

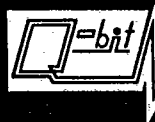
Q-BIT CORP O&E D

7449331 0000181 6

B-74-09-51

T-74-09-01

# Standard RF Amplifiers



**Q-BIT CORPORATION**

# Specifications

## GUARANTEED 25°C HYBRID SPECIFICATIONS

Model Number	Frequency	Gain dB	1 dB Compression dBm	VSWR In/Out	Noise Figure dB	Reverse Isolation dB	3rd & 2nd Output Intercept dBm	Power Volts/mA	Housing Outline	Modular* Outline
QBH-101	5MHz-500MHz	13.0	7	1.5:1	2.4	25	20/28	15/18	TO-8/4	1510
QBH-102	5MHz-500MHz	12.3	21	1.5:1	7.0	23	34/50	15/93	TO-8/4	1510
QBH-103	5MHz-300MHz	11.3	22	1.5:1	6.8	26	37/51	15/91	TO-8/4	1510
QBH-104	5MHz-500MHz	12.3	11	1.5:1	4.5	23	25/37	15/29	TO-8/4	1510
QBH-105	5MHz-300MHz	12.2	8	1.5:1	3.7	30	22/33	15/18	TO-8/4	1510
QBH-108	10MHz-500MHz	12.3	1	1.5:1	2.4	25	13/17	5/11	TO-8/4	1510
QBH-108	5MHz-300MHz	11.3	20	1.5:1	6.5	26	36/50	15/71	TO-8/4	1510
QBH-109	10MHz-500MHz	10.6	12	1.5:1	4.2	24	28/40	15/35	TO-8/4	1510
QBH-110	5MHz-500MHz	15.0	9	1.5:1	3.0	25	23/33	15/29	TO-8/4	1510
QBH-114	10MHz-400MHz	14.4	7	1.5:1	3.0	26	20/30	5/25	TO-8/4	1510
QBH-115	10MHz-500MHz	12.5	27	1.5:1	7.8	24	38/50	15/160	TO-8/4	1510
QBH-116	5MHz-400MHz	12.2	16	1.5:1	6.0	25	29/38	15/47	TO-8/4	1510
QBH-117	5MHz-100MHz	16.2	5	1.5:1	1.5	35	17/24	15/11	TO-8/4	1510
QBH-118	3MHz-100MHz	16.3	13	1.5:1	1.9	35	27/38	15/21	TO-8/4	1510
QBH-119	5MHz-500MHz	15.0	12	1.5:1	3.0	25	26/36	15/33	TO-8/4	1510
QBH-120	5MHz-500MHz	14.5	2	1.5:1	2.0	28	14/18	15/11	TO-8/4	1510
QBH-121	10MHz-500MHz	13.5	12	1.5:1	3.5	24	27/39	15/37	TO-8/4	1510
QBH-122	5MHz-500MHz	17.0	19	1.5:1	4.5	23	30/42	15/65	TO-8/3	1510
QBH-124	5MHz-100MHz	19.8	17	1.5:1	3.5	32	30/40	15/60	TO-8/4	1510
QBH-125	10MHz-100MHz	19.6	23	1.5:1	4.5	33	38/50	15/132	TO-8/4	1510
QBH-126	5MHz-500MHz	15.0	17	1.5:1	3.8	25	30/40	15/54	TO-8/4	1510
QBH-127	10MHz-500MHz	12.5	15	1.5:1	4.0	25	28/40	15/53	TO-8/4	1510
QBH-130	10MHz-100MHz	8.5	15	1.5:1	3.0	11	30/48	15/27	TO-8/3	1510
QBH-131	5MHz-1300MHz	18.0	7	1.5:1	5.0	27	20/35	15/41	TO-8/3	1510
QBH-132	15MHz-700MHz	14.6	16	1.7:1	6.5	27	29/39	15/44	TO-8/4	1510
QBH-133	10MHz-500MHz	10.3	16	1.5:1	4.5	25	29/45	15/57	TO-8/4	1510
QBH-135	3MHz-350MHz	14.3	1	1.5:1	2.1	30	14/18	15/11	TO-8/4	1510
QBH-136	10MHz-200MHz	20.0	21	1.5:1	4.0	26	35/45	15/70	TO-8/4	1510
QBH-137	10MHz-200MHz	12.7	21	1.5:1	3.7	26	38/50	15/94	TO-8/4	1510
QBH-138	5MHz-150MHz	15.5	21	1.5:1	3.5	28	37/49	15/99	TO-8/4	1510
QBH-141	10MHz-300MHz	19.5	8	1.5:1	2.9	27	20/26	15/12	TO-8/4	1510
QBH-142	10MHz-140MHz	15.3	7	1.5:1	2.3	34	20/31	15/14	TO-8/4	1510
QBH-145	10MHz-150MHz	13.0	19	1.5:1	5.8	31	34/47	15/42	TO-8/4	1510
QBH-146	20MHz-1100MHz	13.0	6	1.5:1	2.9	22	19/27	15/17	TO-8/3	1510
QBH-147	20MHz-1100MHz	13.5	10	1.5:1	3.5	22	23/33	15/27	TO-8/3	1510
QBH-149	10MHz-150MHz	23.2	18	1.5:1	2.8	30	28/42	15/39	TO-8/4	1510
QBH-150	10MHz-300MHz	20.0	18	1.5:1	3.5	25	30/41	15/46	TO-8/4	1510
QBH-152	5MHz-300MHz	17.0	18	1.5:1	3.5	28	33/47	15/68	TO-8/4	1510
QBH-153	10MHz-700MHz	13.0	25	2.0:1	9.5	15	37/42	15/175	TO-8/3	1510
QBH-154	200MHz-1200MHz	12.7	8	1.5:1	2.6	23	21/31	15/23	TO-8/3	1510
QBH-155	5MHz-300MHz	15.0	22	1.5:1	5.8	28	37/50	15/93	TO-8/4	1510
QBH-157	5MHz-500MHz	10.6	22	1.8:1	7.2	25	33/52	15/91	TO-8/4	1510
QBH-160	20MHz-1200MHz	12.5	17	1.5:1	8.0	22	30/45	15/140	TO-8/3	1510
QBH-164	20MHz-1300MHz	12.6	15	1.5:1	8.0	22	27/40	9/125	TO-8/3	1510
QBH-166	5MHz-250MHz	12.0	10	1.5:1	4.0	24	25/37	-15/26	TO-8/4	1510
QBH-169	10MHz-1000MHz	12.0	20	1.5:1	6.5	14	32/50	15/105	TO-8/3	1510
QBH-171	10MHz-150MHz	13.5	27	1.5:1	6.5	27	39/45	15/99	TO-8/4	1510
QBH-172	1MHz-140MHz	15.0	16	1.5:1	3.3	27	31/45	15/51	TO-8/5	1596
QBH-175	20MHz-500MHz	16.3	15	1.5:1	3.3	28	29/40	15/48	TO-8/3	1510
QBH-176	5MHz-1100MHz	10.5	19	2.0:1	6.5	12	30/50	15/84	TO-8/3	1510
QBH-178	20MHz-700MHz	15.2	6	1.5:1	2.8	28	18/25	15/16	TO-8/4	1510
QBH-179	5MHz-200MHz	23.5	11	1.5:1	2.4	32	23/27	15/17	TO-8/4	1510
QBH-180	5MHz-150MHz	29.0	19	1.6:1	3.8	50	32/42	15/59	TO-8/4	1510
QBH-181	10MHz-200MHz	24.4	16	1.5:1	2.8	31	25/36	15/33	TO-8/4	1510
QBH-182	10MHz-500MHz	12.5	25	1.5:1	7.5	24	36/45	15/135	TO-8/4	1510
QBH-183	5MHz-1100MHz	10.3	16	2.0:1	5.8	12	29/44	15/69	TO-8/3	1510
QBH-184	5MHz-1000MHz	14.7	10	1.8:1	4.5	17	25/34	15/30	TO-8/3	1510
QBH-187	10MHz-500MHz	7.4	11	1.6:1	4.0	34	23/35	15/57	TO-8/4	1510
QBH-191	5MHz-500MHz	23.0	17	1.5:1	5.5	42	29/38	15/103	TO-8/4	1510
QBH-196	20MHz-700MHz	13.0	15	1.5:1	4.0	20	24/32	15/53	TO-8/3	1510
QBH-198	5MHz-450MHz	28.0	12	1.5:1	3.5	33	25/40	5/50	TO-8/4	1510
QBH-199	5MHz-200MHz	26.0	7	1.5:1	3.5	33	20/40	5/28	TO-8/4	1510
QBH-302	10MHz-450MHz	12.5	18	1.5:1	3.6	25	29/45	15/66	TO-8/4	1510
QBH-304	5MHz-200MHz	19.5	9	1.5:1	3.0	33	20/26	15/24	TO-8/4	1510

