

Dual Matched MMIC Amplifiers

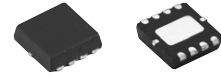
NEW!

MERA-533

50Ω High Dynamic Range DC to 4 GHz

Features

- Two matched amplifiers in one package
- InGaP HBT IF and RF amplifier
- frequency range, DC to 4 GHz
- high gain, 20.5 dB typ. at 100 MHz
- up to +17.9 dBm typ. output power at 100 MHz
- high IP3, +35 dBm at 100 MHz
- low noise figure, 3.5 dB typ.
- low thermal resistance
- transient protected
- patent pending
- useable as balanced and push pull amplifier



CASE STYLE: DL805
PRICE: \$ 3.40 ea. QTY (25)

Applications

- cellular
- catv
- VHF & UHF communication receivers & transmitters

Electrical Specifications @ 25°C

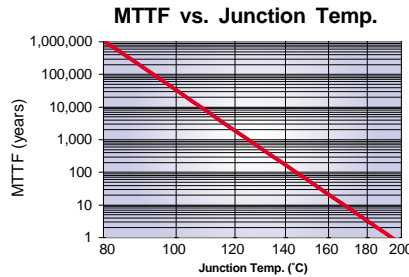
Freq.* (GHz)	Gain, dB Typical A1, A2					Maximum Power (dBm)					Dynamic Range			VSWR (:1) Typ.		Maximum Rating**		DC Operating Power Pin 5, Pin 8			Thermal Resistance θjc, typ. °C/W	matching ¹								
	over frequency, GHz					Output (1 dB Comp.) Typ.					IP3 (dBm) Typ.			NF (dB) Typ.		I	P	Current (mA)	Volt	Max		Amplitude Unbalance between 2 amps (dB)		Phase Unbalance between 2 amps (deg.)						
f _L -f _U	0.1	1	2	3	4	Min. @ 2GHz	0.1 GHz	1.0 GHz	2.0 GHz	Min. @ 1GHz	Input (no dmg.)	Typ.	0.1 GHz	0.5 GHz	1.0 GHz	In	Out	mA	mW	Typ	Min	Max	DC-22 GHz Typ.	2-4 GHz Typ. Max.	DC-22 GHz Typ.	2-4 GHz Typ. Max.				
DC-4	20.5	20	18.8	17.5	16	16	17.9	17.5	16.7	16.5	13	3.5	35	34	33	1.4	1.5	120	650	65	4.9	4.2	5.5	133	.05	0.3	0.1	0.5	0.7	2.0

* Guaranteed specification DC-4GHz. Low frequency cutoff determined by external coupling capacitors.
** Permanent damage may occur if any of these limits are exceeded. These ratings are not intended for continuous normal operation. Reliability predictions and normal operating conditions are applicable at current specified.

1. For test method, see application note AN-60-032

Pin Connections

PORT	
RF IN 1	1
RF OUT 1	8
RF IN 2	4
RF OUT 2	5
DC 1	8
DC 2	5
GROUND	2,3,6,7 and paddle

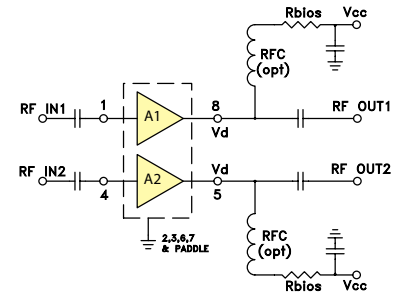


Maximum Ratings²

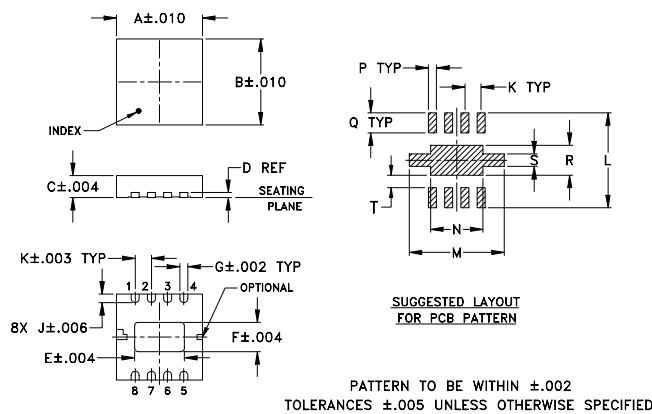
Operating Case Temperature	-45°C to 85°C
Storage Temperature	-55°C to 100°C

2. See application note AN-60-032 for adequate heat sinking of paddle.

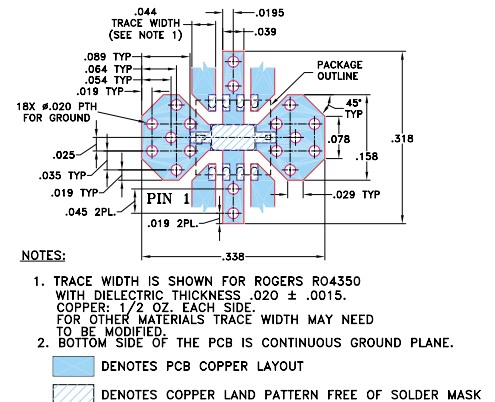
typical biasing configuration



Outline Drawing



Demo Board MCL P/N: TB-294 Suggested PCB Layout (PL-165)



