

ATTENUATORS, FIXED 50 Ω

0 to 30 dB, DC to 8 GHz

LOW PROFILE PLASTIC PACKAGE 3 mm x 3 mm 1/2 W

GAT
Case FG873



MODEL PREFIX	FREQUENCY RANGE (MHz) f_L - f_U	ATTENUATION, (dB)				VSWR (:1) TYP			MAX. INPUT POWER, W 25°C
		Nom.	FLATNESS, Typ.			L	M	U	
GAT-0	DC-8000	0±0.2	0.10	0.20	0.20	1.05	1.15	1.25	0.5
GAT-1	DC-8000	1±0.2	0.10	0.20	0.20	1.05	1.15	1.30	0.5
GAT-2	DC-8000	2±0.2	0.10	0.20	0.20	1.05	1.15	1.30	0.5
GAT-3	DC-8000	3±0.3	0.10	0.20	0.20	1.05	1.15	1.35	0.5
GAT-4	DC-8000	4±0.3	0.10	0.20	0.20	1.05	1.15	1.35	0.5
GAT-5	DC-8000	5±0.3	0.10	0.20	0.20	1.05	1.15	1.35	0.5
GAT-6	DC-8000	6±0.3	0.10	0.20	0.30	1.05	1.15	1.35	0.5
GAT-7	DC-8000	7±0.3	0.10	0.20	0.30	1.05	1.15	1.35	0.5
GAT-8	DC-8000	8±0.4	0.10	0.20	0.30	1.05	1.15	1.35	0.5
GAT-9	DC-8000	9±0.4	0.10	0.20	0.30	1.05	1.15	1.30	0.5
GAT-10	DC-8000	10±0.4	0.15	0.20	0.30	1.05	1.15	1.30	0.5
GAT-12	DC-8000	12±0.4	0.15	0.20	0.30	1.05	1.15	1.30	0.5
GAT-15	DC-8000	15±0.4	0.15	0.30	0.30	1.05	1.15	1.35	0.5
GAT-20	DC-8000	20±0.4	0.15	0.20	0.20	1.05	1.15	1.35	0.5
GAT-30	DC-3000	30±0.9	0.50	1.20	—	1.05	1.15	—	0.5

L = low range (DC to 1000 MHz)

M = mid range (1000 to 5000 MHz)

U = upper range (5000 to 8000 MHz)

SOT PLASTIC PACKAGE 1/2 W

LAT
Case MMM168

PAT
Case AF320



MODEL PREFIX	FREQUENCY RANGE (MHz) f_L - f_U	ATTENUATION, (dB)				VSWR (:1) Max.			MAX. INPUT POWER, W 25°C
		Nom.	FLATNESS, Max.			L	M	U	
LAT-0	DC-2500	0±.15	0.3	0.4	0.6	1.2	1.3	1.5	0.5
LAT-1	DC-2500	1±0.3	0.3	0.4	0.7	1.2	1.3	1.5	0.5
LAT-2	DC-2500	2±0.3	0.3	0.4	0.7	1.2	1.3	1.5	0.5
LAT-3	DC-2500	3±0.3	0.3	0.4	0.7	1.2	1.3	1.5	0.5
LAT-4	DC-2500	4±0.3	0.3	0.4	0.7	1.2	1.3	1.5	0.5
LAT-5	DC-2500	5±0.3	0.3	0.4	0.7	1.3	1.3	1.5	0.5
LAT-6	DC-2500	6±0.3	0.3	0.4	0.7	1.3	1.4	1.5	0.5
LAT-7	DC-2500	7±0.3	0.3	0.4	0.7	1.3	1.4	1.5	0.5
LAT-8	DC-2500	8±0.4	0.3	0.5	0.8	1.3	1.4	1.5	0.5
LAT-9	DC-2500	9±0.4	0.3	0.5	0.8	1.3	1.4	1.5	0.5
LAT-10	DC-2500	10±0.5	0.3	0.5	0.8	1.3	1.4	1.5	0.5
LAT-12	DC-2500	12±0.8	0.3	0.5	0.8	1.3	1.4	1.6	0.5
LAT-15	DC-2500	15±0.8	0.3	0.5	0.9	1.3	1.4	1.6	0.5
LAT-20	DC-2500	20±1.5	0.3	0.5	0.9	1.3	1.4	1.6	0.5
LAT-30	DC-1000	30±1.7	0.5	1.2	—	1.2	1.3	—	0.5

L = low range (DC to 500 MHz)

M = mid range (DC to 1000 MHz)

