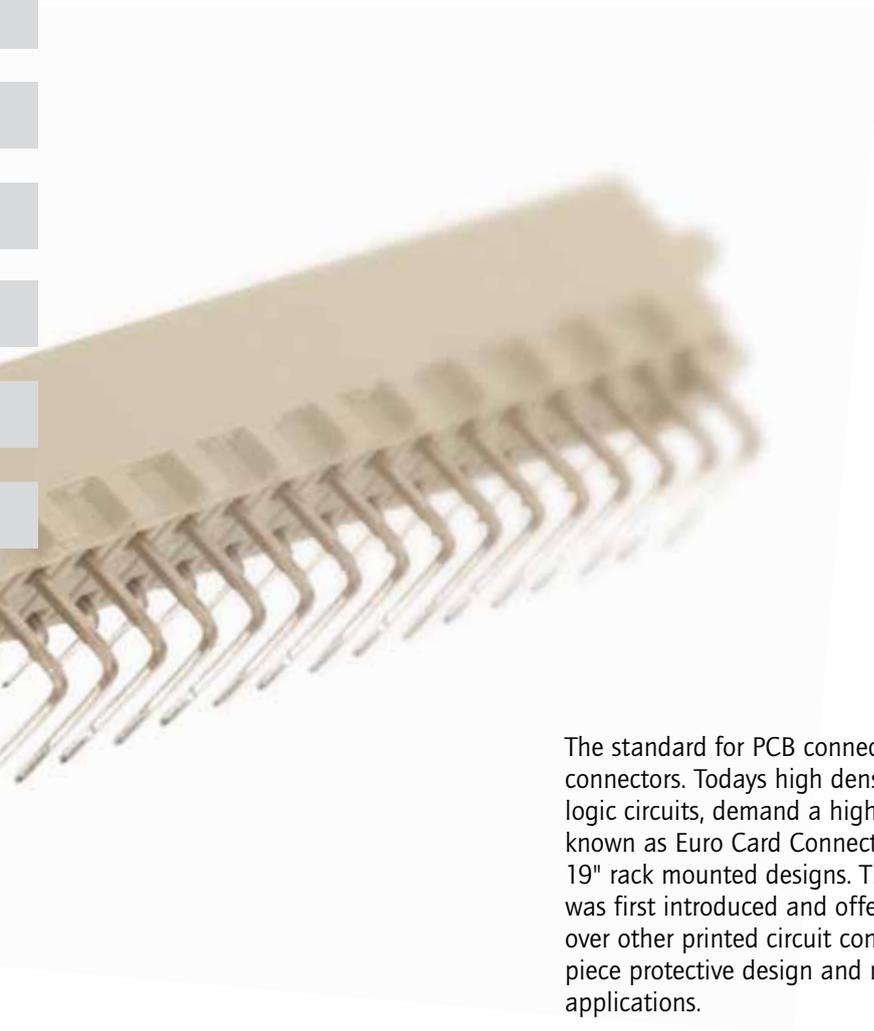
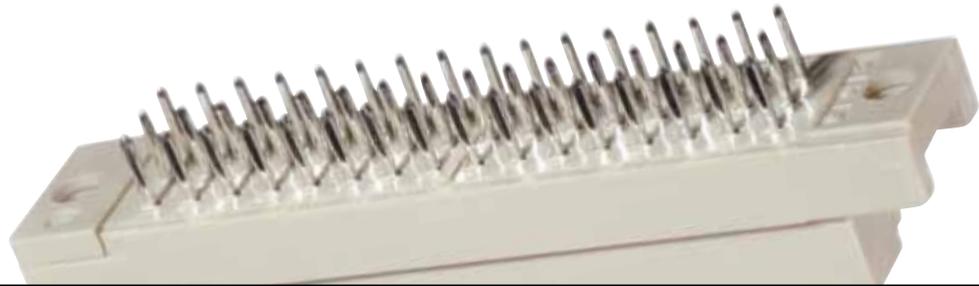


SECTION 4

# CONNECTORS DIN EN 60603-2

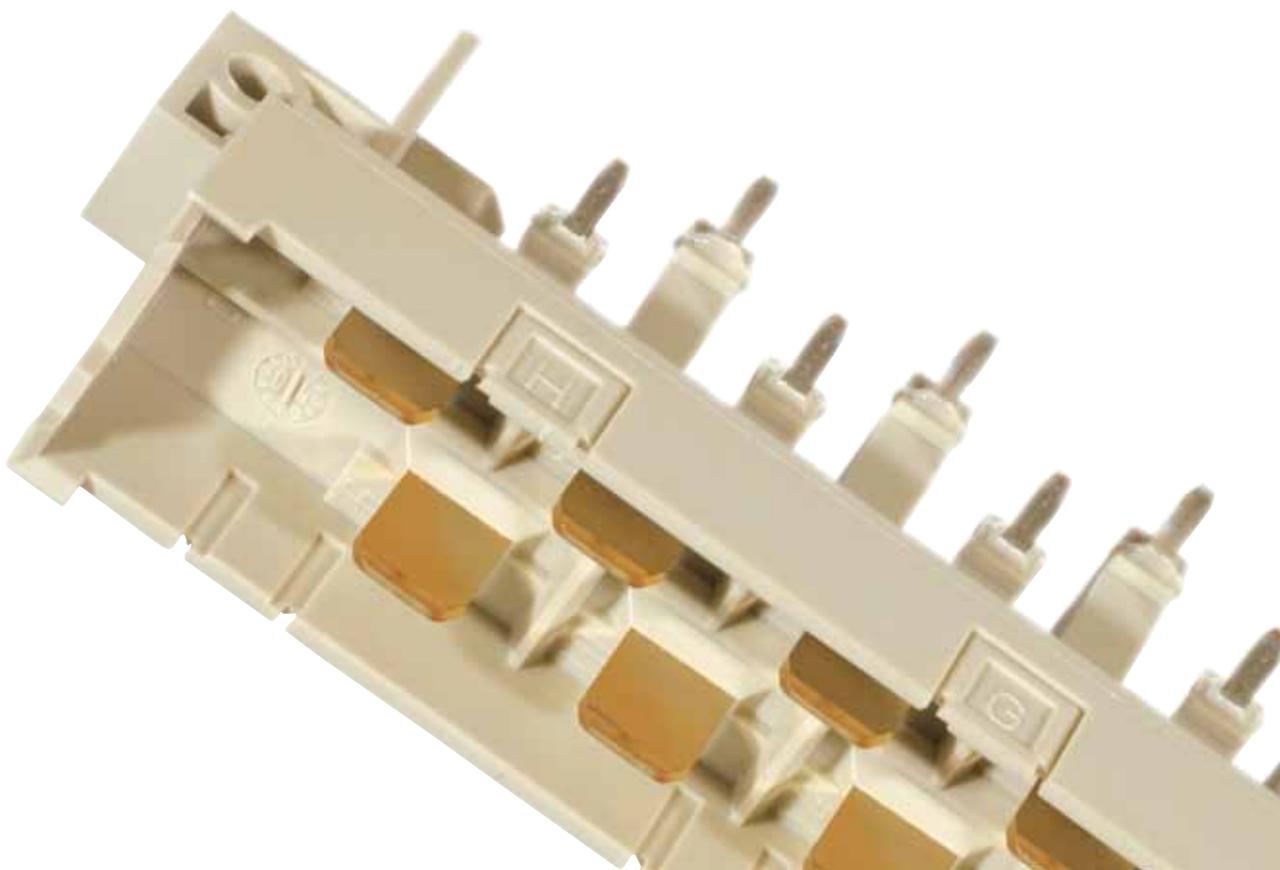


The standard for PCB connectors has been set by the DIN EN 60603-2 two piece connectors. Today's high density packing applications, combined with high speed logic circuits, demand a high reliability interconnection system. The series is also known as Euro Card Connectors, gained popularity due to the similarity with 19" rack mounted designs. The product family has grown over the years since it was first introduced and offers significant improvements in performance and design over other printed circuit connectors. High contact density, low mating force, two piece protective design and many contact termination styles offer unlimited design applications.



CONEC manufactures a wide range of products; series B, C, R, D, E, F, G, H and half size types are also available. Termination methods include: PCB direct soldering, solder eyelet, wire wrap, crimp, faston terminals and screw terminals.

In addition, we manufacture custom products or variations to existing designs with short design cycle and turn around.



# TECHNICAL DATA

Materials		Type B, B/2	Type C, C/2	Type R, R/2	Type D	Type E
Insulator		PBT GF				
Flammability		UL 94 V-0				
Contacts		Copper alloy				
Contact plating		gold over nickel				
Creepage distance	contact-ground contact-contact	≥ 1.2 mm			≥ 3 mm	
Clearance distance	contact-ground contact-contact	≥ 1.2 mm			≥ 3 mm	
Initial contact resistance		≤ 20 mΩ			≤ 15 mΩ	
Initial insulation resistance	Quality class 1 Quality class 2 Quality class 3	≥ 10 <sup>12</sup> Ω ≥ 10 <sup>12</sup> Ω ≥ 10 <sup>11</sup> Ω				
Working voltage		250 V depending on insulation coordination (refer to DIN VDE 0110/IEC 664-1)			125 V	
Working current	+ 20 °C + 70 °C + 100 °C	2 A 1 A 0.5 A			5.5 A 4 A 2.5 A	
Working temperature		-55 °C to +125 °C				
Insulation group		A			C	
Test voltage V.r.m.s.	contact-ground contact-contact	1550 V 1000 V			1550 V 1550 V	
Insertion and withdrawal forces max.		16 positions 15 N 96 positions 90 N			16 positions 20 N 32 positions 40 N	16 positions 20 N 32 positions 40 N 48 positions 60 N
Quality class 3		50 cycles				
Quality class 2		400 cycles				
Quality class 1		500 cycles				

Technical alterations are subjects to change without notice.

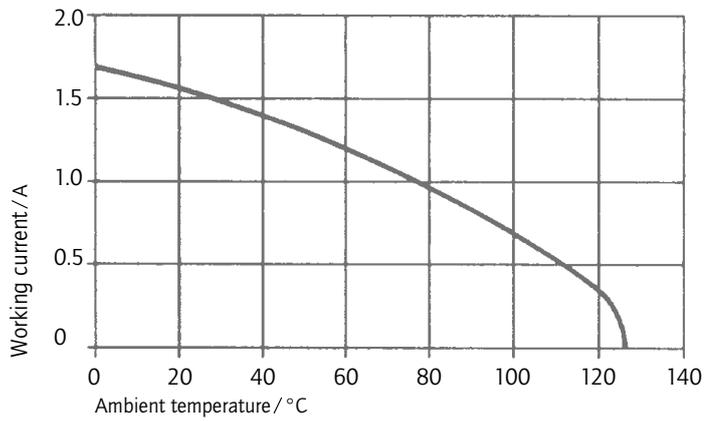
# TECHNICAL DATA

Materials		Type F	Type G	Type H	Mixed version	
Insulator		PBT GF	PBT GF	PC (Polycarbonat)		
Flammability		UL94 V-0	UL94 V-0	UL94 V-1		
Contacts		Copper alloy				
Contact Plating		gold over nickel		silver	gold over nickel	silver
Creepage distance	contact-ground	≥ 1.6 mm	≥ 1.6 mm (f+z)	≥ 4.5 mm	≥ 1.6 mm	≥ 4.5 mm
	contact-contact					
Clearance distance	contact-ground	≥ 3 mm	≥ 3 mm	≥ 8 mm	≥ 3 mm	≥ 8 mm
	contact-contact		≥ 1.9 mm (f+z)			
Initial contact resistance		≤ 15 mΩ				≤ 8 mΩ
Initial insulation resistance	Quality class 1	≥ 10 <sup>12</sup> Ω				
	Quality class 2	≥ 10 <sup>12</sup> Ω				
	Quality class 3	≥ 10 <sup>11</sup> Ω				
Working voltage		125 V	500 V	125 V	500 V	
depending on insulation coordination (refer to DIN VDE 0110 / IEC 664-1)						
Working current	+ 20 °C	5.5 A	15 A	5.5 A	15 A	
	+ 70 °C	4 A	12 A	4 A	12 A	
	+ 100 °C	2.5 A	8 A	2.5 A	8 A	
Working temperature		-55 °C to +125 °C				
Insulation group		C				
Test voltage V.r.m.s.	contact-ground	2550 V	2500 V	3100 V	1550 V	3100 V
	contact-contact	1550 V	1550 V	3100 V	1550 V	3100 V
Insertion and withdrawal forces max.		32 positions 50 N 48 positions 75 N	64 positions 100 N	11 positions 80 N 15 positions 90 N	16+7 positions 67 N 24+7 positions 79 N 36+7 positions 96 N	
Quality class 3		50 cycles				
Quality class 2		400 cycles		500 cycles		
Quality class 1		500 cycles				

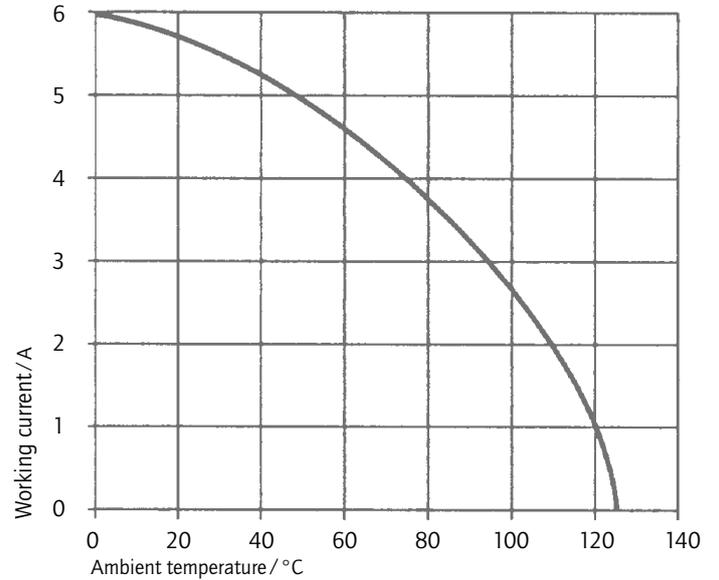
Technical alterations are subjects to change without notice.

