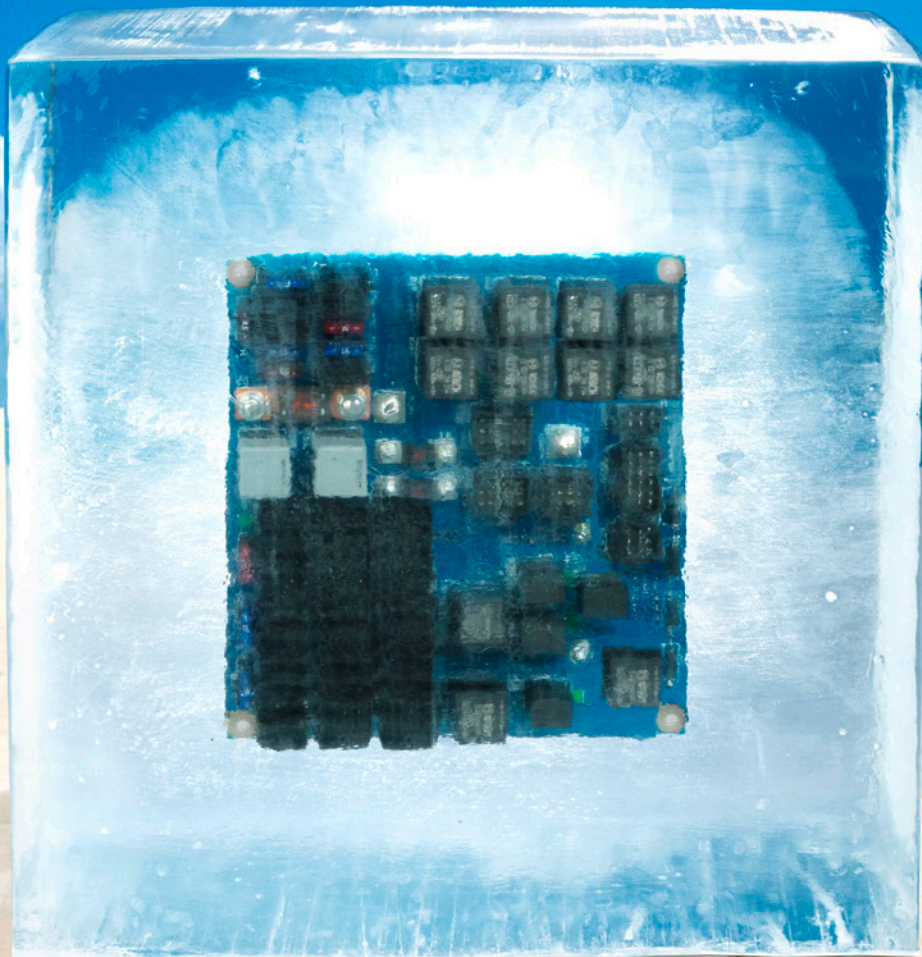
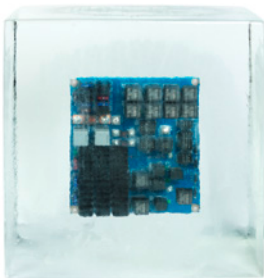


ERNI

**COOL.  
CUSTOMIZED.  
RELIABLE.**



**BLUEcontact™ Solutions**



## **BLUEcontact™ Solutions**

The most reliable Power Connection for automotive electronics.  
Engineered and manufactured by ERNI Germany.



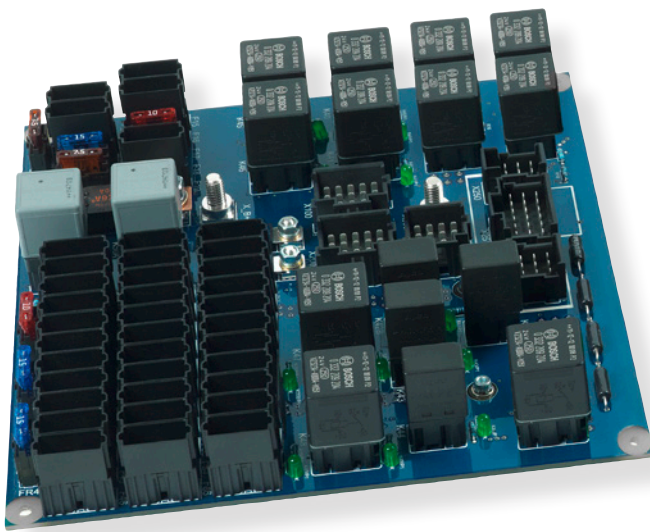
The reliability of the central electrical systems, fuse and powerboards is top priority for utility vehicles.

