

# MMIC Amplifier Die

# AVA-0233LN-D+

## Typical Performance Data

### Definitions:

Input Return Loss = -S11 (dB)

Gain(Power Gain) = S21 (dB)

Reverse Isolation = -S12 (dB)

Output Return Loss = -S22 (dB)

TEST CONDITIONS: Vd = 5.00V, VC=Open, Id = 66mA @ Temperature = +25°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
					K	Measure			
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dBm)	(dB)
2000	16.77	48.36	24.88	13.39	18.78	0.96	29.03	16.49	3.78
2500	16.73	49.80	26.08	14.23	22.69	0.96	28.00	16.04	3.49
3000	16.65	50.74	27.93	14.53	25.88	0.97	28.26	15.74	3.17
3500	16.61	49.30	26.92	14.31	22.14	0.96	26.83	15.57	2.96
4000	16.84	48.28	25.83	14.39	19.33	0.97	26.87	15.58	2.81
4500	16.90	47.41	26.66	14.36	17.50	0.96	27.20	15.57	2.56
5000	16.97	47.50	26.33	14.50	17.70	0.97	27.43	15.66	2.22
5500	16.97	46.98	26.20	14.51	16.79	0.97	26.19	15.67	1.87
6000	17.03	46.64	23.97	14.49	16.15	0.97	27.55	15.55	1.88
6500	17.03	46.67	23.16	14.45	16.32	0.97	27.54	15.63	1.72
7000	17.05	46.74	23.11	14.70	16.57	0.97	27.22	15.61	1.63
7500	17.07	47.11	23.54	15.61	17.48	0.98	27.33	15.53	1.54
8000	17.07	47.18	23.41	17.42	17.90	0.99	26.81	15.48	1.46
8500	17.05	47.13	21.99	20.85	18.09	1.00	26.75	15.55	1.34
9000	17.00	46.62	19.98	28.70	17.29	1.01	27.67	15.54	1.37
9500	16.92	46.16	18.20	34.54	16.59	1.01	26.90	15.29	1.29
10000	16.83	45.08	17.08	23.63	14.77	1.01	26.72	14.98	1.27
10500	16.74	44.79	16.59	20.13	14.42	1.01	27.27	15.00	1.31
11000	16.68	43.82	16.63	18.95	13.02	1.01	26.66	14.91	1.29
11500	16.62	42.89	17.08	19.22	11.86	1.01	26.00	14.81	1.40
12000	16.60	42.00	17.82	20.49	10.84	1.01	26.53	14.72	1.42
12500	16.58	41.51	18.60	21.42	10.35	1.01	26.23	14.76	1.52
13000	16.56	40.72	19.14	20.38	9.52	1.00	26.47	14.67	1.55
13500	16.53	39.91	19.40	18.30	8.70	0.99	25.64	14.54	1.64
14000	16.52	39.67	19.88	16.67	8.47	0.99	26.44	14.45	1.71
14500	16.52	39.34	20.30	15.86	8.15	0.98	26.60	14.47	1.71
15000	16.54	38.93	20.50	15.82	7.78	0.98	26.37	14.49	1.79
15500	16.61	38.53	20.14	16.68	7.45	0.99	26.74	14.39	1.81
16000	16.67	38.04	19.28	18.30	7.06	0.99	25.74	14.38	1.85
16500	16.74	37.62	18.32	20.65	6.72	1.00	25.70	14.29	1.80
17000	16.79	37.20	17.61	23.52	6.42	1.01	26.19	14.28	1.80
17500	16.81	36.80	17.21	23.07	6.13	1.01	25.79	13.96	1.85
18000	16.81	36.35	17.19	20.75	5.82	1.00	25.92	13.89	1.93
18500	16.83	35.77	17.46	18.85	5.45	1.00	26.17	13.82	2.02
19000	16.85	35.21	18.03	18.21	5.11	0.99	25.91	13.86	1.98
19500	16.90	34.63	18.29	18.73	4.79	0.99	25.86	13.79	2.02
20000	16.95	34.06	17.87	20.80	4.51	1.00	25.87	13.54	1.96
20500	16.96	33.57	16.91	23.62	4.28	1.00	24.75	13.38	2.02
21000	16.93	33.15	15.98	23.60	4.09	1.01	24.76	13.32	2.07
21500	16.89	32.96	15.70	20.94	4.01	1.01	25.36	13.31	2.17
22000	16.90	32.60	16.11	19.11	3.85	1.00	24.86	13.21	2.23
22500	16.94	32.22	17.12	18.45	3.70	0.99	24.59	13.20	2.36
23000	17.00	31.84	18.47	18.96	3.57	0.98	24.65	13.12	2.36
23500	17.05	31.44	19.60	21.14	3.45	0.98	24.61	13.09	2.45
24000	17.09	31.18	20.52	25.79	3.37	0.98	24.64	13.04	2.54
24500	17.09	30.84	21.40	25.39	3.26	0.98	23.84	12.79	2.55
25000	17.04	30.56	21.69	20.46	3.17	0.97	24.22	12.71	2.68
25500	16.98	30.28	21.56	17.46	3.07	0.96	24.02	12.64	2.78
26000	16.92	30.00	21.04	16.01	2.99	0.95	24.14	12.47	2.84
26500	16.90	29.61	20.01	15.82	2.87	0.95	24.07	12.44	2.91
27000	16.89	29.12	18.72	16.03	2.73	0.96	22.90	12.35	2.92
27500	16.86	28.90	17.88	16.61	2.68	0.96	23.07	12.01	3.05
28000	16.84	28.39	17.38	17.54	2.56	0.96	22.69	12.08	3.30
28500	16.81	28.22	17.75	18.49	2.54	0.96	23.72	12.15	3.33
29000	16.77	27.87	18.39	20.68	2.49	0.96	21.50	12.13	3.40
29500	16.66	27.57	19.77	24.15	2.47	0.96	22.67	12.28	3.57
30000	16.59	27.56	22.43	31.48	2.52	0.96	21.92	12.37	3.71



## Typical Performance Data

### Definitions:

Input Return Loss = -S11 (dB)  
 Gain(Power Gain) = S21 (dB)  
 Reverse Isolation = -S12 (dB)  
 Output Return Loss = -S22 (dB)