## DERATING DIAGRAMS

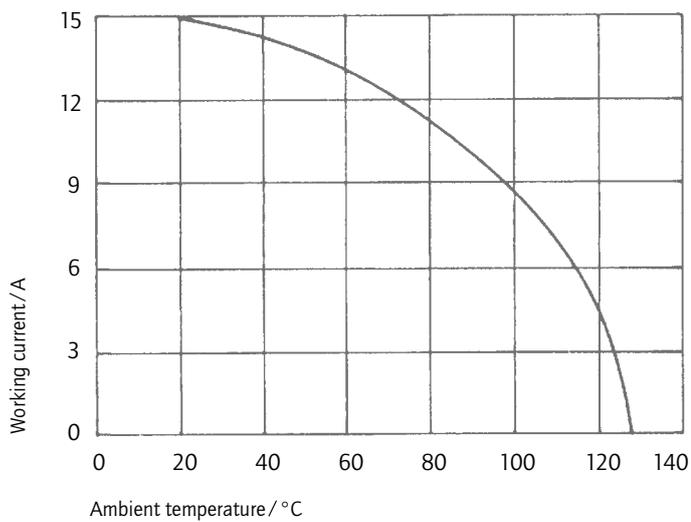
Types B, C, R



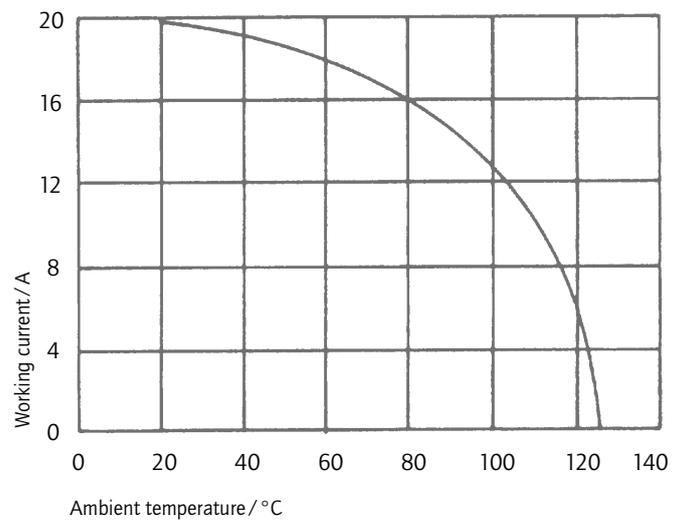
Types D, E, F, G



Type H 15



Type H 11

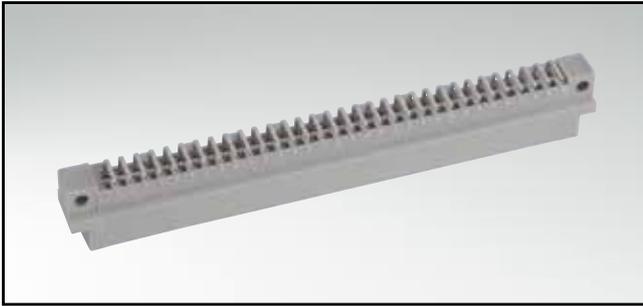


## CONVERSION TABLE

$\mu\text{m}$ 1/1000 mm	$\mu\text{inch}$ 1/1000 inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
0,10	4	3,30	.130	10,16	.400	19,50	.768	30,90	1.217	49,50	1.949
0,20	8	3,40	.134	10,26	.402	19,70	.776	31,00	1.220	49,90	1.965
0,25	10	3,50	.138	10,36	.406	19,80	.780	31,20	1.228	50,10	1.972
0,30	12	3,60	.142	10,56	.413	19,90	.783	31,50	1.240	50,30	1.980
0,50	20	3,70	.146	10,66	.417	20,00	.787	31,70	1.248	50,50	1.988
0,70	28	3,80	.150	10,76	.421	20,10	.791	32,00	1.260	50,70	1.996
0,75	30	3,81	.150	11,00	.433	20,30	.799	32,20	1.268	50,80	2.000
0,80	32	3,90	.154	11,20	.441	20,32	.800	32,30	1.272	51,40	2.024
1,00	39	4,00	.158	11,40	.449	20,50	.807	32,50	1.280	51,50	2.028
1,27	50	4,10	.161	11,50	.453	21,00	.827	32,80	1.291	52,00	2.047
2,00	79	4,20	.165	11,60	.457	21,10	.831	33,00	1.299	52,30	2.059
2,50	98	4,30	.169	11,90	.469	21,70	.854	33,10	1.303	52,80	2.079
3,00	118	4,50	.177	12,00	.472	22,00	.866	33,30	1.311	53,00	2.087
4,00	157	4,70	.185	12,20	.480	22,10	.870	33,80	1.331	53,20	2.095
5,00	197	4,90	.193	12,30	.484	22,20	.874	34,00	1.339	53,80	2.118
		5,00	.197	12,40	.488	22,30	.878	34,20	1.346	54,00	2.126
		5,08	.200	12,50	.492	22,40	.882	34,40	1.354	54,20	2.134
0,10	.004	5,10	.201	12,70	.500	22,50	.886	35,00	1.378	54,90	2.161
0,20	.008	5,20	.205	12,90	.508	22,60	.890	35,40	1.394	55,00	2.165
0,25	.012	5,30	.209	13,00	.512	22,80	.898	35,50	1.398	55,40	2.181
0,35	.014	5,40	.213	13,10	.516	22,86	.900	35,56	1.400	55,70	2.193
0,40	.016	5,40	.213	13,20	.520	22,90	.902	35,60	1.402	56,60	2.228
0,45	.018	5,50	.217	13,50	.532	23,00	.906	36,00	1.417	57,40	2.260
0,50	.020	5,60	.220	13,60	.535	23,10	.909	36,50	1.437	57,80	2.276
0,55	.022	5,70	.224	13,70	.539	23,30	.917	36,60	1.441	57,90	2.280
0,60	.024	5,80	.228	13,90	.547	23,50	.925	36,70	1.445	58,42	2.300
0,64	.025	6,00	.236	14,00	.551	24,00	.945	37,00	1.457	59,00	2.323
0,65	.026	6,10	.240	14,30	.563	24,30	.957	37,30	1.469	59,20	2.331
0,70	.028	6,40	.252	14,40	.567	24,60	.969	37,50	1.476	59,80	2.354
0,75	.030	6,50	.256	14,50	.571	24,90	.980	37,60	1.480	59,90	2.358
0,80	.032	6,60	.260	14,70	.579	25,00	.984	37,70	1.484	60,00	2.362
0,85	.034	6,70	.264	14,80	.583	25,10	.998	37,90	1.492	60,96	2.400
0,90	.035	6,80	.268	14,90	.587	25,40	1.000	38,00	1.496	61,10	2.406
1,00	.039	6,90	.272	14,98	.590	25,60	1.008	38,10	1.500	62,00	2.441
1,20	.047	7,00	.276	15,00	.591	25,90	1.020	39,00	1.535	63,00	2.480
1,25	.049	7,10	.280	15,20	.598	26,00	1.024	39,20	1.543	63,50	2.500
1,27	.050	7,20	.283	15,24	.600	26,30	1.035	39,30	1.547	64,00	2.520
1,30	.051	7,40	.291	15,40	.606	26,60	1.047	39,90	1.571	65,00	2.560
1,35	.053	7,50	.295	15,50	.610	26,70	1.051	40,00	1.575	67,00	2.638
1,40	.055	7,60	.299	15,60	.614	27,00	1.063	40,30	1.587	68,00	2.677
1,45	.057	7,62	.300	15,90	.626	27,20	1.071	40,40	1.591	69,00	2.717
1,50	.059	7,70	.303	16,00	.630	27,40	1.079	40,60	1.598	70,00	2.756
1,60	.063	7,80	.307	16,20	.638	27,50	1.093	41,00	1.614	71,00	2.795
1,70	.067	7,98	.314	16,50	.650	27,90	1.098	41,60	1.638	74,00	2.913
1,80	.071	8,00	.315	16,60	.654	27,94	1.100	42,70	1.681	75,00	2.953
1,85	.073	8,18	.318	16,80	.661	28,00	1.102	43,18	1.700	76,20	3.000
1,90	.075	8,20	.323	17,00	.669	28,20	1.110	44,20	1.740	77,00	3.032
2,00	.079	8,30	.327	17,20	.677	28,50	1.122	44,80	1.764	78,74	3.100
2,10	.083	8,40	.331	17,30	.681	28,70	1.130	45,80	1.803	80,00	3.150
2,20	.087	8,50	.335	17,50	.689	29,00	1.142	46,30	1.823	81,28	3.200
2,30	.091	8,60	.339	17,60	.693	29,20	1.150	46,70	1.839	84,00	3.307
2,40	.095	8,90	.350	17,70	.697	29,40	1.158	47,00	1.850	85,00	3.346
2,50	.098	9,00	.354	17,78	.700	29,50	1.161	47,20	1.858	86,36	3.400
2,54	.100	9,10	.358	17,80	.701	29,70	1.169	47,30	1.862	88,90	3.500
2,60	.102	9,20	.362	17,90	.705	29,90	1.177	47,50	1.870	90,00	3.543
2,70	.106	9,30	.366	18,00	.709	30,00	1.181	47,80	1.882	91,44	3.600
2,80	.110	9,40	.370	18,10	.713	30,20	1.189	48,00	1.890	94,00	3.701
2,84	.112	9,50	.374	18,30	.721	30,40	1.197	48,10	1.894	95,00	3.740
2,90	.114	9,60	.378	18,60	.732	30,48	1.200	48,26	1.900	100,00	3.937
3,00	.118	9,70	.382	19,00	.748	30,50	1.201	48,80	1.921	110,00	4.331
3,10	.122	9,90	.390	19,20	.756	30,80	1.213	49,10	1.933	120,00	4.724
3,20	.126	10,00	.395								

# TYPE B

Male connector – straight and angled – 32 and 64 positions

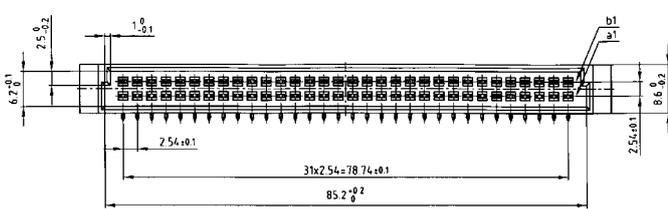


RoHS compliant

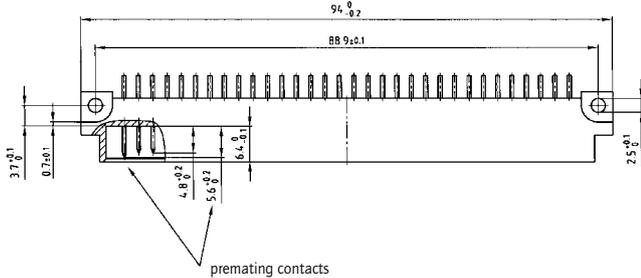
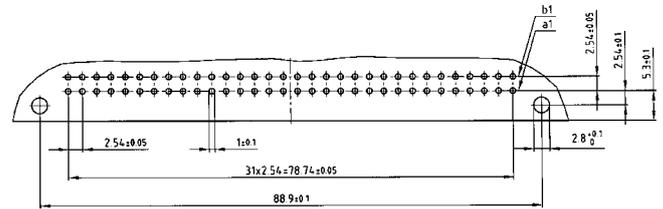
**DESCRIPTION**

- Solder pin
- Quality class 3 (also available in quality class 2 or 1)
- Premating contacts in row "a" und "b" available
- Special assembly on request

**PRODUCT DRAWING**



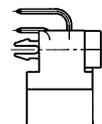
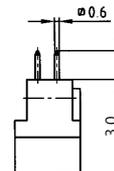
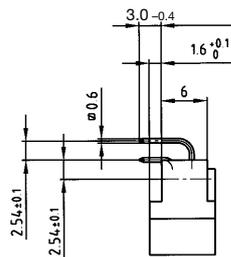
PCB-hole pattern



Solder pin angled

Solder pin straight

Solder pin angled with clip



**ORDER DATA**

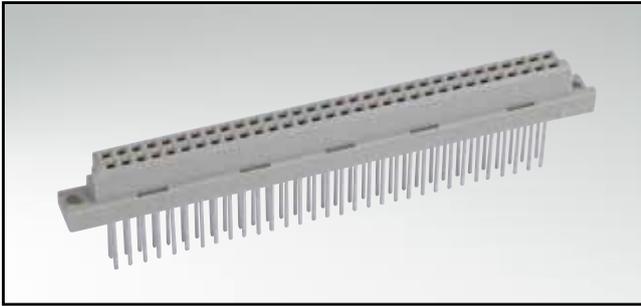
(Dim. = mm)

No. of Pos.	Row	• = contact, + = no contact					Solder pin angled	Solder pin straight	Solder pin angled with clip
		Pos. 1	2	3	4	5 ...			
32	b	+	+	+	+	+	121 A 10019 X	121 A 10049 X	121 A 20819 X
	a	•	•	•	•	•			
32	b	+	•	+	•	+	121 A 10029 X	121 A 10059 X	121 A 20829 X
	a	+	•	+	•	+			
64	b	•	•	•	•	•	121 A 10039 X	121 A 10069 X	121 A 20839 X
	a	•	•	•	•	•			

Clip for hole diameter 2.8 + 0.1 mm, PCB thickness = 1.6 mm

# TYPE B

## Female connector – straight and angled – 32 and 64 positions



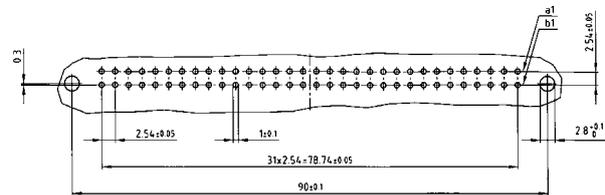
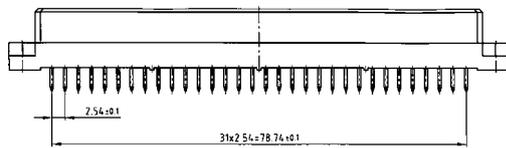
RoHS compliant

### DESCRIPTION

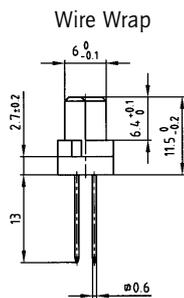
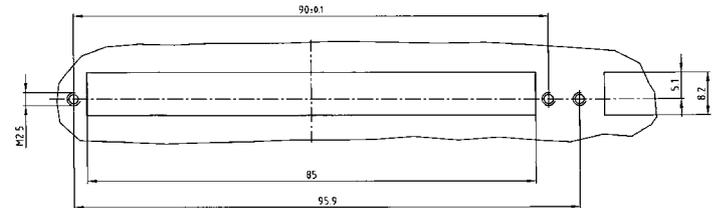
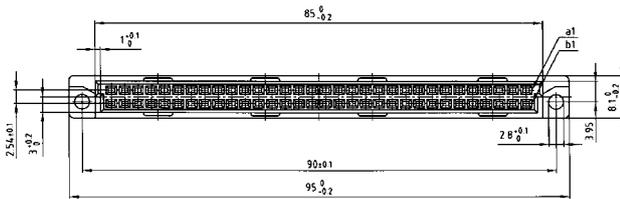
- Solder pin, solder lug and wire wrap
- Quality class 3 (also available in quality class 2 or 1)
- Special assembly on request

### PRODUCT DRAWING

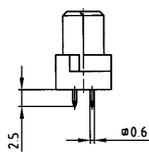
PCB-hole pattern



Panel cutout

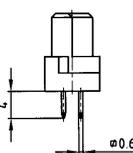


Wire Wrap

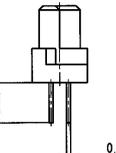


Solder pin straight 2.5 mm

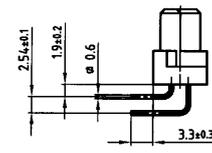
Solder pin straight 4 mm



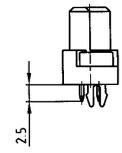
Solder lug



Solder pin angled



Solder pin straight 2.5 mm with clip



### ORDER DATA

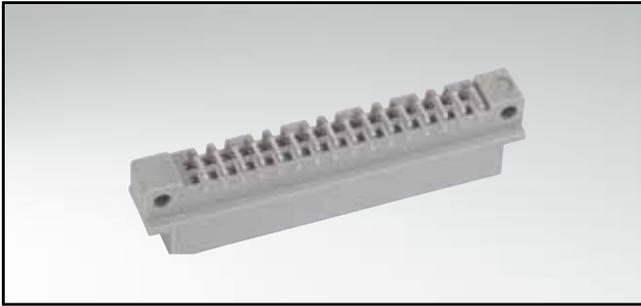
(Dim. = mm)

No. of Pos.	Row	• = contact, + = no contact					Wire Wrap	Solder pin straight 2.5 mm	Solder pin straight 4 mm	Solder lug	Solder pin angled	Solder pin straight 2.5 mm with clip
		Pos.	1	2	3	4						
32	a	•	•	•	•	•	122 A 10019 X	122 A 10049 X	122 A 10079 X	122 A 10109 X	122 A 10139 X	122 A 13189 X
	b	+	+	+	+	+						
32	a	+	•	+	•	+	122 A 10029 X	122 A 10059 X	122 A 10089 X	122 A 10119 X	122 A 10149 X	122 A 13199 X
	b	+	•	+	•	+						
64	a	•	•	•	•	•	122 A 10039 X	122 A 10069 X	122 A 10099 X	122 A 10129 X	122 A 10159 X	122 A 13209 X
	b	•	•	•	•	•						

