

End of Module Floorplan & Flex Connector

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Table of Signals and Supplies

- preliminary list
 - included sense lines for lines with $I > 10 \text{ mA}$
 - not included yet:
 - NTC (stand-alone temperature measurement)
 - JTAG with LVDS instead of LVCMOS
 - Vedge for DEPFET matrix
 - Hirose data sheet (FH29B, http://www.hirose.co.jp/cataloge_hp/e58003135.pdf):
 - 0.1 ohms contact resistance @ 1 mA
 - 250 mA maximum rating
 - used $\leq 100 \text{ mA}$ per contact for pin count calculation
for example: DCD analog supply VDDA $\rightarrow 600\text{mA} \rightarrow 6$ contacts
- ➔ minimum requirement: 75 contacts

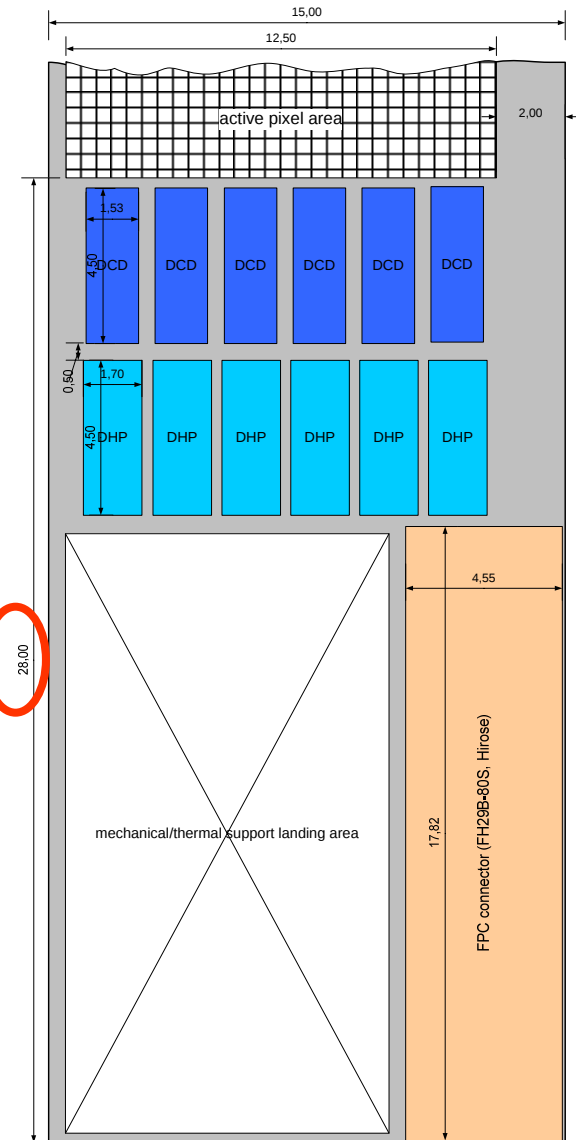
	<i>name</i>	<i>type</i>	<i>voltage</i> [V]	<i>current</i> [mA]	<i>comment</i>	<i>diff.</i>	<i>thin</i>	<i>thick</i>
<i>digital signals</i>	GCK	LVDS in				1		
	FCK	LVDS in				1		
	TRG	LVDS in				1		
	RST	LVC MOS in					1	
	TMS	LVC MOS in					1	
	TDI	LVC MOS in					1	
	TCK	LVC MOS in					1	
	TDO	LVC MOS out					1	
	DO[5:0]	CML out				6		
<i>power supplies</i>	VDDA	DCD analog	1,8	600	sense line		1	6
DCD	VDDD	DCD digital	1,8	250	sense line		1	2
	REFIN	DCD analog ref	1,1	100	sense line		1	2
	DGND	common digital ground	0	1000	sense line		1	10
	AGND	analog ground	0	600	sense line		1	6
DHP	VDDIO	DHP IO rail	1,8	100	sense line		1	2
	VDDC	DHP core	1	500	sense line		1	5
SWITCHER	VDDS	digital supply	3,3	10	sense line?			1
	AVDDS	analog supply ?	20	?	sense line?			2
<i>bias voltages</i>	Vclear_on	clear on	~0				1	
	Vclear_off	clear off	~1				1	
	Vgate_on	gate on	~2				1	
	Vgate_off	gate off	~3				1	
	Vsource	source	7	30			1	1
	Vccg	common clear gate	~0				1	
	Vbulk	bulk	10				1	
	Vbias	backplane	-20				1	

