

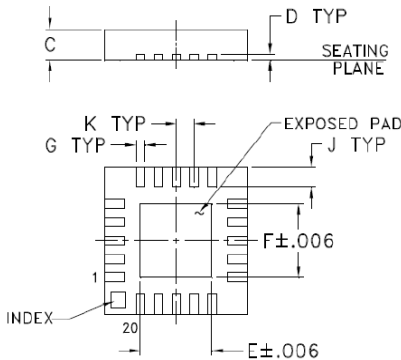
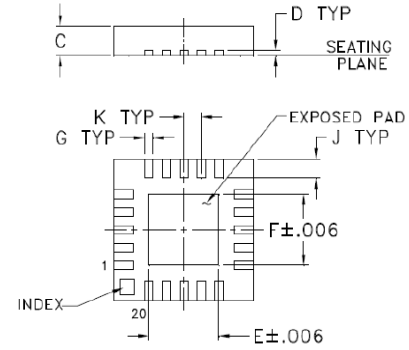
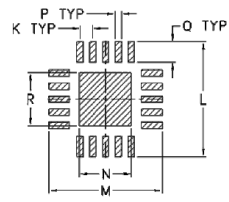
REPLACEMENT PART REFERENCE GUIDE, DAT-31575-PN+

AN-70-021

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

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-PN+	REPLACEMENT PART: DAT-31575A-PN+																
<p>Case Style: DG983-1</p>  <p>Inches (mm)</p> <table border="1"> <thead> <tr> <th>C</th> <th>E</th> <th>F</th> <th>G</th> </tr> </thead> <tbody> <tr> <td>.035 (0.90)</td> <td>.081 (2.06)</td> <td>.081 (2.06)</td> <td>.010 (0.25)</td> </tr> </tbody> </table>	C	E	F	G	.035 (0.90)	.081 (2.06)	.081 (2.06)	.010 (0.25)	<p>Case Style: DG983-2 (minor dimensional changes as below)</p>  <p>inches (mm)</p> <table border="1"> <thead> <tr> <th>C</th> <th>E</th> <th>F</th> <th>G</th> </tr> </thead> <tbody> <tr> <td>.033 (0.85)</td> <td>.085 (2.15)</td> <td>.085 (2.15)</td> <td>.009 (0.23)</td> </tr> </tbody> </table> <p>Note: Dimensions not shown are same as that in DG983-1</p>	C	E	F	G	.033 (0.85)	.085 (2.15)	.085 (2.15)	.009 (0.23)
C	E	F	G														
.035 (0.90)	.081 (2.06)	.081 (2.06)	.010 (0.25)														
C	E	F	G														
.033 (0.85)	.085 (2.15)	.085 (2.15)	.009 (0.23)														
<p>Suggested PCB Land Pattern</p>  <table border="1"> <thead> <tr> <th>K</th> <th>L</th> <th>M</th> <th>N</th> <th>P</th> <th>Q</th> <th>R</th> </tr> </thead> <tbody> <tr> <td>.020 (0.50)</td> <td>.177 (4.50)</td> <td>.177 (4.50)</td> <td>.081 (2.06)</td> <td>.010 (0.25)</td> <td>.032 (0.81)</td> <td>.081 (2.06)</td> </tr> </tbody> </table>		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)		
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)											
<p>Marking</p> <p>31575</p>	<p>Marking</p> <p>DS75</p>																

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-PN+ (Original Part)		DAT-31575A-PN+ (Replacement Part)	
Frequency (GHz)		DC-2.0		0.001-2.5	
VDD(V)		+2.7 to +3.3		+2.7 to +3.6, usable to +5.2V	
Vss(V)		-2.7 to -3.3		-3.2 to -3.6	
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)	
IDD (μA)		100 μA max.		80 μA max.	
Iss(μA)		100 μA max.		40 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		24dBm		From 1-30 MHz per Figure 1 (in Model Data Sheet) and +24 dBm above 30 MHz	
Absolute Maximum Rating: Vdd(V)		-0.3V Min. 4V Max.		-0.3V Min. 5.5V Max.	
Absolute Maximum Rating: Vss(V)		-4V Min, 0.3V Max		-3.8V Min -----	
Absolute Maximum Rating: Voltage on any digital input		-0.3V Min, Vdd+ 0.3V Max		-0.3V Min, 3.6V Max	
Max Input Power		+24 dBm		1-30 MHz (10-24 dBm) per Figure 2 of Data Sheet >30 MHz: +30 dBm	