\*TO-8 amplifiers can be put in housings (except TO-8/5 packages which will be in 187-1 housing) with SMA connectors if required.  
To order, add QBH-9 to the hybrid amplifier part required, i.e., QBH-9-101 for the QBH-101 in a 1510-1 housing.  
For multiple stages, contact factory for part number.

## Environmental Testing

	Test	Method	Condition
All Q-bit Corporation Hybrid TO-8 Amplifiers can be screened to MIL-STD-883 Method 5008, Class B or qualified to Method 5005 or 5008. Other levels of testing are also available. Q-bit "B" Screening consists of the following tests and conditions of MIL-STD-883 Method 5008 (chart at right).	Internal Visual	2017	N/A
	Stabilization Bake	1008	C; 24 hrs, 150° C
	Temperature Cycle	1010	C; 65° C to + 150° C
	Acceleration (Bond Strength Monitor)	2001	B; 10,000 g's, Y <sub>1</sub>
	Seal	1014	B; C
	Burn-in	1015	B; 160 hrs T <sub>c</sub> = +125° C
	Final Electrical	Applicable Specification	
Final Visual	2009		

## HYBRID FAMILIES

Model Number	Frequency	Gain dB	1 dB Compression dBm	VSWR In/Out	Noise Figure dB	Reverse Isolation dB	3rd & 2nd Order Output Intercept dBm	Power Volts/mA	Housing Outline
<b>LOW NOISE AMPLIFIERS</b>									
QBH-101	5MHz-500MHz	13.0	7	1.5:1	2.4	25	20/28	15/18	TO-8/4
QBH-106	10MHz-500MHz	12.3	1	1.5:1	2.4	25	13/17	5/11	TO-8/4
QBH-117	5MHz-100MHz	16.2	5	1.5:1	1.5	35	17/24	15/11	TO-8/4
QBH-118	3MHz-100MHz	16.3	13	1.5:1	1.9	35	27/38	15/21	TO-8/4
QBH-120	5MHz-500MHz	14.5	2	1.5:1	2.0	28	14/18	15/11	TO-8/4
QBH-135	3MHz-350MHz	14.3	1	1.5:1	2.1	30	14/18	15/11	TO-8/4
QBH-141	10MHz-300MHz	19.5	8	1.5:1	2.9	27	20/26	15/12	TO-8/4
QBH-142	10MHz-140MHz	15.3	7	1.5:1	2.3	34	20/31	15/14	TO-8/4
QBH-146	20MHz-1100MHz	13.0	6	1.5:1	2.9	22	19/27	15/17	TO-8/3
QBH-149	10MHz-150MHz	23.2	18	1.5:1	2.8	30	28/42	15/39	TO-8/4
QBH-154	200MHz-1200MHz	12.7	8	1.5:1	2.6	23	21/31	15/23	TO-8/3
QBH-178	20MHz-700MHz	15.2	6	1.5:1	2.8	28	18/25	15/16	TO-8/4
QBH-179	5MHz-200MHz	23.5	11	1.5:1	2.4	32	23/27	15/17	TO-8/4
QBH-181	10MHz-200MHz	24.4	16	1.5:1	2.8	31	25/36	15/33	TO-8/4
<b>GENERAL PURPOSE AMPLIFIERS</b>									
QBH-104	5MHz-500MHz	12.3	11	1.5:1	4.5	23	25/37	15/29	TO-8/4
QBH-105	5MHz-300MHz	12.2	8	1.5:1	3.7	30	22/33	15/18	TO-8/4
QBH-109	10MHz-500MHz	10.8	12	1.5:1	4.2	24	28/40	15/35	TO-8/4
QBH-110	5MHz-500MHz	15.0	9	1.5:1	3.0	25	23/33	15/29	TO-8/4
QBH-116	5MHz-400MHz	12.2	16	1.5:1	6.0	25	29/38	15/47	TO-8/4
QBH-119	5MHz-500MHz	15.0	12	1.5:1	3.0	25	26/36	15/33	TO-8/4
QBH-121	10MHz-500MHz	13.5	12	1.5:1	3.5	24	27/39	15/37	TO-8/4
QBH-122	5MHz-500MHz	17.0	19	1.5:1	4.5	23	30/42	15/65	TO-8/3
QBH-124	5MHz-100MHz	19.8	17	1.5:1	3.5	32	30/40	15/60	TO-8/4
QBH-126	5MHz-500MHz	15.0	17	1.5:1	3.8	25	30/40	15/54	TO-8/4
QBH-127	10MHz-500MHz	12.5	15	1.5:1	4.0	25	28/40	15/53	TO-8/4
QBH-130	10MHz-100MHz	8.5	15	1.5:1	3.0	11	30/48	15/27	TO-8/3
QBH-132	15MHz-700MHz	14.6	16	1.7:1	6.5	27	29/39	15/44	TO-8/4
QBH-133	10MHz-500MHz	10.3	16	1.5:1	4.5	25	29/45	15/57	TO-8/4
QBH-150	10MHz-300MHz	20.0	18	1.5:1	3.5	25	30/41	15/46	TO-8/4
