

REPLACEMENT PART REFERENCE GUIDE, D19G+:

AN-30-007



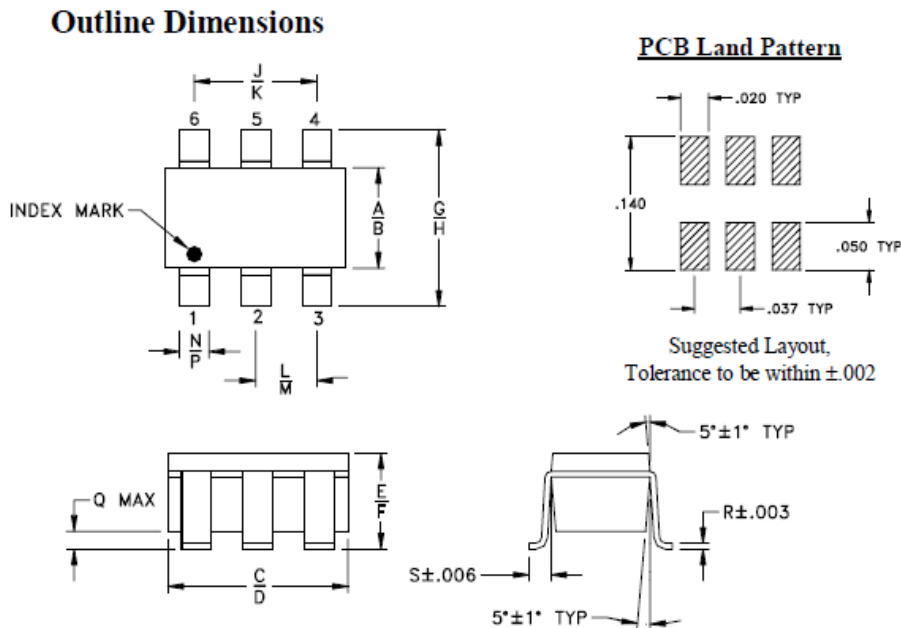
Background:

Mini-Circuits D19G+ is MMIC based Directional Coupler. Foundry has obsoleted the die used in D19G+. Mini-Circuits has designed a new die to replace the existing die. At the same time new die is packaged in Mini-Circuits standard package (Case style CA531) instead of the existing (Case Style CA531-1). Both case styles have same dimensions, the difference is in plating, see following Table. New/replacement model is called D19GA+ Replacement model has been judged by Mini-Circuits Engineering as a suitable replacement to Original model.

MECHANICAL DIMENSIONS & PCB LAND PATTERN

ORIGINAL PART (D19G+)	REPLACEMENT PART (D19GA+)
Case Style: CA531-1	Case Style: CA531
Lead finish: Tin plate over Nickel plate	Lead Finish: Tin-Silver alloy plate over Nickel barrier

No change in mechanical Dimensions



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.

CONCLUSION:

1) **FORM-FIT-FUNCTIONAL Compatibility:**

Replacement part is Form, Fit compatible. Following is a summary of changes:

	Current Part D19G+	REPLACEMENT PART D19GA+
Frequency (MHz)	1420-1660	1400-1700
Electrical, Coupling (dB)	17.4 min. and 20.2 max.	18.9 min. and 22.4 max.
Mainline Loss (dB)	0.5 max	0.6 max
Directivity (dB)	10 min.	13 min.
Operating Temperature (°C)	-40 to 85	-40 to 105
Lead Finish	Tin plate over Nickel plate	Tin-Silver alloy plate over Nickel barrier