That is why ERNI developed BLUEcontact™ technology for the harsh requirements in the automotive sector: printed circuit boards and its connections do not thermally overload with high current. They are also very secure, durable and robust.

ERNI takes it one step further with BLUEcontact™ Solutions: we offer you the entire workflow from project management, customer specific secure electronic development to series production in Germany.

Stay cool and benefit from our decades of experience – Please feel free to get to know us at [www.erni.com](http://www.erni.com)

# — introducing **BLUEcontact™ Solutions**



**COOL.  
CUSTOMIZED.  
RELIABLE.**

Example central electrical system

ERNI provides widespread services and key components for utility vehicles. Development services and compact, reliable components for central electrical systems, security systems and power supply.

Based on their extensive expertise in the field of connectors and board-design, ERNI is expanding their services and the portfolio on key components for automotive customers. The company is focussing on the areas driver's cab, exterior and motor periphery of buses, construction equipment, trucks, tractors or towing vehicles, etc. ERNI offers its widespread expertise in pressfit systems, in pcb assembly and as an EMS service provider to ensure secure connection also at high currents.

Experienced and highly qualified electronic designers have already successfully implemented numerous projects. The service portfolio offered under the slogan BLUEcontact™ Solutions comprises of the entire project management from the initial sample all the way to the final product, the unbundling of pcb's, development and supply of mechanical components as well as the pcb assembly integration. Serial production occurs at ERNI Germany and includes assembly, soldering, pressfit and pcb assembly as well as pcb integration into its corresponding housing.

## More security with flexible pressfit system

In working closely with the customer in making the optimised BLUEcontact™ Solutions available, the main issues raised have already been clarified: How much space is allocated for the device? Is the installation limited? Is any housing required? Can devices be located in the passenger cabin or does it need to be placed in harsh environment? Is there danger of condensation? How high is vibration stress?







Within the scope of BLUEcontact™ Solutions, ERNI also provides various power components with combined elastic and massive pressfit zones. While the massive pressfit zone guarantees torque support and secure fixture, the flexible pressfit zone provides optimal power transmission. In addition a comprehensive range of fuse bases, relay sockets, as well as pcb connectors for automotive and industrial applications is available with elastic pressfit zones. The company utilises its across-the-board internal tailor made tool designs and manufacturing resources for this in-house development. These robust components are characterized by a modular construction, high number of contact points and reliable pressfit contacts.

The soft pressfit prevents damage to the pcb thanks to the elastic pressfit zone. Moreover, a shock and vibration free connection with higher current is achieved. ERNI provides the use of modern components in superior quality with numerous processing advantages:

- no tearing of the circuit paths caused by the “jet effect” during pressfit
- minimal swarf formation during pressfit
- less danger of delamination and therefore undesired shorts due to moisture trapped in the pcb
- greater reliability during temperature change and vibration
- improved process safety of the press in/out process
- greater hole tolerance with lower cost for the pcb
- improved pressfit force adjustment application
- less pressfit force for high number of poles, less stress on the pcb
- general stress minimisation of pcb

### Extract from the performance portfolio

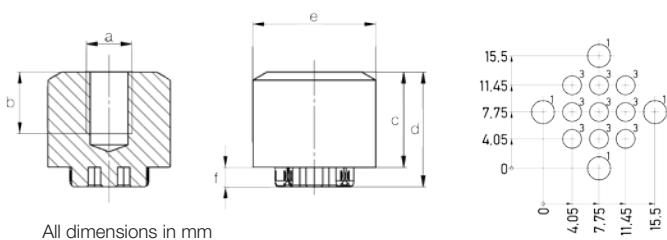
#### BLUEcontact™ components

<p>PowerElements</p> 	<p>Connectors</p> 
<p>Relay Sockets</p> 	<p>Relay Sockets</p> 
<p>Fuse Holder</p> 	<p>Other Connectors</p> 