Notes:

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2) PERFORMANCE COMPARISON_a (TYPICAL), VDD=3V, VSS=-3.2V:

Positive Control Voltage: 3V Negative Control Voltage: -3.2V	Freq (MHz)		DAT-31575A-PN+ Data of 1 Units			DAT-31575-PN+ (REF) Data of 1 Units		
	From	To	Min.	Avg.	Max.	Min.	Avg.	Max.
	ATTENUATION @ 0dB (dB)	10 1200 2000	1200 2000 2500	1.1 1.5 1.3	1.3 1.6 1.5	1.5 1.7 1.7	1.0 1.8 2.2	1.3 2.1 2.6
ATTENUATION @ 0.5dB (dB)	10 1200 2000	1200 2000 2500	0.49 0.49 0.49	0.51 0.49 0.49	0.52 0.49 0.50	0.51 0.48 0.48	0.53 0.50 0.49	0.59 0.51 0.50
ATTENUATION @ 1dB (dB)	10 1200 2000	1200 2000 2500	0.99 0.99 0.99	1.01 0.99 1.00	1.02 0.99 1.01	0.94 0.91 0.89	0.96 0.93 0.91	1.01 0.95 0.92
ATTENUATION @ 2dB (dB)	10 1200 2000	1200 2000 2500	1.99 1.99 1.99	2.01 1.99 2.01	2.02 1.99 2.02	2.03 1.99 2.05	2.06 2.08 2.09	2.10 2.19 2.16
ATTENUATION @ 4dB (dB)	10 1200 2000	1200 2000 2500	3.97 3.96 3.99	3.99 3.97 4.05	4.01 3.99 4.13	3.96 3.89 3.91	4.02 4.00 3.97	4.07 4.13 4.09
ATTENUATION @ 8dB (dB)	10 1200 2000	1200 2000 2500	7.95 7.92 7.99	7.97 7.96 8.09	8.00 7.99 8.21	7.91 7.80 7.73	7.98 7.90 7.81	8.04 8.01 7.95
ATTENUATION @ 16dB (dB)	10 1200 2000	1200 2000 2500	15.91 15.84 15.86	15.94 15.90 15.95	15.97 15.96 16.09	15.69 15.24 14.78	15.95 15.44 15.00	16.10 15.69 15.24
ATTENUATION @ 31.5dB (dB)	10 1200 2000	1200 2000 2500	31.27 30.15 29.94	31.40 30.82 30.19	31.67 31.28 30.63	30.41 29.56 27.96	31.32 29.93 28.82	31.80 30.41 29.56
INPUT RETURN LOSS @ 0dB (dB)	10 1200 2000	1200 2000 2500	17.3 16.6 17.6	18.0 17.2 20.8	18.6 17.9 30.3	16.8 18.6 13.1	18.5 20.3 16.1	20.3 21.7 18.6
INPUT RETURN LOSS @ 0.5dB (dB)	10 1200 2000	1200 2000 2500	17.9 17.1 17.6	18.8 17.6 21.4	19.5 18.0 33.2	17.8 19.9 14.1	19.8 21.6 17.2	22.0 23.1 19.9
INPUT RETURN LOSS @ 1dB (dB)	10 1200 2000	1200 2000 2500	18.4 17.5 17.8	19.3 17.9 21.8	20.2 18.4 34.6	18.6 20.9 15.8	20.7 23.5 19.4	22.8 25.3 22.3
INPUT RETURN LOSS @ 2dB (dB)	10 1200 2000	1200 2000 2500	18.7 17.6 18.2	19.9 18.0 22.2	20.8 18.7 34.7	17.0 18.4 13.6	19.3 19.7 16.3	21.7 20.8 18.4