TEST CONDITIONS: Vd = 4.75V, VC=Open, Id = 64mA @ Temperature = +25°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
					K	Measure			
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dBm)	(dB)
2000	16.75	48.67	25.01	13.43	19.52	0.96	29.21	16.23	3.88
2500	16.71	49.59	26.22	14.30	22.19	0.97	27.81	15.79	3.47
3000	16.63	49.55	28.08	14.59	22.62	0.97	27.39	15.56	3.20
3500	16.60	49.12	26.98	14.37	21.73	0.96	26.73	15.35	3.05
4000	16.82	48.19	25.93	14.46	19.17	0.97	27.09	15.36	2.81
4500	16.89	47.76	26.71	14.45	18.26	0.97	26.88	15.35	2.59
5000	16.95	47.05	26.42	14.58	16.85	0.97	27.29	15.44	2.24
5500	16.96	47.23	26.27	14.59	17.32	0.97	25.97	15.41	1.92
6000	17.02	46.33	24.07	14.58	15.61	0.97	27.36	15.24	1.87
6500	17.02	46.58	23.26	14.54	16.19	0.97	27.27	15.37	1.74
7000	17.04	46.81	23.19	14.81	16.74	0.97	27.33	15.35	1.67
7500	17.06	46.55	23.63	15.72	16.43	0.98	27.36	15.28	1.51
8000	17.06	46.98	23.48	17.54	17.52	0.99	26.51	15.22	1.40
8500	17.04	46.89	22.10	21.02	17.62	1.00	26.44	15.32	1.34
9000	16.99	46.56	20.06	28.89	17.19	1.01	26.66	15.28	1.31
9500	16.91	45.82	18.25	34.11	15.98	1.01	26.89	15.03	1.26
10000	16.83	45.29	17.13	23.59	15.14	1.01	26.14	14.76	1.29
10500	16.73	44.77	16.65	20.15	14.41	1.01	26.92	14.75	1.32
11000	16.67	43.84	16.66	19.00	13.07	1.01	26.63	14.67	1.27
11500	16.62	42.77	17.11	19.29	11.71	1.01	25.69	14.56	1.35
12000	16.59	41.90	17.85	20.60	10.72	1.01	26.58	14.47	1.40
12500	16.57	41.26	18.65	21.56	10.07	1.01	26.24	14.55	1.52
13000	16.56	40.71	19.16	20.53	9.51	1.00	26.53	14.42	1.52
13500	16.53	40.25	19.43	18.41	9.04	0.99	25.60	14.30	1.63
14000	16.52	39.77	19.91	16.78	8.57	0.99	26.41	14.23	1.67
14500	16.52	39.20	20.33	15.94	8.03	0.98	26.51	14.22	1.69
15000	16.55	38.88	20.56	15.94	7.75	0.98	25.93	14.24	1.76
15500	16.62	38.58	20.24	16.81	7.50	0.99	26.89	14.10	1.81
16000	16.68	38.10	19.36	18.47	7.11	0.99	25.85	14.09	1.79
16500	16.75	37.69	18.44	20.86	6.78	1.00	25.66	13.99	1.81
17000	16.80	37.16	17.73	23.84	6.39	1.01	26.45	13.99	1.86
17500	16.81	36.66	17.31	23.36	6.03	1.01	25.38	13.66	1.85
18000	16.82	36.22	17.24	20.94	5.73	1.00	25.51	13.60	2.01
18500	16.84	35.71	17.55	19.00	5.41	1.00	25.96	13.53	1.92
19000	16.86	35.23	18.09	18.33	5.12	0.99	25.48	13.58	1.98
19500	16.92	34.56	18.36	18.86	4.75	0.99	25.64	13.48	2.02
20000	16.96	34.08	17.91	21.04	4.52	1.00	25.08	13.26	1.94
20500	16.98	33.55	16.96	23.85	4.27	1.00	24.92	13.11	1.99
21000	16.94	33.22	16.01	23.84	4.12	1.01	24.50	13.09	1.94
21500	16.91	32.86	15.71	21.10	3.96	1.01	24.86	13.07	2.19
22000	16.92	32.45	16.09	19.24	3.78	1.00	24.24	12.97	2.24
22500	16.96	32.05	17.10	18.58	3.62	0.99	24.48	12.93	2.31
23000	17.02	31.73	18.49	19.09	3.52	0.98	24.72	12.85	2.38
23500	17.08	31.30	19.64	21.26	3.38	0.98	24.26	12.82	2.42
24000	17.13	31.01	20.64	26.08	3.30	0.98	24.29	12.74	2.51
24500	17.12	30.68	21.66	25.71	3.19	0.98	23.54	12.52	2.52
25000	17.08	30.42	21.89	20.63	3.11	0.97	23.74	12.41	2.62
25500	17.02	30.10	21.73	17.57	3.00	0.96	23.95	12.37	2.75
26000	16.96	29.74	21.11	16.10	2.89	0.95	23.93	12.21	2.78
26500	16.94	29.51	20.07	15.92	2.83	0.95	23.70	12.14	2.92
27000	16.93	29.11	18.83	16.11	2.72	0.96	22.55	12.05	2.97
27500	16.90	28.74	17.91	16.68	2.62	0.96	22.83	11.75	3.05
28000	16.90	28.37	17.33	17.54	2.54	0.96	21.96	11.75	3.13
28500	16.87	28.06	17.58	18.46	2.48	0.96	23.23	11.85	3.30
29000	16.83	27.72	18.30	20.53	2.43	0.96	21.54	11.80	3.43
29500	16.74	27.46	19.53	23.74	2.42	0.96	22.22	11.89	3.55
30000	16.68	27.44	22.07	31.32	2.46	0.96	21.56	11.98	3.61

## Typical Performance Data

### Definitions:

Input Return Loss = -S11 (dB)

Gain(Power Gain) = S21 (dB)

Reverse Isolation = -S12 (dB)

Output Return Loss = -S22 (dB)

