APPLICATION NOTE

REPLACEMENT PART REFERENCE GUIDE, DAT-15R5-PP+: AN-70-016

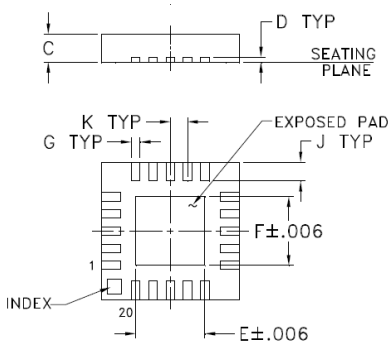
ORIGINAL PART: DAT-15R5-PP+
REPLACEMENT PART: DAT-15R5A-PP+

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

MECHANICAL DIMENSIONS & PCB LAND PATTERN

ORIGINAL PART: DAT-15R5-PP+

Case Style: DG983-1

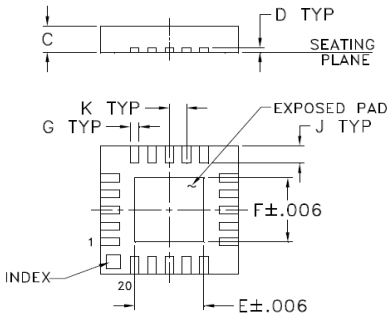


Inches (mm)

C	E	F	G
.035 (0.90)	.081 (2.06)	.081 (2.06)	.010 (0.25)

REPLACEMENT PART: DAT-15R5A-PP+

Case Style: DG983-2 (minor dimensional changes as below)

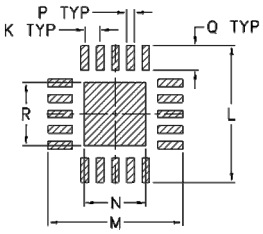


inches (mm)

C	E	F	G
.033 (0.85)	.085 (2.15)	.085 (2.15)	.009 (0.23)

Note: Dimensions not shown are same as that in DG983-1

Suggested PCB Land Pattern



K	L	M	N	P	Q	R
.020 (0.50)	.177 (4.50)	.177 (4.50)	.081 (2.06)	.010 (0.25)	.032 (0.81)	.081 (2.06)

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/improvements:

Parameter			DAT-15R5-PP+ (Original Part)	DAT-15R5A-PP+ (Replacement Part)
V_{DD}(V)			+2.7 to +3.3	+2.3 to +3.6, usable to +5.2V
Control input High (V)			0.7V_{DD} to V_{DD}	+1.17 to +3.6
Control input Low (V)			0 to 0.3V_{DD}	-0.3 to +0.6
I_{DD} (µA)			100 µA max. During turn-on and transition between attenuation states, device may draw up to 2mA.	100 µA max.
Control Current (µA)			1 max	1 max, except 30µA typ for C0.5 and 2µA typ. for LE at +3.6V
Attenuation accuracy	Step (dB)	Freq (GHz)	Spec max	Spec max
	0.5	2.2-2.4	0.3	0.15
		2.4-4.0	0.3	0.2
	1.0	2.2-2.4	0.3	0.15
		2.4-4.0	0.3	0.25
	2.0	2.2-2.4	0.45	0.25
		2.4-4.0	0.45	0.35
	4.0	2.2-2.4	0.45	0.25
		2.4-4.0	**0.45**	**0.5**
	8.0	1-2.2	**0.25**	**0.5**
		2.2-2.4	0.8	0.5
Attenuation (dB)		1-2.2	2.5	2.4
		2.2-2.4	4.7	2.4
		2.2-4	4.7	3.0
VSWR (:1) (1-2.4 GHz)			1.5 max	1.6 Max
Operating Temperature (°C)			-40 to 85	-40 to 105
Storage Temperature(°C)			-55 to 100	-65 to 150
ESD (HBM)			Pass 500V	Pass 1500V
Max Operating Power			Not Specified	From 10 kHz to 50 MHz per Figure 1 (in Model Data Sheet) and +24 dBm above 50 MHz
Absolute Max input Power (dBm)			+24	+30

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2) **PERFORMANCE COMPARISON[a] (TYPICAL)[a]:**