## Technical Data

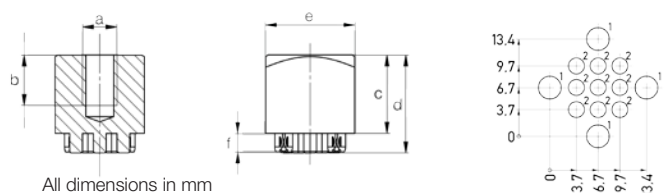
General technical data			
Current carrying capacity per PowerElement	290 A at 20°C		
Tightening torque M5/M6/M8/M10	2.2 Nm/3.9 Nm/9.0 Nm/17.0 Nm		
Weight per PowerElement M5/M6/M8/M10	25 Grams/24 Grams/46 Grams/43 Grams		
Temperature	-40°C to +135°C		
Hole specification flexible pressfit zone	M5 + M6 <sup>1</sup>	M8 + M10 <sup>1</sup>	
Hole diameter	3.2 <sup>+0.00</sup> / <sub>-0.03</sub>	3.2	<sup>+0.00</sup> / <sub>-0.03</sub>
Final diameter chem. tin and HAL lead-free (chem. tin: Cu: min. 25 µm - max. 60 µm) (HAL lead-free: Cu: min. 25 µm, Sn: max. 20 µm)	3.1 <sup>+0.04</sup> / <sub>-0.06</sub>	3.1	<sup>+0.04</sup> / <sub>-0.06</sub>
Hole specification massive pressfit zone	M5 + M6 <sup>2</sup>	M8 + M10 <sup>3</sup>	
Hole diameter	2.3 <sup>+0.00</sup> / <sub>-0.03</sub>	3.0	<sup>+0.00</sup> / <sub>-0.03</sub>
Finished diameter chem. tin (Cu: min. 30 µm - max. 60 µm)	2.175 <sup>+0.05</sup> / <sub>-0.05</sub>	2.875	<sup>+0.05</sup> / <sub>-0.05</sub>
Finished diameter HAL lead-free (Cu: min. 25 µm, Sn: max. 15 µm)	2.15 <sup>+0.05</sup> / <sub>-0.05</sub>	2.85	<sup>+0.05</sup> / <sub>-0.05</sub>

## M10 / M8 PowerElements



Part no.	a	b	c	d	e	f	flexible pins	massive pins
225417	M10	11	17	20.5	22	3.5	4	9
225416	M8	11	17	20.5	22	3.5	4	9

## M6 / M5 PowerElements



Part no.	a	b	c	d	e	f	flexible pins	massive pins
225415	M6	6	14	17.5	16	3.5	4	9
225414	M5	6	14	17.5	16	3.5	4	9

## Technical Data

### General technical data

Current carrying capacity per PowerElement	~10 A per massive pin
Tightening torque M3/M4/M5/M6/M8/M10	0.5 Nm/1.2 Nm/2.2 Nm/3.9 Nm/9.0 Nm/17.0 Nm
Temperature	-40°C to +135°C

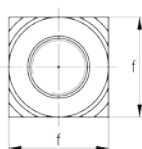
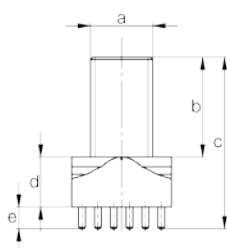
### Hole specification massive pressfit zone<sup>4</sup>

Hole diameter	1.6	+0.00 -0.03
Finished diameter chem. tin (Cu: min. 30 µm - max. 60 µm)	1.475	+0.05 -0.05
Finished diameter HAL lead-free (Cu: min. 25 µm, Sn: max. 15 µm)	1.45	+0.05 -0.05
Min. layer thickness of copper in the via	25 µm	
Max. layer thickness of tin in the via	15 µm	

### Characteristics

Material	CuZn39Pb3
Surface	tin plated
Retaining forces	as per IEC 352-5
Insertion force	Max. 250 N per pin Min. 40 N per pin
Extraction force	Min. 30 N per pin
PCB thickness	1.6-3.2 mm

## PowerElements with male thread and full pin population

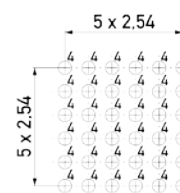
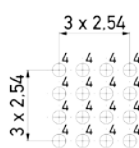
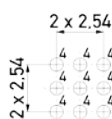


All dimensions in mm

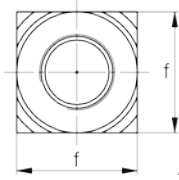
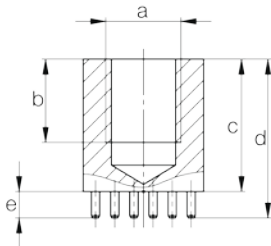