TEST CONDITIONS: Vd = 5.25V, VC=Open, Id = 66mA @ Temperature = +25°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
					K	Measure			
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dBm)	(dB)
2000	16.79	48.64	24.80	13.33	19.34	0.96	29.00	16.68	3.85
2500	16.75	50.75	25.90	14.19	25.23	0.96	28.25	16.26	3.48
3000	16.66	50.29	27.78	14.46	24.50	0.97	27.67	15.95	3.24
3500	16.63	48.97	26.84	14.24	21.26	0.96	27.06	15.71	3.03
4000	16.85	48.76	25.84	14.32	20.39	0.96	27.43	15.76	2.78
4500	16.91	47.78	26.62	14.28	18.21	0.96	27.27	15.75	2.59
5000	16.98	47.90	26.21	14.39	18.50	0.97	27.73	15.87	2.16
5500	16.98	47.22	26.08	14.40	17.23	0.97	26.37	15.85	1.91
6000	17.04	46.73	23.86	14.38	16.27	0.97	27.76	15.77	1.80
6500	17.04	47.19	23.06	14.34	17.28	0.97	27.31	15.84	1.74
7000	17.06	47.18	23.04	14.60	17.38	0.97	27.42	15.82	1.63
7500	17.08	47.41	23.43	15.49	18.06	0.98	27.94	15.75	1.54
8000	17.08	47.57	23.29	17.28	18.68	0.99	26.83	15.71	1.41
8500	17.06	47.15	21.91	20.69	18.09	1.00	26.56	15.76	1.34
9000	17.01	47.00	19.90	28.47	18.02	1.01	27.41	15.75	1.30
9500	16.93	46.13	18.12	34.90	16.51	1.01	27.15	15.50	1.24
10000	16.84	45.34	17.03	23.61	15.20	1.01	26.69	15.24	1.29
10500	16.74	44.48	16.54	20.06	13.90	1.01	27.28	15.21	1.32
11000	16.68	43.71	16.60	18.86	12.86	1.01	26.92	15.12	1.28
11500	16.62	42.88	17.04	19.13	11.84	1.01	25.81	15.05	1.37
12000	16.60	42.03	17.81	20.37	10.88	1.01	26.95	14.92	1.41
12500	16.58	41.27	18.58	21.29	10.06	1.00	26.75	15.00	1.49
13000	16.56	40.75	19.12	20.28	9.54	1.00	27.02	14.87	1.52
13500	16.53	39.91	19.40	18.21	8.69	0.99	25.91	14.75	1.60
14000	16.51	39.76	19.86	16.58	8.56	0.99	26.32	14.69	1.63
14500	16.51	39.39	20.28	15.73	8.20	0.98	26.73	14.71	1.64
15000	16.54	38.94	20.46	15.70	7.79	0.98	26.53	14.73	1.77
15500	16.61	38.65	20.08	16.54	7.56	0.98	27.11	14.64	1.85
16000	16.66	38.15	19.17	18.15	7.14	0.99	26.12	14.67	1.84
16500	16.73	37.90	18.22	20.44	6.94	1.00	26.93	14.57	1.80
17000	16.79	37.28	17.50	23.23	6.48	1.01	26.64	14.56	1.86
17500	16.80	36.71	17.11	22.82	6.07	1.01	25.77	14.25	1.90
18000	16.81	36.37	17.08	20.54	5.83	1.00	25.95	14.15	1.98
18500	16.82	35.98	17.39	18.70	5.58	1.00	26.48	14.07	2.00
19000	16.84	35.30	17.97	18.04	5.16	0.99	26.24	14.06	2.02
19500	16.89	34.78	18.22	18.57	4.88	0.99	26.06	13.99	1.97
20000	16.94	34.12	17.79	20.68	4.54	1.00	26.13	13.77	2.02
20500	16.95	33.73	16.86	23.42	4.36	1.01	25.39	13.62	1.98
21000	16.92	33.26	15.96	23.40	4.15	1.01	24.96	13.55	2.12
21500	16.87	32.96	15.71	20.81	4.01	1.01	25.53	13.54	2.17
22000	16.88	32.60	16.12	18.97	3.85	1.00	24.71	13.44	2.21
22500	16.91	32.26	17.17	18.31	3.72	0.99	24.92	13.42	2.35
23000	16.97	31.94	18.52	18.85	3.62	0.98	24.89	13.35	2.35
23500	17.02	31.59	19.54	21.03	3.51	0.98	25.09	13.35	2.46
24000	17.06	31.33	20.32	25.56	3.44	0.98	25.13	13.27	2.53
24500	17.05	30.99	21.17	25.03	3.32	0.98	24.28	13.09	2.57
25000	17.01	30.65	21.44	20.28	3.21	0.97	24.53	12.98	2.74
25500	16.94	30.46	21.40	17.32	3.15	0.96	23.83	12.94	2.77
26000	16.88	30.11	20.90	15.90	3.03	0.96	24.13	12.77	2.87
26500	16.86	29.78	19.90	15.74	2.93	0.96	23.95	12.66	2.92
27000	16.84	29.43	18.68	15.97	2.83	0.96	22.83	12.60	2.90
27500	16.81	28.97	17.89	16.58	2.71	0.96	23.13	12.26	3.10
28000	16.79	28.64	17.41	17.52	2.64	0.97	23.00	12.37	3.20
28500	16.75	28.31	17.77	18.50	2.58	0.96	23.31	12.43	3.35
29000	16.71	28.13	18.62	20.71	2.58	0.97	21.57	12.41	3.40
29500	16.59	27.83	19.95	24.34	2.56	0.97	22.97	12.57	3.54
30000	16.51	27.74	22.76	32.15	2.59	0.96	22.10	12.76	3.67

# MMIC Amplifier Die

# AVA-0233LN-D+

## Typical Performance Data

### Definitions:

Input Return Loss = -S11 (dB)

Gain(Power Gain) = S21 (dB)

Reverse Isolation = -S12 (dB)

Output Return Loss = -S22 (dB)