QBH-172	1MHz-140MHz	15.0	16	1.5:1	3.3	27	31/45	15/51	TO-8/5
QBH-175	20MHz-500MHz	16.3	15	1.5:1	3.3	28	29/40	15/48	TO-8/3
QBH-187	10MHz-500MHz	7.4	11	1.5:1	4.0	34	23/35	15/57	TO-8/4
QBH-191	5MHz-500MHz	23.0	17	1.5:1	5.5	42	29/38	15/103	TO-8/4
QBH-196	20MHz-700MHz	13.0	15	1.5:1	4.0	20	24/32	15/53	TO-8/3
QBH-302	10MHz-450MHz	12.5	18	1.5:1	3.8	25	29/45	15/66	TO-8/4
QBH-304	5MHz-200MHz	19.5	9	1.5:1	3.0	33	20/28	15/24	TO-8/4
<b>HIGH INTERCEPT AMPLIFIERS</b>									
QBH-102	5MHz-500MHz	12.3	21	1.5:1	7.0	23	34/50	15/93	TO-8/4
QBH-103	5MHz-300MHz	11.3	22	1.5:1	6.8	26	37/51	15/91	TO-8/4
QBH-108	5MHz-300MHz	11.3	20	1.5:1	6.5	26	36/50	15/71	TO-8/4
QBH-115	10MHz-500MHz	12.5	27	1.5:1	7.8	24	38/50	15/160	TO-8/4
QBH-125	10MHz-100MHz	19.8	23	1.5:1	4.5	33	38/50	15/132	TO-8/4
QBH-136	10MHz-200MHz	20.0	21	1.5:1	4.0	26	35/45	15/70	TO-8/4
QBH-137	10MHz-200MHz	12.7	21	1.5:1	3.7	26	38/50	15/94	TO-8/4
QBH-138	5MHz-150MHz	15.5	21	1.5:1	3.5	28	37/42	15/99	TO-8/4
QBH-145	10MHz-150MHz	13.0	19	1.5:1	5.8	31	34/47	15/42	TO-8/4
QBH-152	5MHz-300MHz	17.0	18	1.5:1	3.5	28	33/47	15/68	TO-8/4
QBH-153	10MHz-700MHz	13.0	25	2.0:1	9.5	15	37/42	15/175	TO-8/3
QBH-155	5MHz-300MHz	15.0	22	1.5:1	5.8	28	37/50	15/93	TO-8/4
QBH-157	5MHz-500MHz	10.6	22	1.8:1	7.2	25	33/52	15/91	TO-8/4
QBH-169	10MHz-1000MHz	12.0	20	1.5:1	6.5	14	32/50	15/105	TO-8/3
QBH-171	10MHz-150MHz	13.5	27	1.5:1	6.5	27	39/45	15/99	TO-8/4
QBH-180	5MHz-150MHz	29.0	19	1.8:1	3.8	50	32/42	15/59	TO-8/4
QBH-182	10MHz-500MHz	12.5	25	1.5:1	7.5	24	36/45	15/135	TO-8/4
<b>LOW VOLTAGE AMPLIFIERS</b>									
QBH-106	10MHz-500MHz	12.3	1	1.5:1	2.4	25	13/17	5/11	TO-8/4
QBH-114	10MHz-400MHz	14.4	7	1.5:1	3.0	26	20/30	5/25	TO-8/4
QBH-164	20MHz-1300MHz	12.6	15	1.5:1	8.0	22	27/40	9/125	TO-8/3
QBH-188	5MHz-450MHz	28.0	12	1.5:1	3.5	33	25/40	5/50	TO-8/4
QBH-199	5MHz-200MHz	26.0	7	1.5:1	3.5	33	20/40	5/28	TO-8/4
<b>1GHz AMPLIFIERS</b>									
QBH-131	5MHz-1300MHz	18.0	7	1.5:1	5.0	27	20/35	15/41	TO-8/3
QBH-146	20MHz-1100MHz	13.0	6	1.5:1	2.9	22	19/27	15/17	TO-8/3
QBH-147	20MHz-1100MHz	13.3	10	1.5:1	3.5	22	23/33	15/27	TO-8/3
QBH-154	200MHz-1200MHz	12.7	8	1.5:1	2.6	23	21/31	15/23	TO-8/3
QBH-160	20MHz-1200MHz	12.5	17	1.5:1	8.0	22	30/45	15/140	TO-8/3
QBH-164	20MHz-1300MHz	12.6	15	1.5:1	8.0	22	27/40	9/125	TO-8/3
QBH-169	10MHz-1000MHz	12.0	20	1.5:1	6.5	14	32/50	15/105	TO-8/3
QBH-176	5MHz-1100MHz	10.5	19	2.0:1	6.5	12	30/50	15/84	TO-8/3
QBH-183	5MHz-1100MHz	10.3	16	2.0:1	5.8	12	29/44	15/69	TO-8/3
QBH-184	5MHz-1000MHz	14.7	10	1.8:1	4.5	17	25/34	15/30	TO-8/3
<b>HIGH EFFICIENCY AMPLIFIERS (15V)</b>									
QBH-122	5MHz-500MHz	17.0	19	1.5:1	4.5	23	30/42	15/65	TO-8/3
QBH-136	10MHz-200MHz	20.0	21	1.5:1	4.0	26	35/45	15/70	TO-8/4
QBH-145	10MHz-150MHz	13.0	19	1.5:1	5.8	31	34/47	15/42	TO-8/4
QBH-150	10MHz-300MHz	20.0	18	1.5:1	3.5	25	30/41	15/46	TO-8/4
QBH-171	10MHz-150MHz	13.5	27	1.5:1	6.5	27	39/45	15/99	TO-8/4
QBH-180	5MHz-150MHz	29.0	19	1.8:1	3.8	50	32/42	15/59	TO-8/4
<b>NEGATIVE VOLTAGE AMPLIFIERS</b>									
QBH-166	5MHz-250MHz	12.0	10	1.5:1	4.0	24	25/37	-15/26	TO-8/4