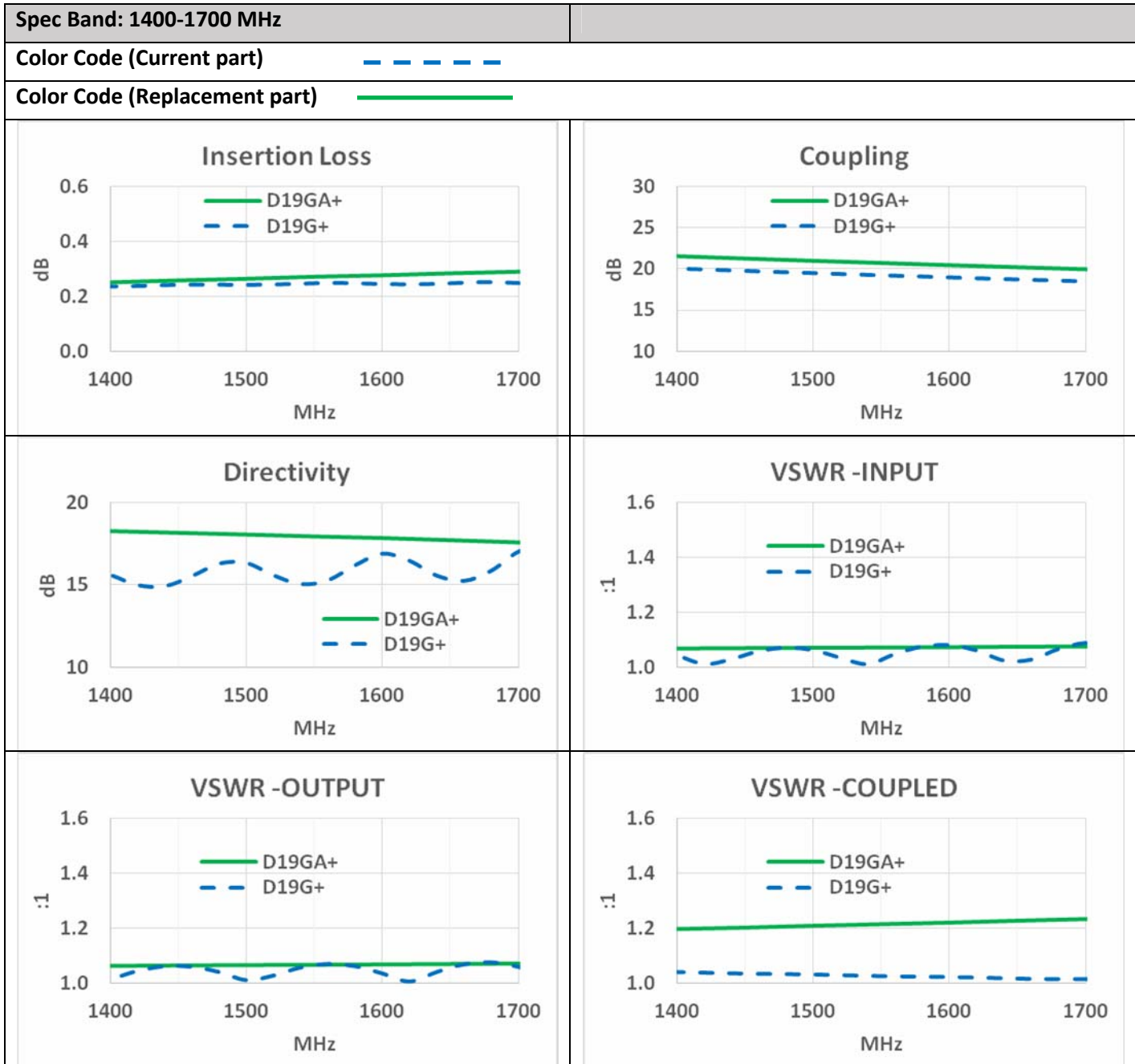
2) **PERFORMANCE COMPARISON (TYPICAL) at 25°C_a:**

Frequency: 1400-1700 MHz

Parameter	Current Part D19G+ (Qty 19)			REPLACEMENT PART D19GA+ (Qty 5)		
	Min	Average	Max	Min	Average	Max
Insertion Loss(dB)	0.22	0.23	0.26	0.25	0.27	0.29
Coupling(dB)	17.6	19.1	19.9	19.9	20.7	21.6
Directivity(dB)	13.0	16.9	19.6	16.8	17.4	18.3
VSWR -INPUT(:1)	1.008	1.036	1.083	1.05	1.08	1.10
VSWR -OUTPUT(:1)	1.001	1.032	1.074	1.06	1.08	1.09
VSWR -Coupling(:1)	1.001	1.046	1.094	1.15	1.21	1.26

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3) PERFORMANCE COMPARISON CURVES_a (TYPICAL) at 25°C:



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