Clip for hole diameter 2.8 + 0.1 mm, PCB thickness = 1.6 mm

# TYPE B/2

Male connector – straight and angled – 16 and 32 positions

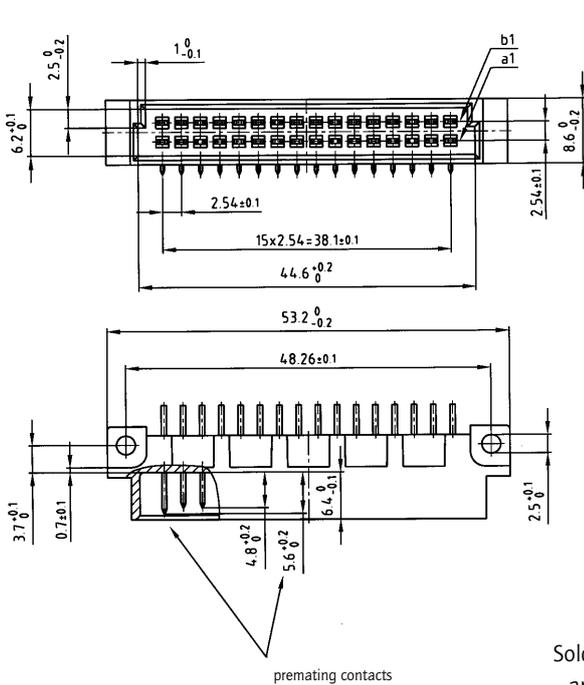


RoHS compliant

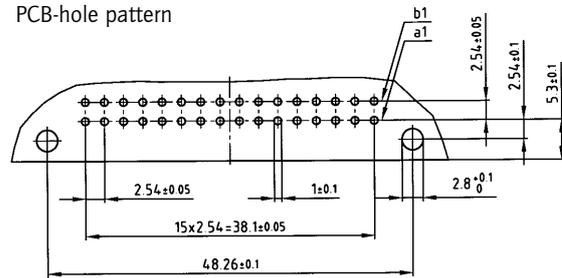
### DESCRIPTION

- Solder pin
- Quality class 3 (also available in quality class 2 or 1)
- Premating contacts in row "a" und "b" available
- Special assembly on request

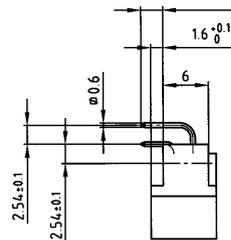
### PRODUCT DRAWING



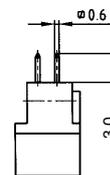
### PCB-hole pattern



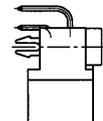
Solder pin angled



Solder pin straight



Solder pin angled with clip



### ORDER DATA

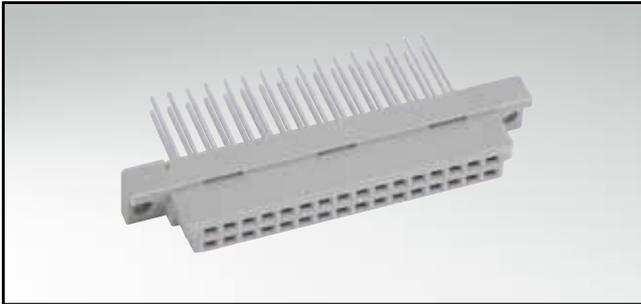
(Dim. = mm)

No. of Pos.	Row	• = contact, + = no contact						Solder pin angled	Solder pin straight	Solder pin angled with clip
		Pos. 1	2	3	4	5	...			
16	b	•	•	•	•	•	•	121 A 10259 X	121 A 10289 X	121 A 20849 X
	a	+	+	+	+	+	+			
16	b	+	•	+	•	+	•	121 A 10269 X	121 A 10299 X	121 A 20859 X
	a	+	•	+	•	+	•			
32	b	•	•	•	•	•	•	121 A 10279 X	121 A 10309 X	121 A 20869 X
	a	•	•	•	•	•	•			

Clip for hole diameter 2.8 + 0.1 mm, PCB thickness = 1.6 mm

# TYPE B/2

Female connector – straight and angled – 16 and 32 positions

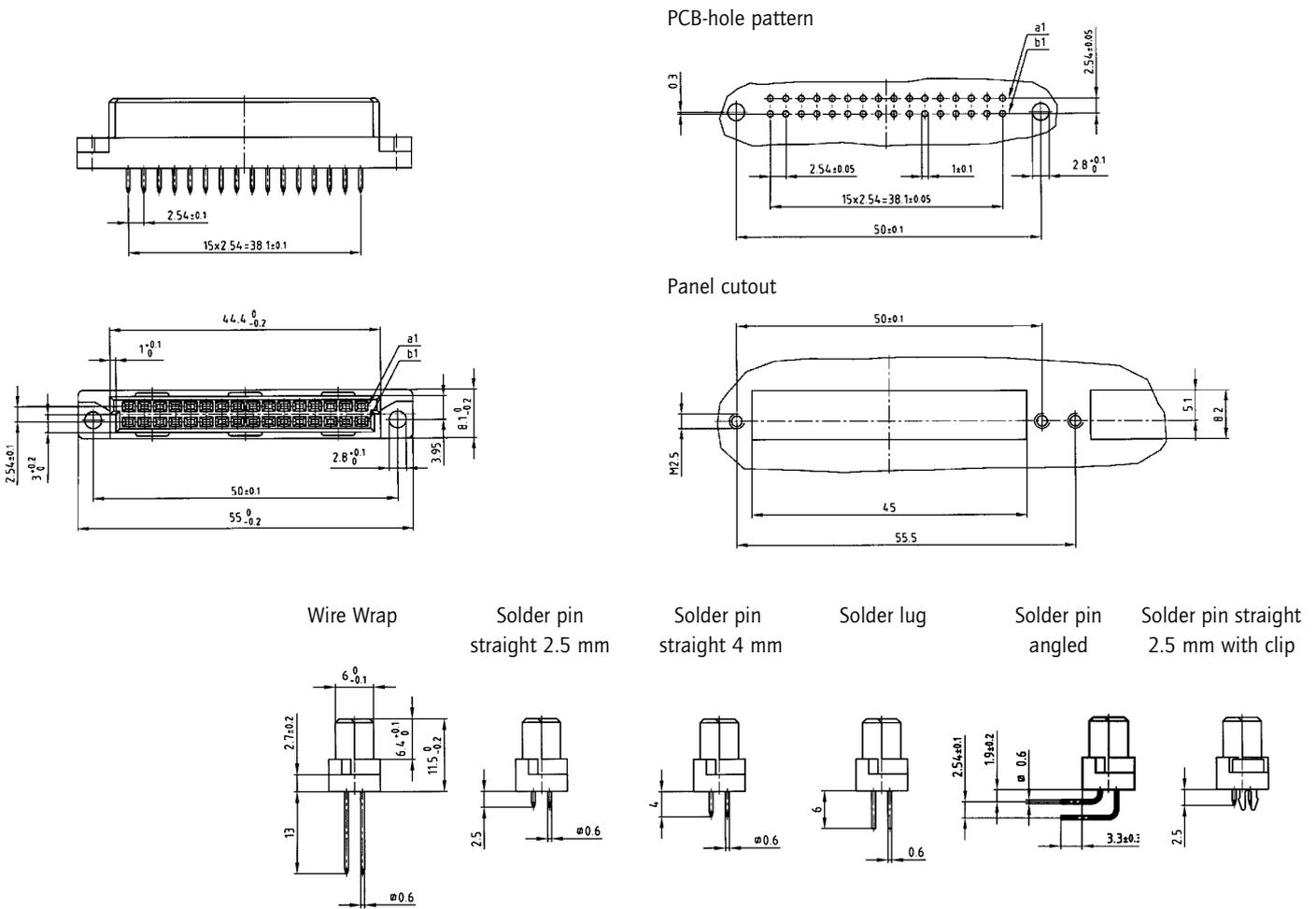


RoHS compliant

**DESCRIPTION**

- Solder pin, solder lug and wire wrap
- Quality class 3 (also available in quality class 2 or 1)
- Special assembly on request

**PRODUCT DRAWING**



(Dim. = mm)

**ORDER DATA**

No. of Pos.	Row	• = contact, + = no contact					Wire Wrap	Solder pin straight 2.5 mm	Solder pin straight 4 mm	Solder lug	Solder pin angled	Solder pin straight 2.5 mm with clip
		Pos. 1	2	3	4	5 ...						
16	a	•	•	•	•	•	122 A 10419 X	122 A 10449 X	122 A 10479 X	122 A 10509 X	122 A 10539 X	122 A 13219 X
	b	+	+	+	+	+						
16	a	+	•	+	•	+	122 A 10429 X	122 A 10459 X	122 A 10489 X	122 A 10519 X	122 A 10549 X	122 A 13229 X
	b	+	•	+	•	+						
32	a	•	•	•	•	•	122 A 10439 X	122 A 10469 X	122 A 10499 X	122 A 10529 X	122 A 10559 X	122 A 13239 X
	b	•	•	•	•	•						

Clip for hole diameter 2.8 + 0.1 mm, PCB thickness = 1.6 mm

# TYPE C

Male connector – straight and angled – 32, 64 and 96 positions

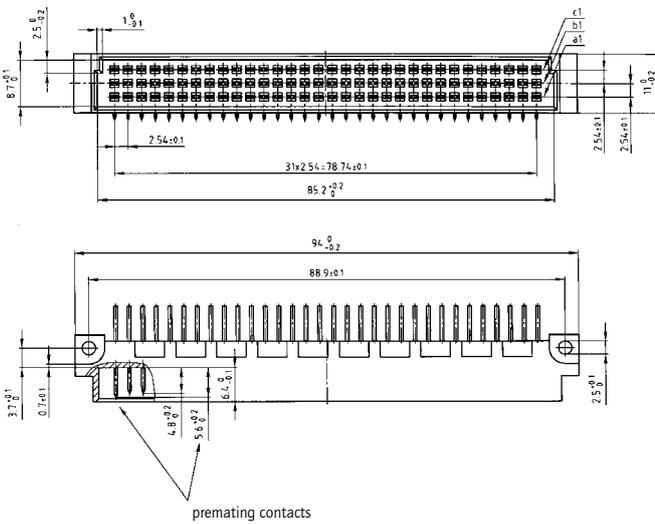


RoHS compliant

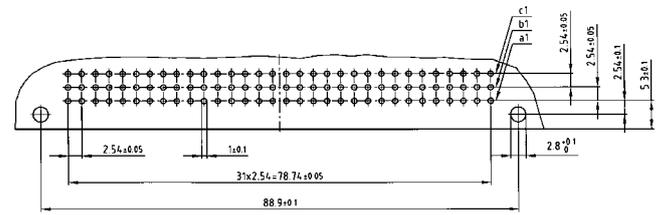
### DESCRIPTION

- Solder pin
- Quality class 3 (also available in quality class 2 or 1)
- Premating contacts in row "a", "b" and "c" available
- Special assembly on request

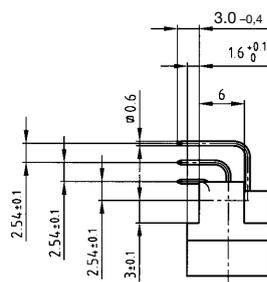
### PRODUCT DRAWING



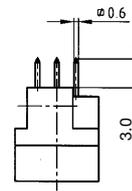
### PCB-hole pattern



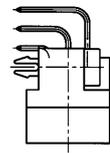
Solder pin angled



Solder pin straight



Solder pin angled with clip



### ORDER DATA

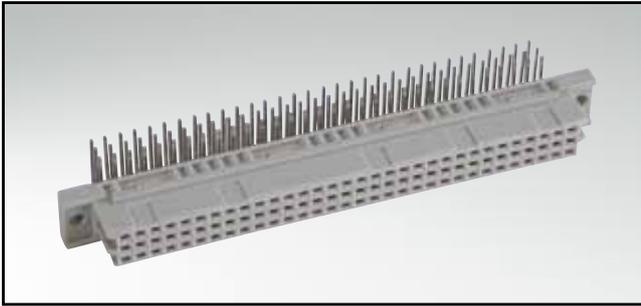
No. of Pos.	Row	• = contact, + = no contact						Solder pin angled	Solder pin straight	Solder pin angled with clip
		Pos.	1	2	3	4	5			
32	c		+	+	+	+	+	121 A 10109 X	121 A 10159 X	121 A 20879 X
	b		+	+	+	+	+			
	a		•	•	•	•	•			
32	c		+	•	+	•	+	121 A 10119 X	121 A 10169 X	121 A 20889 X
	b		+	+	+	+	+			
	a		+	•	+	•	+			
64	c		•	•	•	•	•	121 A 10139 X	121 A 10189 X	121 A 20909 X
	b		+	+	+	+	+			
	a		•	•	•	•	•			
96	c		•	•	•	•	•	121 A 10149 X	121 A 10199 X	121 A 20919 X
	b		•	•	•	•	•			
	a		•	•	•	•	•			

(Dim. = mm)

Clip for hole diameter 2.8 + 0.1 mm, PCB thickness = 1.6 mm

# TYPE C

## Female connector – straight and angled – 32, 64 and 96 positions



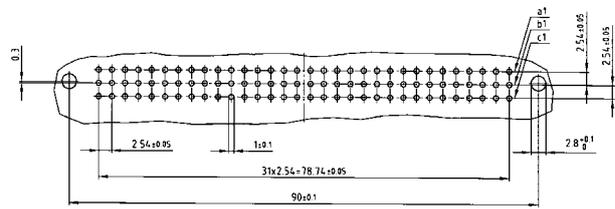
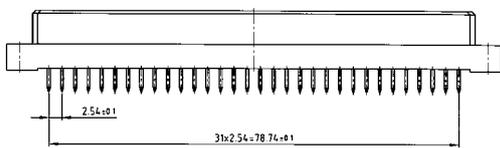
RoHS compliant

### DESCRIPTION

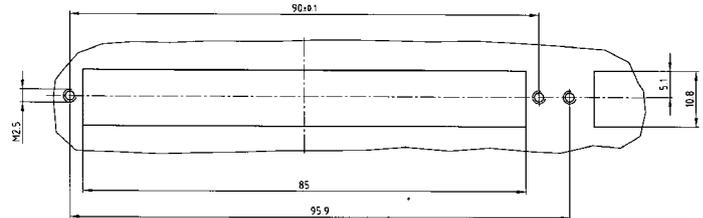
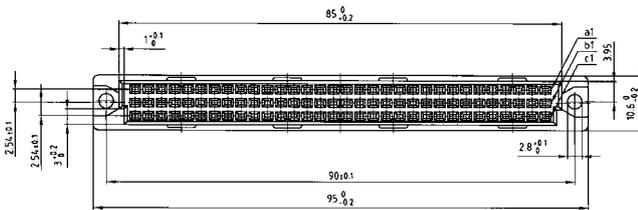
- Solder pin, solder lug and wire wrap
- Quality class 3 (also available in quality class 2 or 1)
- Special assembly on request

### PRODUCT DRAWING

PCB-hole pattern



Panel cutout



Wire Wrap

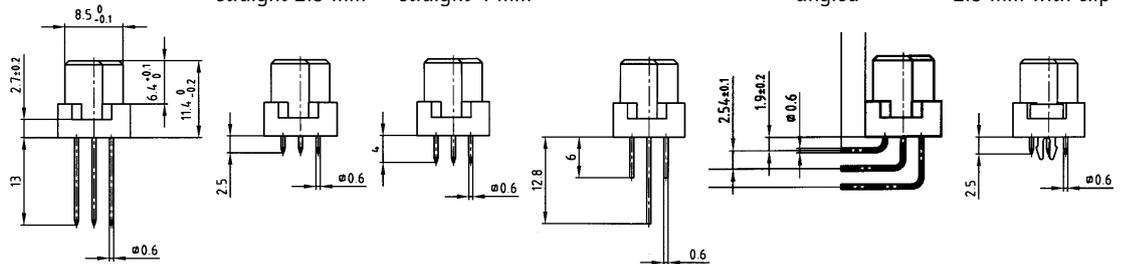
Solder pin straight 2.5 mm

Solder pin straight 4 mm

Solder lug

Solder pin angled

Solder pin straight 2.5 mm with clip



### ORDER DATA

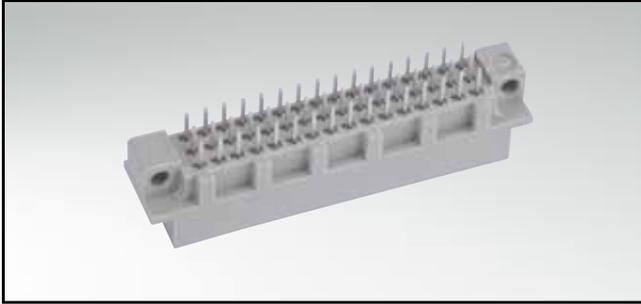
(Dim. = mm)