# Specifications

## MODULAR RF AMPLIFIER SPECIFICATIONS

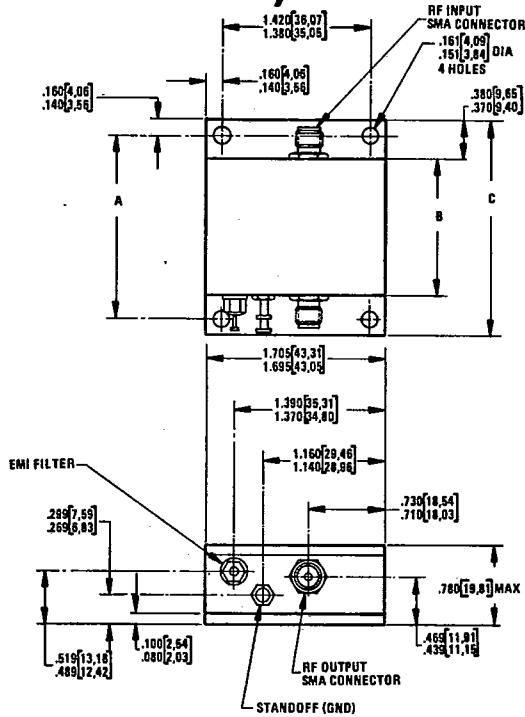
Model	Frequency	Gain dB	1 dB Compression dBm	VSWR In/Out	Noise Figure Max. dB	Reverse Isolation dB	3rd & 2nd Order Output Intercept dBm	Power Volts/mA	Connector- Housing Combinations	
									SMA	BNC/TNC
QB-188	.5 MHz-100 MHz	15.0	21	1.5:1	3.0	28	37/47	15/100	184	184
QB-189	.5 MHz-500 MHz	15.3	25	1.5:1	7.5	25	38/48	15/120	187-1	---
QB-210	10 KHz-200 MHz	10.0	23	1.5:1	10.0	23	40/60	15-24/200	182	181
QB-258	10 MHz-250 MHz	47.0	15	1.5:1	2.4	65	27/35	15/70	182	181
QB-262	10 MHz-500 MHz	28.0	27	1.5:1	7.0	50	35/60	15/400	180	180
QB-300	1 MHz-300 MHz	24.5	22	1.5:1	3.8	36	37/52	15-24/140	182	181
QB-442	10 MHz-400 MHz	41.5	32	1.5:1	3.5	75	40/50	24/550	183	---
QB-500	2 MHz-500 MHz	21.5	19	1.5:1	4.5	30	33/52	15-24/154	182	181
QB-500-2	2 MHz-500 MHz	22.0	22	1.5:1	5.0	30	33/45	15-24/154	182	181
QB-512-2	2 MHz-500 MHz	15.0	22	1.5:1	6.5	24	35/47	15-24/110	184	184
QB-538	2 MHz-500 MHz	35.0	22	1.5:1	3.0	45	35/52	15-24/187	182	181
QB-717	5 MHz-200 MHz	21.5	22	1.6:1	3.6	27	37/47	15/100	187-1	---
QB-728B	300 MHz-900 MHz	10.2	30	1.5:1	10.5	20	36/52	20/300	186	---
QB-744	2 MHz-200 MHz	24.0	32	1.5:1	7.0	50	48/65	20/440	187-2	---
QB-749	50 MHz-1 GHz	13.7	7	1.5:1	3.5	23	20/30	20/18	187-1	---
QB-760	10 MHz-500 MHz	20.0	8	1.5:1	3.0	30	20/30	15/22	187-1	---
QB-808	2 MHz-600 MHz	12.3	22	1.5:1	7.5	21	40/50	15-24/110	184	184
QB-815	10 MHz-1 GHz	34.0	14	1.5:1	3.5	60	25/35	15/70	182	181
QB-820	50 MHz-850 MHz	25.0	14	1.5:1	4.0	40	26/38	15/60	182	181
QB-824	50 MHz-850 MHz	34.0	8	1.5:1	3.5	60	20/30	15/50	182	181

Also available are low noise preamplifiers and matching power supplies with lightning protection for tower service. Q-bit amplifiers can be put in a Lab Housing with power supply (Housing 1429). Call for details.