INPUT RETURN LOSS @ 4dB (dB)	10 1200 2000	1200 2000 2500	24.2 20.0 18.5	27.5 22.2 19.9	30.9 24.2 21.2	17.7 19.1 14.4	20.7 20.3 17.2	23.8 21.4 19.2
INPUT RETURN LOSS @ 8dB (dB)	10 1200 2000	1200 2000 2500	25.2 20.7 19.4	30.2 22.9 20.2	35.9 25.2 21.0	19.5 20.7 16.5	23.2 22.6 19.7	27.5 24.0 21.9
INPUT RETURN LOSS @ 16dB (dB)	10 1200 2000	1200 2000 2500	28.4 20.2 17.8	37.8 24.2 19.2	59.2 28.4 20.2	23.9 25.3 20.2	30.7 32.4 26.4	43.5 39.5 32.0
RETURN LOSS @ 31.5dB (dB)	10 1200 2000	1200 2000 2500	31.9 19.6 16.9	38.4 25.6 18.3	41.1 31.9 19.6	26.4 26.9 21.3	34.3 31.0 27.4	46.0 34.5 33.6
OUTPUT RETURN LOSS @ 0dB (dB)	10 1200 2000	1200 2000 2500	17.1 16.5 17.9	18.1 17.0 20.5	18.7 17.9 27.9	16.6 18.2 13.9	18.1 21.3 18.6	20.3 24.6 23.9
OUTPUT RETURN LOSS @ 0.5dB (dB)	10 1200 2000	1200 2000 2500	17.9 17.0 18.2	19.1 17.5 20.6	19.7 18.2 28.2	16.9 18.4 14.0	18.7 21.6 18.8	21.1 25.2 24.1
OUTPUT RETURN LOSS @ 1dB (dB)	10 1200 2000	1200 2000 2500	18.0 16.9 18.2	19.2 17.5 21.2	20.0 18.2 29.6	16.8 18.1 14.1	18.5 21.3 18.8	20.8 25.0 24.1
OUTPUT RETURN LOSS @ 2dB (dB)	10 1200 2000	1200 2000 2500	18.6 17.1 18.4	20.0 17.8 21.3	20.9 18.6 28.2	20.2 21.9 17.4	22.7 28.0 23.2	26.5 41.2 32.1
OUTPUT RETURN LOSS @ 4dB (dB)	10 1200 2000	1200 2000 2500	18.6 16.9 19.3	20.6 17.8 23.8	21.8 19.3 28.6	22.4 23.6 18.9	26.0 26.2 22.7	32.5 29.1 27.5
OUTPUT RETURN LOSS @ 8dB (dB)	10 1200 2000	1200 2000 2500	24.7 21.2 18.5	30.1 22.4 20.7	35.7 24.7 22.2	22.8 23.2 18.9	27.4 25.6 22.4	35.5 28.1 26.8
OUTPUT RETURN LOSS @ 16dB (dB)	10 1200 2000	1200 2000 2500	28.2 22.0 16.8	38.4 24.1 19.6	56.6 28.2 22.0	20.4 20.6 17.7	24.2 26.7 23.9	29.3 37.8 34.0
OUTPUT RETURN LOSS @ 31.5dB (dB)	10 1200 2000	1200 2000 2500	31.4 21.5 16.0	38.6 25.6 18.7	40.7 31.4 21.5	26.2 19.2 18.3	32.8 22.4 18.6	35.4 26.2 19.2
INPUT RETURN LOSS (ALL STATES) (dB)	10 1200 2000	1200 2000 2500	17.3 16.6 16.9	18.0 17.2 18.3	18.6 17.9 19.6	16.8 18.4 13.1	18.5 19.7 16.1	20.3 20.8 18.4
OUTPUT RETURN LOSS (ALL STATES) (dB)	10 1200 2000	1200 2000 2500	17.1 16.5 16.0	18.1 17.0 18.7	18.7 17.9 21.5	16.6 18.1 13.9	18.1 21.3 18.6	20.3 24.6 19.2

