



Pushing Performance
Since 1945

DIN-Signal harbus64-083MR-3,0C1-2-V4

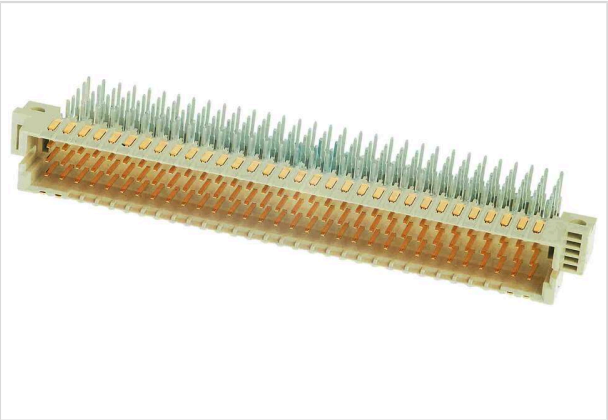


Image is for illustration purposes only. Please refer to product description.

Part number	02 01 083 2101
Specification	DIN-Signal harbus64-083MR-3,0C1-2-V4
HARTING eCatalogue	https://harting.com/02010832101

Identification

Category	Connectors
Series	har-bus® 64
Element	Male connector
Description of the contact	Angled

Version

Termination method	Reflow soldering termination (THR)
	Wave soldering termination
Connection type	Motherboard to daughtercard
	Extender card
Number of contacts	83
Contact configuration	See type sheet
PCB fixing	With fixing flange

Technical characteristics

Contact rows	5
Contact spacing (termination side)	2.54 mm
Contact spacing (mating side)	2.54 mm
Rated current	1 A
Rated current	Rated current measured at 20 °C, see derating curve for details
Clearance distance	1.2 mm between 2 rows (a, b, c)
	1.2 mm between 2 rows (z, d)
	1.2 mm between 2 contacts in a row (a, b, c)
	1 mm between 2 contacts in a row (z, d)



Pushing Performance
Since 1945

Technical characteristics

Creepage distance	1.2 mm between 2 rows (a, b, c)
	1.2 mm between 2 rows (z, d)
	1.2 mm between 2 contacts in a row (a, b, c)
	1 mm between 2 contacts in a row (z, d)
Insulation resistance	$>10^{10} \Omega$
Contact resistance	$\leq 20 \text{ m}\Omega$ for rows a, b, c
	$\leq 30 \text{ m}\Omega$ for rows z, d
Limiting temperature	-55 ... +125 °C (during reflow soldering max. +240 °C for 20 s)
Insertion force	$\leq 160 \text{ N}$
Withdrawal force	$\leq 120 \text{ N}$
Performance level	2
	acc. to IEC 61076-4-113
Mating cycles	≥ 250
Test voltage $U_{r.m.s.}$	1 kV
Isolation group	IIIa ($175 \leq \text{CTI} < 400$)
Hot plugging	No

Material properties

Material (insert)	Liquid crystal polymer (LCP)
Colour (insert)	Beige
Material (contacts)	Copper alloy
Surface (contacts)	Noble metal over Ni Mating side (Rows z and d)
	Au over NiP over Ni Mating side (Rows a,b and c)
	Sn over Ni Termination side
Material flammability class acc. to UL 94	V-0
RoHS	compliant
ELV status	compliant
China RoHS	e
REACH Annex XVII substances	Not contained
REACH ANNEX XIV substances	Not contained
REACH SVHC substances	Not contained

Specifications and approvals

Specifications	IEC 61076-4-113
UL / CSA	UL 1977 ECBT2.E102079
	CSA-C22.2 No. 182.3 ECBT8.E102079

Specifications and approvals

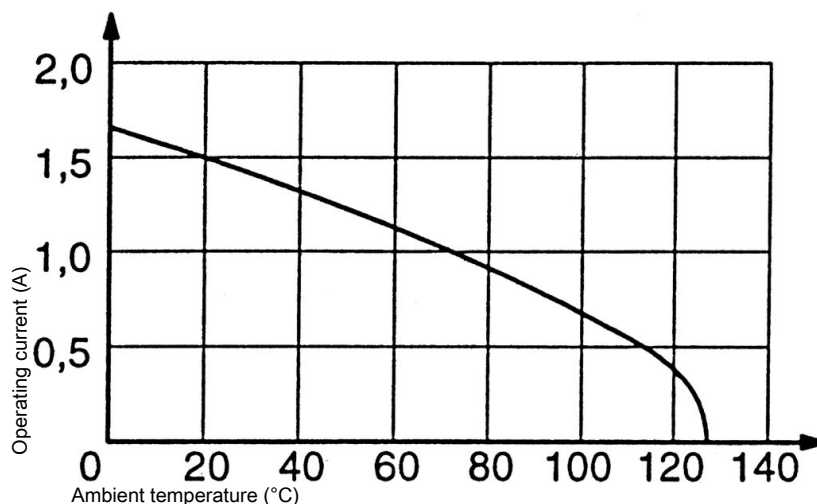
Railway classification	F1/I2 acc. to NFF 16-101/102
------------------------	------------------------------