No. of Pos.	Row	• = contact, + = no contact					Wire Wrap	Solder pin straight 2.5 mm	Solder pin straight 4 mm	Solder lug	Solder pin angled	Solder pin straight 2,5 mm with clip
		Pos. 1	2	3	4	5						
32	a	•	•	•	•	•	122 A 10169 X	122 A 10219 X	122 A 10269 X	122 A 10319 X	122 A 10369 X	122 A 13249 X
	b	+	+	+	+	+						
	c	+	+	+	+	+						
32	a	•	•	•	•	•	122 A 10179 X	122 A 10229 X	122 A 10279 X	122 A 10329 X	122 A 10379 X	122 A 13259 X
	b	+	+	+	+	+						
	c	+	•	+	•	•						
64	a	•	•	•	•	•	122 A 10199 X	122 A 10249 X	122 A 10299 X	122 A 10349 X	122 A 10399 X	122 A 13279 X
	b	+	+	+	+	+						
	c	•	•	•	•	•						
96	a	•	•	•	•	•	122 A 10209 X	122 A 10259 X	122 A 10309 X	122 A 10359 X	122 A 10409 X	122 A 13289 X
	b	•	•	•	•	•						
	c	•	•	•	•	•						

Clip for hole diameter 2.8 + 0.1 mm, PCB thickness = 1.6 mm

# TYPE C/2

Male connector – straight and angled – 16, 32 and 48 positions

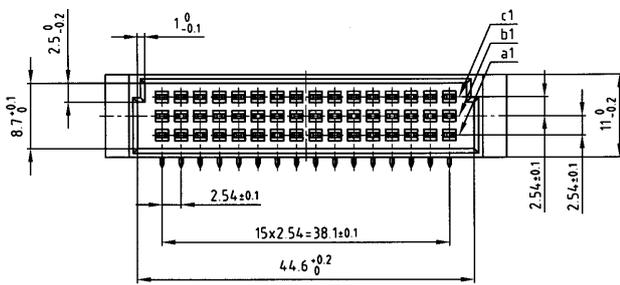


RoHS compliant

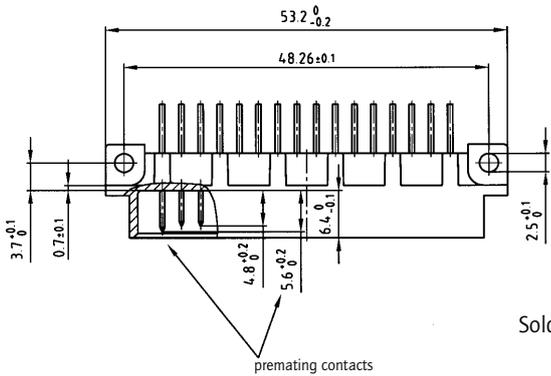
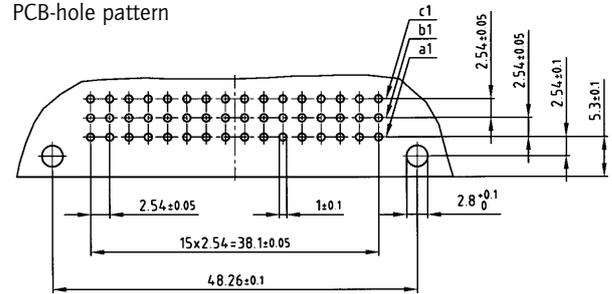
### DESCRIPTION

- Solder pin
- Quality class 3 (also available in quality class 2 or 1)
- Premating contacts in row "a", "b" and "c" available
- Special assembly on request

### PRODUCT DRAWING



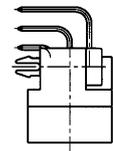
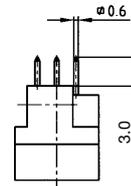
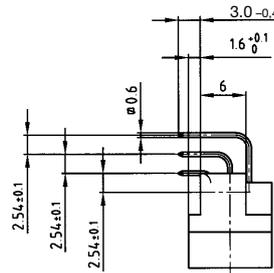
### PCB-hole pattern



Solder pin angled

Solder pin straight

Solder pin angled with clip



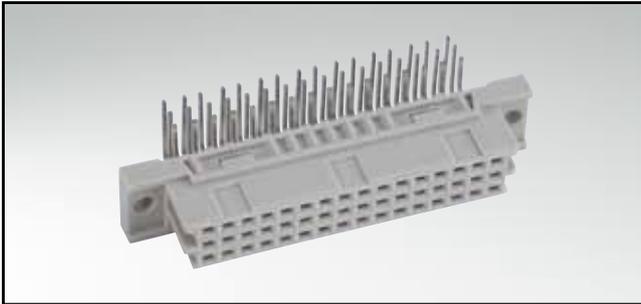
### ORDER DATA

No. of Pos.	Row	• = contact, + = no contact						Solder pin angled	Solder pin straight	Solder pin angled with clip
		Pos.	1	2	3	4	5			
16	c		+	+	+	+	+	121 A 10349 X	121 A 10399 X	121 A 20929 X
	b		+	+	+	+	+			
	a		•	•	•	•	•			
16	c		+	•	•	•	•	121 A 10359 X	121 A 10409 X	121 A 20939 X
	b		+	+	+	+	+			
	a		+	•	•	•	•			
32	c		•	•	•	•	•	121 A 10379 X	121 A 10429 X	121 A 20959 X
	b		+	+	+	+	+			
	a		•	•	•	•	•			
48	c		•	•	•	•	•	121 A 10389 X	121 A 10439 X	121 A 20969 X
	b		•	•	•	•	•			
	a		•	•	•	•	•			

Clip for hole diameter 2.8 + 0.1 mm, PCB thickness = 1.6 mm

# TYPE C/2

Female connector – straight and angled – 16, 32 and 48 positions



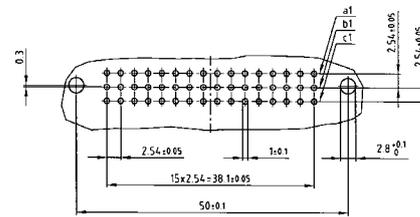
RoHS compliant

### DESCRIPTION

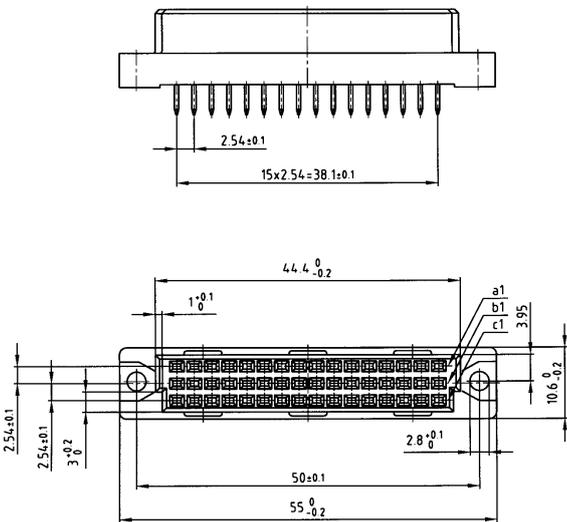
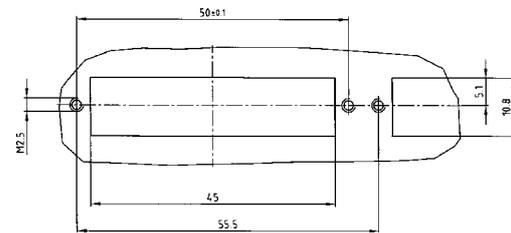
- Solder pin, solder lug and wire wrap
- Quality class 3 (also available in quality class 2 or 1)
- Special assembly on request

### PRODUCT DRAWING

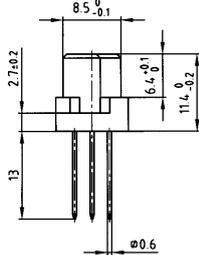
PCB-hole pattern



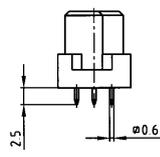
Panel cutout



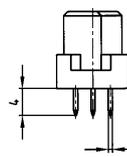
Wire Wrap



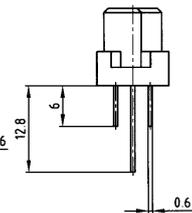
Solder pin straight 2.5 mm



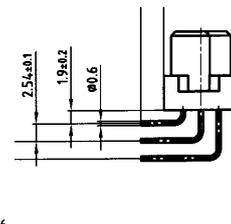
Solder pin straight 4 mm



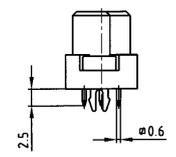
Solder lug



Solder pin angled



Solder pin straight 2.5 mm with clip



### ORDER DATA

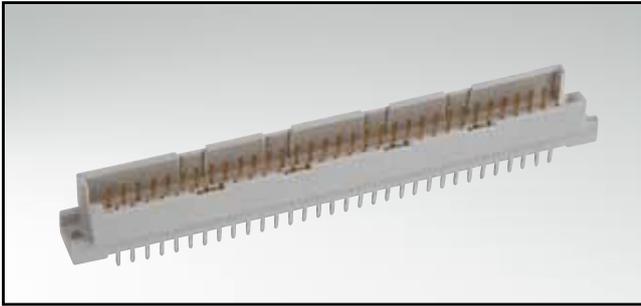
(Dim. = mm)

No. of Pos.	Row	• = contact, + = no contact					Wire Wrap	Solder pin straight 2.5 mm	Solder pin straight 4 mm	Solder lug	Solder pin angled	Solder pin straight 2,5 mm with clip
		Pos.	1	2	3	4						
16	a		•	•	•	•						
	b	+	+	+	+	+	122 A 10579 X	122 A 10629 X	122 A 10679 X	122 A 10729 X	122 A 10779 X	122 A 13299 X
	c	+	+	+	+	+						
16	a		•	•	•	•						
	b	+	+	+	+	+	122 A 10589 X	122 A 10639 X	122 A 10689 X	122 A 10739 X	122 A 10789 X	122 A 13309 X
	c	+	•	•	•	•						
32	a		•	•	•	•						
	b	+	+	+	+	+	122 A 10609 X	122 A 10659 X	122 A 10709 X	122 A 10759 X	122 A 10809 X	122 A 13329 X
	c		•	•	•	•						
48	a		•	•	•	•						
	b		•	•	•	•	122 A 10619 X	122 A 10669 X	122 A 10719 X	122 A 10769 X	122 A 10819 X	122 A 13339 X
	c		•	•	•	•						

Clip for hole diameter 2.8 + 0.1 mm, PCB thickness = 1.6 mm

# TYPE R

Male connector – straight – 32, 64 and 96 positions

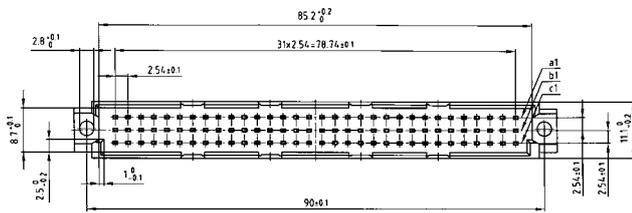


RoHS compliant

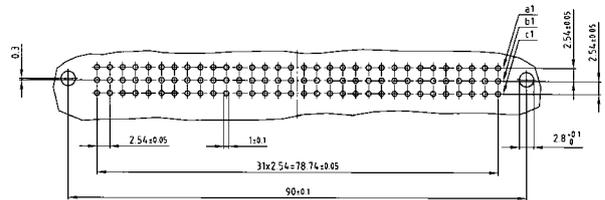
### DESCRIPTION

- Solder pin and wire wrap
- Quality class 3 (also available in quality class 2 or 1)

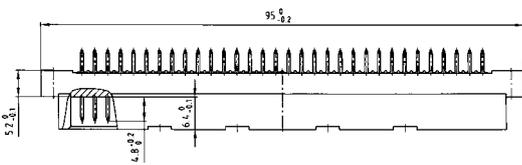
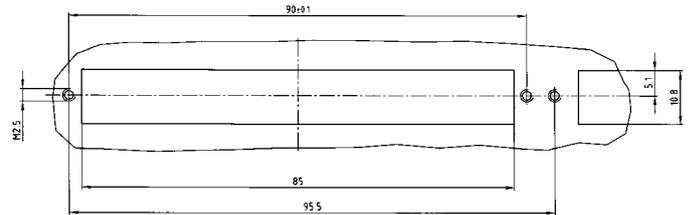
### PRODUCT DRAWING



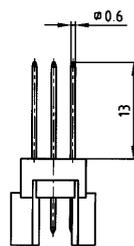
PCB-hole pattern



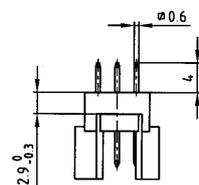
Panel cutout



Wire Wrap



Solder pin straight



### ORDER DATA

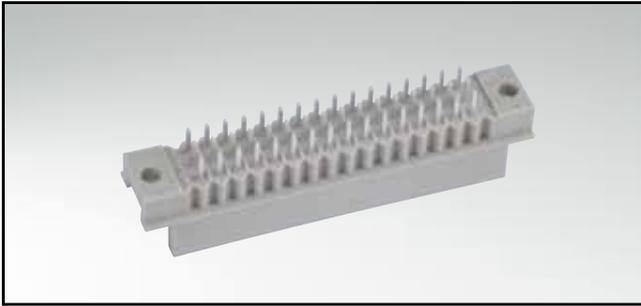
(Dim. = mm)

No. of Pos.	Row	• = contact, + = no contact					Wire Wrap	Solder pin straight	
		Pos.	1	2	3	4			5
32	a		+	•	+	•	121 A 10509 X	121 A 10549 X	
	b		+	+	+	+			+
	c		+	•	+	•			+
64	a		•	•	•	•	121 A 10519 X	121 A 10559 X	
	b		+	+	+	+			+
	c		•	•	•	•			•
96	a		•	•	•	•	121 A 10529 X	121 A 10569 X	
	b		•	•	•	•			•
	c		•	•	•	•			•



# TYPE R/2

Male connector – straight – 32 and 48 positions

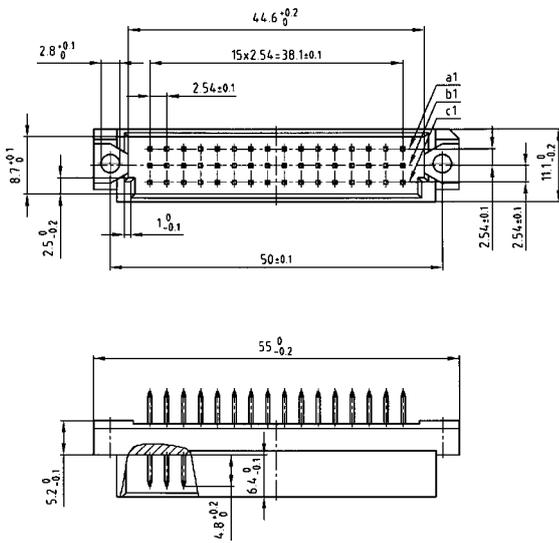


RoHS compliant

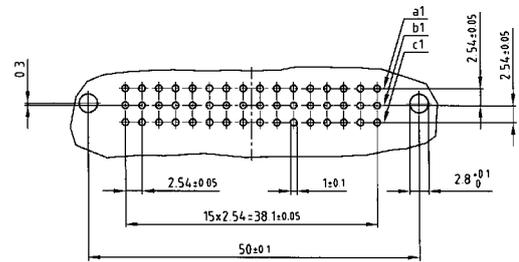
**DESCRIPTION**

- Solder pin and wire wrap
- Quality class 3 (also available in quality class 2 or 1)

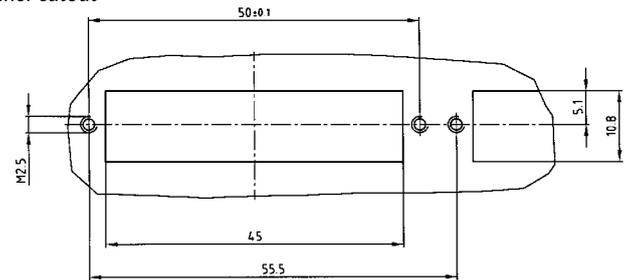
**PRODUCT DRAWING**



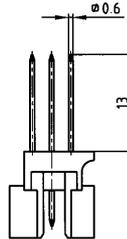
PCB-hole pattern



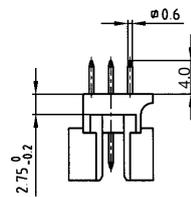
Panel cutout



Wire Wrap



Solder pin straight



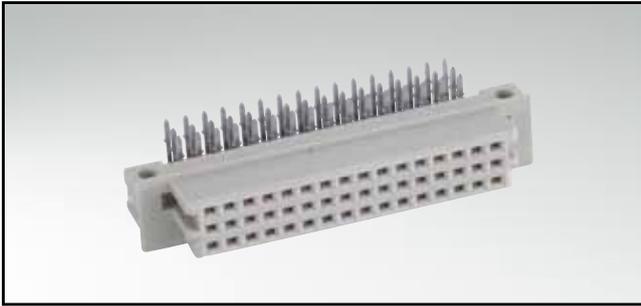
**ORDER DATA**

(Dim. = mm)