TEST CONDITIONS: Vd = 5.00V, VC=Open, Id = 66mA @ Temperature = -45°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
					K	Measure			
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dBm)	(dB)
2000	17.44	48.78	24.72	13.32	18.23	0.96	29.26	16.56	3.14
2500	17.41	50.74	25.60	14.20	23.35	0.96	28.35	16.08	2.54
3000	17.32	51.64	27.87	14.48	26.53	0.97	27.80	15.72	2.59
3500	17.29	49.65	27.58	14.27	21.32	0.96	27.01	15.50	2.39
4000	17.54	49.76	26.82	14.55	21.18	0.97	26.80	15.55	2.17
4500	17.61	48.45	27.95	14.62	18.22	0.97	27.01	15.55	1.95
5000	17.67	48.13	26.46	14.76	17.57	0.97	27.58	15.67	1.62
5500	17.68	47.91	25.76	14.67	17.24	0.97	26.21	15.64	1.33
6000	17.75	47.20	23.52	14.52	15.84	0.97	27.55	15.57	1.29
6500	17.75	47.52	22.73	14.36	16.54	0.97	27.60	15.57	1.20
7000	17.79	47.58	22.67	14.56	16.73	0.97	27.55	15.60	1.11
7500	17.82	47.93	23.21	15.29	17.60	0.97	28.20	15.54	0.94
8000	17.83	47.88	23.52	16.83	17.73	0.98	27.33	15.46	0.91
8500	17.83	47.75	22.53	19.74	17.72	0.99	26.56	15.57	0.81
9000	17.80	46.93	20.37	26.33	16.35	1.01	27.32	15.58	0.75
9500	17.73	46.50	18.19	36.33	15.70	1.01	27.12	15.30	0.71
10000	17.65	45.56	16.78	23.38	14.19	1.02	27.22	15.00	0.73
10500	17.55	44.81	16.02	19.47	13.10	1.01	27.11	15.02	0.76
11000	17.49	44.03	15.85	18.23	12.06	1.01	27.05	14.90	0.79
11500	17.44	42.93	16.29	18.48	10.78	1.01	26.05	14.81	0.72
12000	17.44	42.26	17.14	20.29	10.11	1.01	27.21	14.70	0.79
12500	17.43	41.42	18.14	22.03	9.28	1.01	26.74	14.79	0.89
13000	17.42	40.80	18.84	20.76	8.70	1.00	26.90	14.66	0.93
13500	17.38	40.18	19.10	18.04	8.12	0.99	26.34	14.56	0.94
14000	17.36	40.05	19.31	16.18	8.01	0.98	26.75	14.49	0.99
14500	17.36	39.58	19.60	15.45	7.58	0.98	26.86	14.50	1.03
15000	17.39	39.20	19.84	15.40	7.25	0.98	26.60	14.52	1.04
15500	17.47	38.75	19.96	16.19	6.90	0.98	27.10	14.47	1.06
16000	17.54	38.29	19.35	17.45	6.56	0.99	26.44	14.49	1.10
16500	17.62	37.93	18.68	19.03	6.29	1.00	26.86	14.42	1.12
17000	17.69	37.48	18.10	21.90	5.98	1.00	27.40	14.41	1.15
17500	17.73	37.07	17.14	23.68	5.70	1.01	26.28	14.11	1.19
18000	17.74	36.52	16.67	21.70	5.34	1.01	25.99	14.04	1.23
18500	17.75	36.10	16.47	18.95	5.07	1.00	26.30	13.96	1.21
19000	17.76	35.40	16.67	17.06	4.66	0.99	26.16	13.93	1.25
19500	17.81	35.03	17.37	16.21	4.46	0.98	26.60	13.85	1.25
20000	17.91	34.13	17.86	17.99	4.05	0.99	26.55	13.63	1.25
20500	17.98	33.78	17.20	22.79	3.91	1.00	25.31	13.51	1.22
21000	17.94	33.40	15.30	24.19	3.75	1.01	25.74	13.44	1.27
21500	17.86	33.17	14.47	19.49	3.63	1.01	25.80	13.43	1.32
22000	17.84	32.80	14.60	17.28	3.48	1.00	25.17	13.29	1.37
22500	17.90	32.40	15.87	16.66	3.34	0.99	25.35	13.30	1.48
23000	18.00	32.00	17.54	17.95	3.23	0.98	25.30	13.26	1.53
23500	18.09	31.74	19.89	20.60	3.18	0.98	25.27	13.29	1.60
24000	18.15	31.40	22.24	23.66	3.08	0.97	25.05	13.22	1.56
24500	18.14	31.10	23.18	21.45	2.98	0.97	24.48	13.00	1.70
25000	18.13	30.84	21.98	21.18	2.91	0.97	24.65	12.98	1.77
25500	18.10	30.48	20.75	19.21	2.80	0.96	24.68	12.91	1.85
26000	18.02	30.26	19.44	15.96	2.71	0.95	24.89	12.72	1.89
26500	17.99	29.93	18.66	14.38	2.61	0.94	24.76	12.60	1.93
27000	18.00	29.48	18.42	13.89	2.48	0.93	23.18	12.57	2.00
27500	18.04	29.02	18.05	15.06	2.37	0.94	23.50	12.25	2.05
28000	18.07	28.57	16.17	17.76	2.27	0.96	23.20	12.33	2.10
28500	18.02	28.24	15.91	17.86	2.21	0.96	23.53	12.36	2.16
29000	17.98	28.00	17.00	17.31	2.18	0.95	22.12	12.23	2.29
29500	17.91	27.88	19.09	18.21	2.21	0.94	23.66	12.29	2.43
30000	17.89	27.67	22.86	25.53	2.22	0.95	22.41	12.59	2.51



# MMIC Amplifier Die

# AVA-0233LN-D+

## Typical Performance Data

### Definitions:

Input Return Loss = -S11 (dB)

Gain(Power Gain) = S21 (dB)

Reverse Isolation = -S12 (dB)

Output Return Loss = -S22 (dB)