## Housing Outlines

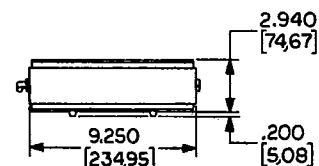
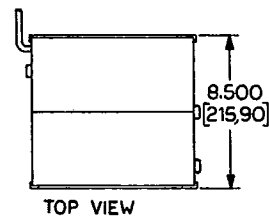
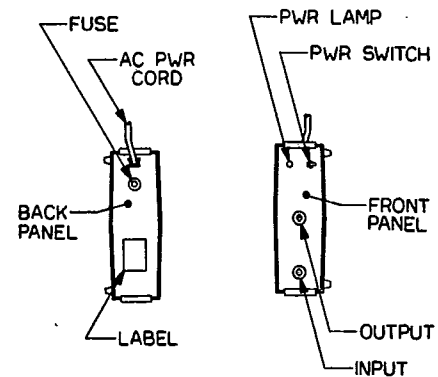
DIMENSIONS ARE IN INCHES [MILLIMETERS]

### Housing Outline 187-1 thru 5 (See Table 1 below)

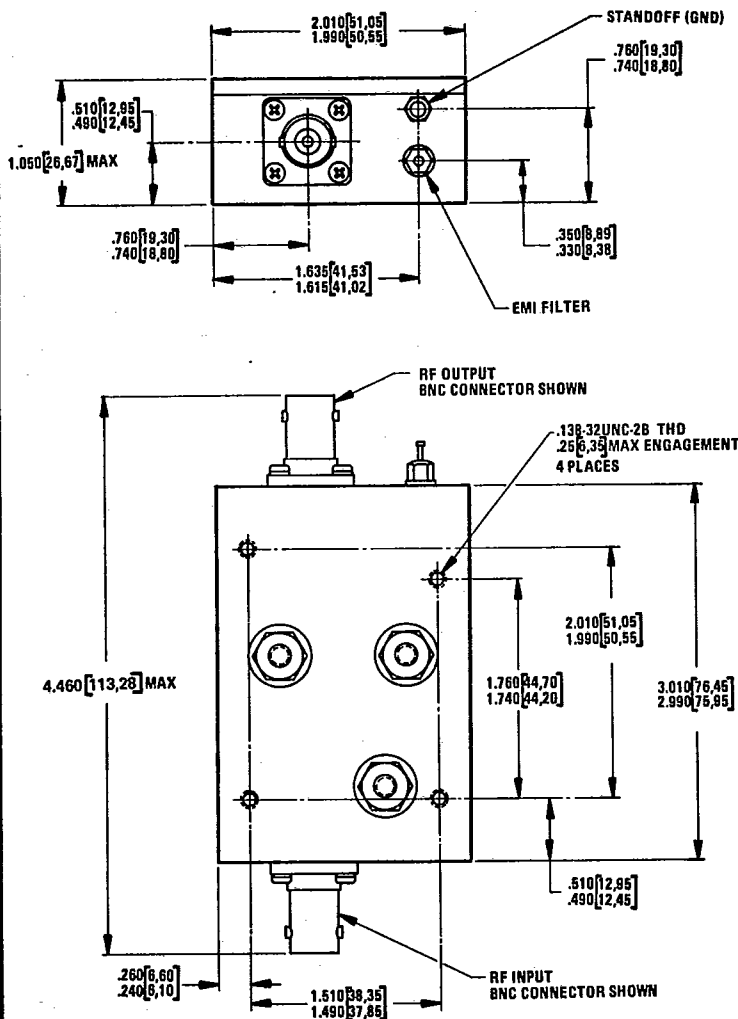


Housing	No. of Stages	A	B	C
187-1	1	1.770 [44.96] 1.730 [43.94]	1.310 [33.27] 1.280 [32.77]	2.055 [52.20] 2.045 [51.94]
187-2	2	2.620 [66.65] 2.580 [65.63]	2.160 [54.86] 2.140 [54.36]	2.805 [71.70] 2.895 [73.53]
187-3	3	3.470 [88.14] 3.430 [87.12]	3.010 [76.46] 2.990 [75.96]	3.755 [95.38] 3.745 [95.12]
187-4	4	4.320 [109.73] 4.280 [108.71]	3.860 [98.04] 3.840 [97.54]	4.605 [116.97] 4.595 [116.71]
187-5	5	5.170 [131.32] 5.130 [130.30]	4.710 [119.63] 4.690 [119.13]	5.455 [138.56] 5.445 [138.30]

