APPLICATION NOTE

REPLACEMENT PART REFERENCE GUIDE, NCS2-592+

AN-20-004

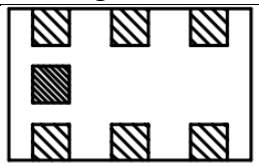
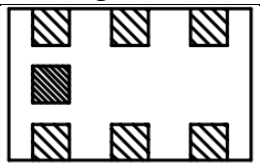
Background:

Mini-Circuits NCS2-592+ is LTCC based Ceramic Balun RF Transformer. Dielectric ceramic material has been discontinued by the supplier. Per EU RoHS directive 2011/65/EU, Exemption Note 7(c)-I for Pb in ceramic is subject to expiration. This exemption however is under appeal and has been extended.

Mini-Circuits is using alternate Pb-free material for NCS2-592+ which complies with EU RoHS expiration of exemption 7(c)I to replace the existing part. There is no change to case-style (GE0805C-1) or part # for this product. The Material Declaration will be available on the website. Please contact rohs@minicircuits.com for all other inquiries.

Replacement model with a new material has been judged by Mini-Circuits Engineering as a suitable replacement to Original model.

Mechanical Aspect:

Parts with Original LTCC	**Parts with Replacement LTCC**
Case Style – GE0805C-1	Case Style – GE0805C-1
Part # - NCS2-592+	Part # - NCS2-592+
Marking on Unit – No marking	Marking on Unit – No marking
	
No Change to Mechanical Dimension and terminal finish.	

Conclusion: The replacement LTCC material system is Form-Fit-Function Compatible.

Notes:
a. Suitability for model replacement within a particular system must be determined by and is solely the responsibility of the customer based on, among other things, electrical performance criteria, stimulus conditions, application, compatibility with other components and environmental conditions and stresses.

1) TYPICAL PERFORMANCE COMPARISON AT ROOM TEMPERATURE:

Frequency: 4900-5875 MHz

	Original Part-LTCC			Replacement Part-LTCC			Data Sheet Specification (Rev OR)			
Run #	**N27120**			**H87070**						
Date Code	**1823**			**2045**						
Date	**6/11/2018**			**11/4/2020**						
Qty.	**8000**			**11,995**						
Tested By	**Robot # 7**			**Robot # 16**						
Specification	**20-2282+-50, Rev. B**			**20-2282+-50, Rev. B**						
Parameter	**Min**	**Avg**	**Max**	**Min**	**Avg**	**Max**	**Min**	**Typ**	**Max**	**Unit**
Insertion Loss, dB		0.89			1.4		-	1.0	-	dB
Amp Unb		0.65	-		0.18	-		0.6	-	dB
Phase Unb		3.66			4.15			5		dB

For typical performance and Graphs: See paragraphs below.

2) TYPICAL PERFORMANCE GRAPHS AT ROOM TEMPERATURE:

Code	Description	Code	Description
	New Material (Pb Free LTCC)		Typical
	Old Material (LTCC Containing Pb)		Specification