No. of Pos.	Row	• = contact, + = no contact						Wire Wrap	Solder pin straight
		Pos.	1	2	3	4	5		
32	a		•	•	•	•	•	121 A 10589 X	121 A 10619 X
	b	+	+	+	+	+	+		
	c	•	•	•	•	•	•		
48	a		•	•	•	•	•	121 A 10599 X	121 A 10629 X
	b		•	•	•	•	•		
	c		•	•	•	•	•		

# TYPE R/2

Female connector – angled – 32 and 48 positions



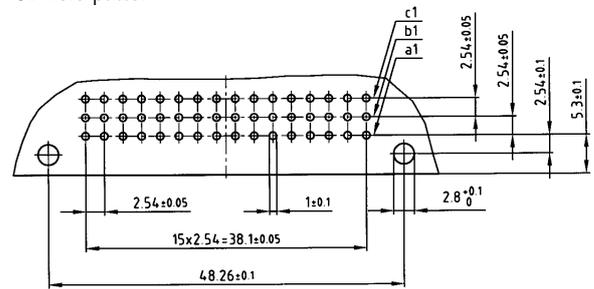
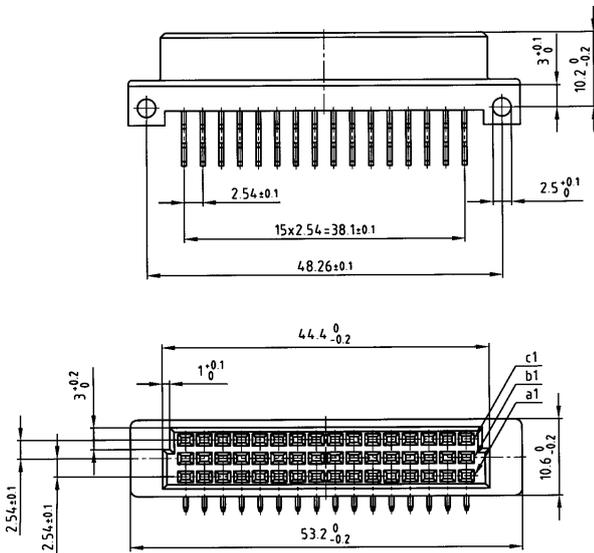
RoHS compliant

**DESCRIPTION**

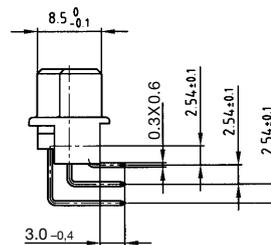
- Solder pin
- Quality class 3 (also available in quality class 2 or 1)

**PRODUCT DRAWING**

PCB-hole pattern



Solder pin angled



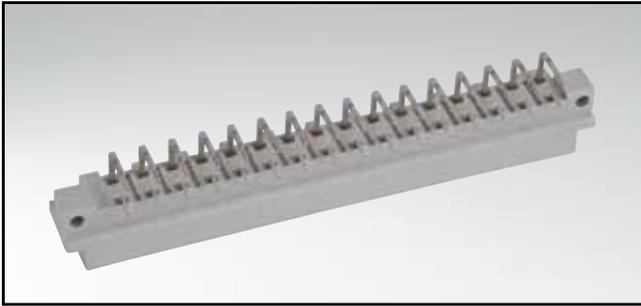
(Dim. = mm)

**ORDER DATA**

No. of Pos.	Row	• = contact, + = no contact						Solder pin angled
		Pos.	1	2	3	4	5	
32	c		•	•	•	•	•	122 A 10879 X
	b	+	+	+	+	+	+	
	a	•	•	•	•	•	•	
48	c		•	•	•	•	•	122 A 10889 X
	b		•	•	•	•	•	
	a		•	•	•	•	•	

# TYPE D

Male connector – straight and angled – 16 and 32 positions

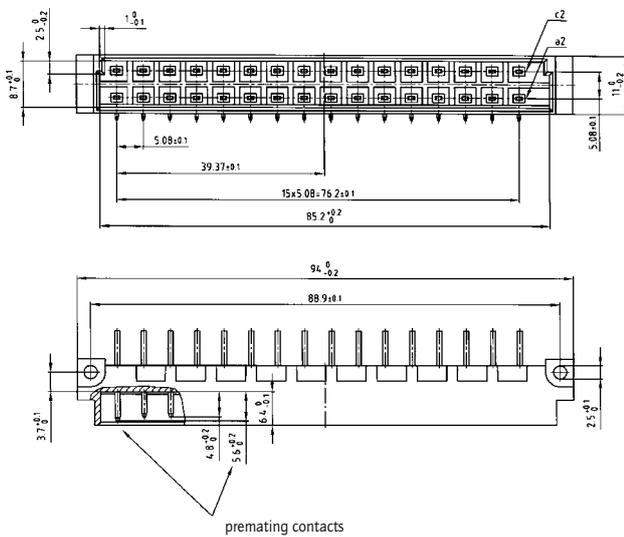


RoHS compliant

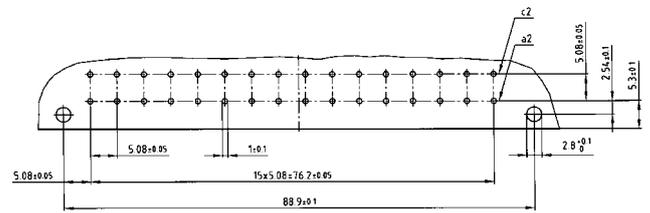
### DESCRIPTION

- Solder pin
- Quality class 3 (also available in quality class 2 or 1)
- premating contacts in row "a" available
- Special assembly on request

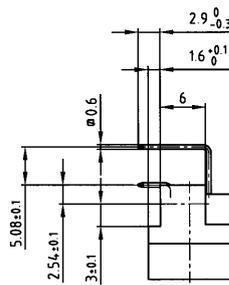
### PRODUCT DRAWING



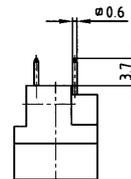
### PCB-hole pattern



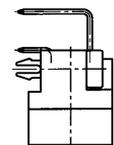
Solder pin angled



Solder pin straight



Solder pin angled with clip



(Dim. = mm)

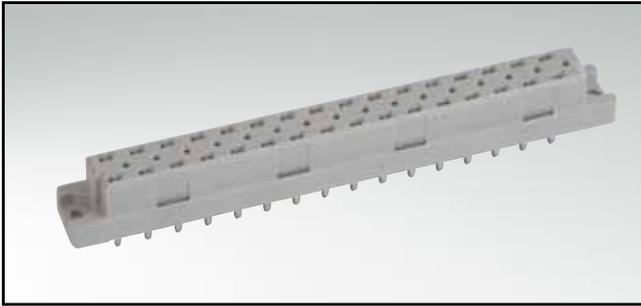
### ORDER DATA

No. of Pos.	Row	• = contact, + = no contact				Solder pin angled	Solder pin straight	Solder pin angled with clip
		Pos.	2	4	6			
16	c		•	+	•	121 A 10639 X	121 A 10659 X	121 A 20979 X
	a		•	+	•			
32	c		•	•	•	121 A 10649 X	121 A 10669 X	121 A 20989 X
	a		•	•	•			

Clip for hole diameter 2.8 + 0.1 mm, PCB thickness = 1.6 mm

# TYPE D

## Female connector – straight – 16 and 32 positions

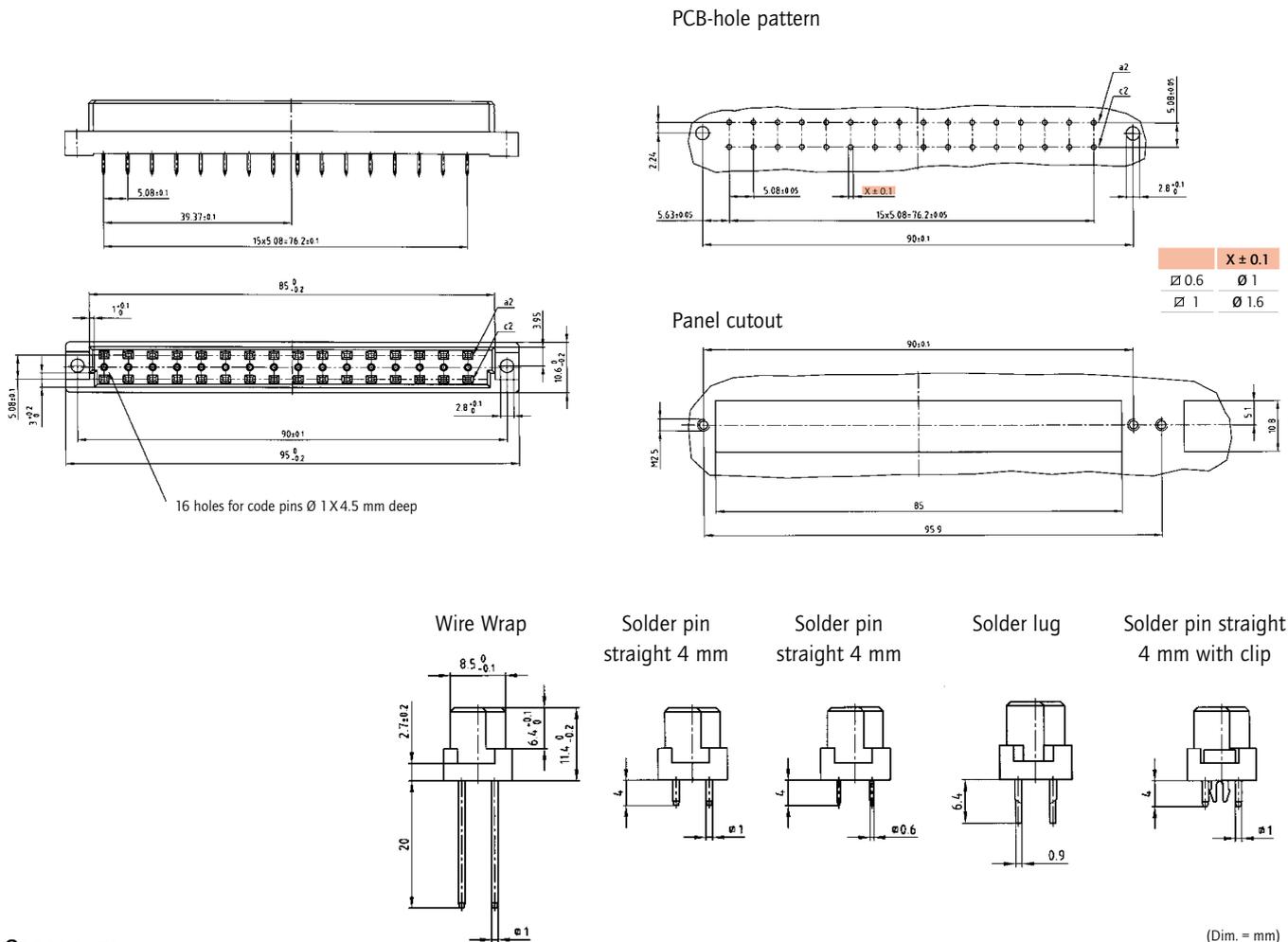


RoHS compliant

### DESCRIPTION

- Solder pin, wire wrap and solder lug
- Quality class 3 (also available in quality class 2 or 1)
- Special assembly on request

### PRODUCT DRAWING



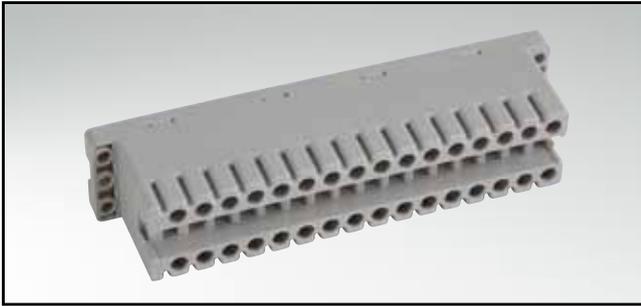
### ORDER DATA

No. of Pos.	Row	• = contact, + = no contact				Wire Wrap	Solder pin straight 4.0 mm $\varnothing 1$ mm	Solder pin straight 4.0 mm $\varnothing 0.6$ mm	Solder lug	Solder pin straight 4mm $\varnothing 1$ mm w. clip	
		Pos.	2	4	6						...
16	a		•	+	•	+	122 A 10919 X	122 A 10939 X	122 A 13079 X	122 A 10959 X	122 A 13349 X
	c		•	+	•	+					
32	a		•	•	•	•	122 A 10929 X	122 A 10949 X	122 A 13089 X	122 A 10969 X	122 A 13359 X
	c		•	•	•	•					

Clip for hole diameter 2.8 + 0.1 mm, PCB thickness = 1.6 mm

# TYPE D WITH SCREW TERMINATION

Female connector – straight – 32 positions

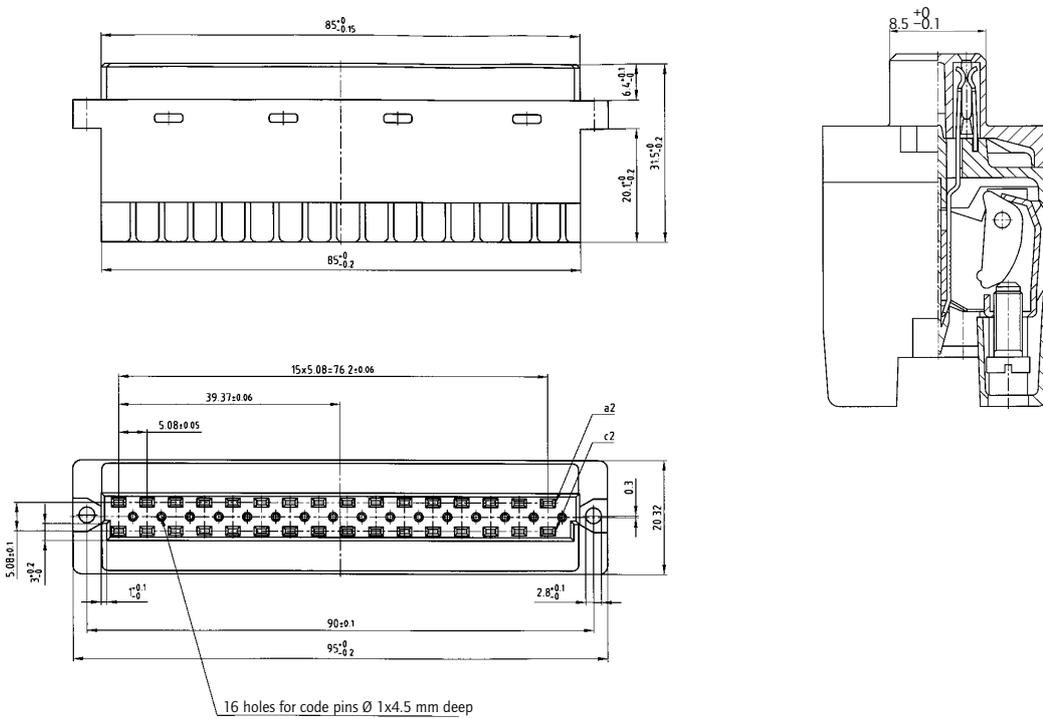


RoHS compliant

### TECHNICAL DATA

Conductor size:	AWG 24 to 16
Operating voltage:	6 A
Rated voltage:	300 / 250 V~
Insulator:	PBT GF grey
Operating temperature:	-55°C to +120°C
Flammability:	UL 94 V-0
Material:	Copper alloy
Contact plating:	Quality class 2
Screw connection:	Steel

### PRODUCT DRAWING



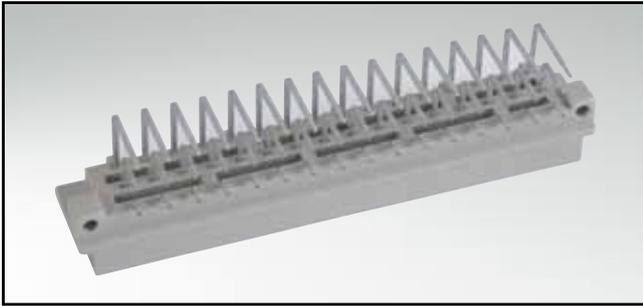
### ORDER DATA

(Dim. = mm)