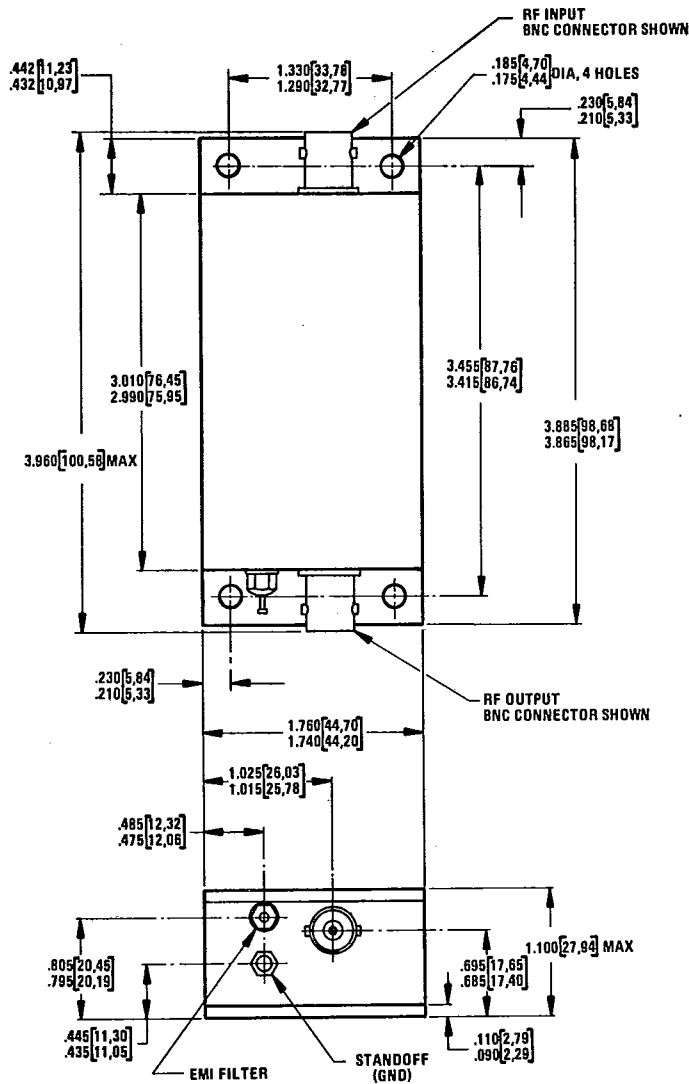
### Housing Outline 1429



### Housing Outline 180



### Housing Outline 181



### Housing Outline TO-8/2

### Housing Outline TO-8/3 TO-8/4

### TO-8/5 ONLY

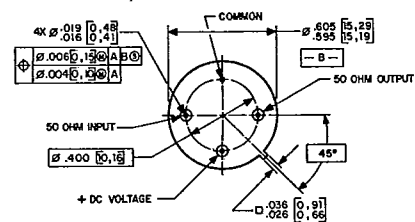
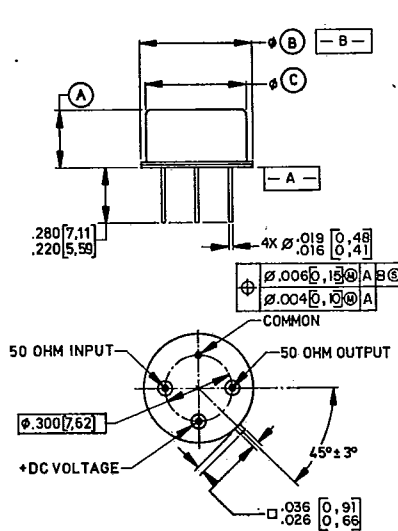
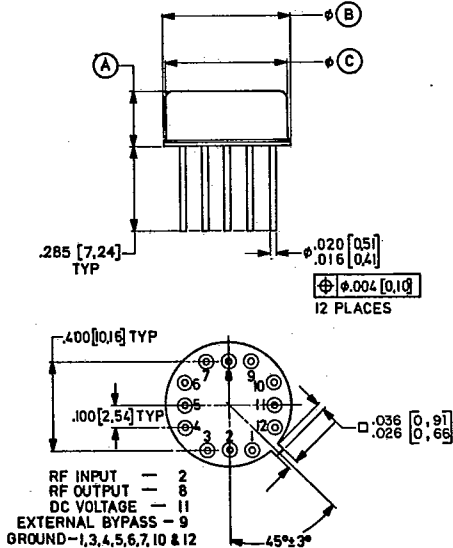
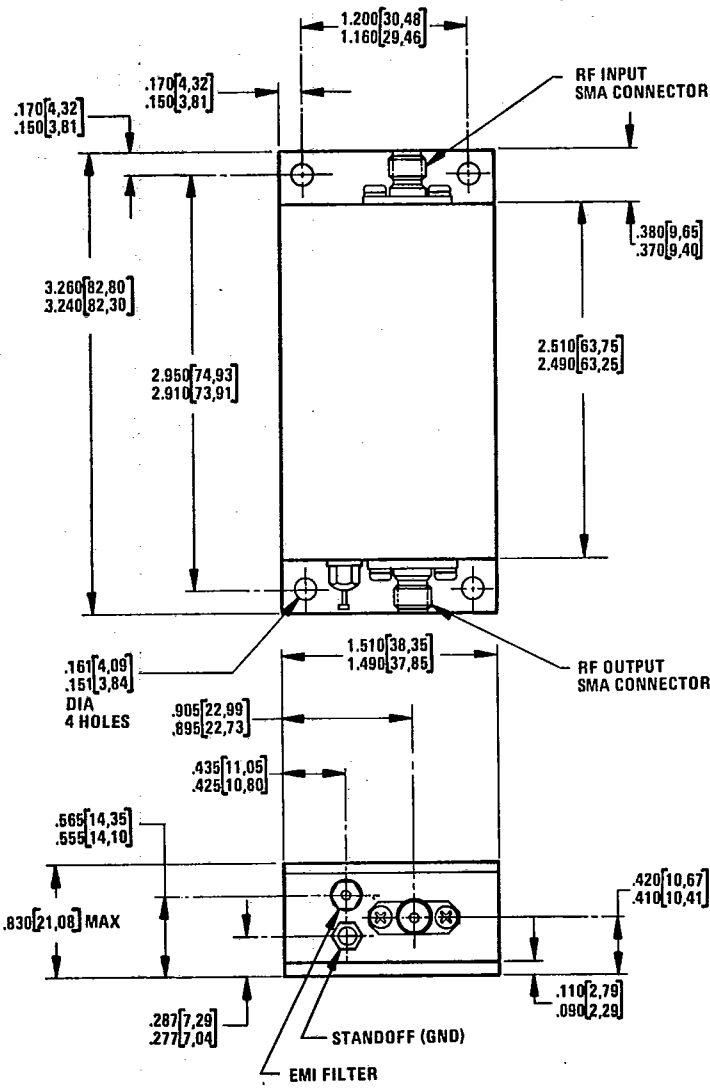