TEST CONDITIONS: Vd = 4.75V, VC=Open, Id = 64mA @ Temperature = -45°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
					K	Measure			
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dBm)	(dB)
2000	17.42	48.73	24.87	13.34	18.16	0.96	29.00	16.29	3.09
2500	17.40	50.45	25.75	14.23	22.64	0.96	28.27	15.85	2.77
3000	17.31	51.02	28.04	14.50	24.75	0.97	27.37	15.50	2.57
3500	17.27	49.29	27.71	14.30	20.51	0.96	26.80	15.24	2.34
4000	17.53	49.26	26.88	14.59	20.02	0.97	27.20	15.33	2.13
4500	17.60	48.51	28.05	14.67	18.36	0.97	26.89	15.29	1.96
5000	17.66	47.88	26.67	14.80	17.11	0.97	27.52	15.37	1.70
5500	17.67	47.89	25.91	14.72	17.22	0.97	26.10	15.38	1.31
6000	17.74	46.98	23.61	14.56	15.47	0.97	27.19	15.23	1.26
6500	17.75	47.51	22.85	14.41	16.53	0.97	27.24	15.31	1.19
7000	17.78	47.53	22.75	14.62	16.66	0.97	26.90	15.31	1.10
7500	17.81	47.62	23.30	15.35	17.00	0.97	27.56	15.24	0.96
8000	17.83	47.87	23.62	16.88	17.72	0.98	26.77	15.16	0.88
8500	17.83	47.57	22.66	19.80	17.36	0.99	26.53	15.28	0.81
9000	17.80	46.91	20.44	26.35	16.31	1.01	27.54	15.28	0.76
9500	17.73	46.22	18.25	35.80	15.22	1.01	26.92	15.01	0.70
10000	17.65	45.73	16.79	23.32	14.46	1.02	26.82	14.74	0.71
10500	17.55	44.98	16.06	19.49	13.36	1.01	27.00	14.74	0.72
11000	17.50	44.12	15.85	18.27	12.19	1.01	26.86	14.61	0.75
11500	17.45	43.03	16.30	18.53	10.90	1.01	26.05	14.53	0.72
12000	17.44	42.21	17.14	20.38	10.04	1.01	26.93	14.46	0.79
12500	17.44	41.34	18.17	22.14	9.20	1.01	26.62	14.54	0.90
13000	17.42	40.98	18.84	20.85	8.89	1.00	26.48	14.41	0.90
13500	17.39	40.16	19.09	18.09	8.10	0.99	25.56	14.31	0.95
14000	17.37	39.90	19.28	16.21	7.86	0.99	26.91	14.24	1.01
14500	17.37	39.50	19.60	15.50	7.51	0.98	26.66	14.24	1.05
15000	17.40	39.19	19.85	15.46	7.24	0.98	26.23	14.24	1.11
15500	17.48	38.70	20.05	16.27	6.86	0.98	27.20	14.13	1.04
16000	17.55	38.40	19.49	17.54	6.63	0.99	25.73	14.15	1.09
16500	17.63	37.93	18.85	19.11	6.29	1.00	26.23	14.08	1.11
17000	17.71	37.24	18.24	22.02	5.81	1.00	25.95	14.07	1.09
17500	17.74	36.97	17.26	23.88	5.63	1.01	25.63	13.71	1.16
18000	17.76	36.47	16.76	21.88	5.30	1.01	26.09	13.70	1.17
18500	17.77	35.99	16.49	19.02	5.00	1.00	26.10	13.63	1.20
19000	17.78	35.57	16.68	17.09	4.74	0.99	25.77	13.64	1.23
19500	17.83	34.93	17.39	16.23	4.40	0.98	26.32	13.57	1.22
20000	17.93	34.23	17.96	17.99	4.09	0.99	26.17	13.34	1.22
20500	18.00	33.85	17.26	22.94	3.93	1.00	25.17	13.18	1.23
21000	17.96	33.30	15.30	24.34	3.70	1.01	25.10	13.12	1.27
21500	17.89	33.02	14.43	19.56	3.56	1.01	26.05	13.11	1.33
22000	17.87	32.75	14.55	17.33	3.44	1.00	24.42	13.01	1.38
22500	17.93	32.40	15.80	16.70	3.33	0.99	25.50	12.98	1.46
23000	18.03	31.98	17.49	17.98	3.21	0.98	24.95	12.95	1.52
23500	18.13	31.64	19.97	20.67	3.13	0.98	25.24	12.97	1.53
24000	18.19	31.35	22.57	23.76	3.05	0.97	24.87	12.87	1.59
24500	18.19	31.01	23.66	21.54	2.94	0.97	24.16	12.65	1.62
25000	18.18	30.71	22.34	21.39	2.86	0.97	24.30	12.63	1.71
25500	18.15	30.45	21.01	19.44	2.77	0.96	24.22	12.56	1.81
26000	18.07	30.14	19.57	16.03	2.67	0.95	24.23	12.34	1.88
26500	18.04	29.82	18.71	14.41	2.56	0.94	24.05	12.25	1.90
27000	18.05	29.41	18.42	13.87	2.45	0.93	22.89	12.23	1.94
27500	18.10	28.95	18.11	15.12	2.34	0.94	23.10	11.90	2.01
28000	18.13	28.56	16.24	17.86	2.26	0.96	23.06	11.95	2.00
28500	18.09	28.03	15.78	17.82	2.14	0.96	22.93	11.98	2.18
29000	18.06	27.83	16.80	17.17	2.13	0.95	21.55	11.82	2.29
29500	17.99	27.59	18.83	17.95	2.12	0.94	22.55	11.92	2.42
30000	18.00	27.57	22.29	24.95	2.17	0.94	21.89	12.11	2.47



# MMIC Amplifier Die

# AVA-0233LN-D+

## Typical Performance Data

### Definitions:

Input Return Loss = -S11 (dB)

Gain(Power Gain) = S21 (dB)

Reverse Isolation = -S12 (dB)

Output Return Loss = -S22 (dB)

TEST CONDITIONS: Vd = 5.25V, VC=Open, Id = 66mA @ Temperature = -45°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
					K	Measure			
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dBm)	(dB)
2000	17.46	48.97	24.58	13.30	18.61	0.96	29.88	16.86	3.13
2500	17.43	50.80	25.45	14.18	23.48	0.96	28.13	16.37	2.82
3000	17.34	50.10	27.61	14.45	22.17	0.97	28.39	15.97	2.63
3500	17.30	49.60	27.50	14.25	21.17	0.96	27.15	15.75	2.41
4000	17.55	49.17	26.70	14.51	19.76	0.97	27.39	15.83	2.17
4500	17.62	48.68	27.83	14.58	18.67	0.97	27.82	15.84	1.97
5000	17.68	47.85	26.33	14.71	17.00	0.97	28.30	15.95	1.61
5500	17.68	48.10	25.58	14.63	17.61	0.97	26.63	15.93	1.32
6000	17.75	47.44	23.40	14.46	16.26	0.97	28.12	15.86	1.27
6500	17.75	48.01	22.66	14.31	17.47	0.97	27.93	15.89	1.19
7000	17.79	47.84	22.60	14.51	17.23	0.97	27.45	15.85	1.11
7500	17.82	47.98	23.13	15.25	17.70	0.97	28.40	15.82	1.03
8000	17.83	48.43	23.44	16.79	18.88	0.98	27.43	15.80	0.95
8500	17.82	47.84	22.40	19.70	17.92	0.99	27.23	15.87	0.83
9000	17.80	47.66	20.27	26.32	17.78	1.01	28.00	15.87	0.82
9500	17.73	46.66	18.14	36.83	16.01	1.01	27.90	15.63	0.79
10000	17.64	45.75	16.74	23.44	14.51	1.02	27.04	15.33	0.77
10500	17.55	45.01	16.01	19.48	13.42	1.01	27.77	15.31	0.77
11000	17.48	43.95	15.84	18.19	11.96	1.01	27.21	15.22	0.78
11500	17.44	43.13	16.29	18.43	11.03	1.01	26.49	15.09	0.84
12000	17.42	42.11	17.12	20.22	9.95	1.01	27.18	14.99	0.85
12500	17.42	41.48	18.11	21.92	9.35	1.01	27.50	15.07	0.91
13000	17.41	40.98	18.79	20.71	8.90	1.00	26.99	14.94	0.95
13500	17.37	40.28	19.10	18.01	8.23	0.99	26.19	14.88	0.99
14000	17.35	39.97	19.33	16.14	7.94	0.98	27.17	14.79	1.09
14500	17.35	39.71	19.63	15.38	7.70	0.98	27.56	14.83	1.04
15000	17.38	39.27	19.83	15.31	7.33	0.98	26.76	14.82	1.10
15500	17.45	38.77	19.85	16.08	6.93	0.98	27.45	14.78	1.12
16000	17.52	38.45	19.22	17.37	6.69	0.99	26.79	14.83	1.19
16500	17.60	37.90	18.53	19.00	6.28	1.00	27.14	14.76	1.15
17000	17.67	37.55	17.91	21.82	6.04	1.00	27.43	14.75	1.19
17500	17.70	37.16	17.00	23.39	5.77	1.01	26.49	14.46	1.24
18000	17.72	36.63	16.59	21.49	5.41	1.01	26.81	14.42	1.26
18500	17.72	36.07	16.43	18.84	5.06	1.00	27.49	14.30	1.28
19000	17.74	35.50	16.68	17.02	4.73	0.99	26.50	14.27	1.34
19500	17.79	35.11	17.34	16.28	4.51	0.99	27.15	14.15	1.32
20000	17.89	34.42	17.77	18.04	4.19	0.99	26.19	13.96	1.30
20500	17.95	33.78	17.08	22.58	3.92	1.00	25.91	13.81	1.27
21000	17.91	33.46	15.32	23.99	3.78	1.01	25.60	13.74	1.29
21500	17.83	33.14	14.53	19.58	3.64	1.01	26.36	13.77	1.39
22000	17.81	32.89	14.73	17.30	3.52	1.00	25.25	13.66	1.45
22500	17.86	32.50	15.99	16.67	3.39	0.99	25.48	13.67	1.56
23000	17.95	32.17	17.64	17.86	3.31	0.98	26.01	13.60	1.61
23500	18.04	31.82	19.78	20.43	3.22	0.98	25.49	13.66	1.68
24000	18.10	31.53	21.84	23.54	3.14	0.98	25.27	13.55	1.68
24500	18.09	31.24	22.70	21.55	3.04	0.97	25.03	13.36	1.75
25000	18.08	30.99	21.65	20.96	2.97	0.97	24.84	13.34	1.84
25500	18.04	30.70	20.55	18.96	2.88	0.97	24.94	13.27	1.92
26000	17.96	30.34	19.34	15.91	2.75	0.95	25.04	13.09	1.97
26500	17.93	29.99	18.62	14.42	2.64	0.94	24.66	12.93	2.03
27000	17.94	29.58	18.31	13.92	2.52	0.94	23.50	12.97	2.08
27500	17.97	29.10	17.97	15.09	2.41	0.94	23.90	12.61	2.16
28000	18.00	28.83	16.26	17.63	2.35	0.96	23.82	12.70	2.12
28500	17.95	28.49	16.05	17.83	2.29	0.96	23.46	12.76	2.24
29000	17.90	28.24	17.21	17.55	2.26	0.95	22.41	12.63	2.41
29500	17.81	27.99	19.47	18.73	2.26	0.95	23.61	12.75	2.53
30000	17.78	27.87	23.49	26.34	2.30	0.95	22.44	13.06	2.57



