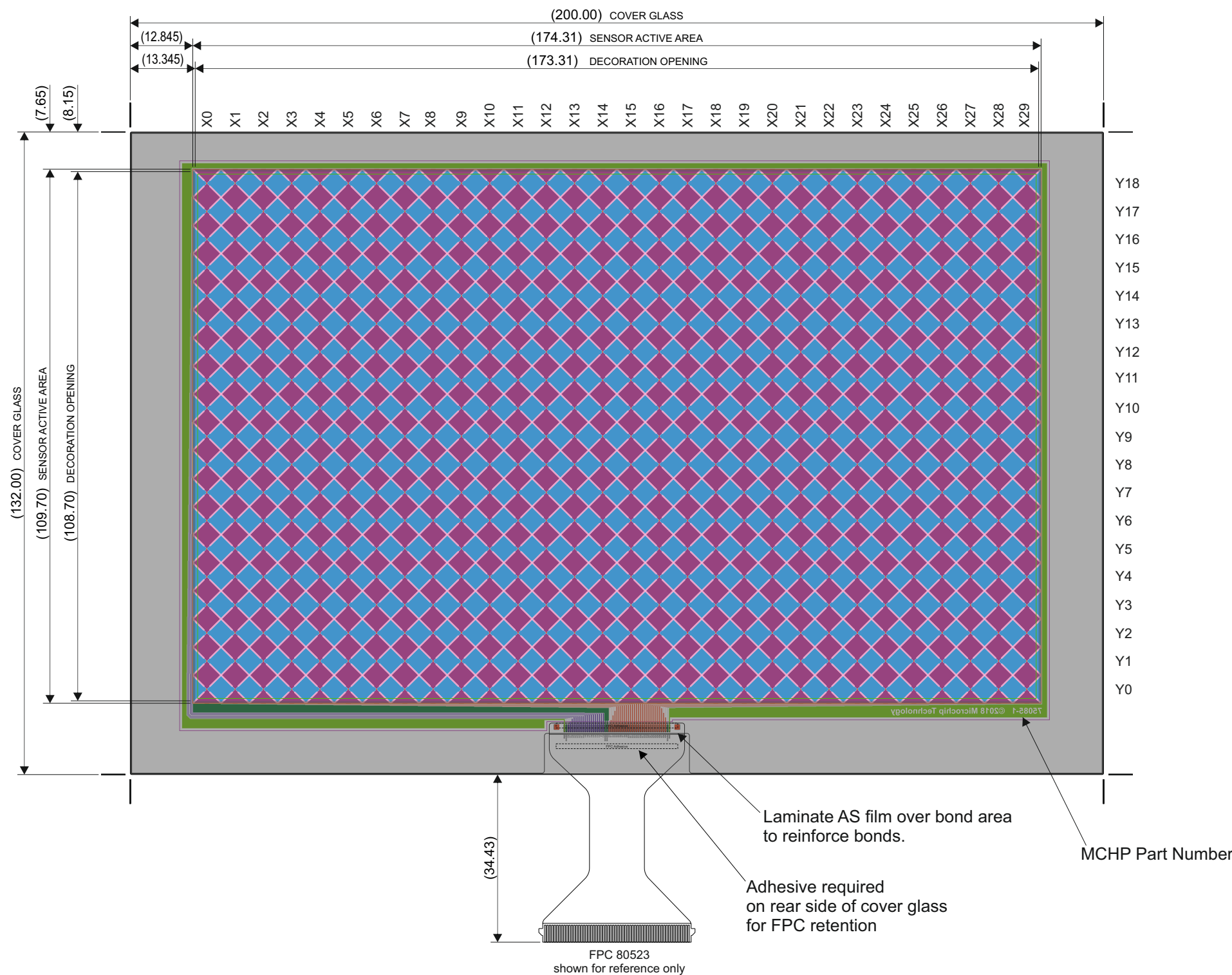


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Touchscreen Build Stack

	Material	Thickness (mm)
Cover Glass	Gorilla glass	1.1
Decoration	Decoration print	0.02
ITO (X & Y)	ITO 45±10 Ohm/sq	-
Metal	Metal tracking 0.4 Ohm/sq	-
Insulator	Insulator	-
Metal Crossover	Metal Crossover 0.4 Ohm/sq	-
Protection Layer	Insulator	0.003
ASF	Anti-splinter film	0.079
Touchscreen Thickness		1.202
Air gap	Air	0.3
Display Module	Display module	-
	Hot Bar Bond Heatseal / ACF	0.005
	FPC Tail	0.09

Artwork drawn as viewed from Touch Side

Edges of cover glass to be polished
with no sharp corners

All dimensions are in millimeters.
If In Doubt Please Ask.

Material Specifications

	Material	Thickness	Specification	design rules
Main ITO	ITO	-	45 Ohms/sq ± 10 Ohms	Minimum track / gap = 30um ± 10%
Insulator	Insulator	1.25um ± 0.25um	Er = 3.60	
Metal crossovers	Metal	-	0.4 Ohms/sq ± 10%	Minimum track width 12um
Metal tracks	Metal	-	0.4 Ohms/sq ± 10%	Minimum track / gap = 30um ± 10%
Protection Layer	Insulator	3um ± 0.25um	Er = 3.60	
Anti-splinter film	PET/OCA	0.079mm ± 10%	Er = 3.00	
FPC interconnect	ACF / ACP / ACA	<20um	Pad contact resistance <1 Ohm, Peel strength >5N/cm	Pads 0.20 x 1.8mm on 0.4mm pitch

Alignment Tolerances

Layer to Layer Alignment	± 15um
Print to Edge of Glass	± 400um
Metal to ITO	± 15um

Assumptions

Cover Glass	Gorilla Glass or similar	1.10mm ± 10%	Er = 7.37
Decoration	Black Pantone EC non-conductive ink Atmel logo white non-conductive ink	20um ± 5um	Er = 3
Airgap to display	Air	0.30mm ± 10%	Er = 1.01

Performance Calculations

Charge Time	1.06us
Worst case touch separation in X	9.30mm
Worst case touch separation in Y	9.27mm
Touch separation difference	0.03mm

Layers (top to bottom)

Cover glass
ITO 45 ohm/sq
Insulator
Metal crossovers 0.4 ohm/sq
Metal tracks 0.4 ohm/sq
Protection layer
Anti-splinter film

Crossover Detail

insulator thickness = 1.25um
under track width = 70um
ITO resistance = 45±10 Ohm/sq
crossover track width = 12um
crossover metal track resistance = 0.4 Ohm/sq
crossover track resistive length = 200 um

Title: TS 8.0" 16:10 ITO on Glass Single Diamond G2 30X 19Y		Project:
Number: 75085	CAD Check:	Engr Check:
Filename: 75085.cdr	Approved:	
Sheet 1 of 1	Drawn: P Cassidy	

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1	Updated to MCHP branding	N/A	PFC	11th July 2018
A0	First Issue	N/A	PFC	20th Jan 2014
Iss	Notes	ECN	Drm	Date