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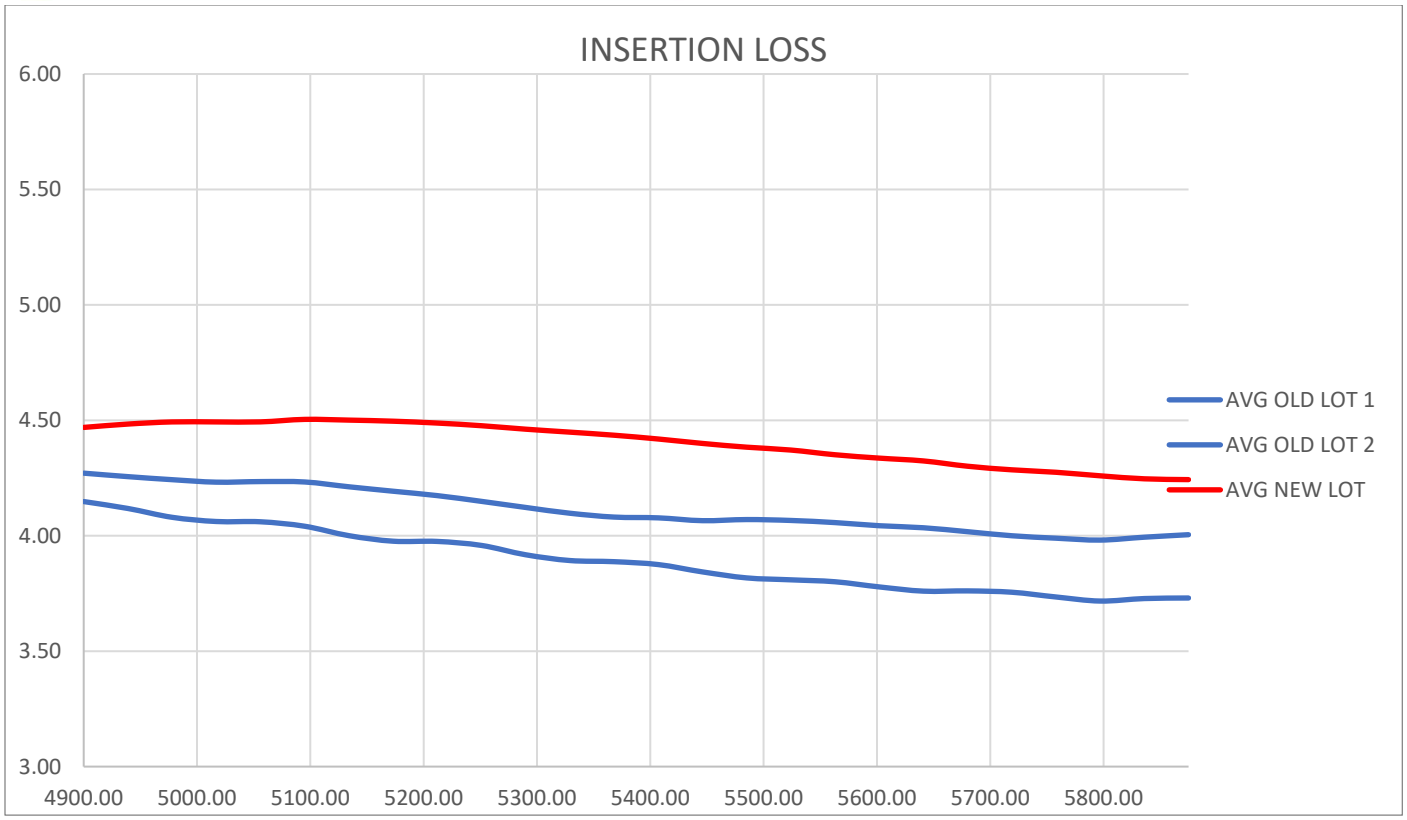