U = upper range (DC to 2500 MHz)

CERAMIC MICRO-X PACKAGE 1 W

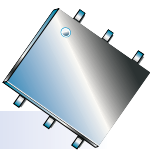
PAT-0	DC-5000	0±0.2	0.2	0.4	0.5	1.2	1.3	1.55	1.0
PAT-1	DC-7000	1±0.2	0.3	0.4	0.7	1.2	1.3	1.5	1.0
PAT-2	DC-7000	2±0.2	0.3	0.5	0.9	1.2	1.3	1.5	1.0
PAT-3	DC-7000	3±0.3	0.3	0.5	0.9	1.2	1.3	1.5	1.0
PAT-4	DC-7000	4±0.3	0.3	0.5	0.9	1.2	1.3	1.4	1.0
PAT-5	DC-7000	5±0.3	0.3	0.5	1.0	1.2	1.3	1.4	1.0
PAT-6	DC-7000	6±0.3	0.3	0.5	1.1	1.2	1.3	1.4	1.0
PAT-7	DC-7000	7±0.3	0.4	0.6	1.3	1.3	1.4	1.5	1.0
PAT-8	DC-7000	8±0.4	0.4	0.6	1.5	1.3	1.4	1.5	1.0
PAT-9	DC-7000	9±0.4	0.4	0.6	1.7	1.3	1.4	1.5	1.0
PAT-10	DC-7000	10±0.4	0.4	0.6	1.7	1.3	1.4	1.5	1.0
PAT-12	DC-7000	12±0.6	0.5	0.6	1.8	1.3	1.4	1.5	1.0
PAT-15	DC-7000	15±0.6	0.5	0.7	2.4	1.3	1.4	1.5	1.0
PAT-20	DC-7000	20±1.3	0.5	0.7	2.6	1.4	1.4	1.5	1.0
PAT-30	DC-7000	30±1.7	0.4	0.9	2.8	1.4	1.4	1.5	1.0

L = low range (DC to 1000 MHz)

M = mid range (DC to 2500 MHz)

U = upper range (DC to f_U MHz)





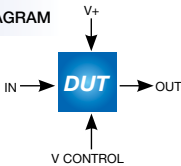
ATTENUATORS,
10 MHz to 3 GHz VOLTAGE VARIABLE

SHIELDED METAL PACKAGE



MODEL PREFIX	FREQUENCY RANGE (MHz) Min. Max.	MIN. INSERTION LOSS (dB) @ control voltage		MAX. ATTENUATION (dB) @ 0 V control voltage		IP3 (dBm) Typ.	RETURN LOSS (dB) Typ.	POWER SUPPLY		CONTROL	
		Typ.	Max.	Typ.	Min.			Voltage (V)	Current (mA) Max.	Voltage (V)	Current (mA) Max.
50 Ω											
RVA-800	50-800	1.5	3.0	9	7.5	+45	23	+5	4	0-5	17
MVA-1000	50-1000	3.6	4.7	13	11.5	+52	20	+5	3	0-5	15
MVA-2000	10-2000										
	10-500	1.7	2.7	43	25	+43	23	+3 to +5	5	0-12	15
	500-1000	1.9	2.8	28	20	+48	23	+3 to +5	5	0-12	15
	1000-2000	2.1	3.0	23	15	+50	23	+3 to +5	5	0-12	15
RVA-2000V3	50-2000										
	50-1000	4.0	5.0	55	35	+48	25	+3	5	0-10	20
	1000-2000	4.5	6.0	40	30	+50	20	+3	5	0-10	20
RVA-2000V35	50-2000										
	50-1000	3.0	4.5	53	35	+50	20	+3 to +5	5	0-5	20
	1000-2000	3.5	5.0	40	30	+55	18	+3 to +5	5	0-5	20
SVA-2000	50-2000										
	50-500	1.5	2.0	35	26	+38	23	+5	2	0-12	5
	500-1000	1.6	2.2	29	21	+44	21	+5	2	0-12	5
	1000-2000	1.9	2.6	23	15	+47	20	+5	2	0-12	5
RVA-2000	150-2000										
	150-500	2.8	3.5	46	34	+53	23	+5	10	0-17	30
	500-1500	3.0	4.5	35	23	+56	22	+5	10	0-17	30
	1500-2000	3.5	5.0	29	20	+57	21	+5	10	0-17	30
RVA-2500	10-2500										
	10-500	3.0	4.6	55	41	+43	20	+3 to +5	5	0-17	30
	500-1500	3.3	5.0	40	30	+43	20	+3 to +5	5	0-17	30
	1500-2500	4.0	6.2	37	25	+44	20	+3 to +5	5	0-17	30
RVA-3000	20-3000										
	20-500	2.8	3.5	56	39	+48	23	+5	10	0-17	30
	500-1500	3.0	4.0	40	28	+56	26	+5	10	0-17	30
	1500-3000	3.6	5.0	29	22	+57	21	+5	10	0-17	30
EVA-3000	50-3000										
	50-1000	2.5	4.0	43	27	+41	21	+5	5	0-8	40
	1000-2000	3.0	4.5	29	21	+45	22	+5	5	0-8	40
	2000-3000	3.5	5.5	24	17	+44	18	+5	5	0-8	40
75 Ω											
EVA-23-75	10-2000										
	10-1000	4.5	5.5	40	25	+48	19	+3	4	0-8	15
	1000-2000	5.0	6.0	27	18	+52	14	+3	4	0-8	15
EVA-2-75	50-2000										
	50-1000	2.5	3.5	40	25	+48	27	+5	3	0-8	40
	1000-2000	3.0	4.7	24	20	+51	20	+5	3	0-8	40
RVA-2500-75	10-2500										
	10-500	2.8	3.6	60	40	+43	20	+3 to +5	5	0-15	20
	500-1500	3.2	5.0	40	30	+45	15	+3 to +5	5	0-15	20
	1500-2500	4.3	6.2	34	25	+50	13	+3 to +5	5	0-15	20

