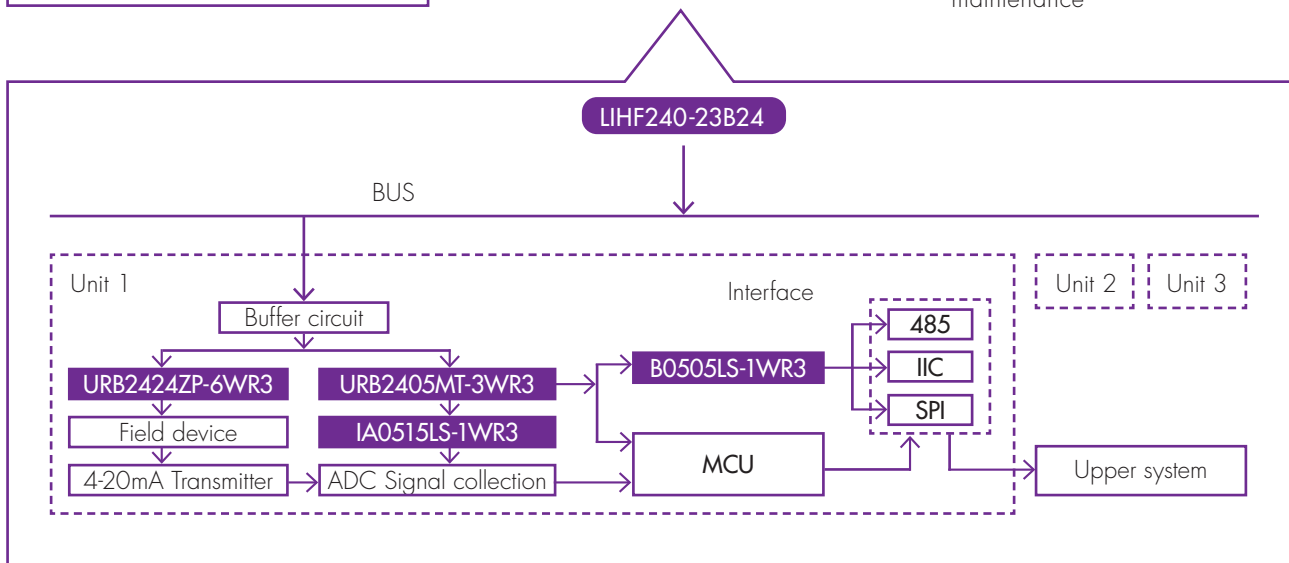
DCS system

Typical environmental features:
heat, vibration, explosion



Wind power

Typical environmental features:
salt fog, dust, high humidity,
high altitude, great workload on
maintenance



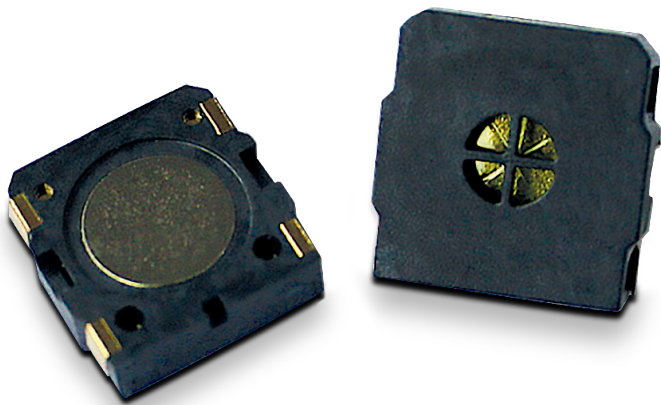
APPLICATIONS

- Wind power
- Railway
- New energy
- Nuclear power
- Marine equipment

FEATURES

- Universal 85 - 277VAC or 120 - 390VDC input voltage, 305VAC/2H
- Efficiency up to 95%
- Operating temperature range: -40 to +85°C, full load at 60°C
- 150-200% peak load for 5s (240W - 200%, 480W - 150%)
- Easy fuse tripping -6 times rated current for 15ms
- Support 5 + 1 bus high precision parallel current sharing
- Active PFC, PF > 0.98
- Supports RS485 communication protocol, DC OK, AC OK, and remote control function

TYPES OF SMD SPEAKERS



APPLICATIONS

- Portable handheld devices
- White goods
- Medical healthcare
- Industry devices
- Measuring devices
- Communication devices
- Every application, which will be improved through SMD

FEATURES

- Dimensions from 13 mm to 29 mm
- Widest frequency range and best sound, compared with other sound solutions
- Different impedance values available upon request
- Different dimensions and frequencies available
- SMD capable
- Automotive specification and sound solution available on request

Part no.	Appearance	Dimensions [mm]	Impedance $\pm 15\%$ [Ω]	Normal power [mW]	SPL [dB]	Operating temperature	Lowest resonant freq. [Hz]	Frequency range [Hz]
PCXS1313040-R08WV0 7-A-SM-266	Square	13.0 x 13.0 x 4.0	8	700	90	-40 to +105 °C	1.000	F0 to 20.000
PCXS1515040-R08WV0 5-A-SM-187	Square	15.0 x 15.0 x 4.0	8	500	87	-30 to +85 °C	850	
CSMS13S4-8S0.3-P950F	Square	13.0 x 13.0 x 4.0	8	300	87	-40 to +85 °C	950	
CSMS15S4.3-4S0.3-P950F	Square	15.0 x 15.0 x 4.3	4	300	89		950	
CSMS18S4.8-8S0.3-P580F	Square	18.0 x 18.0 x 4.8	8	300	89		580	
CSMS29R8-8S0.6-P700F	Square	28.8 x 8.0	8	600	97		700	



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