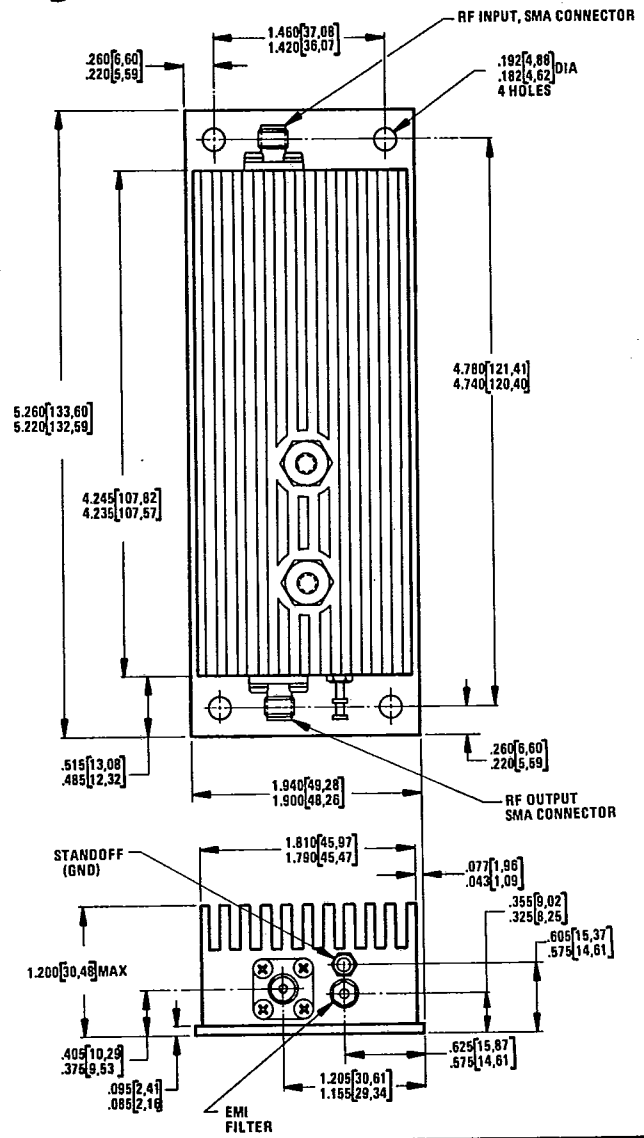
TABLE 1

Description	Style	Dim. A	Dim. B	Dim. C
Reserved	TO 8/1	-	-	-
Special 12 Pin	TO 8/2	.211	.605	.557
		.185	.595	.545
		[5.36]	[15.37]	[14.15]
		[4.70]	[15.11]	[13.84]
Low Profile	TO 8/3	.206	.505	.457
		.197	.495	.445
		[5.23]	[12.83]	[11.60]
		[5.00]	[12.57]	[11.30]
Standard	TO 8/4	.266	.505	.457
		.253	.495	.445
		[6.75]	[12.83]	[11.60]
		[6.43]	[12.57]	[11.30]
.600 Dia.	TO 8/5	.211	.605	.557
		.185	.595	.545
		[5.36]	[15.37]	[14.15]
		[4.70]	[15.11]	[13.84]

