REPLACEMENT PART REFERENCE GUIDE, D18P+:

AN-30-006

Background:

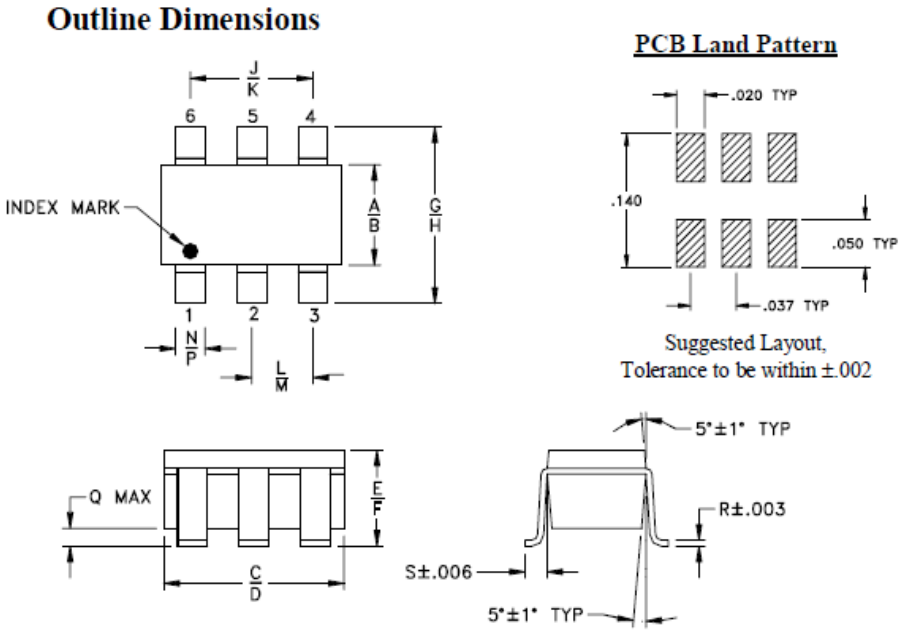
Mini-Circuits D18P+ is MMIC based Directional Coupler. Foundry has obsoleted the die used in D18P+. Mini-Circuits has designed a new die to replace the existing die. At the same time new die is packaged in Mini-Circuits standard package (Case style CA531) instead of the existing (Case Style CA531-1). Both case styles have same dimensions, the difference is in plating, see following Table. New/replacement model is called D18PA+

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

MECHANICAL DIMENSIONS & PCB LAND PATTERN

ORIGINAL PART (D18P+)	REPLACEMENT PART (D18PA+)
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 COMPATIBLE**[a]:
Replacement part is Form, Fit compatible. Following is a summary of changes:

	Current Part D18P+	REPLACEMENT PART D18PA+
Frequency (MHz)	1710-1990	1700-2000
Electrical, Coupling (dB)	16.2 Min, 19.8 max	17.9 min, 20.8 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: 1700-2000 MHz

	Current Part D18P+ (Qty 5)			REPLACEMENT PART D18PA+ (Qty 5)		
Parameter	**Min**	**Average**	**Max**	**Min**	**Average**	**Max**
Mainline Loss (dB)	0.28	0.31	0.37	0.29	0.31	0.33
Coupling (dB)	17.8	18.4	19.1	18.6	19.3	20.0
Directivity (dB)	16.6	17.2	17.9	16.2	16.8	17.6
VSWR-INPUT (:1)	1.08	1.12	1.16	1.06	1.09	1.11
VSWR-OUTPUT (:1)	1.07	1.12	1.16	1.06	1.08	1.11
VSWR- COUPLED (:1)	1.14	1.17	1.21	1.19	1.24	1.30

