


REPLACEMENT PART REFERENCE GUIDE, HAT-4+

AN-70-095

ORIGINAL PART:	HAT-4+	
REPLACEMENT PART:	HAT-4A+	

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

MECHANICAL DIMENSIONS

Case Style: FF747

Replacement part uses same case style as original part.

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 (MHz)	HAT-4+	HAT-4A+
Attenuation (dB)(Nom)	10	4±0.2	4±0.3
Flatness(dB) (Typ)	DC-500	0.05	0.10
Flatness(dB) (Typ)	DC-1000	0.10	0.20
Flatness(dB) (Typ)	DC-2000	0.15	0.20
VSWR(:1) (Typ)	DC-500	1.05	1.20
VSWR(:1) (Typ)	DC-1000	1.10	1.20
VSWR(:1) (Typ)	DC-2000	1.10	1.25
Input Power	DC-2000	1W	1.7W *

* RF power at 25°C is 1.7W; De-rate linearly to 1.0W at 85°C

For typical performance: See paragraph 2

2) TYPICAL PERFORMANCE COMPARISON AT ROOM TEMPERATURE:

MODEL: HAT-4+, HAT-4A+ (RF Parameters); Data of 7 samples

Parameter	Frequency (MHz)		HAT-4+			HAT-4A+		
	Low	High	Min	Avg	Max.	Min	Avg	Max.
Attenuation(dB)	10		3.98	3.99	3.99	3.93	3.95	3.96
Flatness (dB)	DC	500	0.09	0.1	0.12	0.09	0.1	0.11
	DC	1000	0.14	0.15	0.18	0.15	0.16	0.17
	DC	2000	0.24	0.26	0.32	0.22	0.24	0.26
Return Loss (dB)	DC	500	33.09	36.11	40.96	22.19	23.48	24.77
	DC	1000	29.36	32.47	36.74	20.90	22.17	23.22
	DC	2000	20.02	20.62	21.99	20.61	21.75	23.01
VSWR (:1)	DC	500	1.02	1.03	1.05	1.12	1.14	1.17
	DC	1000	1.03	1.05	1.07	1.15	1.17	1.20
	DC	2000	1.17	1.21	1.22	1.15	1.18	1.21

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