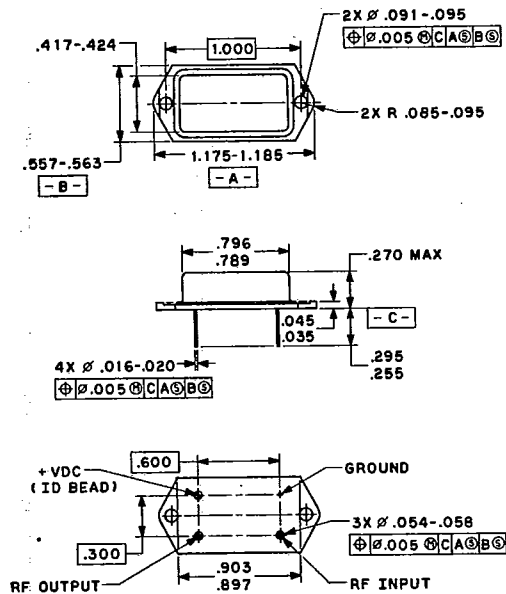
### Housing Outline 182



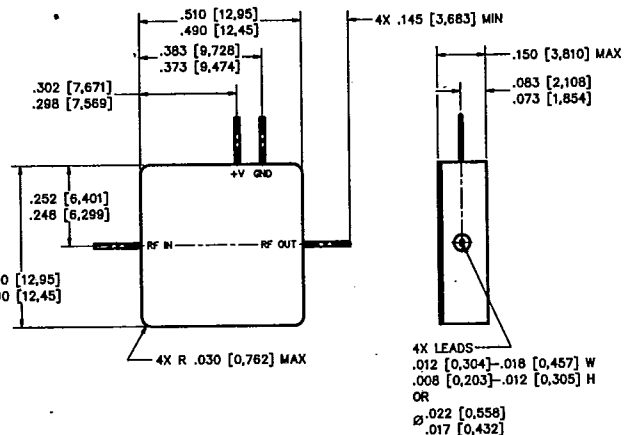
### Housing Outline 183



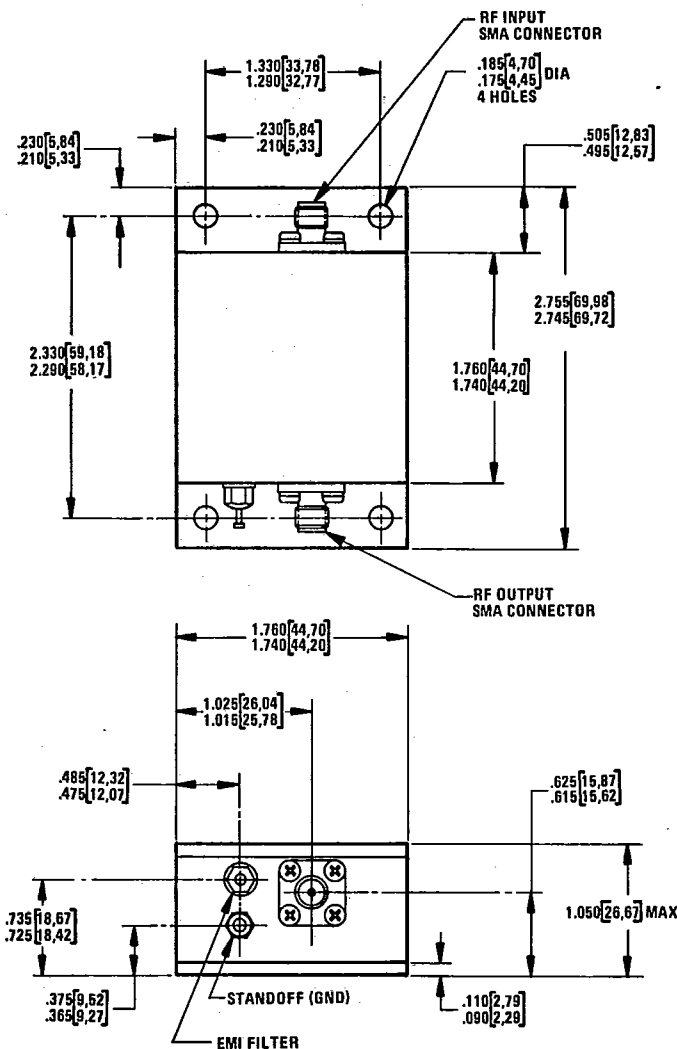
### Housing Outline DIP



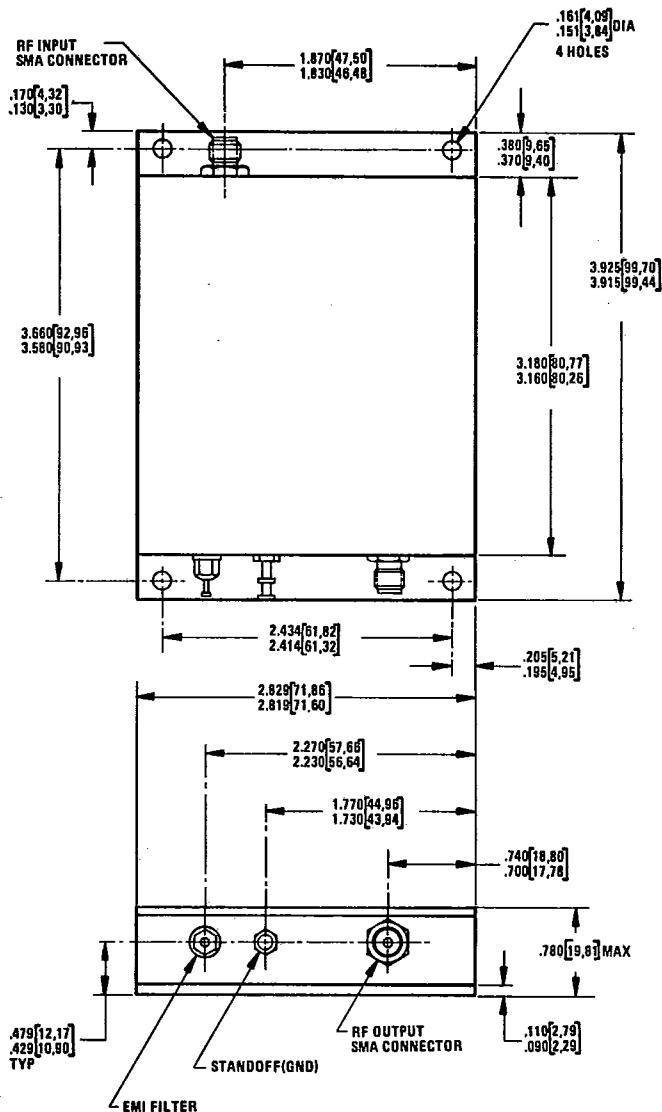
### Housing Outline 18102



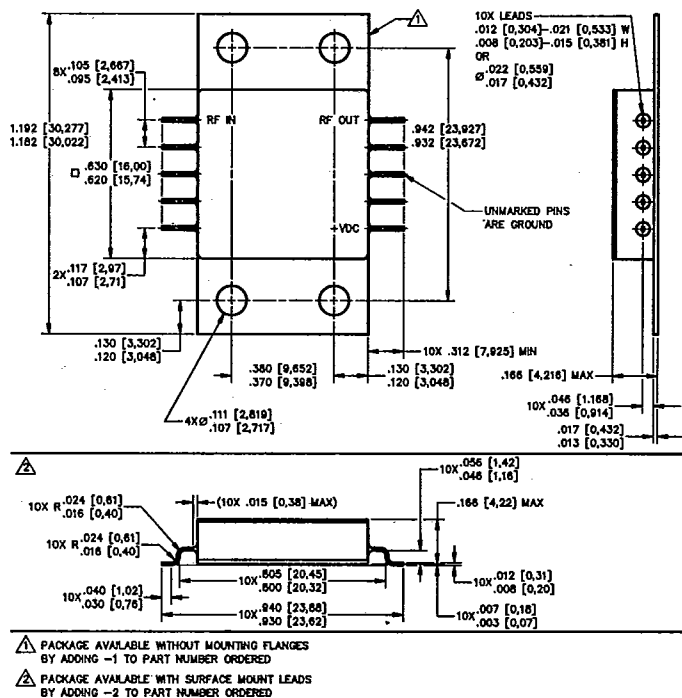
### Housing Outline 184



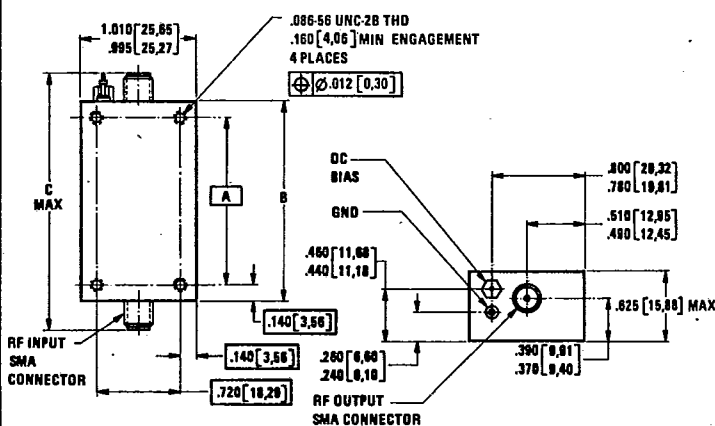
### Housing Outline 186



### Housing Outline 5006



### Housing Outline 1510-1 thru 5 (See Table 1 below)



HOUSING	NO. OF STAGES	TABLE 1		
		A	B	C
1510-1	1	.840 [21.34]	1.130 [28.70] 1.115 [28.32] 1.740 [44.20]	1.640 [41.66]
1510-2	2	1.450 [36.83]	1.725 [43.82] 2.350 [59.69] 2.335 [59.31]	2.250 [57.15]
1510-3	3	2.060 [52.32]	2.950 [75.18] 2.945 [74.80]	2.860 [72.64]
1510-4	4	2.670 [67.82]	3.570 [90.68] 3.555 [90.30]	3.470 [88.14]
1510-5	5	3.280 [83.31]		4.080 [103.63]