No. of Pos.	Row	Female connector	Latches with strain relief angled	Latches without strain relief straight
32	c a	122 B 13029 X	12-500600	12-500590

# TYPE E

## Male connector – angled – 32 and 48 positions

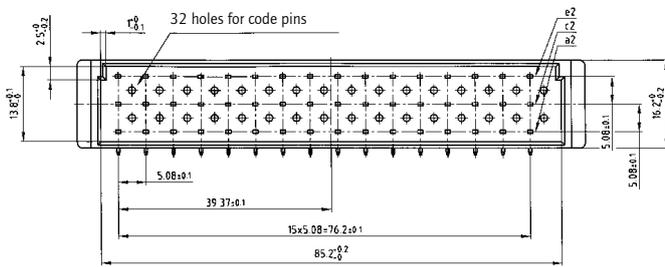


RoHS compliant

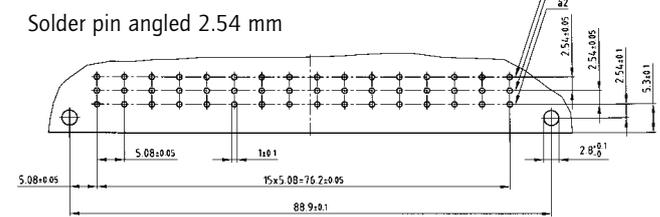
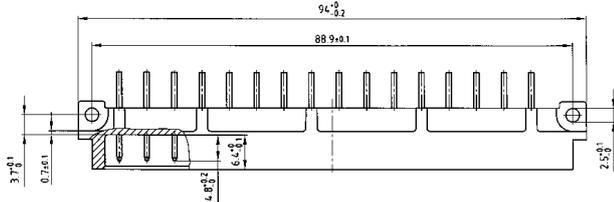
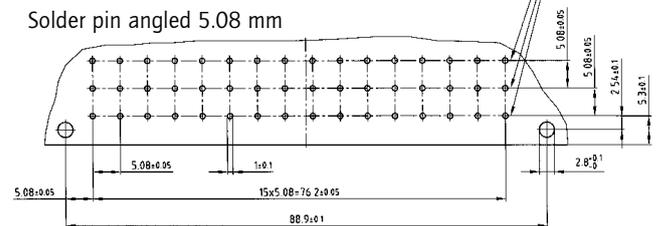
### DESCRIPTION

- Solder pin
- Quality class 3 (also available in quality class 2 or 1)

### PRODUCT DRAWING

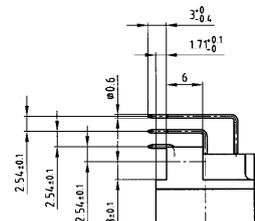
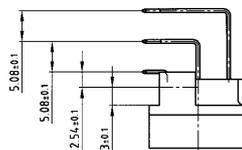


### PCB-hole pattern



Solder pin angled contact spacing 5.08 mm

Solder pin angled contact spacing 2.54 mm



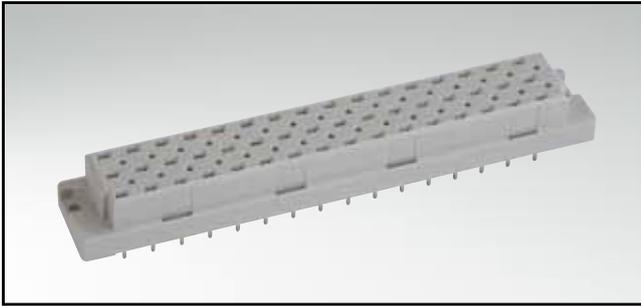
### ORDER DATA

(Dim. = mm)

No. of Pos.	Row	• = contact, + = no contact				Solder pin angled contact spacing 5.08 mm	Solder pin angled contact spacing 2.54 mm
		Pos.	2	4	6 ...		
32	e		+	+	+	121 A 20789 X	121 A 20779 X
	c		•	•	•		
	a		•	•	•		
32	e		•	•	•	121 A 20809 X	121 A 20799 X
	c		+	+	+		
	a		•	•	•		
48	e		•	•	•	121 A 10859 X	121 A 10849 X
	c		•	•	•		
	a		•	•	•		

# TYPE E

## Female connector – straight – 32 and 48 positions



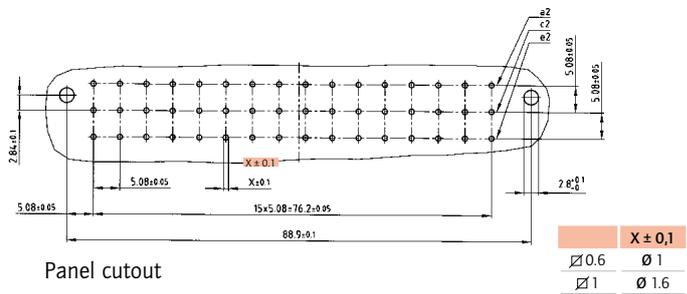
RoHS compliant

### DESCRIPTION

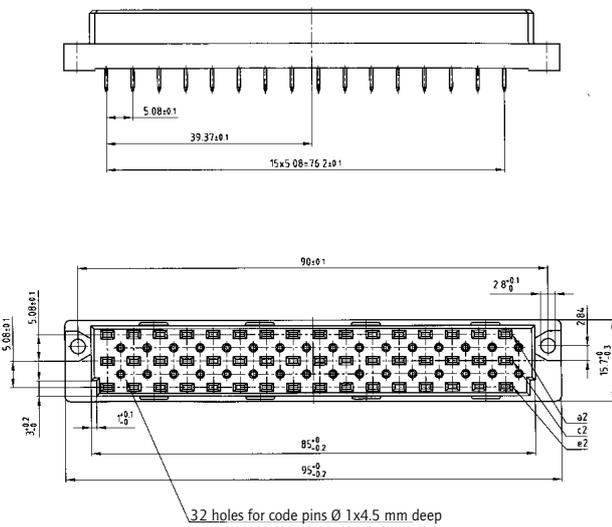
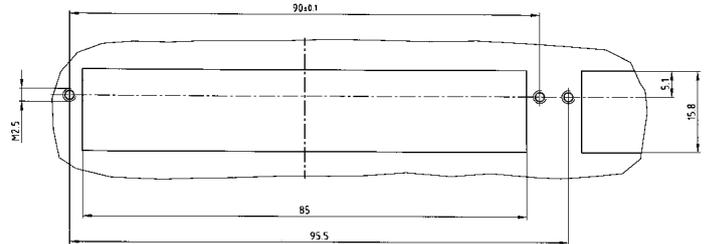
- Solder pin, wire wrap and solder lug
- Quality class 3 (also available in quality class 2 or 1)
- Special assembly on request

### PRODUCT DRAWING

#### PCB-hole pattern

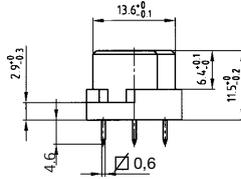


#### Panel cutout

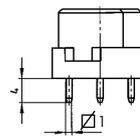


32 holes for code pins  $\varnothing 1 \times 4.5$  mm deep

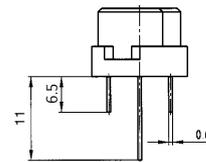
#### Solder pin straight 4.6 mm



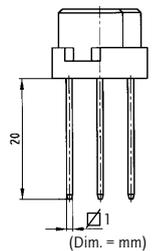
#### Solder pin straight 4 mm



#### Solder lug



#### Wire Wrap

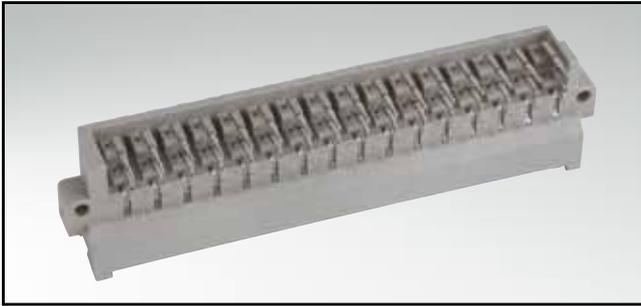


### ORDER DATA

No. of Pos.	Row	• = contact, + = no contact				Solder pin straight 4.6 mm $\varnothing 0.6$ mm	Solder pin straight 4.0 mm $\varnothing 1$ mm	Solder lug	Wire Wrap
		Pos.	2	4	6				
32	a		•	•	•	•	122 A 13099 X	122 A 13129 X	122 A 13149 X
	c		•	•	•	•			
	e		+	+	+	+			
32	a		•	•	•	•	122 A 13109 X	122 A 13139 X	122 A 13159 X
	c		+	+	+	+			
	e		•	•	•	•			
48	a		•	•	•	•	122 A 13119 X	122 A 11619 X	122 A 11629 X
	c		•	•	•	•			
	e		•	•	•	•			

# TYPE F

Male connector – straight and angled – 32 and 48 positions

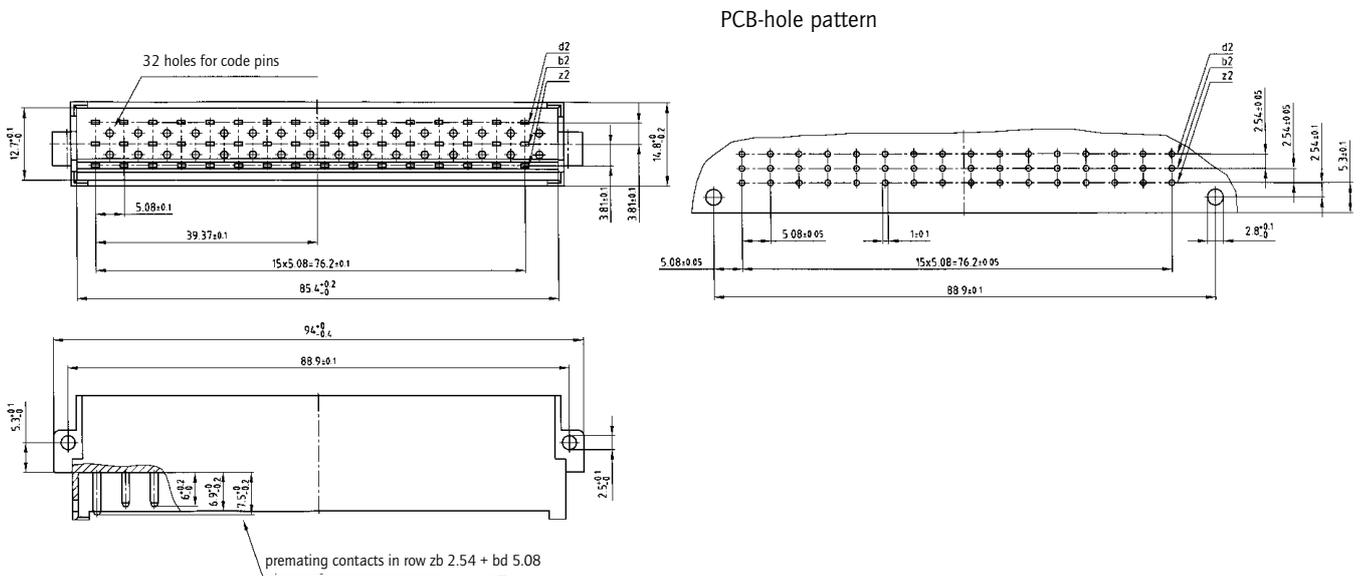


RoHS compliant

### DESCRIPTION

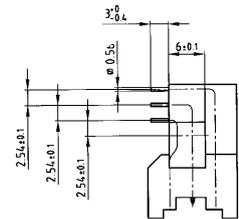
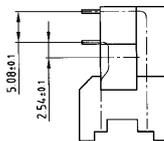
- Solder pin
- Quality class 3 (also available in quality class 2 or 1)
- Premating contacts in row "z", "b" and "d" available
- Special assembly on request

### PRODUCT DRAWING



Solder pin angled  
contact spacing 5.08 mm

Solder pin angled  
contact spacing 2.54 mm



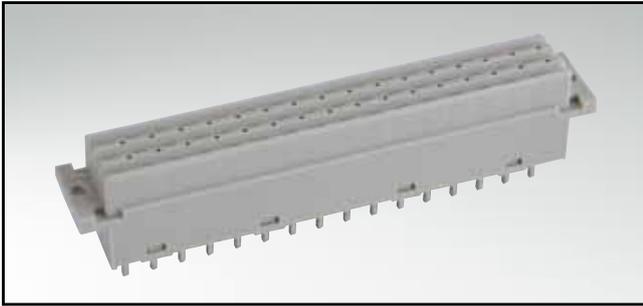
### ORDER DATA

(Dim. = mm)

No. of Pos.	Row	• = contact, + = no contact				Contact spacing	Solder pin angled
		Pos.	2	4	6		
32	d		+	+	+	2.54 mm	121 A 10699 X
	b		•	•	•		
	z		•	•	•		
32	d		•	•	•	5.08 mm	121 A 10709 X
	b		+	+	+		
	z		•	•	•		
48	d		•	•	•	2.54 mm	121 A 10719 X
	b		•	•	•		
	z		•	•	•		

# TYPE F

## Female connector – straight – 32 and 48 positions

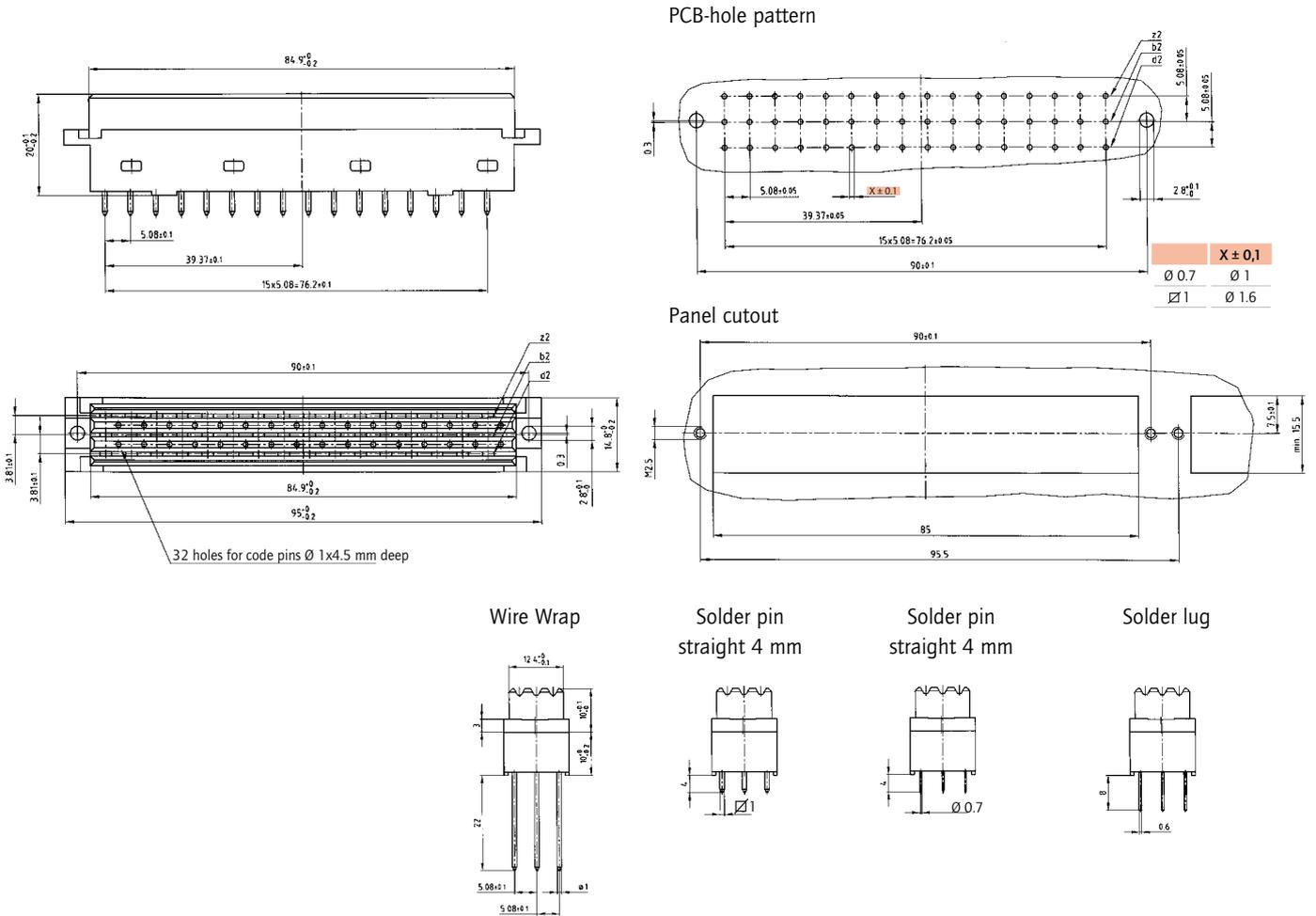


RoHS compliant

### DESCRIPTION

- Solder pin, wire wrap and solder lug
- Quality class 3 (also available in quality class 2 or 1)
- Special assembly on request