number of signal pins: 18 20 37

total sum: 75

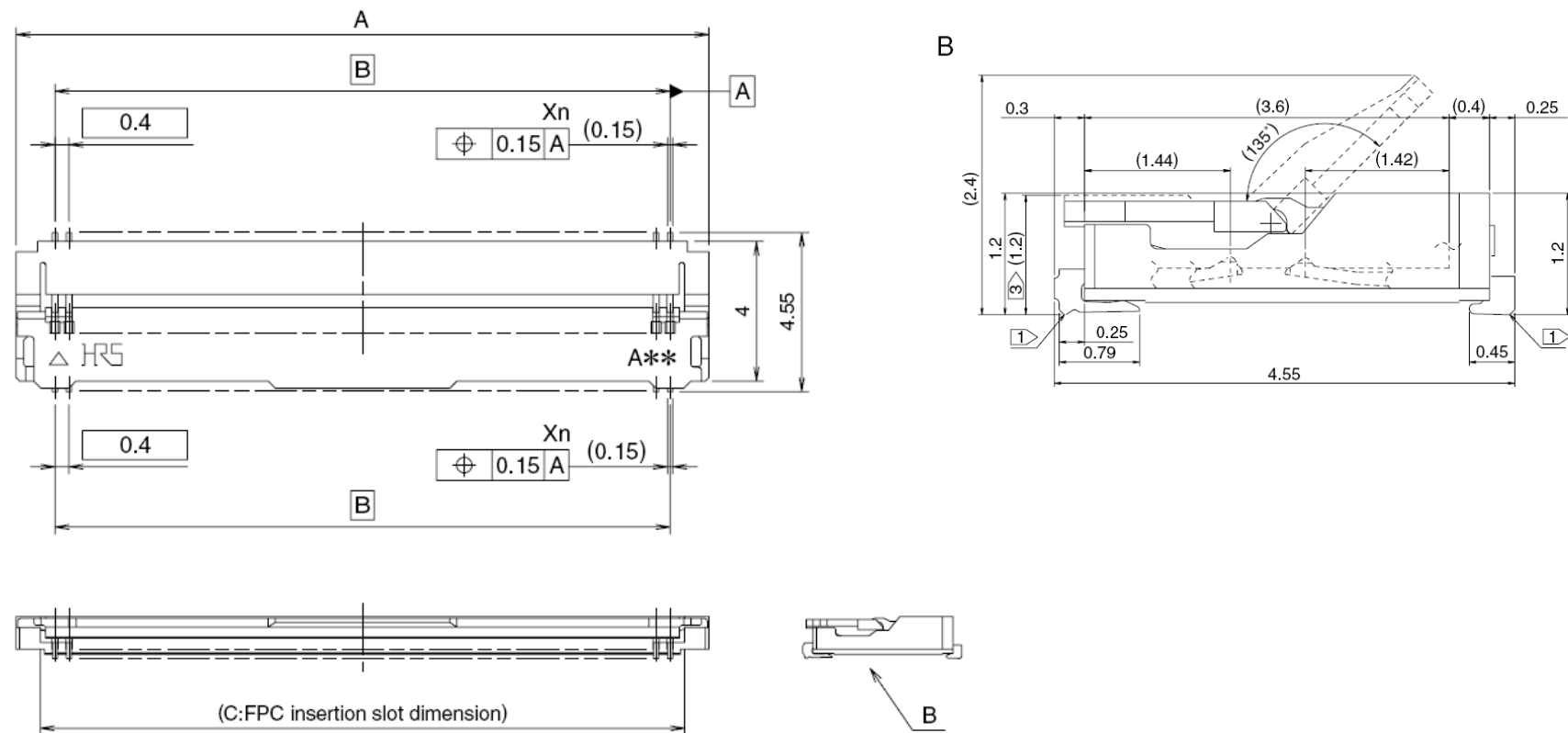
End of Module Floorplan

- Hirose FH29B connector:
 - 0.2 mm pitch (smallest available)
 - 80 pins
 - footprint: 17.82 mm x 4.55 mm, height: 1.2 mm
- DHP size: 1.7 mm x 4.5 mm
 - estimated
 - <5 frame buffers for raw data only
- required balcony extension: 28 mm