Parameter	Frequency (GHz)	DAT-15R5-PP+ (Original Part)	DAT-15R5A-PP+ (Replacement Part)
		Average	Average
I.Loss(dB)	0.01 to 1	1.43	1.20
	1 to 2.2	1.74	1.43
	1 to 2.4	1.76	1.46
	2.2 to 4	2.62	2.09
Step Accuracy 0.5 dB Step (dB)	0.01 to 1	0.02	0.03
	1 to 2.2	0.01	0.04
	1 to 2.4	0.02	0.04
	2.2 to 4	0.06	0.04
Step Accuracy 1.0 dB Step (dB)	0.01 to 1	0.00	0.03
	1 to 2.2	0.00	0.04
	1 to 2.4	0.01	0.04
	2.2 to 4	0.03	0.04
Step Accuracy 2.0 dB Step (dB)	0.01 to 1	0.03	0.03
	1 to 2.2	0.06	0.04
	1 to 2.4	0.06	0.05
	2.2 to 4	0.12	0.07
Step Accuracy 4.0 dB Step (dB)	0.01 to 1	0.02	0.03
	1 to 2.2	0.02	0.06
	1 to 2.4	0.03	0.07
	2.2 to 4	0.02	0.10
Step Accuracy 8.0 dB Step (dB)	0.01 to 1	0.04	0.02
	1 to 2.2	0.06	0.11
	1 to 2.4	0.05	0.13
	2.2 to 4	0.08	0.35
Input R.Loss (dB)	0.01 to 1	16.9	18.2
	1 to 2.2	18.3	18.2
	1 to 2.4	18.9	18.5
	2.2 to 4	22.5	18.2
Output R.Loss	0.01 to 1	17.4	18.7
	1 to 2.2	18.4	18.8
	1 to 2.4	18.7	18.7
	2.2 to 4	22.7	17.8

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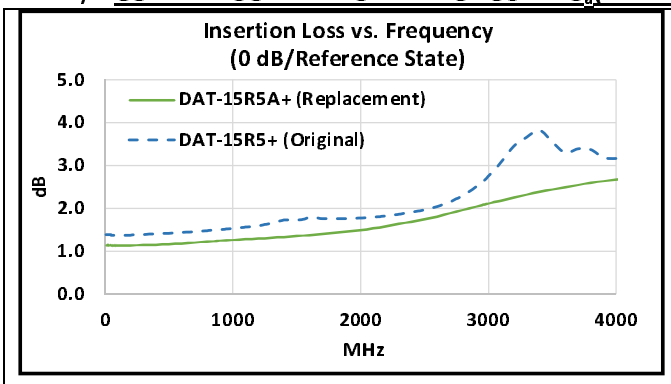
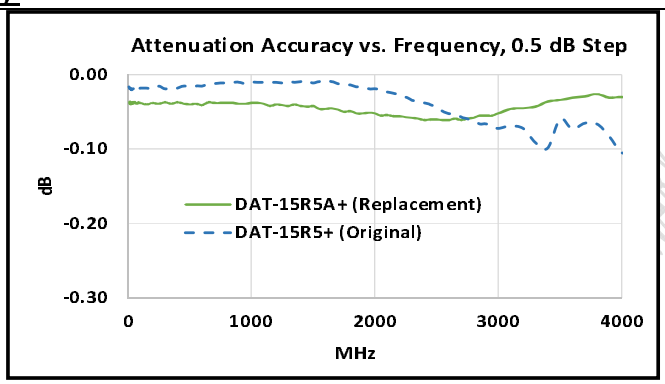
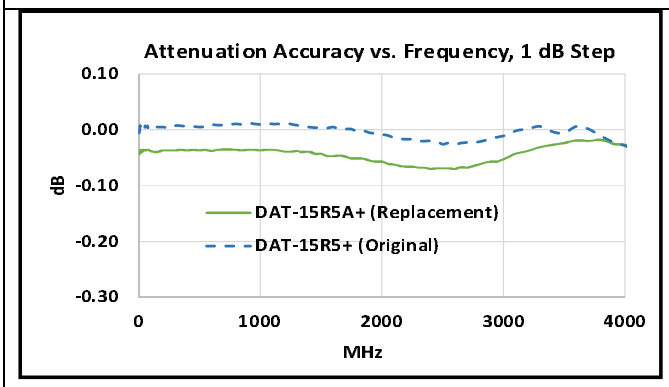
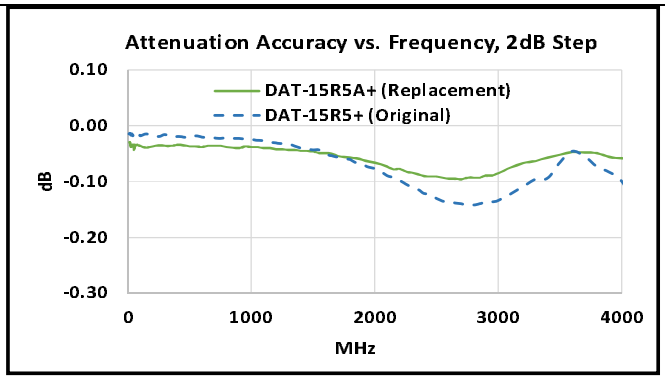
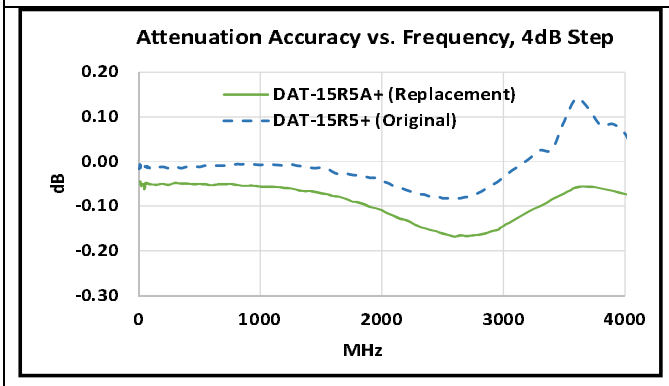
3) COMPARISON PERFORMANCE CURVES[a] (TYPICAL):

