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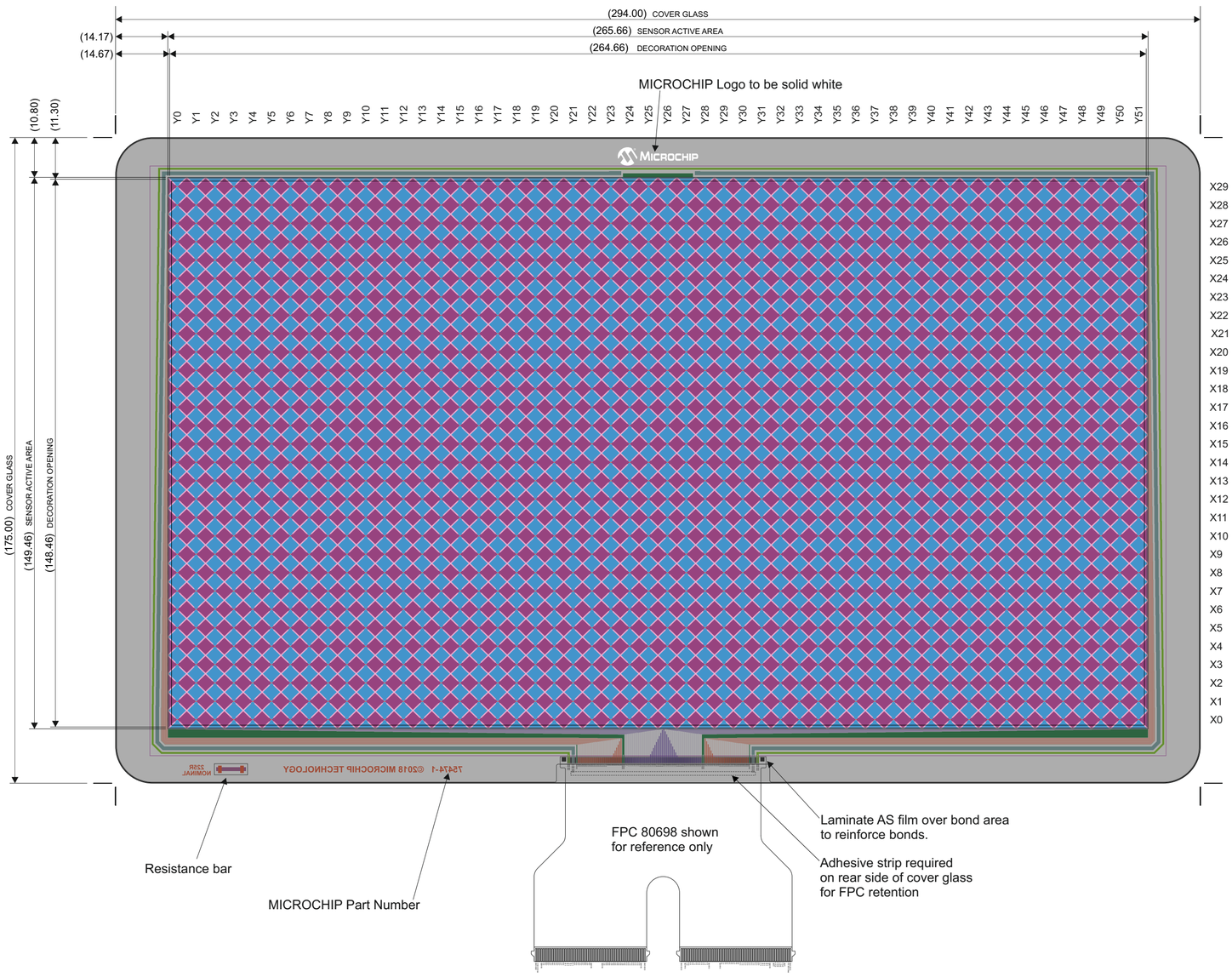
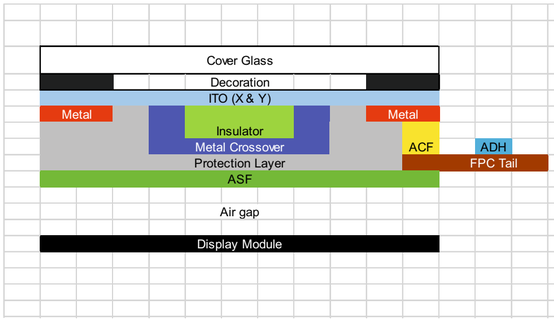
SUBJECT TO NON-DISCLOSURE AGREEMENT

THIS DRAWING IS FOR SAMPLES & PROTOTYPES ONLY
TO BE ISSUED TO MICROCHIP APPROVED MANUFACTURERS ONLY



Touchscreen Build Stack



	Material	Thickness (mm)
	Dragontrail glass	1.10
	Decoration print	0.02
	ITO 55±10 Ohm/sq	-
	Metal tracking 0.4 Ohm/sq	-
	Insulator	-
	Metal Crossover 0.4 Ohm/sq	-
	Insulator	0.003
	Anti-splinter film	0.079
	Touchscreen Thickness	**1.202**
	Air	0.3
	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	-	55 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	Dragontrail Glass or similar	1.10mm ± 10%	Er = 7.37
Decoration	Black Pantone EC non-conductive ink Microchip logo white non-conductive ink	20um ± 5um	Er = 3
Airgap to display	Air	0.30mm ± 10%	Er = 1.01

Performance Calculations	
Charge Time	1.64us
Worst case touch separation in X	10.46mm
Worst case touch separation in Y	10.33mm
Touch separation difference	0.13mm

Layers (top to bottom)

Cover glass
ITO 55 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 = 55±10 Ohm/sq
crossover track width = 12um
crossover metal track resistance = 0.4 Ohm/sq
crossover track resistive length = 200 um

Iss	Notes	ECN	Drn	Date
1	Updated to MCHP branding	N/A	PFC	20th Jun 2015
A2	ITO infills added	N/A	MD	8th May 2015
A1	Logo moved to top edge, ITO now 55±10ohm, glass changed to Dragontrail	N/A	PFC	29th Apr 2015
A0	First Issue	N/A	PFC	20th Mar 2015

All components and materials used must be RoHS compliant as described in European Parliament Directive 2002/95/EC

Title: 12" ITO on Glass TS
Single Diamond G2 30X 52Y

Project: mXT1665TAT

Number: 75474

CAD Check:

Engr Check:

Filename: 75474.cdr

Approved:

Sheet 1 of 1

Drawn: P Cassidy

MICROCHIP