EVA, RVA, MVA FUNCTIONAL DIAGRAM



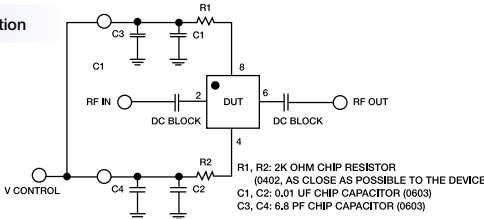
LTCC MINIATURE PACKAGE, 50 Ω

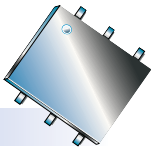
VACC
Case GF995



MODEL PREFIX	FREQUENCY RANGE (MHz) Min. Max.	INSERTION LOSS (dB) @ 0 V control voltage		ATTENUATION (dB)		IP3 (dBm)		RETURN LOSS (dB)		CONTROL	
		Typ.	Max.	Typ.	Min.	Typ.	Min.	Input Typ.	Output Typ.	Voltage (V)	Current (mA) Max.
VACC-09	600-1200	1.0	2.2	25	20	48	40	20	20	0-6	10
VACC-22	1600-2200	1.2	1.5	25	23	42	38	20	20	0-5	10

VACC Recommended Control Port Biasing Configuration





ATTENUATORS *Bi-Phase, Variable*
2 MHz to 1 GHz

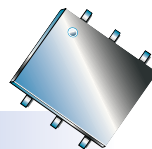


MODEL PREFIX	FREQUENCY (MHz)		INSERTION LOSS, (dB) (±20 mA)				MAX. INPUT PWR. (dBm), (±20 mA)		IN-OUT ISOLATION, (dB) (0 mA)						BI-PHASE $\bar{X}$, (±20 mA) Typ.			
	IN f_L - f_U	CON	Mid-Band m		Total Range		1 dB compr. Typ.	no damage	L Typ.	Min.	M Typ.	Min.	U Typ.	Min.	Δ AMP (dB) m	Total Range	Phase (deg.) deviation from 180° m	Total Range
			Typ.	Max.	Typ.	Max.												
50 Ω																		
TFAS-1SM	2-400	DC-0.05	1.4	2.0	1.6	3.0	20	25	65	45	45	33	35	25	0.10	0.1	1.0	2.0
TFAS-2SM	10-1000	DC-0.5	3.7	4.5	5.0	8.0	17	25	50	30	42	20	31	20	0.10	0.2	2.0	3.0
SYAS-1	2-400	DC-0.05	1.4	2.0	1.6	3.0	20	25	65	45	45	33	35	25	0.10	0.1	1.0	2.0
SYAS-2	10-1000	DC-0.05	4.0	6.0	4.5	7.0	17	25	59	40	42	28	28	20	0.10	0.3	2.0	3.0
SYAS-860	600-1000	DC-0.5	—	—	2.7	5.7	14	25	—	—	25	18	—	—	—	0.5	—	4.0
RAS-1	2-400	DC-0.05	1.4	2.4	1.6	3.2	20	25	65	45	45	28	32	22	0.10	0.1	1.0	2.0
75 Ω																		
RAS-2-75	10-1000	DC-0.05	4.1	6.0	4.5	7.5	20	25	58	40	42	28	39	20	0.15	0.3	1.5	3.0
LRAS-2-75	10-1000	DC-0.05	4.1	6.0	4.5	7.5	20	25	58	40	42	28	39	20	0.15	0.3	1.5	3.0

