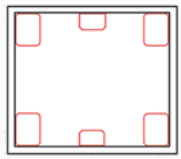
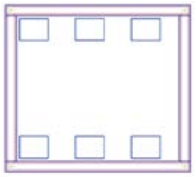
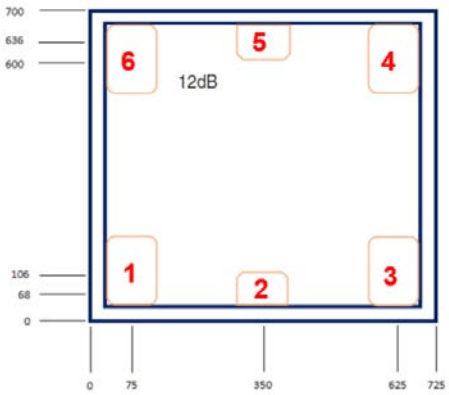
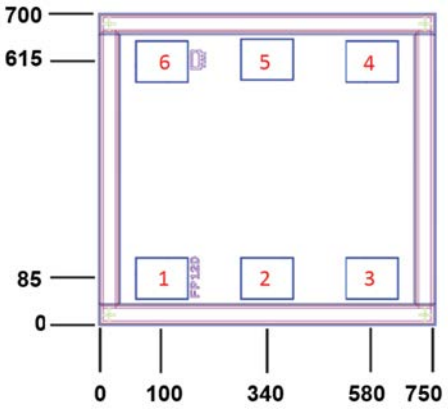
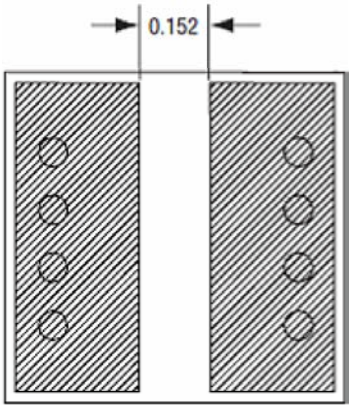
REPLACEMENT PART REFERENCE GUIDE, YAT-12-DG+

AN-70-060

ORIGINAL PART:	YAT-12-DG+	
REPLACEMENT PART:	YAT-12A-DG+	

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

MECHANICAL DIMENSIONS

Original Part YAT-12-DG+	Replacement Part YAT-12A-DG+
Top View Die dimensions are in µm  Note: Alternate Die ID: ATN3590_12	**Top View** Die dimensions are in µm 
Bottom View Split Ground - Hatched Area (can be joined together) Dimension is in mm  	**Bottom View** Full Ground

Dimensions

Parameter	Original Part YAT-12-DG+	Replacement Part YAT-12A-DG+
Die Width, µm	725	750
Die Length, µm	700	700
Die Thickness, µm	100	100
RF-IN & RF-OUT Bond Pad Size, µm	110 x 75	125 x 100
Ground Bond Pad Size, µm	110 x 150	125 x 100

Pin-Out

Pad#	Original Part YAT-12-DG+	Replacement Part YAT-12A-DG+
	Function	
2	RF-IN	RF-IN
5	RF-OUT	RF-OUT
1,3,4,6	Ground	Ground
Bottom of Die	Split Ground	Full Ground

CONCLUSION:

1) **FORM-FIT-FUNCTIONAL ANALYSIS$_a$**:

The Replacement Part is Form, Fit compatible.

Following is a summary of changes/improvements in the Specification:

Parameter	Frequency (GHz)	Original Part	Replacement Part
Attenuation Typ. (dB) VSWR Typ. (:1)	DC-5	12.0 1.1	12.0±0.1 1.2
Attenuation Typ. (dB) VSWR Typ. (:1)	5-15	12.2 1.2	12.0±0.1 1.2
Attenuation Typ. (dB) VSWR Typ. (:1)	15-18	12.2 1.2	12.0±0.1 1.2
Attenuation Typ. (dB) VSWR Typ. (:1)	18-26.5	12.4 1.3	12.0±0.2 1.2
Max Power at 25°C (W)	DC-26.5	1.8	1.1
Max Power at 85°C (W)	DC-26.5	1	0.8

For typical performance and Graphs: See paragraphs 2 and 3

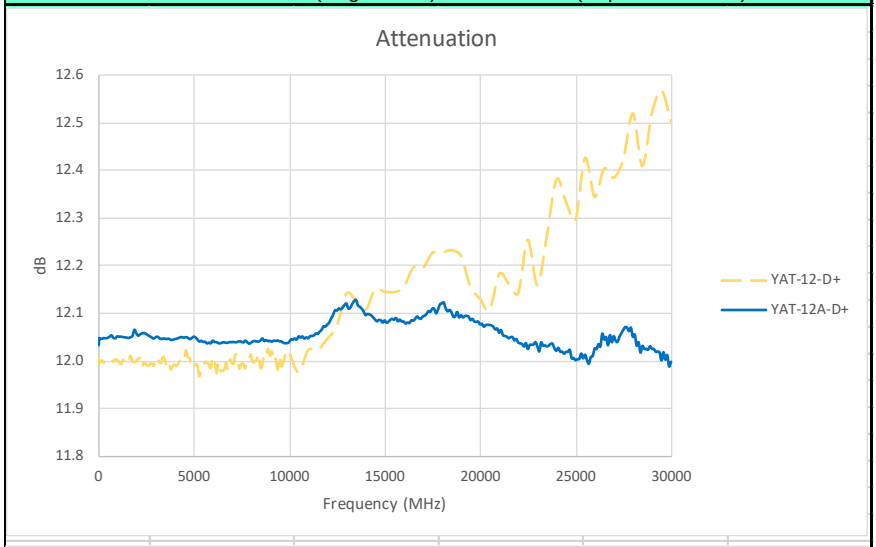
2) TYPICAL PERFORMANCE COMPARISON AT ROOM TEMPERATURE:

