

## Product Advisory

**Issue Date:** 9-September-2021

**Change Description:**

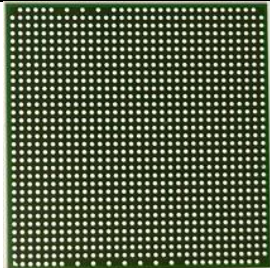
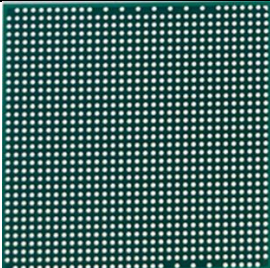
This advisory serves to notify Broadcom customers of our intent to qualify Nanya GX92/SR7300 substrates for products: Ventura, Harpoon, Crusader, Tomcat, Cub and CubR.

**Parts Affected:**

- SI02-0B00-00
- SI03-0B00-00
- SI04-0B00-00
- SR02-0B00-00
- SR03-0B00-00
- SR05-0B00-00
- SX05-0B00-00
- SX04-0B00-00
- SX03-0B00-00
- SX02-0B00-00
- SX01-0B00-00
- SX00-0B00-00

**Description and Extent of Change:**

Nanya is an approved substrate supplier for Broadcom products. The current material set uses GX13/AUS703 for substrate manufacturing. Our plan is to qualify the more widely-used GX92/SR7300 materials. The substrate design and its performance remains unchanged.

Substrate Item	Current	Plan	Comments
Design	Nanya substrate design	Nanya substrate design	No change
Dielectric constant	3.2	3.2	No change
Line spacing	Nanya substrate design	Nanya substrate design	No change
Loss Tangent	<0.020	<0.020	No change
Build-up/solder mask material	GX13/AUS703	GX92/SR7300	Minor change
CTE x-y (ppm: 25-150°C) by tensile TMA (ppm: 25-150°C) by tensile TMA	46 120	39 117	Minor change
Solder mask color			Color tone variation only



**Reasons for Change:**

1. To standardize build-up/solder mask material in substrate manufacturing by changing to a more widely-used type.
2. To mitigate substrate supply shortage the industry is experiencing & thus reducing risk to supply continuity.

**Effect of Change on Fit, Form, Function, Quality, or Reliability:**

The device specification is unchanged to ensure product electrical performance remains the same. This notification is being sent based on successful completion of engineering assessments. Internal qualification tests are in-progress and implementation occurs upon successful completion.

**Effective Date of Change:**

Product shipments using this change will begin after 13-Dec-2021. The transition will vary by part number depending on qualification completion, customer demand, and inventory levels.

**Qualification Data:**

Substrate samples had passed all engineering assessment tests. See table below.

Engineering Assessment	Tests	Sample Size	Test Result
Substrate level	10x Reflow (10x, 260+5/-0 °C)	5 pcs	Passed
	Heat Stress Test (165°C, 24hr)	5 pcs	Passed
	Hot Plate Test (>5 minutes at 280°C)	5 pcs	Passed
Package level	Ball Shear	5 pcs	Passed
	5x reflow	11 pcs	Passed
	CSAM + O/S test	11 pcs	Passed

Internal Broadcom Qualification Plan: (In-progress, estimated completion: 12-Nov-2021)

<b>Test vehicle:</b>	<b>Ventura</b>
<b>Package type:</b>	Lidded FCBGA
<b>Package size:</b>	27x27mm <sup>2</sup>
<b>Substrate Supplier:</b>	Nanya
<b>Build-up material:</b>	GX92
<b>Solder Mask:</b>	SR7300
<b>Preconditioning</b> (MSL 4/245°C prior to TC, uHAST, HTS)	231 x 1 lot
<b>Unbiased HAST</b> 130°C/85%RH, 96 hr	77 x 1 lot
<b>Temp Cycle</b> -55 to +125°C, 700cyc	77 x 1 lot
<b>High Temp Storage</b> 150°C, 1000hr	77 x 1 lot

Please contact your Broadcom field sales engineer or Contact Center for any questions or support requirements. Please acknowledge the receipt of the notice within 30 days of delivery. Lack of acknowledgement within 30 days constitutes acceptance of the change per JEDEC J-STD-046.