### PRODUCT DRAWING



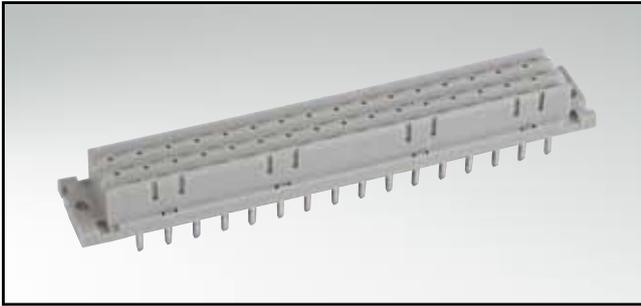
### ORDER DATA

(Dim. = mm)

No. of Pos.	Row	• = contact, + = no contact				Wire Wrap	Solder pin straight $\varnothing 1$ mm	Solder pin straight $\varnothing 0.7$ mm	Solder lug
		Pos.	2	4	6				
32	z		•	•	•	•			
	b		•	•	•	•			
	d		+	+	+	+			
32	z		•	•	•	•			
	b		+	+	+	+			
	d		•	•	•	•			
48	z		•	•	•	•			
	b		•	•	•	•			
	d		•	•	•	•			

# LOW PROFILE TYPE F

Female connector – straight – 32 and 48 positions

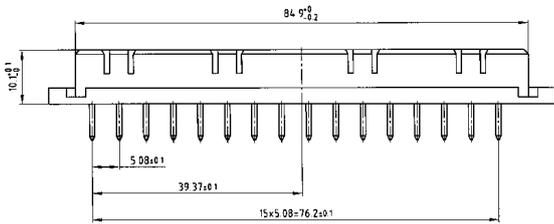


RoHS compliant

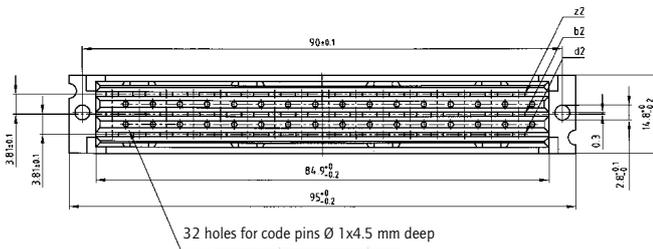
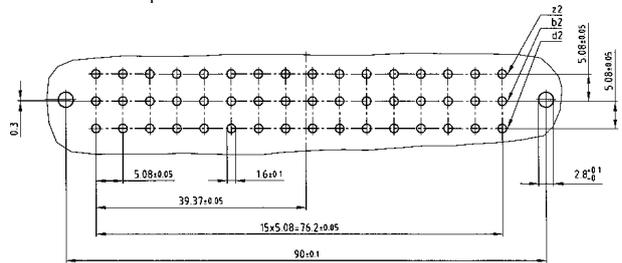
**DESCRIPTION**

- Solder pin
- Quality class 2 (other quality classes on request)

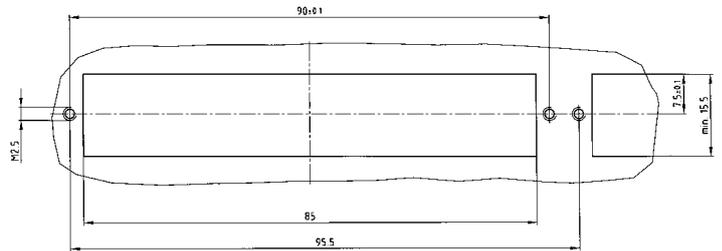
**PRODUCT DRAWING**



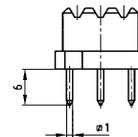
PCB-hole pattern



Panel cutout



Solder pin straight



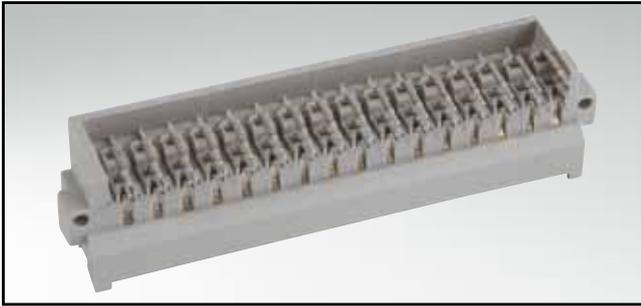
**ORDER DATA**

(Dim. = mm)

No. of Pos.	Row	• = contact, + = no contact				Solder pin straight
		Pos.	2	4	6	
32	z		•	•	•	122 B 11739 X
	b		•	•	•	
	d	+	+	+	+	
32	z		•	•	•	122 B 11749 X
	b	+	+	+	+	
	d		•	•	•	
48	z		•	•	•	122 B 11759 X
	b		•	•	•	
	d		•	•	•	

# TYPE G

## Male connector – angled – 64 positions

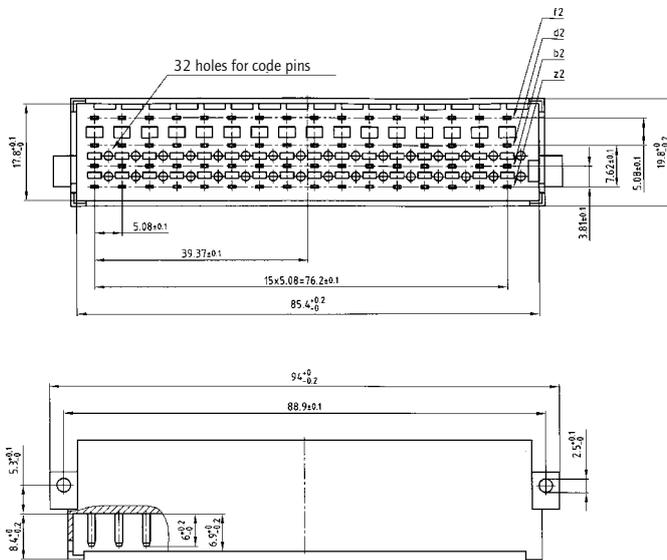


RoHS compliant

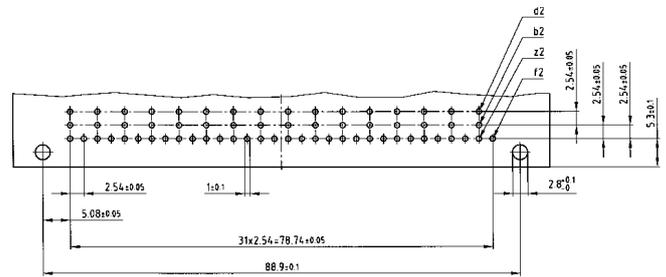
### DESCRIPTION

- Solder pin
- Quality class 3 (also available in quality class 2 or 1)
- Premating contacts in row "z", "b" and "d" available
- Special assembly on request

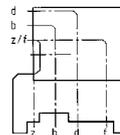
### PRODUCT DRAWING



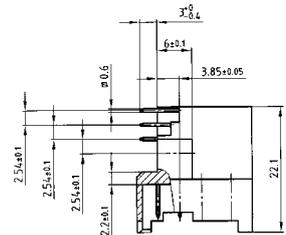
### PCB-hole pattern



### Solder pin angled Cross section



### Solder pin angled



### ORDER DATA

(Dim. = mm)

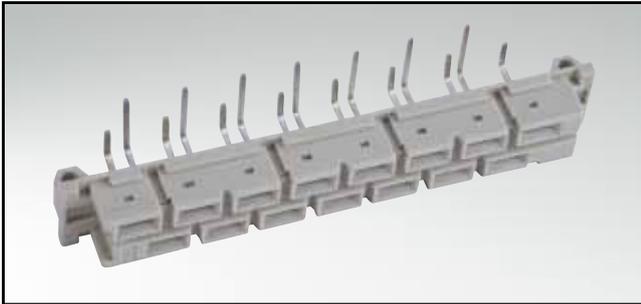
No. of Pos.	Row	Solder pin angled
64	f	121 A 10789 X
	d	
	b	
	z	





# TYPE H

## Female connector – straight and angled – 15 positions

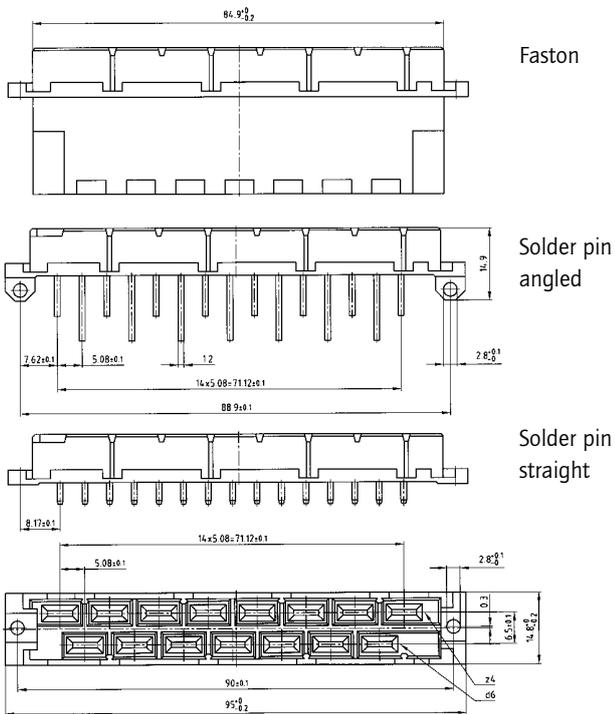


RoHS compliant

### DESCRIPTION

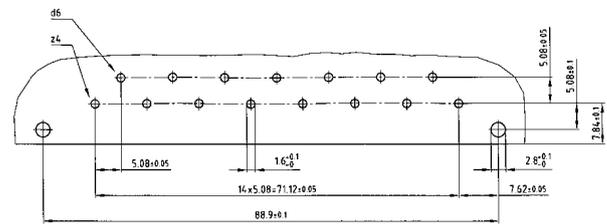
- Solder pin, solder lug, Faston- and screw termination
- With breakout area for coding
- Contact plating: silver

### PRODUCT DRAWING

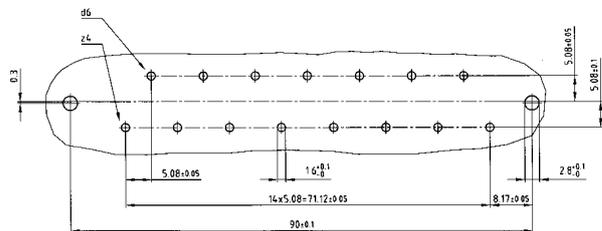


### PCB-hole pattern

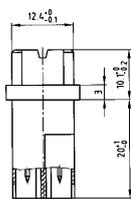
#### Solder pin angled 5.08 mm



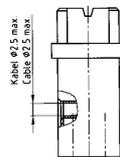
#### Solder pin straight 10.16 mm



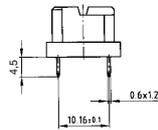
#### Faston



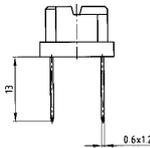
#### Screwed connection



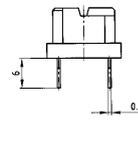
#### Solder pin straight 4.5 mm



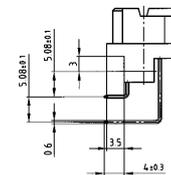
#### Solder pin straight 13 mm



#### Solder lug



#### Solder pin angled



#### Coding piece



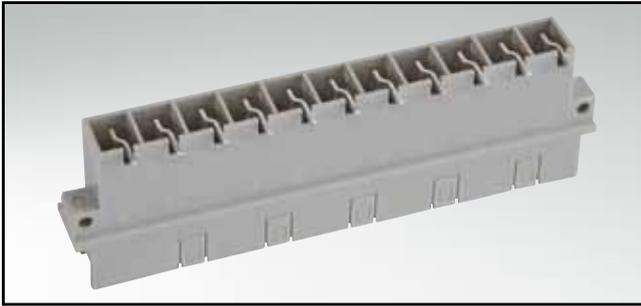
(Dim. = mm)

### ORDER DATA

No. of Pos.	Faston	Screwed connection	Solder pin straight 4.5 mm	Solder pin straight 13 mm	Solder lug	Solder pin angled	Coding piece
15	122 E 11609 X	122 E 11619 X	122 E 11629 X	122 E 11639 X	122 E 11649 X	122 E 11659 X	120 X 10019 X

# TYPE H

## Male connector – angled – 11 positions

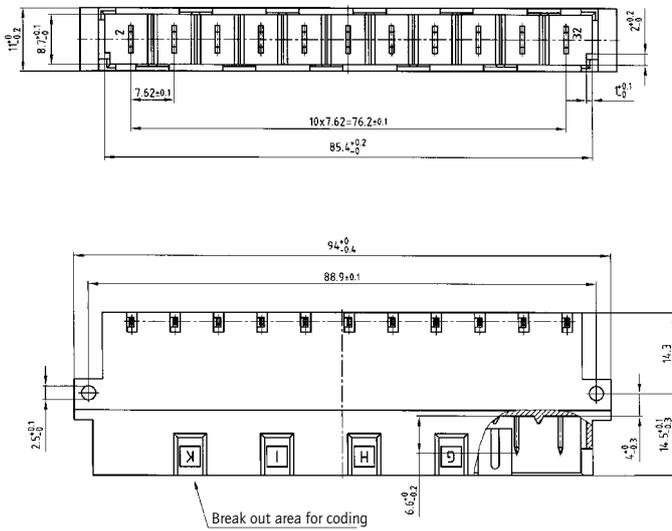


RoHS compliant

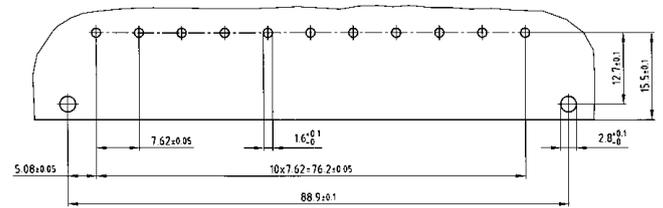
### DESCRIPTION

- Solder pin
- With breakout area for coding
- Contact plating: silver
- Premating contacts in row "z" available

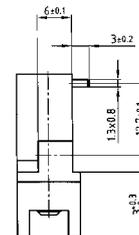
### PRODUCT DRAWING



### PCB-hole pattern



### Solder pin angled



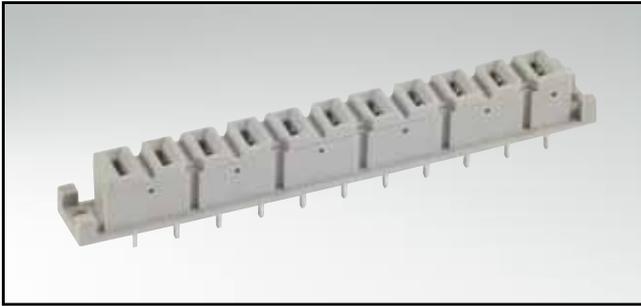
### ORDER DATA

(Dim. = mm)

No. of Pos.	Premating contact	Solder pin angled
11		121 E 10949 X
10+1	z 32	121 E 10959 X