Part no.	a	b	c	d	e	f	pins	weight
225680	M10	16	27.5	8	3.5	16	36	27.2 g
225679	M8	13	24	7.5	3.5	13	25	15.9 g
225678	M6	10	19	5.5	3.5	13	25	10.5 g
225677	M5	8	16	4.5	3.5	9	16	4.9 g
225676	M4	6	13	3.5	3.5	9	16	3.6 g
225675	M3	5	11	3.0	3.5	7	9	2.1 g

### PCB specification



## PowerElements with female thread and full pin population

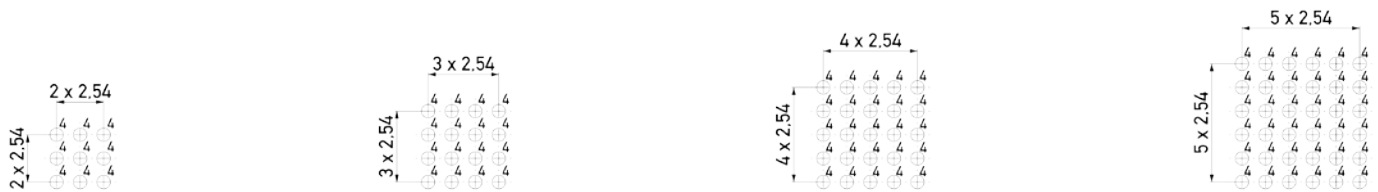


All dimensions in mm

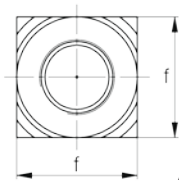
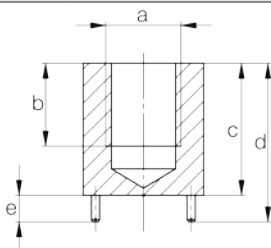


Part no.	a	b	c	d	e	f	pins	weight
225686	M10	11	17.5	21	3.5	16	36	26.2 g
225685	M8	8	13.5	17	3.5	13	25	14.2 g
225684	M6	6.5	10.5	14	3.5	10	16	7.0 g
225683	M5	4	7	10.5	3.5	9	16	4.4 g
225682	M4	4	7	10.5	3.5	9	16	4.6 g
225681	M3	3.5	6	9.5	3.5	7	9	2.5 g

### PCB specification



## PowerElements with female thread and two rows pin population

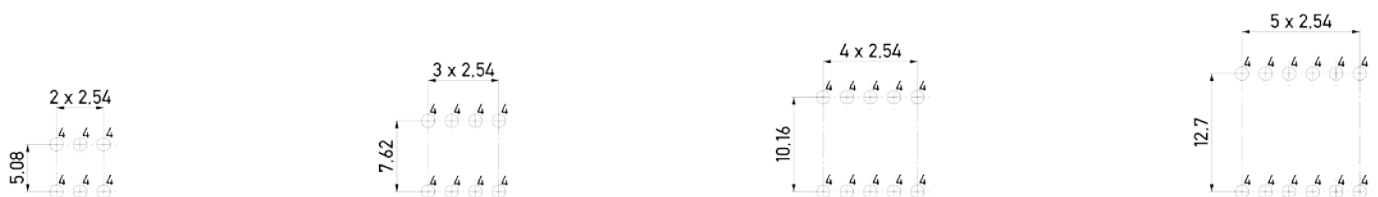


All dimensions in mm



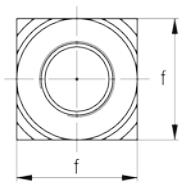
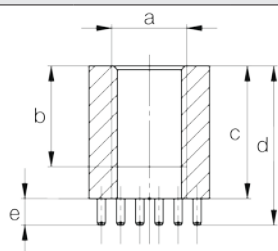
Part no.	a	b	c	d	e	f	pins	weight
225698	M10	11	17.5	21	3.5	16	12	25.3 g
225697	M8	10	13.5	17	3.5	13	10	12.2 g
225696	M6	9	13.5	17	3.5	10	8	8.2 g
225695	M5	6	7	10.5	3.5	9	8	3.8 g
225694	M4	6	7	10.5	3.5	9	8	4.2 g
225693	M3	5	6	9.5	3.5	7	6	2.3 g