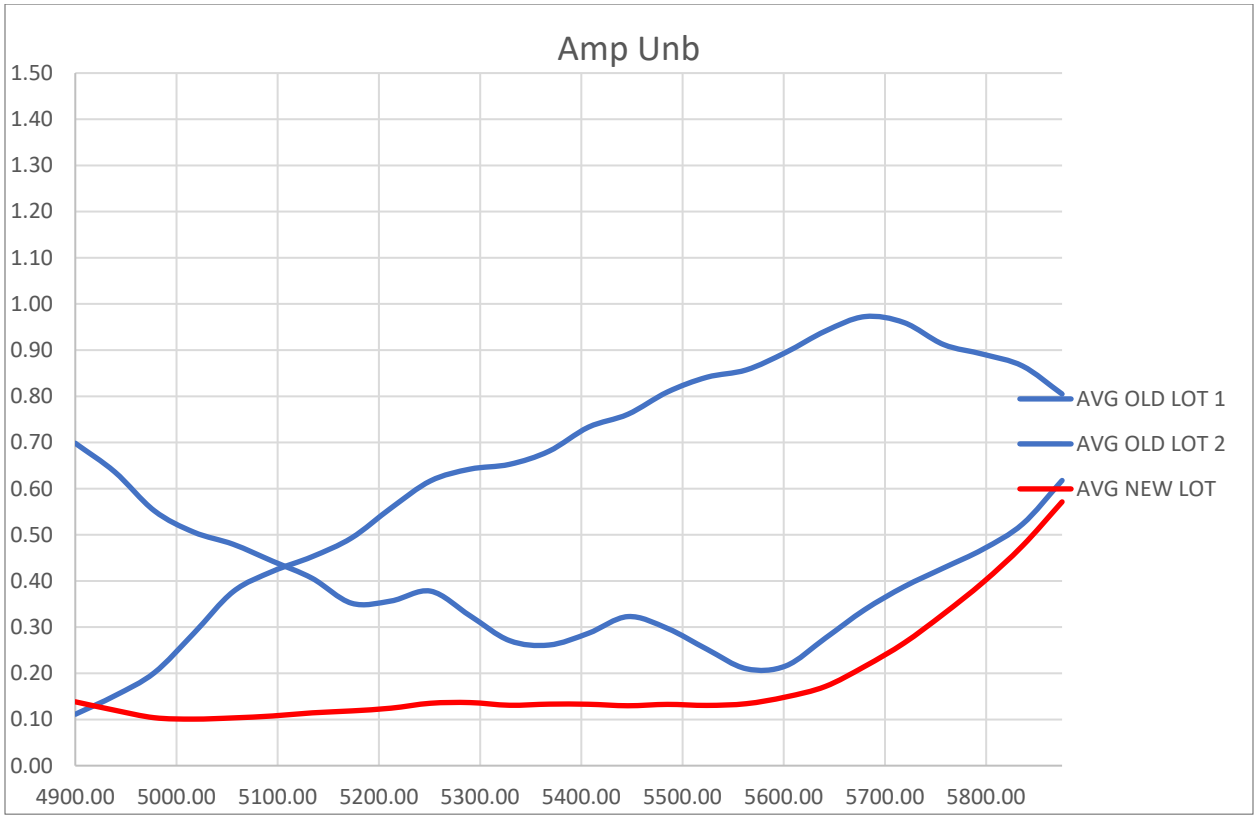

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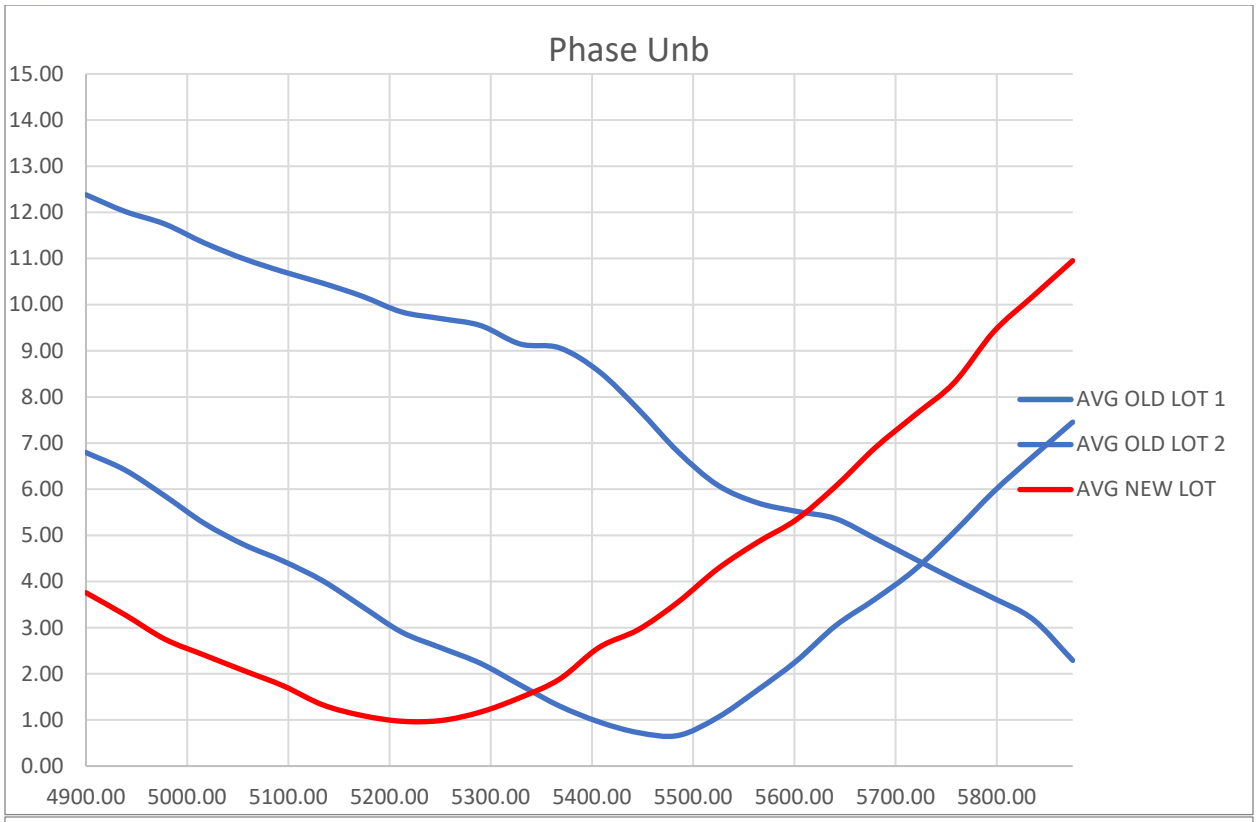