# TYPE H

## Female connector – straight – 11 positions

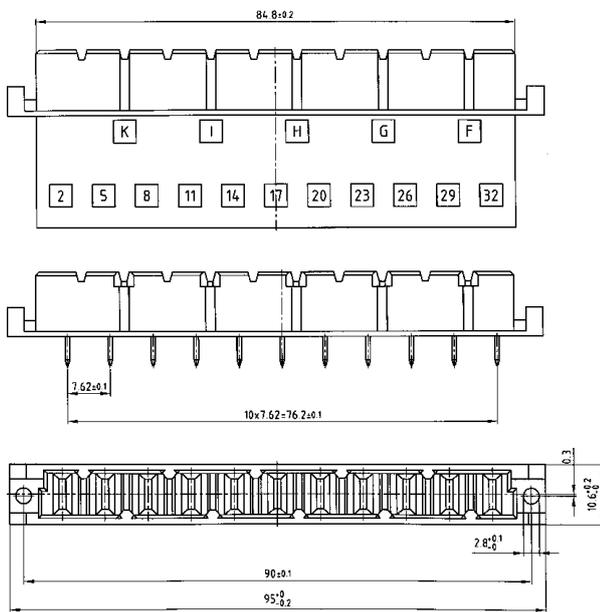


RoHS compliant

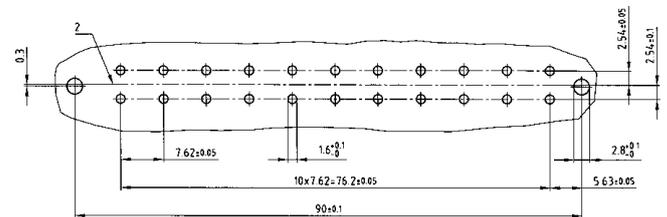
### DESCRIPTION

- Solder pin and faston
- With coding area
- Contact plating: silver

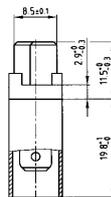
### PRODUCT DRAWING



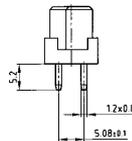
### PCB-hole pattern



Faston



Solder pin straight



Coding piece



### ORDER DATA

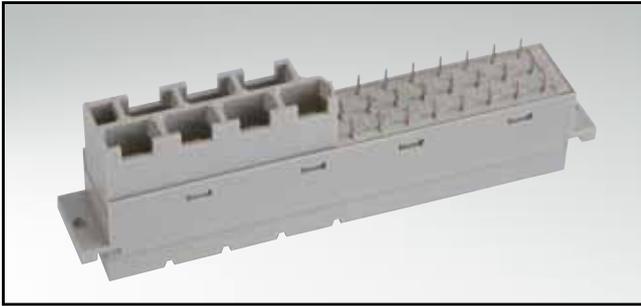
(Dim. = mm)

No. of Pos.	Faston	Solder pin straight	Coding piece
11	122 E 11709 X	122 E 11719 X	120 X 10019 X



# TYPE F+H (MIXED CONNECTOR)

Female connector – straight – 24+7 positions



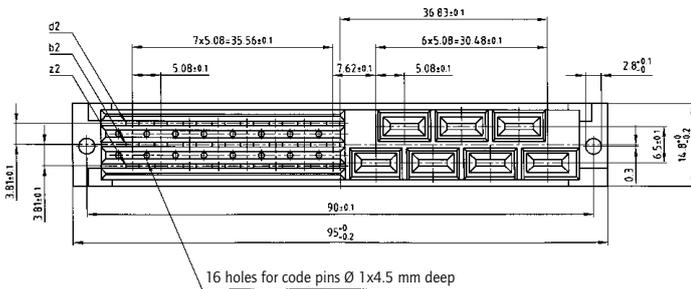
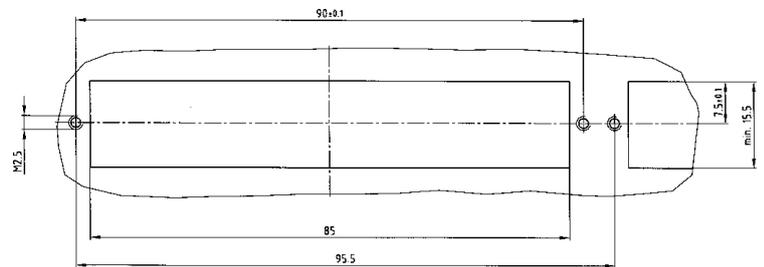
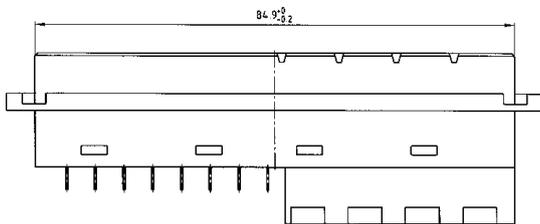
RoHS compliant

## DESCRIPTION

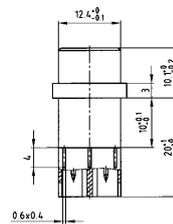
- Solder pin und Faston
- Quality class 2

## PRODUCT DRAWING

### Panel cutout



### Solder pin / Faston



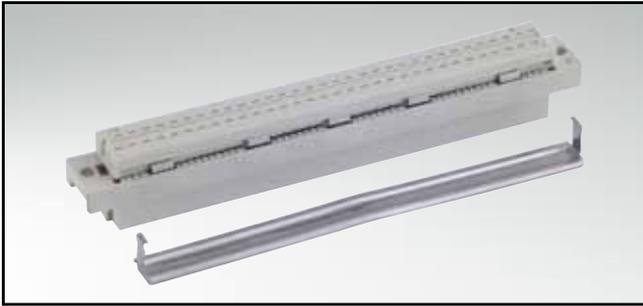
## ORDER DATA

(Dim. = mm)

No. of Pos.	Solder pin / Faston
24+7	122 B 11159 X

# TYPE C

## Female connector – Insulation displacement termination (IDC) – 64 positions

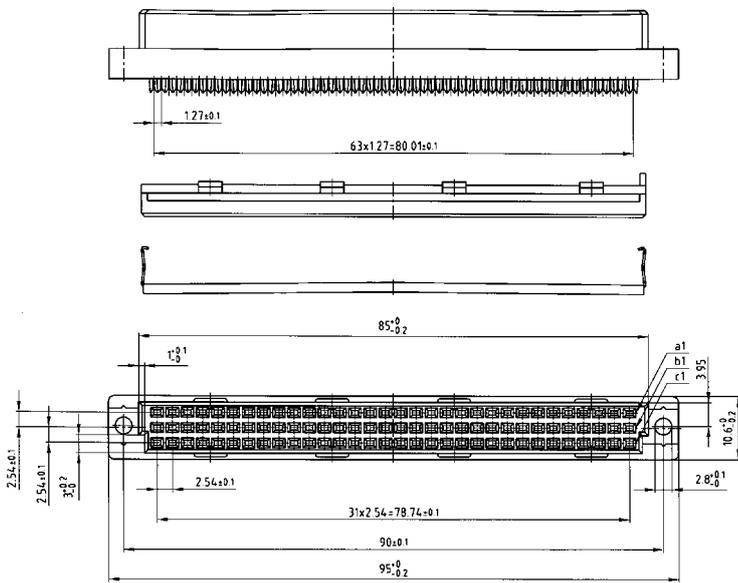


### DESCRIPTION

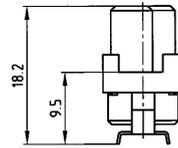
- Ribbon cable termination
- Strain relief need to be ordered separately
- Quality class 3 (also available in quality class 2 or 1)

### PRODUCT DRAWING

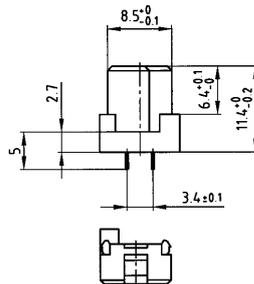
Female connector with strain relief



Female connector without strain relief



Strain relief



### ORDER DATA

(Dim. = mm)

No. of Pos.	• = contact, + = no contact					Female connector without strain relief	Strain relief	
	Pos.	1	2	3	4			5
64	a	•	•	•	•	122 A 11699 X	120 X 10169 X	
	b	+	+	+	+			+
	c	•	•	•	•			•

# INTERCONNECTION HOUSING

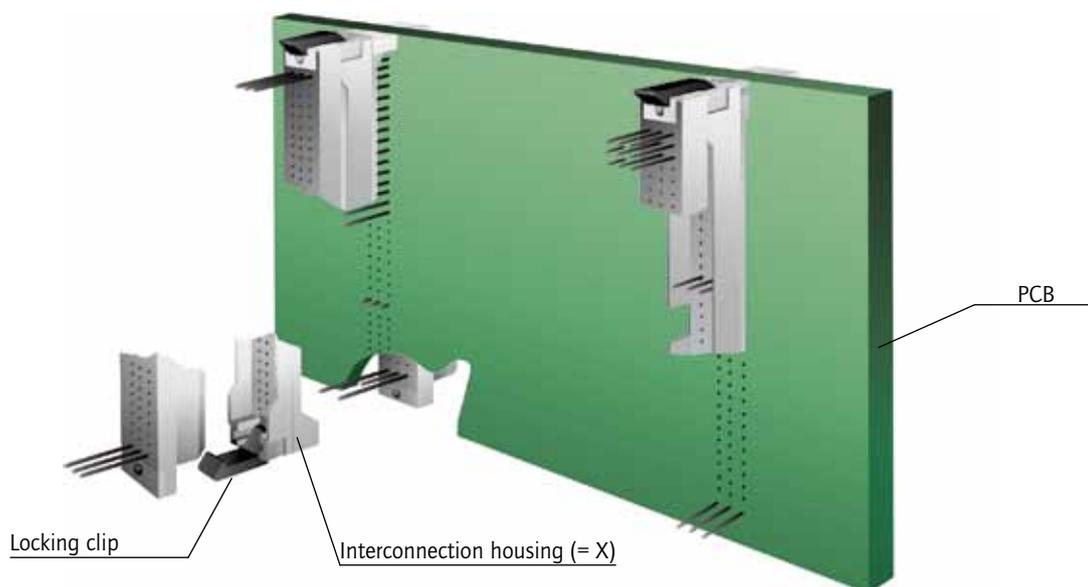
Housing and locking clips for type C and R



## DESCRIPTION

- Usable for female connectors type C and R
- Locking-clips to secure and to unlock the female connector
- For PCB which a thickness from 3.2 to 3.6 mm and a pin length of 13 or 17 mm

## PRODUCT DRAWING



## ORDER DATA

(Dim. = mm)

No. of Pos.	X (mm)	Interconnection housing	LOCKING CLIPS	
			Type C	Type R
96	4.6	120 X 10089 X	120 X 10129 X	120 X 10149 X
96	8.6	120 X 10099 X	120 X 10129 X	120 X 10149 X
96	9.3	120 X 10109 X	120 X 10129 X	120 X 10149 X
96	10.0	120 X 10119 X	120 X 10129 X	120 X 10149 X

# PLUG-IN FRAME

Frame for printed circuit boards (PCB)

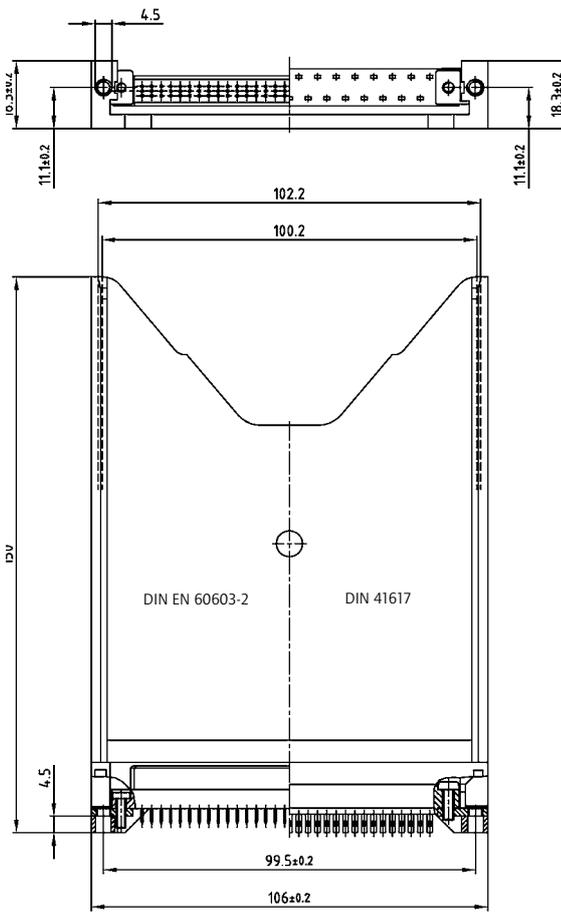


RoHS compliant

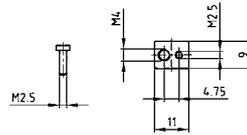
## DESCRIPTION

- For DIN EN 60603-2 and DIN 41617 connectors
- For PCB width 100 mm and 102 mm
- Material: polycarbonat, grey
- Other colours on request
- Mounting set needs to be ordered separately

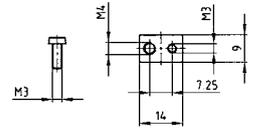
## PRODUCT DRAWING



Mounting set for  
DIN EN 60603-2



Mounting set for  
DIN 41617



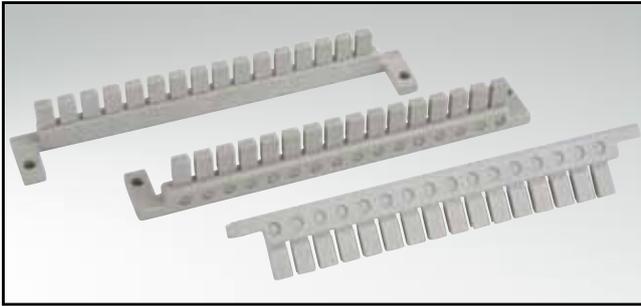
## ORDER DATA

(Dim. = mm)

PLUG-IN FRAME		MOUNTING SET FOR	
grey – 100 mm	grey – 102 mm	DIN EN 60603-2	DIN 41617
120 X 10029 X	120 X 10039 X	120 X 10059 X	120 X 10049 X

# CODING STRIPS

For connectors DIN EN 60603-2 (DIN 41612)



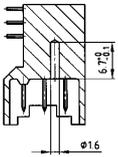
RoHS compliant

### DESCRIPTION

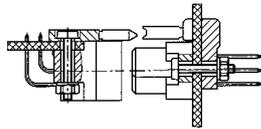
- Mounting style:
  - inside the enclosure (mounting bar)
  - on printed circuit board (PCB)
- Optional coding by removing the segments

### PRODUCT DRAWING

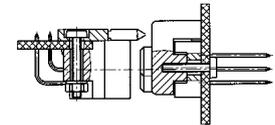
Type D, E, F



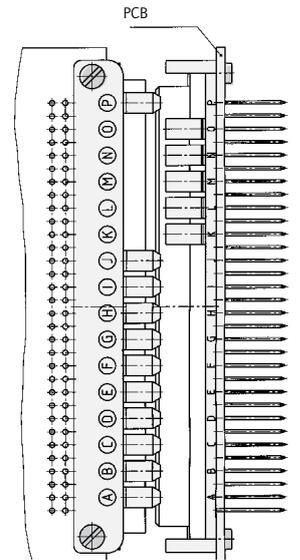
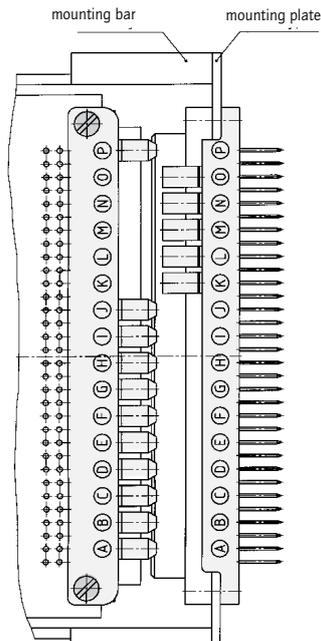
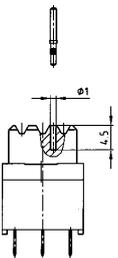
Type R, H



Type C, R, D



Coding pin



### ORDER DATA

(Dim. = mm)

CODING PIN	CODING STRIPS FOR		
	Female connector (mounting plate)	Male connector	Female connector (PCB)
120 X 10319 X	120 X 10379 X	120 X 10359 X	120 X 10369 X