### PCB specification





## PowerElements with female thread and circular pin population

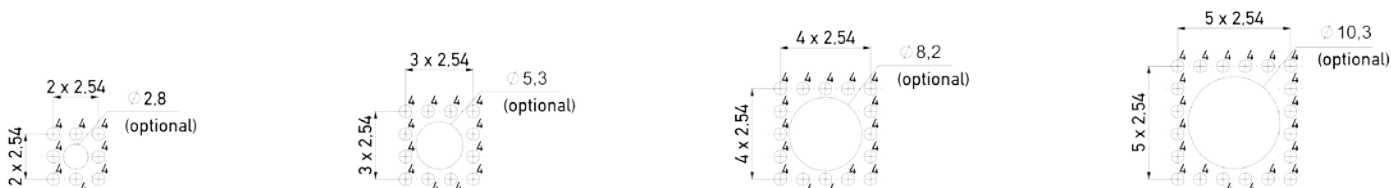


All dimensions in mm

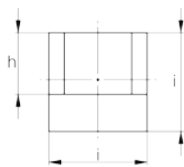
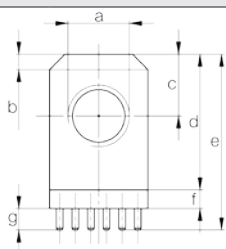


Part no.	a	b	c	d	e	f	pins	weight
225692	M10	-	17.5	21	3.5	16	20	22.6 g
225691	M8	-	13.5	17	3.5	13	16	12.4 g
225690	M6	-	13.5	17	3.5	13	16	14.6 g
225689	M5	-	6	9.5	3.5	9	12	3.6 g
225688	M4	5.2	6	9.5	3.5	9	12	3.8 g
225687	M2.5	5	6	9.5	3.5	7	8	2.5 g

### PCB specification



## PowerElements angled with thread and full pin population

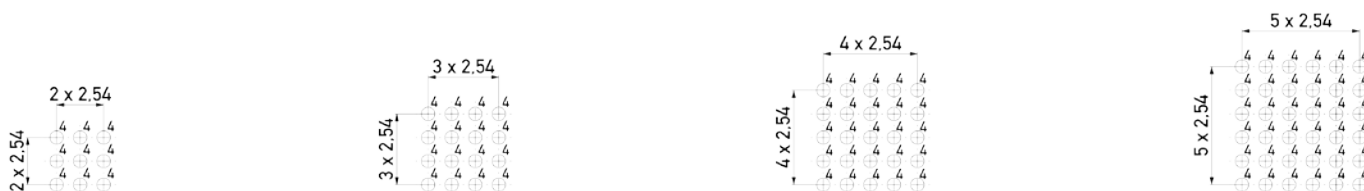


All dimensions in mm

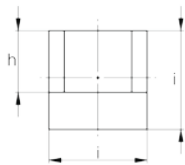
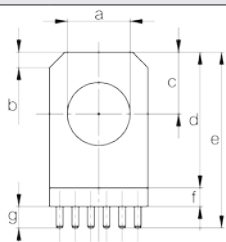


Part no.	a	b	c	d	e	f	g	h	i	pins	weight
225704	M10 x 1.5	2.5 x 45°	10	22	28.5	3	3.5	10	16	36	32.5 g
225703	M8	2 x 45°	8	17	23.5	3	3.5	8	13	25	17.7 g
225702	M6	2 x 45°	8	17	23.5	3	3.5	8	13	25	19.0 g
225701	M5	1.5 x 45°	5	11	17.5	3	3.5	5	9	16	6.4 g
225700	M4	1.5 x 45°	5	11	17.5	3	3.5	5	9	16	6.6 g
225699	M3	1 x 45°	5	11	17.5	3	3.5	4	7	9	4.2 g

### PCB specification



## PowerElements angled without thread, full pin population

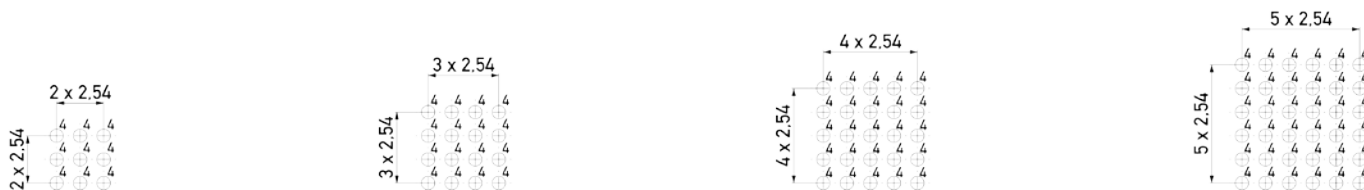


All dimensions in mm

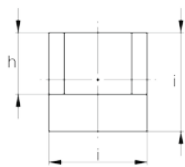
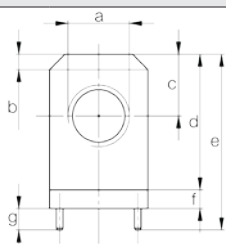