# MMIC Amplifier Die

# AVA-0233LN-D+

## Typical Performance Data

### Definitions:

Input Return Loss = -S11 (dB)

Gain(Power Gain) = S21 (dB)

Reverse Isolation = -S12 (dB)

Output Return Loss = -S22 (dB)

TEST CONDITIONS: Vd = 4.75V, VC=Open, Id = 64mA @ Temperature = +85°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
					K	Measure			
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dBm)	(dB)
2000	16.17	48.57	25.20	13.53	20.65	0.96	28.79	16.08	4.43
2500	16.12	50.02	26.71	14.37	25.00	0.97	27.63	15.68	4.05
3000	16.04	49.88	28.47	14.66	25.16	0.97	27.28	15.46	3.78
3500	16.01	48.54	26.81	14.41	21.75	0.97	26.77	15.29	3.55
4000	16.21	48.21	25.45	14.39	20.59	0.97	26.55	15.29	3.29
4500	16.28	47.54	25.93	14.25	19.05	0.96	26.62	15.23	3.04
5000	16.34	47.09	25.93	14.32	18.11	0.96	27.13	15.32	2.71
5500	16.35	46.49	26.11	14.33	17.02	0.96	25.69	15.33	2.36
6000	16.39	46.13	24.13	14.43	16.37	0.97	27.18	15.11	2.33
6500	16.40	46.58	23.34	14.53	17.38	0.97	26.79	15.24	2.22
7000	16.41	46.21	23.23	14.95	16.80	0.97	26.71	15.25	2.06
7500	16.42	46.75	23.66	15.97	18.11	0.98	27.46	15.16	1.97
8000	16.42	46.58	23.43	17.88	18.05	0.99	26.55	15.06	1.88
8500	16.38	46.59	21.83	21.56	18.37	1.00	26.41	15.18	1.78
9000	16.32	46.41	19.75	30.58	18.26	1.01	26.95	15.08	1.76
9500	16.22	45.54	18.08	32.27	16.72	1.01	26.32	14.86	1.68
10000	16.13	44.84	17.16	23.03	15.57	1.01	26.38	14.59	1.74
10500	16.03	43.78	16.90	20.01	13.95	1.01	26.64	14.62	1.77
11000	15.97	43.55	17.16	19.29	13.74	1.01	26.27	14.52	1.78
11500	15.91	42.57	17.84	20.04	12.48	1.01	25.56	14.42	1.89
12000	15.88	41.83	18.61	21.46	11.59	1.01	26.16	14.31	1.95
12500	15.85	41.20	19.16	21.25	10.88	1.00	26.12	14.38	2.00
13000	15.82	40.55	19.30	19.40	10.15	1.00	25.96	14.24	2.11
13500	15.78	40.00	19.20	17.78	9.54	0.99	25.18	14.07	2.17
14000	15.78	39.50	19.51	16.90	9.04	0.99	26.12	14.02	2.21
14500	15.79	39.16	19.82	16.67	8.71	0.99	26.37	14.00	2.30
15000	15.82	38.71	19.98	16.97	8.29	0.99	25.70	14.02	2.35
15500	15.88	38.27	19.76	17.83	7.90	0.99	26.58	13.83	2.35
16000	15.92	37.84	19.17	19.14	7.53	1.00	25.17	13.85	2.38
16500	15.98	37.62	18.56	21.13	7.35	1.00	25.63	13.73	2.42
17000	16.02	37.05	18.21	23.64	6.91	1.01	25.59	13.72	2.46
17500	16.02	36.59	18.08	22.72	6.57	1.01	25.45	13.42	2.47
18000	16.02	36.05	18.16	20.49	6.17	1.00	24.86	13.33	2.53
18500	16.03	35.63	18.54	19.12	5.90	1.00	25.50	13.33	2.56
19000	16.05	35.00	18.96	19.19	5.50	0.99	25.39	13.32	2.59
19500	16.09	34.48	18.75	20.36	5.20	1.00	25.78	13.20	2.58
20000	16.10	34.09	17.77	22.93	4.99	1.00	24.97	13.02	2.61
20500	16.08	33.49	16.62	24.22	4.68	1.01	24.28	12.86	2.69
21000	16.03	33.16	15.80	22.78	4.52	1.01	24.59	12.79	2.69
21500	16.01	32.84	15.77	20.88	4.37	1.01	24.47	12.77	2.84
22000	16.03	32.47	16.38	19.83	4.20	1.00	24.06	12.64	2.94
22500	16.08	32.10	17.60	19.65	4.04	0.99	24.47	12.66	3.02
23000	16.13	31.67	19.23	21.01	3.89	0.99	24.29	12.59	3.07
23500	16.17	31.27	20.89	24.51	3.75	0.99	23.97	12.50	3.14
24000	16.19	31.03	22.44	28.25	3.68	0.99	23.84	12.41	3.20
24500	16.15	30.67	23.77	23.00	3.55	0.98	23.12	12.17	3.27
25000	16.10	30.38	23.92	19.74	3.45	0.97	23.46	12.10	3.36
25500	16.03	30.07	23.27	18.14	3.35	0.97	23.36	12.03	3.50
26000	15.96	29.82	21.66	17.50	3.28	0.97	23.74	11.88	3.54
26500	15.92	29.50	19.90	17.41	3.18	0.97	23.36	11.81	3.66
27000	15.87	29.10	18.56	17.00	3.06	0.97	21.64	11.76	3.80
27500	15.81	28.84	17.91	16.93	2.99	0.97	22.16	11.45	3.83
28000	15.78	28.36	17.87	17.79	2.87	0.97	21.76	11.53	3.98
28500	15.75	28.08	18.80	19.15	2.82	0.97	22.54	11.57	4.12
29000	15.70	27.95	20.17	21.80	2.84	0.97	21.01	11.44	4.25
29500	15.57	27.65	21.31	25.04	2.80	0.97	22.76	11.58	4.43
30000	15.48	27.52	22.99	27.59	2.82	0.97	21.77	11.65	4.56