Notes:

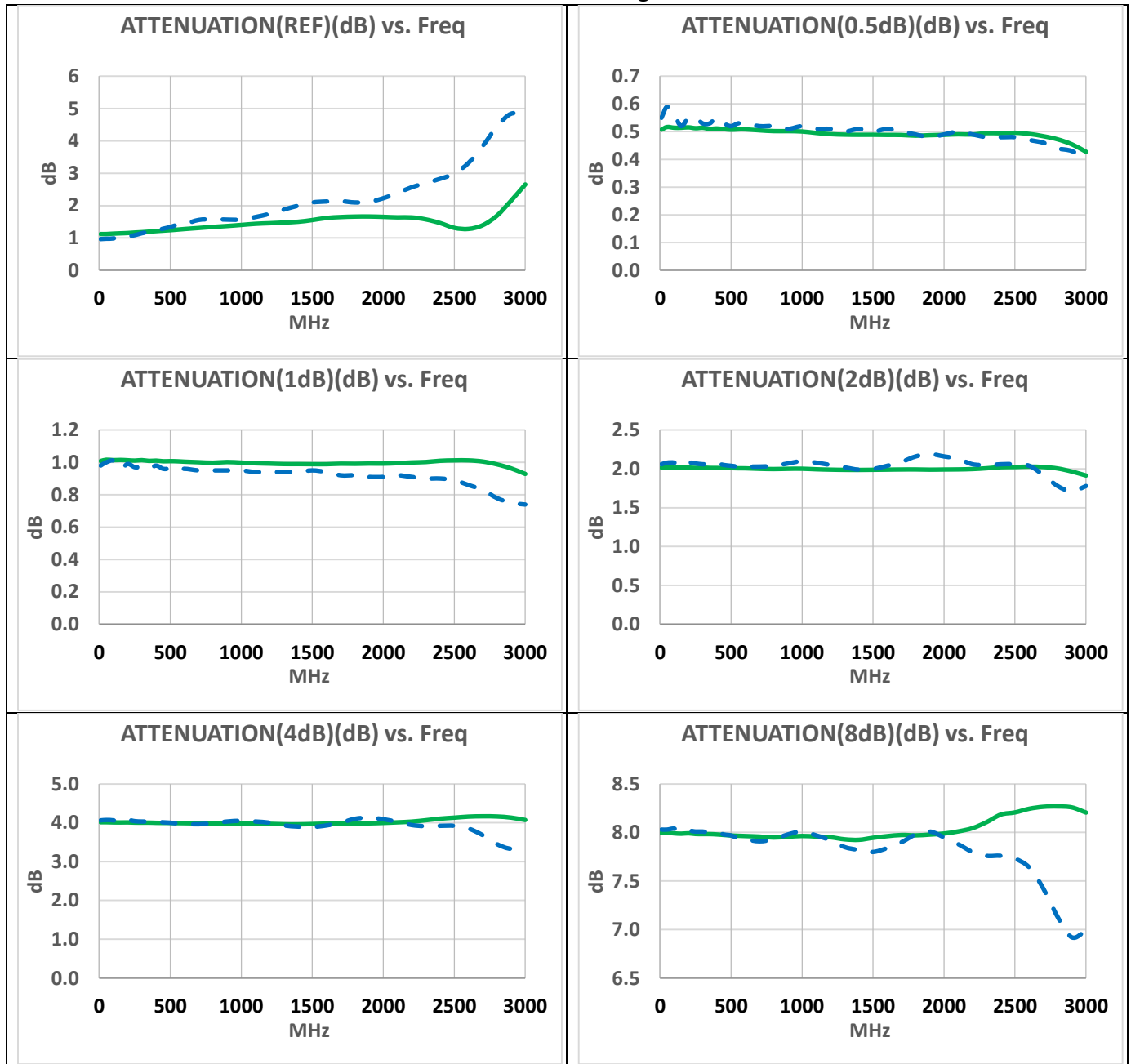
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3) PERFORMANCE COMPARISON CURVES^a (TYPICAL), VDD =3V, VSS =-3.2V:

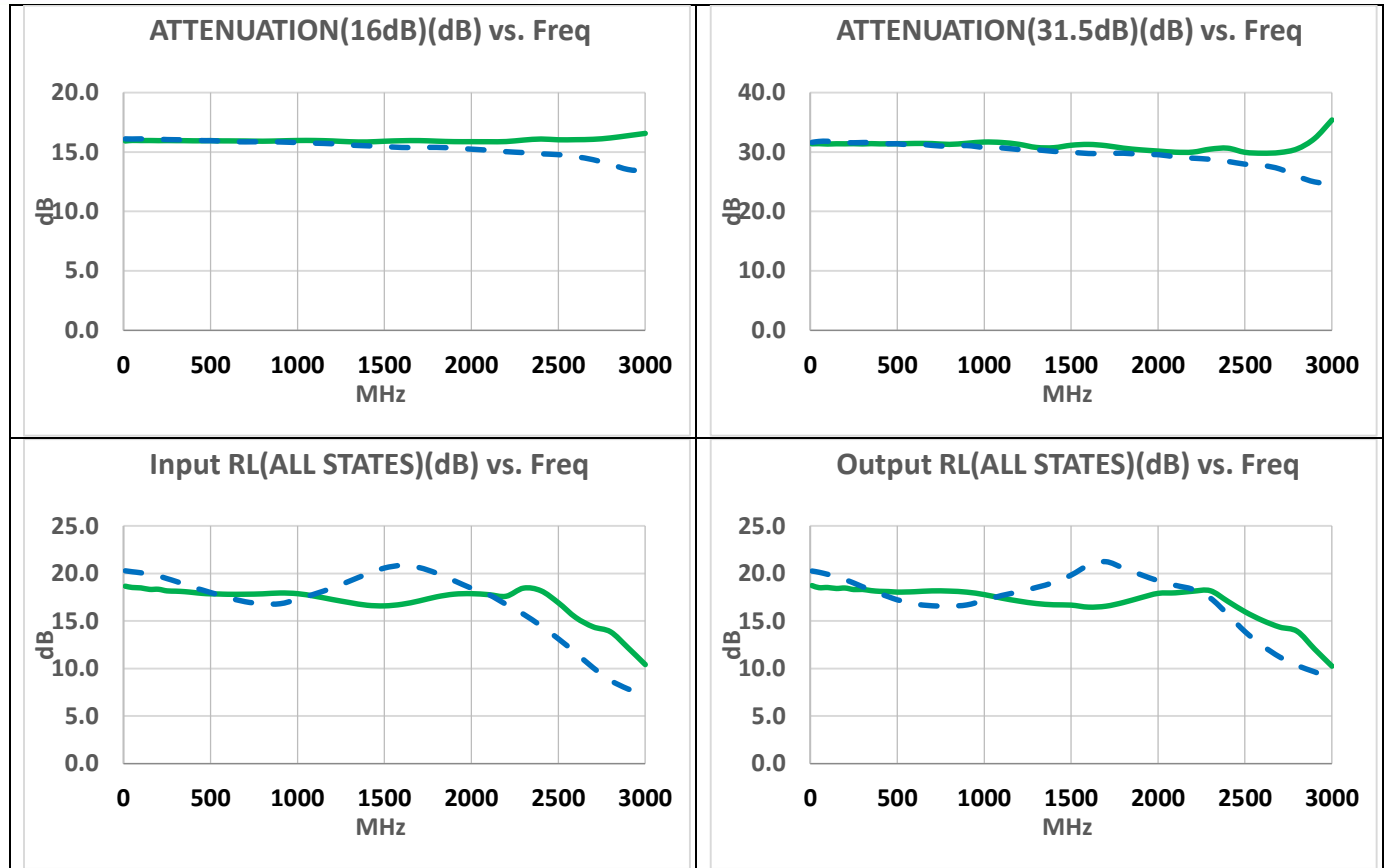


Data of Replacement Part

Data of Original Part



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