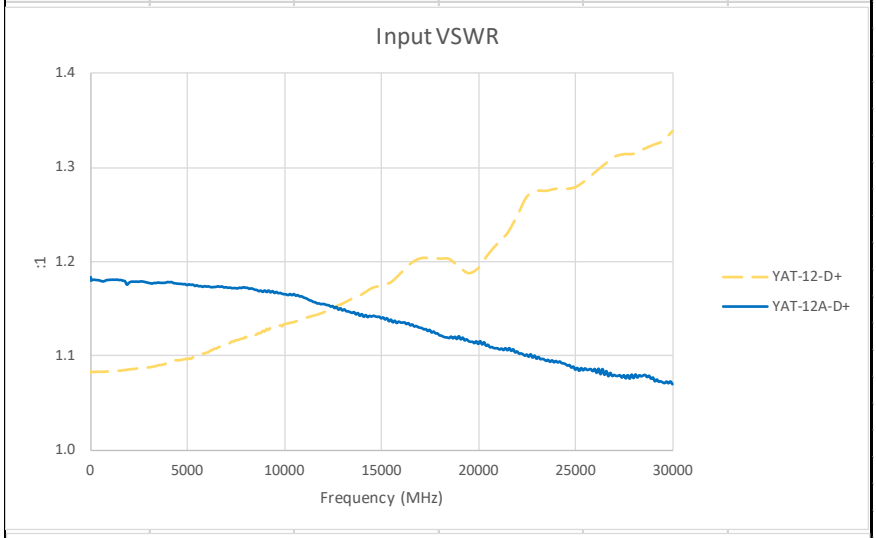
MODEL: YAT-12-DG+, YAT-12A-DG+ (RF Parameters)

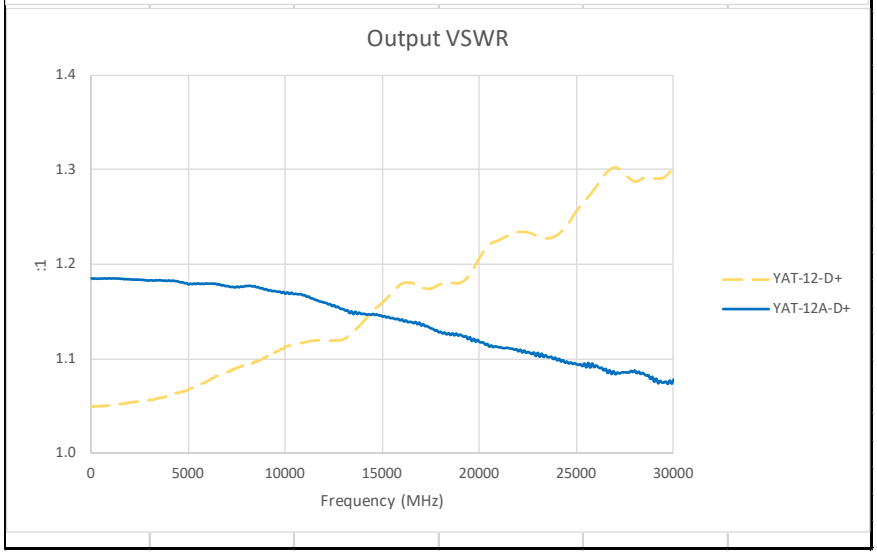
Parameter	Freq (MHz)		5 Units of Original Part YAT-12-D+			3 Units of Replacement Part YAT-12A-D+		
	From	To	Min.	Avg.	Max.	Min.	Avg.	Max.
Insertion Loss (dB)	10	5000	11.98	12.00	12.02	12.00	12.03	12.06
	5000	15000	11.97	12.01	12.16	12.00	12.04	12.13
	15000	18000	12.13	12.18	12.24	12.03	12.07	12.12
	18000	26500	12.09	12.24	12.43	11.95	12.03	12.12
VSWR (:1)	10	5000	1.08	1.09	1.10	1.15	1.17	1.19
	5000	15000	1.10	1.12	1.18	1.11	1.15	1.18
	15000	18000	1.17	1.19	1.21	1.10	1.12	1.15
	18000	26500	1.18	1.24	1.32	1.07	1.10	1.13

3) **TYPICAL PERFORMANCE GRAPHS AT ROOM TEMPERATURE**:

Models: YAT-12-D+ (Original Part) & YAT-12A-D+ (Replacement Part)







IMPORTANT NOTICE