## Typical Performance Data

### Definitions:

Input Return Loss = -S11 (dB)

Gain(Power Gain) = S21 (dB)

Reverse Isolation = -S12 (dB)

Output Return Loss = -S22 (dB)

TEST CONDITIONS: Vd = 5.00V, VC=Open, Id = 66mA @ Temperature = +85°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
					K	Measure			
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dBm)	(dB)
2000	16.18	48.77	25.12	13.47	21.09	0.96	29.10	16.32	4.47
2500	16.13	49.89	26.61	14.31	24.60	0.97	27.54	15.91	4.08
3000	16.05	50.94	28.42	14.61	28.40	0.97	27.04	15.65	3.74
3500	16.02	48.97	26.75	14.34	22.82	0.96	26.66	15.49	3.56
4000	16.22	48.22	25.42	14.31	20.56	0.97	26.89	15.48	3.35
4500	16.28	47.64	25.89	14.17	19.23	0.96	26.98	15.46	3.04
5000	16.35	46.96	25.88	14.23	17.80	0.96	27.52	15.55	2.72
5500	16.36	47.17	26.02	14.23	18.37	0.96	26.12	15.52	2.38
6000	16.40	46.26	24.05	14.34	16.58	0.97	27.23	15.39	2.36
6500	16.41	46.97	23.28	14.43	18.15	0.97	27.41	15.47	2.24
7000	16.42	46.56	23.12	14.84	17.46	0.97	27.11	15.44	2.15
7500	16.43	46.68	23.53	15.84	17.95	0.98	27.71	15.39	2.05
8000	16.42	46.97	23.31	17.74	18.83	0.99	26.51	15.30	1.90
8500	16.39	46.61	21.78	21.40	18.39	1.00	26.42	15.38	1.79
9000	16.32	46.36	19.70	30.27	18.14	1.01	27.14	15.35	1.78
9500	16.22	45.72	18.05	32.49	17.07	1.01	26.94	15.09	1.71
10000	16.13	45.24	17.11	23.04	16.31	1.01	26.31	14.82	1.77
10500	16.03	44.16	16.85	19.98	14.55	1.01	27.14	14.84	1.81
11000	15.97	43.58	17.12	19.23	13.78	1.01	26.58	14.71	1.87
11500	15.92	42.73	17.80	19.95	12.69	1.01	25.69	14.63	1.91
12000	15.88	41.96	18.60	21.35	11.77	1.01	26.56	14.50	1.98
12500	15.85	41.30	19.17	21.14	11.01	1.00	26.54	14.56	2.07
13000	15.81	40.53	19.28	19.29	10.12	1.00	26.45	14.46	2.14
13500	15.78	40.21	19.20	17.68	9.78	0.99	25.42	14.33	2.20
14000	15.78	39.71	19.47	16.77	9.26	0.99	26.40	14.26	2.29
14500	15.79	39.30	19.78	16.57	8.86	0.99	26.30	14.25	2.33
15000	15.81	38.91	19.93	16.84	8.48	0.99	25.88	14.27	2.34
15500	15.87	38.49	19.71	17.69	8.11	0.99	26.48	14.13	2.38
16000	15.91	37.80	19.09	18.97	7.49	1.00	25.58	14.14	2.42
16500	15.97	37.66	18.49	20.89	7.39	1.00	26.20	14.03	2.47
17000	16.01	37.11	18.10	23.30	6.96	1.01	25.91	14.01	2.50
17500	16.01	36.80	17.99	22.49	6.73	1.01	25.38	13.72	2.53
18000	16.02	36.07	18.09	20.37	6.19	1.00	25.46	13.66	2.59
18500	16.02	35.64	18.49	18.98	5.91	1.00	25.73	13.58	2.62
19000	16.04	35.21	18.90	19.05	5.63	0.99	25.22	13.57	2.69
19500	16.08	34.53	18.69	20.21	5.23	1.00	25.60	13.48	2.67
20000	16.09	34.07	17.72	22.72	4.99	1.00	25.71	13.22	2.67
20500	16.06	33.57	16.58	24.01	4.73	1.01	24.41	13.10	2.75
21000	16.02	33.21	15.80	22.62	4.55	1.01	24.68	13.03	2.77
21500	15.99	32.79	15.77	20.73	4.35	1.01	24.86	13.01	2.89
22000	16.01	32.52	16.42	19.67	4.23	1.00	24.19	12.88	2.95
22500	16.05	32.15	17.61	19.55	4.08	0.99	24.42	12.91	3.03
23000	16.10	31.77	19.22	20.92	3.95	0.99	24.35	12.83	3.08
23500	16.13	31.45	20.82	24.40	3.84	0.99	24.73	12.78	3.17
24000	16.15	31.13	22.28	27.72	3.73	0.99	24.33	12.69	3.24
24500	16.12	30.79	23.53	22.72	3.61	0.98	23.49	12.41	3.39
25000	16.06	30.44	23.66	19.60	3.49	0.97	23.53	12.42	3.46
25500	15.99	30.26	23.10	18.04	3.43	0.97	24.01	12.34	3.57
26000	15.92	29.91	21.49	17.40	3.32	0.97	23.85	12.20	3.62
26500	15.87	29.64	19.84	17.31	3.24	0.97	23.38	12.08	3.71
27000	15.83	29.18	18.48	16.90	3.10	0.97	22.36	12.06	3.82
27500	15.77	28.98	17.96	16.86	3.05	0.97	22.78	11.69	3.97
28000	15.73	28.67	17.90	17.76	2.98	0.97	22.06	11.88	4.06
28500	15.69	28.24	18.93	19.17	2.89	0.97	23.11	11.89	4.18
29000	15.64	28.16	20.31	21.85	2.92	0.97	21.57	11.82	4.35
29500	15.50	27.79	21.65	25.21	2.87	0.97	22.62	11.92	4.53
30000	15.40	27.68	23.31	27.44	2.90	0.97	22.26	11.99	4.61