Commercial data

Packaging size	100
Country of origin	Germany
European customs tariff number	85366990
GTIN	5713140490673
eCl@ss	27460201 PCB connector (board connector)
ETIM	EC002637
UNSPSC 24.0	39121415

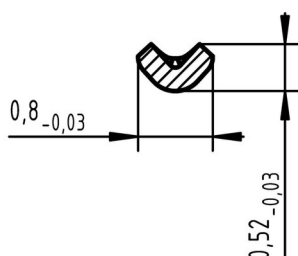
Current carrying capacity

The current carrying capacity of the connectors is limited by the thermal load capability of the contact element material including the connections and the insulating parts. The derating curve is therefore valid for currents which flow constantly (non-intermittent) through each contact element of the connector evenly, without exceeding the allowed maximum temperature.
Measuring and testing techniques acc. to IEC 60512-5-2

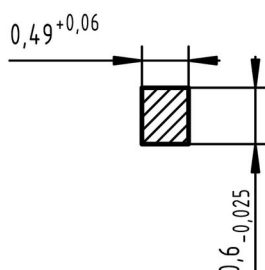


Cross section of solder termination

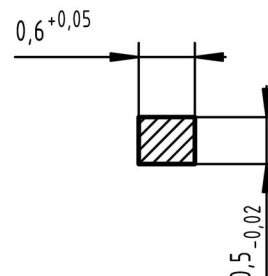
Row z: $A = 0,21\text{mm}^2 - 0,25\text{mm}^2$



Row a, b, c: $A = 0,28\text{mm}^2 - 0,33\text{mm}^2$



Row d: $A = 0,29\text{mm}^2 - 0,33\text{mm}^2$



Recommended plated hole diameter: $1 \pm 0.1 \text{ mm}$



Pushing Performance
Since 1945

Quantity of solder paste

Before the components are assembled, solder paste must be applied to all the solder pads (for connecting surface-mount components) and the plated through holes. To ensure that the plated through holes are completely filled, significantly more solder paste must be applied than traditional solder pads on the pcb surface. There are numerous calculation methods available which are complicated to apply. The following rule of thumb has proved valuable in practice.

Required volume of paste = 2x (Volume of plated through hole - Volume of the connector termination in the hole)

Comment: the multiplier "2" compensates for solder paste shrinkage during soldering. For this purpose, it was assumed that 50% of the paste consists of the actual solder, the other 50% being soldering aids.

Soldering instructions

THR (ThroughHoleReflow) connectors are designed to be used in a reflow oven together with other SMD (SurfaceMountDevice) components. In the process, called as well "Pin in Hole Intrusive Reflow", the connectors are inserted into plated through holes in a comparable way to conventional component mounting. All other components can be assembled on the pcb surface.

The length of the connector contacts should be such that they protrude by no more than 1.5 millimetres after insertion to the pcb. Each contact collects solder on its tip as it penetrates the solder paste in the hole. So if the contact is too long, this solder would no longer be able to reflow back into the plated through hole by capillary action during the soldering process, therefore the quality of the soldered connection would suffer as a result.

Soldering instructions

The connectors should be protected when being soldered. Otherwise, they might become contaminated as a result of soldering operations or deformed as a result of overheating.

1) For prototypes and short runs protect the connectors with an industrial adhesive tape, e.g. Tesaband 4331 (www.tesa.de). Cover the underside of the connector moulding and the adjacent parts of the pcb as well as the open sides of the connector. This will prevent heat and gases of the soldering apparatus from damaging the connector. About 140 + 5 mm of the tape should suffice.

2) For large series a jig is recommended. Its protective cover with a fast action mechanical locking device shields the connectors from gas and heat generated by the soldering apparatus. As an additional protection a foil can be used for covering the parts that should not be soldered.

3) For prototypes and short runs the protection described under point 1) can be replaced by a solder protection cap. This cap can be ordered under the part no. 09 02 000 9935.