REPLACEMENT PART REFERENCE GUIDE, DAT-31575-PP+

AN-70-022

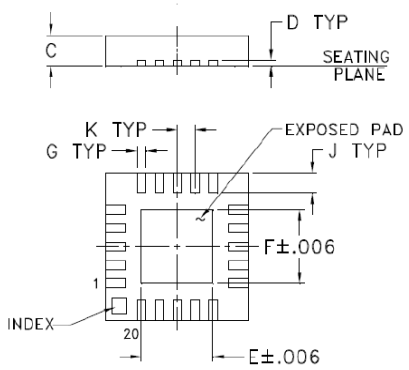
ORIGINAL PART: DAT-31575-PP+
REPLACEMENT PART: DAT-31575A-PP+

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-31575-PP+

Case Style: DG983-1

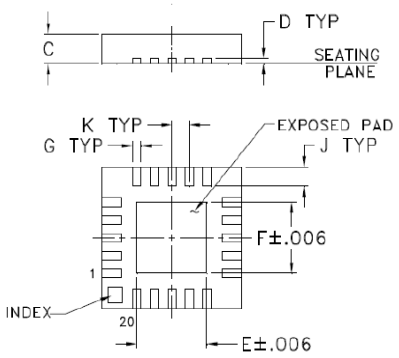


Inches (mm)

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

REPLACEMENT PART: DAT-31575A-PP+

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

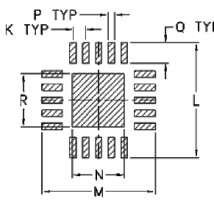


inches (mm)

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)

Marking	Marking
31575	DS75

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:

Typical performance: see part 2) and 3)

For Min/Max Specifications, see below:

Parameter		DAT-31575-PP+ (Original Part)		DAT-31575A-PP+ (Replacement Part)	
Frequency (GHz)		DC-2.0		0.001-2.5	
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 (0V during power-up)	
I_{DD} (µA)		100 µA max.		200 µA max.	
Control Current (µA)		1 max		20 max	
Attenuation accuracy	Step (dB)	Frequency (GHz)	Spec max	Frequency (GHz)	Spec max
	0.5	DC-1.2	0.17	0.001-1.2	0.17
		1.2-2.0	0.18	1.2-2.0	0.18
	1	DC-1.2	0.24	0.001-1.2	0.18
		1.2-2.0	0.25	1.2-2.0	0.20
	2	DC-1.2	0.28	0.001-1.2	0.21
		1.2-2.0	0.3	1.2-2.0	0.26
	4	DC-1.2	0.36	0.001-1.2	0.27
		1.2-2.0	0.4	1.2-2.0	0.36
	8	DC-1.2	0.52	0.001-1.2	0.39
		1.2-2.0	0.6	1.2-2.0	0.6
	16	DC-1.2	0.84	0.001-1.2	0.63
		1.2-2.0	1	1.2-2.0	1.0
Operating Temperature (°C)		-40 to 85		-40 to 105	
Storage Temperature(°C)		-55 to 100		-65 to 150	
ESD (HBM)		< 500V		1000 to <2000V	
ESD (MM)		<100V		500 to <1000V	
Max Operating Power		Not Specified		From 1-30 MHz per Figure 1 (in Model Data Sheet) and +24 dBm above 30 MHz	
Max Input Power		+24 dBm		1-30 MHz (10-24 dBm) per Figure 2 of data Sheet >30 MHz: +30 dBm	
Absolute Max Rating: Vdd(v)		-0.3V Min., 4V Max.		-0.3V Min., 5.5V Max.	
Absolute Max Rating: Voltage on any digital input (V)		-0.3V Min., Vdd+0.3V Max.		-0.3V Min., 3.6V Max.	