Part no.	a	b	c	d	e	f	g	h	i	pins	weight
225710	∅ 10.2	2.5 x 45°	10	22	28.5	3	3.5	10	16	36	30.9 g
225709	∅ 8.2	2 x 45°	8	17	23.5	3	3.5	8	13	25	16.7 g
225708	∅ 6.2	2 x 45°	8	17	23.5	3	3.5	8	13	25	18.3 g
225707	∅ 5.2	1.5 x 45°	5	11	17.5	3	3.5	5	9	16	6.0 g
225706	∅ 4.2	1.5 x 45°	5	11	17.5	3	3.5	5	9	16	6.3 g
225705	∅ 3.2	1 x 45°	5	11	17.5	3	3.5	4	7	9	4.0 g

### PCB specification



## PowerElements angled with thread and two rows pin population

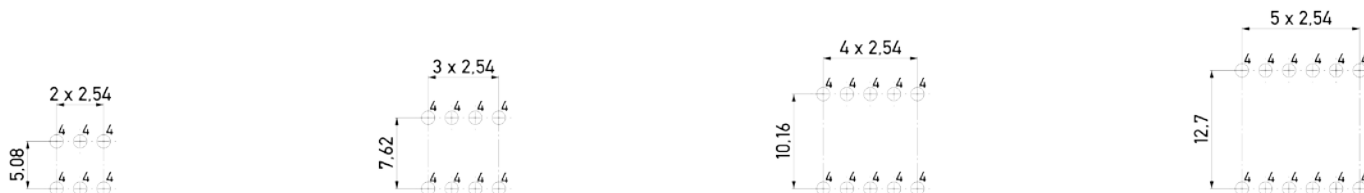


All dimensions in mm

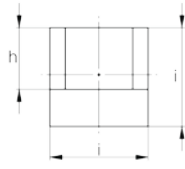
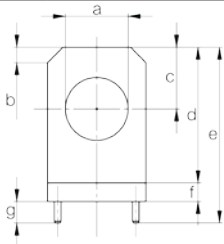


Part no.	a	b	c	d	e	f	g	h	i	pins	weight
225716	M10 x 1.5	2.5 x 45°	10	22	28.5	3	3.5	10	16	12	31.5 g
225715	M8	2 x 45°	8	17	23.5	3	3.5	8	13	10	17.2 g
225714	M6	2 x 45°	8	17	23.5	3	3.5	8	13	10	18.4 g
225713	M5	1.5 x 45°	5	11	17.5	3	3.5	5	9	8	6.1 g
225712	M4	1.5 x 45°	5	11	17.5	3	3.5	5	9	8	6.3 g
225711	M3	1 x 45°	5	11	17.5	3	3.5	4	7	6	4.0 g

### PCB specification



## PowerElements angled without thread, two rows pin population

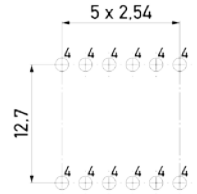
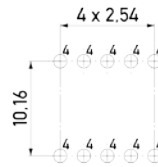
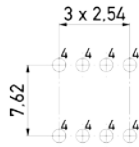
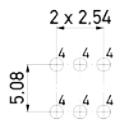


All dimensions in mm



Part no.	a	b	c	d	e	f	g	h	i	pins	weight
225722	∅ 10.2	2.5 x 45°	10	22	28.5	3	3.5	10	16	12	30.0 g
225721	∅ 8.2	2 x 45°	8	17	23.5	3	3.5	8	13	10	16.2 g
225720	∅ 6.2	2 x 45°	8	17	23.5	3	3.5	8	13	10	17.7 g
225719	∅ 5.2	1.5 x 45°	5	11	17.5	3	3.5	5	9	8	5.7 g
225718	∅ 4.2	1.5 x 45°	5	11	17.5	3	3.5	5	9	8	6.0 g
225717	∅ 3.2	1 x 45°	5	11	17.5	3	3.5	4	7	6	3.9 g

### PCB specification



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