L = low range (f_L to $10f_L$) M = mid range ($10f_L$ to $f_U/2$) U = upper range ($f_U/2$ to f_U)
m = mid band ($2f_L$ to $f_U/2$)

ELECTRICAL SCHEMATIC

SUGGESTED CONTROL PORT BIASING CONFIGURATION



ATTENUATORS, DIGITAL STEP, CMOS

DC to 4 GHz



DAT
Case DG983-1

MODEL PREFIX	FREQUENCY RANGE (MHz)	ATTENUATION (dB) Typ.	ATTENUATION STEP (dB)	INPUT IP3 (dBm) Typ.	SINGLE POWER SUPPLY (V _{dd})	DUAL POWER SUPPLY (V _{dd} , V _{ss})	SWITCHING SPEED (μSec.) Typ.	INPUT PWR. 0.2 dB COMPRESSION dBm	CONTROL INTERFACE	No. OF BITS	S C H E M A T I C
DC to 4000 MHz 50 Ω											
DAT-15R5-PN	DC-4000	15.5	0.5	+52	—	3 V, -3 V	1	+24	Parallel	5	A
DAT-15R5-PP	DC-4000	15.5	0.5	+52	3 V	—	1	+24	Parallel	5	A
DAT-15R5-SN	DC-4000	15.5	0.5	+52	—	3 V, -3 V	1	+24	Serial	5	B
DAT-15R5-SP	DC-4000	15.5	0.5	+52	3 V	—	1	+24	Serial	5	B
DAT-31-PN	DC-2400	31	1	+52	—	3 V, -3 V	1	+24	Parallel	5	C
DAT-31-PP	DC-2400	31	1	+52	3 V	—	1	+24	Parallel	5	C
DAT-31-SN	DC-2400	31	1	+52	—	3 V, -3 V	1	+24	Serial	5	D
DAT-31-SP	DC-2400	31	1	+52	3 V	—	1	+24	Serial	5	D
DAT-31R5-PN	DC-2400	31.5	0.5	+52	—	3 V, -3 V	1	+24	Parallel	6	E
DAT-31R5-PP	DC-2400	31.5	0.5	+52	3 V	—	1	+24	Parallel	6	E
DAT-31R5-SN	DC-2400	31.5	0.5	+52	—	3 V, -3 V	1	+24	Serial	6	F
DAT-31R5-SP	DC-2400	31.5	0.5	+52	3 V	—	1	+24	Serial	6	F
DC to 2000 MHz 75 Ω											
DAT-15575-PN	DC-2000	15.5	0.5	+52	—	3 V, -3 V	1	+24	Parallel	5	A
DAT-15575-PP	DC-2000	15.5	0.5	+52	3 V	—	1	+24	Parallel	5	A
DAT-15575-SN	DC-2000	15.5	0.5	+52	—	3 V, -3 V	1	+24	Serial	5	B
DAT-15575-SP	DC-2000	15.5	0.5	+52	3 V	—	1	+24	Serial	5	B
DAT-3175-PN	DC-2000	31	1	+52	—	3 V, -3 V	1	+24	Parallel	5	C
DAT-3175-PP	DC-2000	31	1	+52	3 V	—	1	+24	Parallel	5	C
DAT-3175-SN	DC-2000	31	1	+52	—	3 V, -3 V	1	+24	Serial	5	D
DAT-3175-SP	DC-2000	31	1	+52	3 V	—	1	+24	Serial	5	D
DAT-31575-PN	DC-2000	31.5	0.5	+52	—	3 V, -3 V	1	+24	Parallel	6	E
DAT-31575-PP	DC-2000	31.5	0.5	+52	3 V	—	1	+24	Parallel	6	E
DAT-31575-SN	DC-2000	31.5	0.5	+52	—	3 V, -3 V	1	+24	Serial	6	F
DAT-31575-SP	DC-2000	31.5	0.5	+52	3 V	—	1	+24	Serial	6	F

SIMPLIFIED ELECTRICAL SCHEMATICS