Notes:
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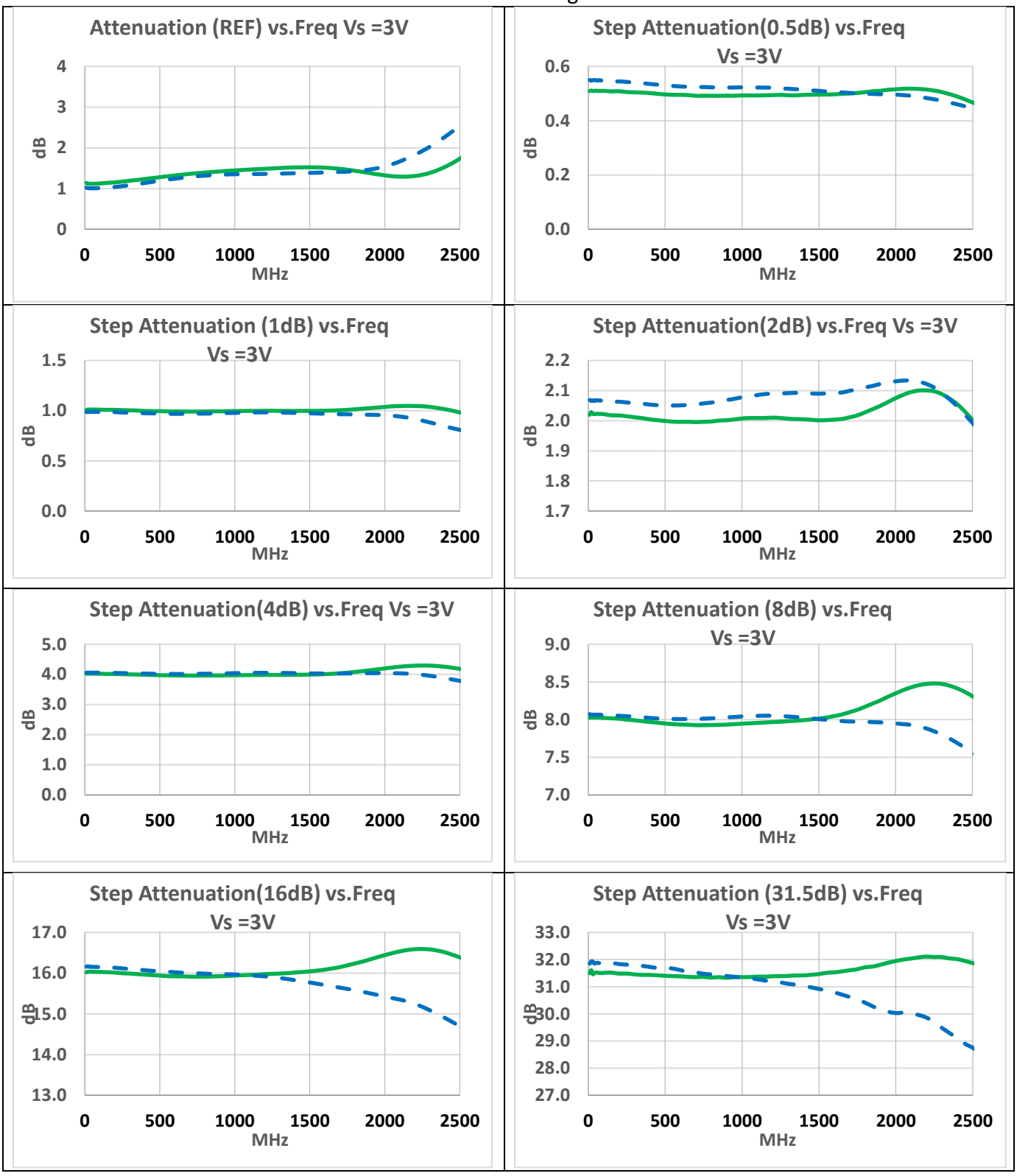
2) PERFORMANCE COMPARISON[a] (TYPICAL), DC Voltage=3V:

DAT-31575A-PP+ VS. DAT-31575-PP+	Freq (MHz)		DAT-31575A-PP+ Data of 2 Units on TB-337			DAT-31575-PP+ Data of 1 Units on TB-337		
	From	To	Min.	Avg.	Max.	Min.	Avg.	Max.
STEP ATTENUATION 0dB (dB)	10	1200	1.1	1.3	1.5	1.0	1.2	1.4
	1200	2000	1.3	1.5	1.5	1.4	1.4	1.5
	2000	2500	1.3	1.4	1.7	1.5	2.0	2.5
STEP ATTENUATION 0.5dB (dB)	10	1200	0.49	0.50	0.52	0.52	0.54	0.55
	1200	2000	0.49	0.50	0.52	0.50	0.51	0.52
	2000	2500	0.47	0.51	0.53	0.45	0.48	0.50
STEP ATTENUATION 1dB (dB)	10	1200	0.99	1.00	1.02	0.97	0.98	0.99
	1200	2000	1.00	1.01	1.04	0.95	0.97	0.98
	2000	2500	0.98	1.04	1.06	0.81	0.89	0.95
STEP ATTENUATION 2dB (dB)	10	1200	2.00	2.01	2.04	2.05	2.07	2.09
	1200	2000	2.00	2.02	2.09	2.09	2.10	2.13
	2000	2500	2.00	2.09	2.13	1.99	2.09	2.13
STEP ATTENUATION 4dB (dB)	10	1200	3.95	3.99	4.03	4.01	4.04	4.06
	1200	2000	3.96	4.04	4.20	4.02	4.04	4.05
	2000	2500	4.18	4.26	4.31	3.79	3.95	4.04
STEP ATTENUATION 8dB (dB)	10	1200	7.90	7.97	8.03	8.01	8.04	8.07
	1200	2000	7.94	8.08	8.35	7.95	8.00	8.05
	2000	2500	8.31	8.42	8.50	7.56	7.81	7.95
STEP ATTENUATION 16dB (dB)	10	1200	15.9	16.0	16.0	15.9	16.1	16.2
	1200	2000	15.9	16.1	16.4	15.4	15.7	15.9
	2000	2500	16.4	16.5	16.6	14.7	15.1	15.4
STEP ATTENUATION 31.5dB (dB)	10	1200	31.2	31.4	31.6	31.2	31.6	31.9
	1200	2000	31.3	31.5	31.9	30.0	30.7	31.2
	2000	2500	31.8	32.0	32.1	28.7	29.6	30.0
INPUT RETURN LOSS 0dB (dB)	10	1200	15.9	17.7	19.4	15.0	17.7	20.2
	1200	2000	14.8	16.2	19.2	19.6	22.8	30.4
	2000	2500	12.3	20.0	27.7	9.6	17.4	30.4
INPUT RETURN LOSS 1dB (dB)	10	1200	16.6	18.6	21.2	16.1	18.7	21.5
	1200	2000	15.2	16.5	19.7	19.3	21.1	30.5
	2000	2500	13.8	23.6	46.3	11.7	22.5	41.9
INPUT RETURN LOSS 2dB (dB)	10	1200	16.7	19.0	22.1	14.5	17.1	20.0
	1200	2000	15.8	17.0	20.6	16.9	23.3	32.5
	2000	2500	14.5	23.1	34.7	9.9	16.1	26.0
INPUT RETURN LOSS 4dB (dB)	10	1200	19.3	25.1	35.6	14.5	17.3	20.6
	1200	2000	16.6	17.7	20.2	16.1	22.9	32.4
	2000	2500	14.9	18.1	19.9	10.6	16.4	25.4
INPUT RETURN LOSS 8dB (dB)	10	1200	18.9	27.3	51.7	14.7	17.9	21.5
	1200	2000	17.7	18.4	20.0	15.6	23.5	42.7
	2000	2500	14.1	16.5	18.2	12.1	18.1	28.1
INPUT RETURN LOSS 16dB (dB)	10	1200	19.0	28.6	54.7	16.1	20.5	25.4
	1200	2000	16.4	18.2	20.2	16.4	20.5	25.7
	2000	2500	13.8	15.4	16.9	15.3	20.1	25.4
INPUT RETURN LOSS 31.5dB (dB)	10	1200	19.3	27.8	40.8	16.3	21.5	27.0
	1200	2000	15.6	17.8	20.6	16.3	18.4	21.5
	2000	2500	13.6	14.8	16.1	17.4	20.3	21.9
OUTPUT RETURN LOSS 0dB (dB)	10	1200	16.1	17.7	19.4	15.4	17.8	20.2
	1200	2000	14.4	15.7	17.4	18.9	20.5	23.8
	2000	2500	12.3	17.4	21.1	9.3	15.4	23.5
OUTPUT RETURN LOSS 1dB (dB)	10	1200	16.6	18.4	20.9	15.1	17.4	20.0
	1200	2000	15.0	16.2	18.9	17.4	20.2	24.4
	2000	2500	13.8	19.9	25.9	9.6	15.6	23.7
OUTPUT RETURN LOSS 2dB (dB)	10	1200	16.8	19.0	22.2	17.2	19.9	23.3
	1200	2000	15.6	16.7	20.2	18.3	19.9	27.7
	2000	2500	15.1	22.6	33.7	12.7	21.8	33.8
OUTPUT RETURN LOSS 4dB (dB)	10	1200	16.3	19.4	23.6	17.5	20.7	25.0
	1200	2000	16.5	18.6	26.3	17.8	19.4	26.5
	2000	2500	14.6	24.6	38.5	14.3	24.4	44.5
OUTPUT RETURN LOSS 8dB (dB)	10	1200	18.6	27.0	48.8	16.1	20.1	24.4
	1200	2000	18.4	19.2	21.7	16.3	19.6	29.8
	2000	2500	15.6	19.4	22.2	14.8	24.0	36.8
OUTPUT RETURN LOSS 16dB (dB)	10	1200	18.8	28.5	53.0	14.5	18.3	22.2
	1200	2000	18.1	19.0	19.9	14.8	20.4	34.7
	2000	2500	15.2	17.7	19.7	13.4	20.9	34.7
OUTPUT RETURN LOSS 31.5dB (dB)	10	1200	19.1	27.8	42.9	16.6	23.1	29.6
	1200	2000	17.1	18.6	20.3	16.4	17.5	20.7
	2000	2500	15.0	16.9	18.5	17.9	20.4	22.2
RETURN LOSS (All States) (dB)	10	1200	15.9	17.7	19.4	14.5	17.1	20.0
	1200	2000	14.4	15.7	17.4	14.8	17.5	20.7
	2000	2500	12.3	14.8	16.1	9.3	15.4	21.9