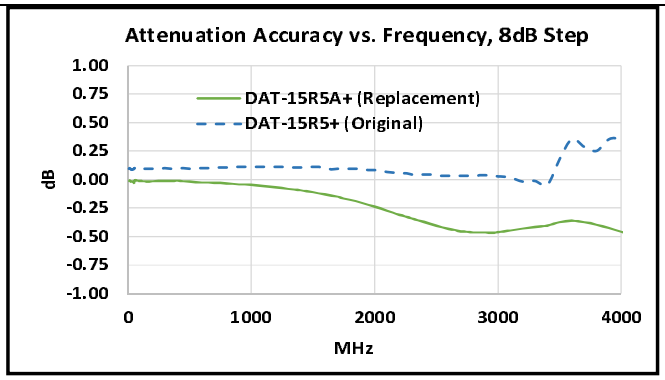


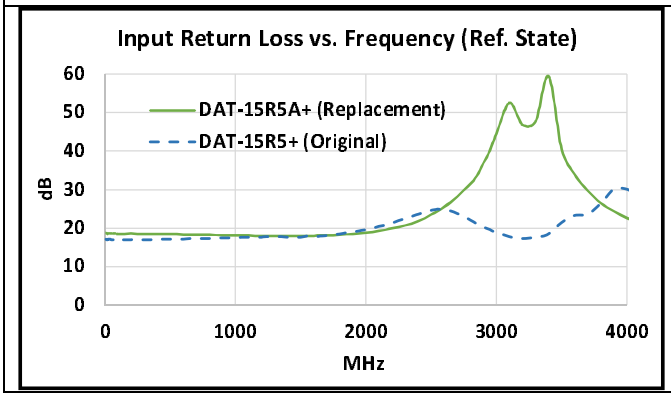


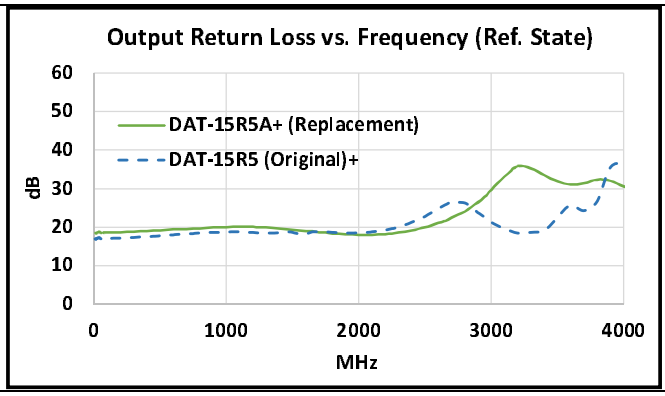












Note: DAT-15R5+ is same as DAT-15R5-PP+ and
DAT-15R5A+is same as DAT-15R5A-PP+

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