Flex Connector

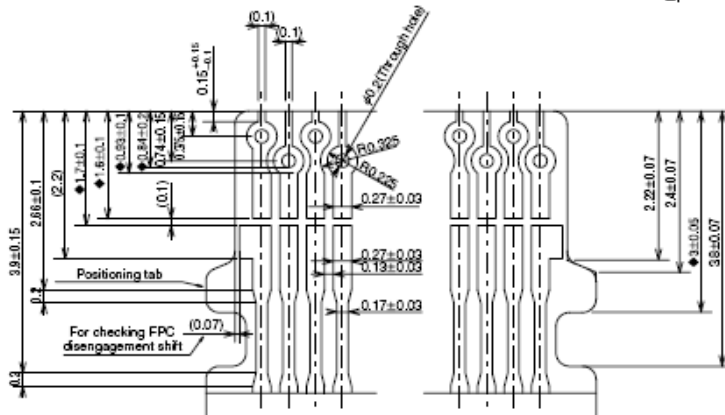
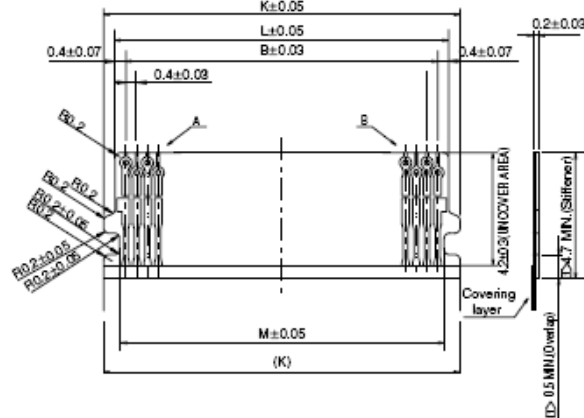
HIROSE FH29B- 80S-0.2SHW(05)



Part Number	CL No.	Number of Contacts	A	B	C	n
FH29B- 80S-0.2SHW(05)	580-0318-9-05	80	17.82	15.6	16.44	40

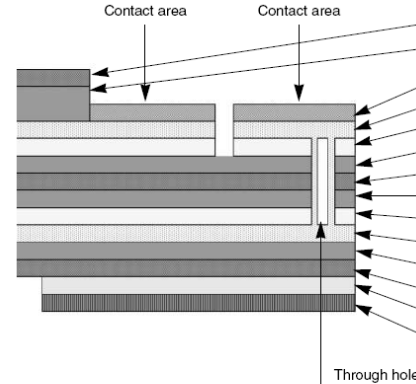
Flex Layout Design Rules

FPC Recommended Dimensions Diagram



① To prevent pattern cutting, when 4.7 mm or more of reinforcement film cannot be secured, make the overlap amount 0.5 mm or greater.

Using Double-sided FPC



Material Name	Material	Thickness (μm)	
		3-Layer CCL	2-Layer CCL
Covering layer film	Polyimide	25	12.5
Cover adhesive		30	25
Surface treatment	Nickel base gold plated	3.5	3.5
Pattern copper plating		13	13
Pattern copper foil		18	12
Base adhesive		10	—
Base film	Polyimide	25	25
Base adhesive		10	—
Pattern copper foil		18	12
Pattern copper plating		13	13
Cover adhesive		25	20
Covering layer film		12.5	12.5
Reinforcement material adhesive		30	30
Stiffener	Polyimide	25	75
Total		203	216

Note: Recommended FPC thickness: 0.2 ± 0.03 mm

Connector type: HIROSE FH29B- 80S-0.2SHW(05)

Number of contacts: 80, K: 17.26 mm, L: 16.4 mm, M: 16.07 mm