# MMIC Amplifier Die

# AVA-0233LN-D+

## Typical Performance Data

### Definitions:

Input Return Loss = -S11 (dB)

Gain(Power Gain) = S21 (dB)

Reverse Isolation = -S12 (dB)

Output Return Loss = -S22 (dB)

TEST CONDITIONS: Vd = 5.25V, VC=Open, Id = 66mA @ Temperature = +85°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
					K	Measure			
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dBm)	(dB)
2000	16.20	48.36	25.05	13.42	20.06	0.96	28.99	16.53	4.45
2500	16.15	50.10	26.47	14.26	25.14	0.96	28.44	16.12	4.15
3000	16.06	50.16	28.20	14.54	25.90	0.97	27.47	15.84	3.80
3500	16.03	49.23	26.74	14.27	23.47	0.96	26.97	15.64	3.58
4000	16.23	48.46	25.40	14.23	21.11	0.96	27.13	15.67	3.33
4500	16.30	47.65	25.84	14.09	19.22	0.96	27.19	15.66	3.08
5000	16.36	47.39	25.80	14.14	18.68	0.96	28.01	15.75	2.70
5500	16.36	47.05	25.97	14.14	18.08	0.96	26.01	15.72	2.41
6000	16.41	46.47	24.01	14.25	16.95	0.97	27.29	15.60	2.37
6500	16.41	46.77	23.18	14.33	17.71	0.97	27.22	15.67	2.26
7000	16.43	46.78	23.05	14.76	17.88	0.97	27.08	15.64	2.11
7500	16.44	47.00	23.42	15.73	18.59	0.98	27.56	15.59	2.02
8000	16.43	46.85	23.26	17.59	18.57	0.99	27.28	15.54	1.90
8500	16.39	46.87	21.68	21.23	18.93	1.00	26.42	15.62	1.84
9000	16.33	46.28	19.65	29.94	17.96	1.01	27.09	15.56	1.75
9500	16.23	45.72	17.97	32.81	17.05	1.01	26.79	15.33	1.78
10000	16.13	45.12	17.05	23.06	16.07	1.01	26.99	15.02	1.80
10500	16.03	44.48	16.80	19.94	15.09	1.01	27.29	15.04	1.86
11000	15.97	43.73	17.09	19.16	14.02	1.01	26.63	14.94	1.86
11500	15.91	42.57	17.78	19.83	12.45	1.01	25.95	14.83	1.95
12000	15.88	41.89	18.58	21.24	11.66	1.01	26.83	14.73	1.95
12500	15.85	41.30	19.15	21.02	11.00	1.00	26.43	14.79	2.06
13000	15.81	40.66	19.27	19.20	10.28	1.00	26.36	14.62	2.14
13500	15.77	40.11	19.19	17.56	9.67	0.99	25.68	14.56	2.27
14000	15.77	39.77	19.46	16.68	9.32	0.99	26.39	14.50	2.29
14500	15.78	39.45	19.78	16.46	9.01	0.99	26.46	14.53	2.32
15000	15.81	38.95	19.88	16.72	8.52	0.99	26.36	14.51	2.37
15500	15.86	38.32	19.63	17.58	7.95	0.99	26.96	14.41	2.43
16000	15.90	37.94	18.99	18.80	7.62	1.00	25.81	14.39	2.42
16500	15.96	37.61	18.39	20.66	7.35	1.00	26.80	14.32	2.51
17000	16.00	37.17	18.02	23.01	7.01	1.01	26.05	14.26	2.49
17500	16.00	36.65	17.91	22.30	6.62	1.01	25.33	13.97	2.55
18000	16.00	36.09	18.00	20.20	6.21	1.00	25.38	13.94	2.62
18500	16.01	35.69	18.41	18.86	5.94	1.00	26.14	13.86	2.68
19000	16.03	35.24	18.84	18.87	5.66	0.99	25.58	13.77	2.69
19500	16.06	34.65	18.61	20.05	5.31	1.00	25.73	13.68	2.67
20000	16.07	34.25	17.67	22.56	5.10	1.00	25.34	13.46	2.66
20500	16.05	33.68	16.54	23.83	4.79	1.01	24.59	13.33	2.71
21000	16.00	33.30	15.77	22.40	4.61	1.01	24.97	13.26	2.78
21500	15.96	32.95	15.76	20.56	4.44	1.01	25.26	13.24	2.91
22000	15.98	32.56	16.42	19.55	4.26	1.00	24.32	13.14	2.94
22500	16.02	32.18	17.62	19.42	4.10	0.99	24.55	13.13	3.09
23000	16.07	31.93	19.23	20.84	4.03	0.99	24.71	13.09	3.17
23500	16.10	31.58	20.77	24.25	3.91	0.99	24.54	13.04	3.22
24000	16.12	31.20	22.07	27.30	3.77	0.99	24.52	12.91	3.30
24500	16.08	30.94	23.26	22.50	3.68	0.98	24.02	12.68	3.37
25000	16.02	30.62	23.43	19.48	3.57	0.97	23.95	12.65	3.46
25500	15.95	30.28	22.89	17.95	3.46	0.97	24.03	12.61	3.58
26000	15.88	30.05	21.38	17.32	3.39	0.97	23.90	12.46	3.65
26500	15.83	29.75	19.73	17.23	3.29	0.97	23.80	12.34	3.76
27000	15.78	29.46	18.50	16.83	3.21	0.97	22.67	12.29	3.78
27500	15.72	29.10	17.95	16.79	3.11	0.97	23.04	11.98	3.96
28000	15.68	28.73	17.93	17.78	3.02	0.97	22.48	12.14	4.06
28500	15.63	28.52	19.05	19.21	3.00	0.97	23.28	12.22	4.20
29000	15.57	28.13	20.44	22.00	2.94	0.97	21.82	12.12	4.34
29500	15.42	28.11	21.89	25.30	3.00	0.97	22.97	12.20	4.51
30000	15.32	27.97	23.66	27.35	3.02	0.97	22.07	12.30	4.60