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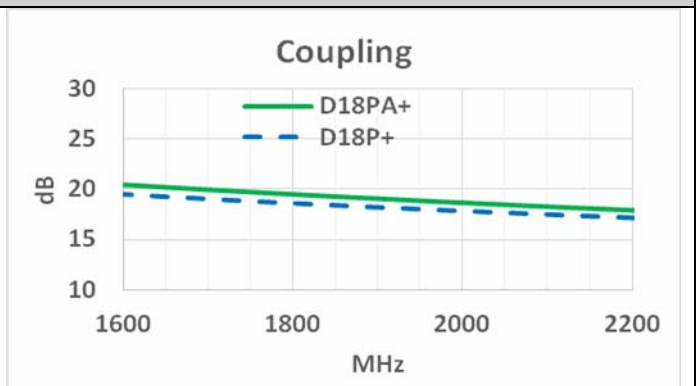
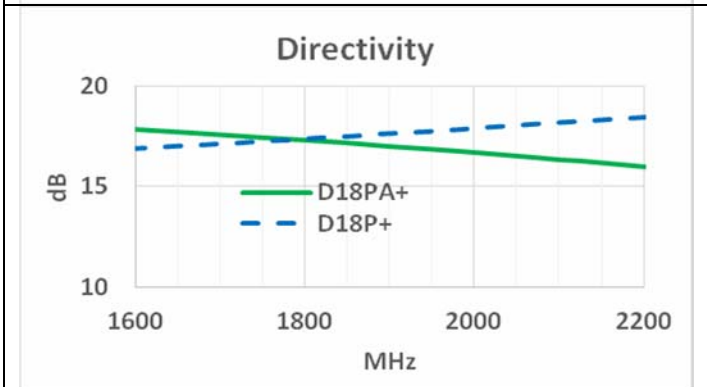
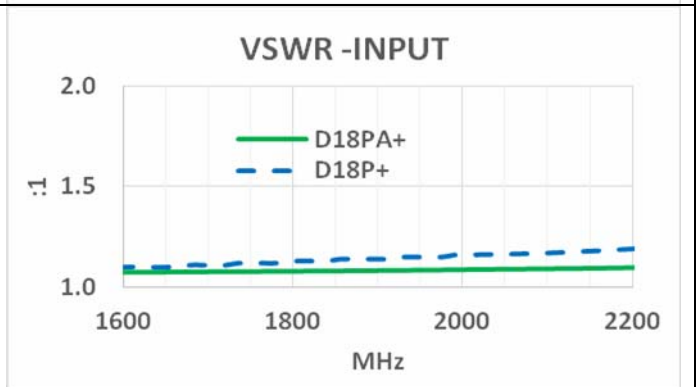
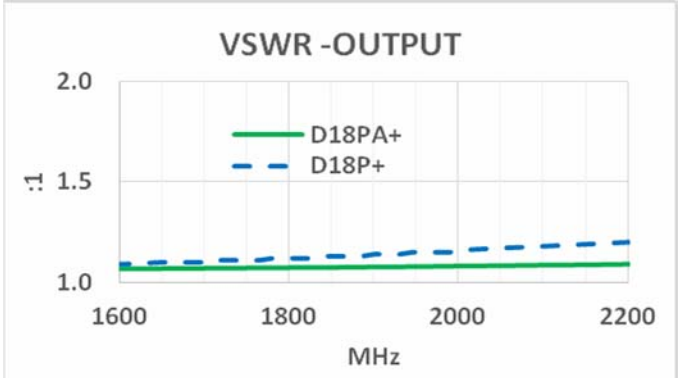
3) PERFORMANCE COMPARISON CURVES[a] (TYPICAL) at 25°C:

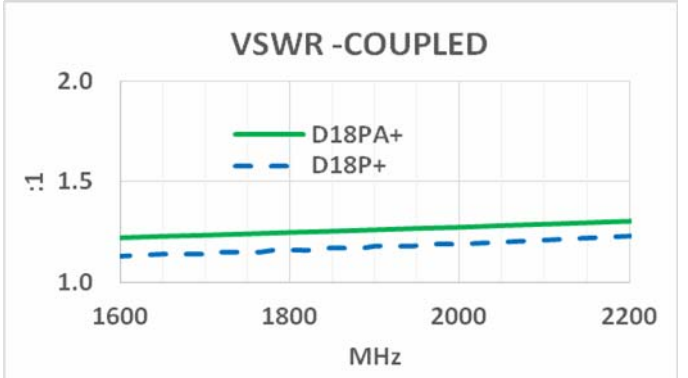
Spec Band: 2300-2600 MHz











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