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.

3) PERFORMANCE COMPARISON CURVES[a] (TYPICAL), DC Supply=3V:

Data of Replacement Part
Data of Original Part



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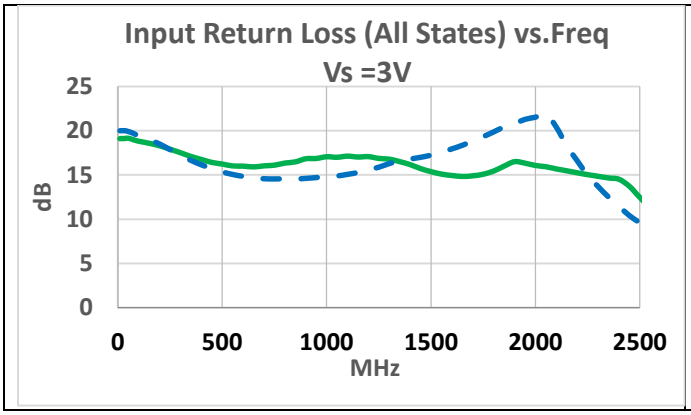

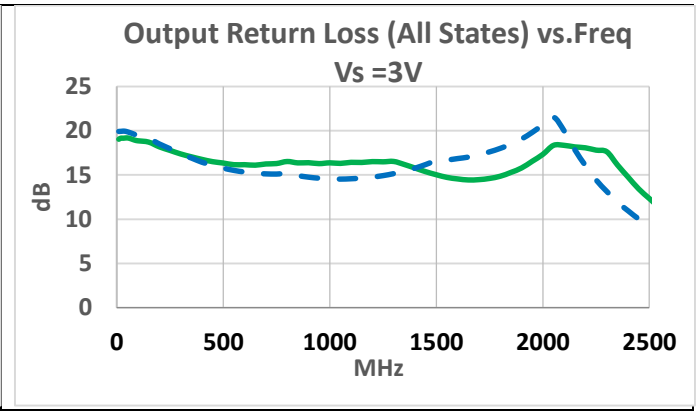

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