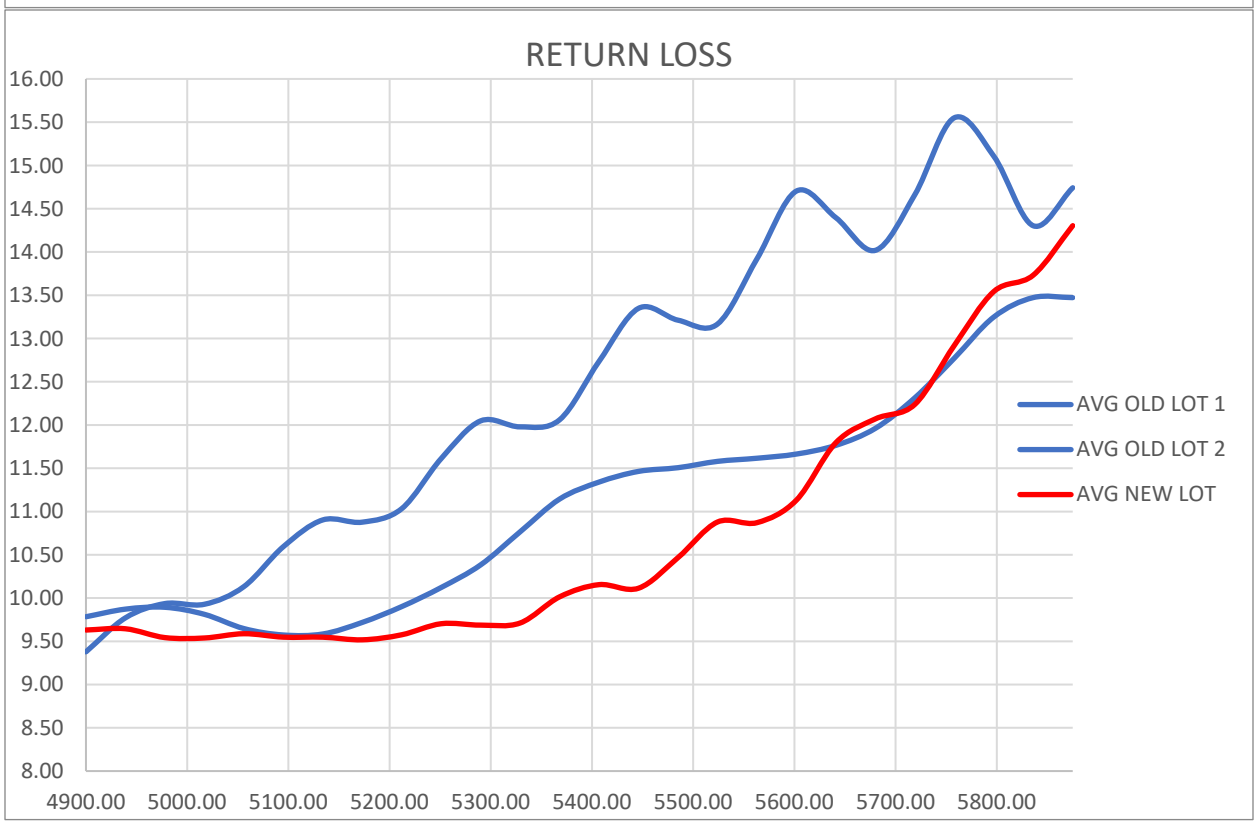

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