

POWERSOCKET FUSE & RELAY

PowerSockets



PowerSockets from Würth Elektronik ICS are sockets for mounting electrical components such as fuses or relays on printed circuit boards. Suitable for 12 V, 24 V and 48 V applications, they provide the basis for maintenance-friendly handling of fuses, relays or diodes. Solid press-fit technology allows PowerSockets to be easily and cost-effectively integrated into the process chain. As a result, they are optimally connected to the PCB and are extremely resistant to vibration. The plastic housing also protects the contacts and provides a contact surface for the press-fit tool.

Application possibilities

The PowerSockets are used, among other things, for the connection of

- fuses such as MINI®, ATO®, MAXI® fuses or automatic circuit breakers
- automotive relays with corresponding pin assignment (Micro, ½ ISO, ISO)
- diode modules
- ICCS small controllers from Würth Elektronik ICS
- IGBT modules together with PowerTwo Powerelements

Processing

PowerSockets are pressed into the PCB. Soldering is not required, so there is no temperature stress. The manufacturing step easily fits into the process and is highly cost effective. Several PowerSockets can be pressed-in at the same time with the appropriate tools.

Processing information

- For assembling prototypes, no special equipment is required for pressing-in, as a simple toggle press is sufficient.
- The PCB must be supported during the press-fit process.
- The press force has to be applied at a 90° angle to the PCB.
- Plated through holes of the PCB must be executed according to the specifications of Würth Elektronik ICS.
- The PowerSockets are designed for pressing-in, and a soldering process is not intended.
- Use only with suitable press-fit tool.

Technical data

Current carrying capacity	Depending on component to be contacted Max. permissible contact temperature 130 °C (blade contact to PowerSocket contact)
Housing material	PA6/66 FR(30) halogen-free

Dimensions (Standard)

Length x width	Depending on socket
Height above PCB	Depending on socket from 11 mm
Pin length	Depending on socket from 3.5 mm
Pin diagonal	Depending on socket from 1.6 mm

PCB

Base material	FR4 (EP-GC-)
PCB thickness	from 1.5 mm

Processing parameters

Press-in force	min. 60 N per pin max. 250 N per pin
Retention force	60 – 80 % of the press-in force
Press-in speed	100 – 250 mm/min



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PCB design

The PCB has to be designed in accordance with the latest edition of IPC A 600.

For solid press-fit technology, the PCBs are to be finished according to the Würth Elektronik ICS Press-fit specifications. Particular attention should be paid to the drill diameter and the copper thickness.

Current carrying capacity

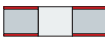
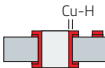
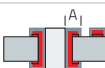
The current carrying capacity of a press-fit connection always has to be considered in the context of the overall system. The press-fit zone has a very low electrical contact resistance of 100 – 200 $\mu\Omega$.

The limiting factor therefore usually lies in the PCB layout, and also in the connection of a feed line. In combination with a fuse, the PowerSockets can be loaded with a rated current of up to 70 A, depending on the component to be contacted.

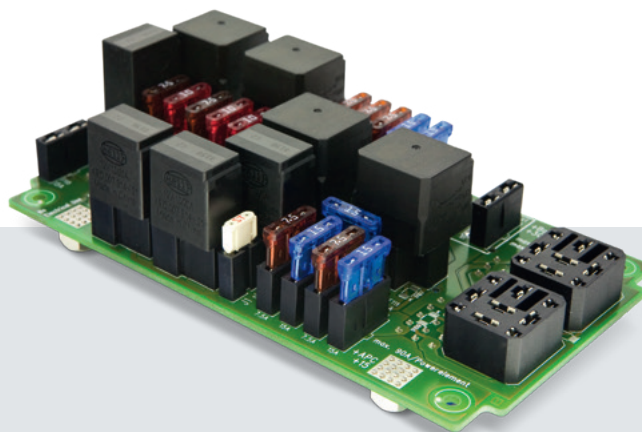
Qualification / Standards

PowerSockets have successfully passed the vibration tests and the mechanical shock test in accordance with the ISO 16750-3 standard. Vibration test according to ISO 16750-3:2012 4.1.2.7 Random Test VII. Mechanical shock test according to: ISO 16750-3:2012 4.2.3 Severity 2.

Würth Elektronik ICS – Press-fit specification 5.1 (Example for 1.6 mm pin)

Drill Ø		drill tool drill hole	1.60 mm 1.60 - 0.025 mm
Cu		Cu - in Hole Annular Ring	Average 30 – 60 μm min. 25 μm , max. 80 μm * min. 125 μm
End Ø		depends on surface HAL chem. surfaces	(1.45 +/- 0.05 mm) (1.475 +/- 0.05 mm)
Note: For press-fit technology, drill Ø and copper thickness are fix. End Ø for reference only.			

*single measurement points in microsection



Product overview of PowerSockets

PowerSockets are available in two product groups:



PowerSocket Relay for the connection of micro, mini or power relays, e.g.



PowerSocket Fuse for connection of MINI®, MAXI® or ATO® fuses, e.g.

For more information visit us at:
www.powerelement.com
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