Outline Dimensions (inch/mm)

A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	wt.
.128	.128	.035	.008	.080	.047	.013	—	.014	.026	.158	.158	.084	.013	.030	.048	.020	.025	grams
3.25	3.25	0.90	0.20	2.03	1.19	0.33	—	0.36	0.66	4.01	4.01	2.13	0.33	0.76	1.22	0.51	0.64	.02



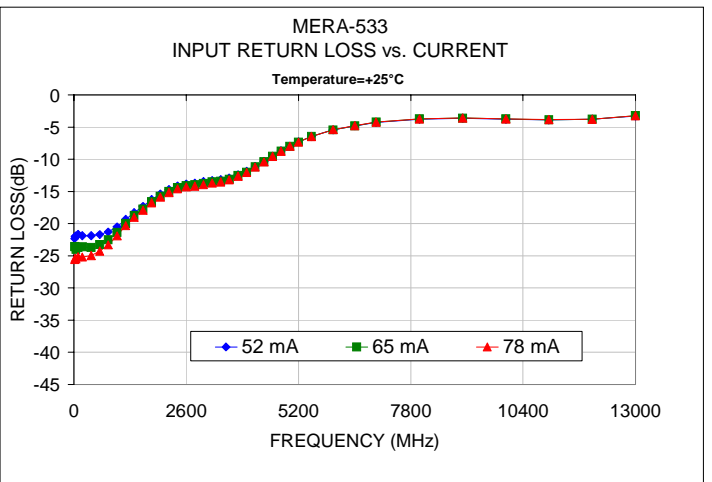
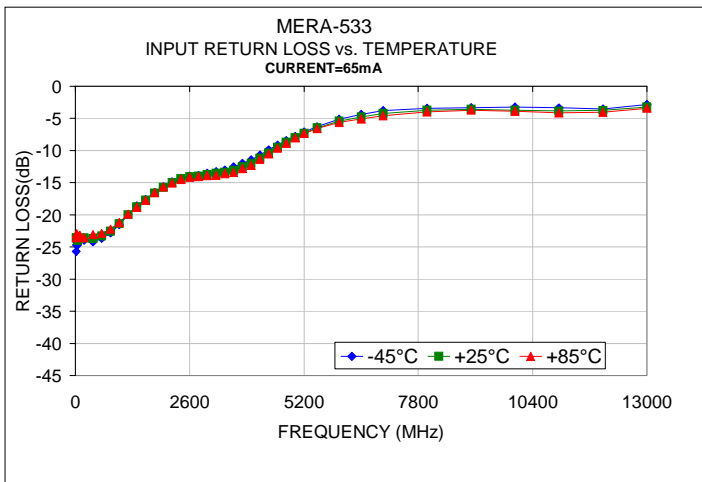
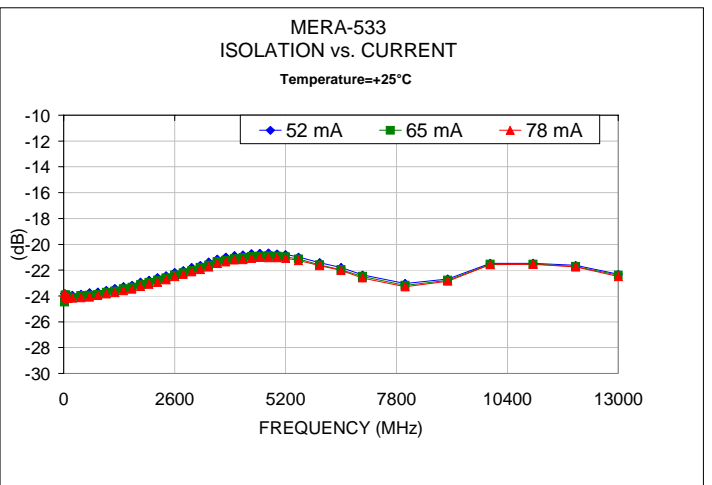
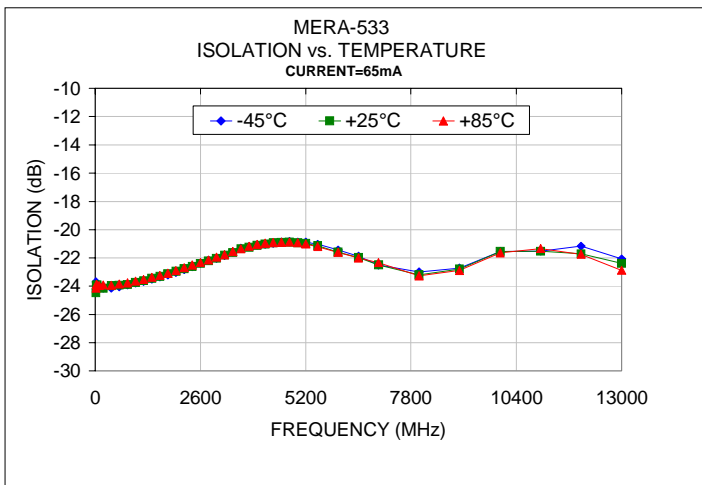
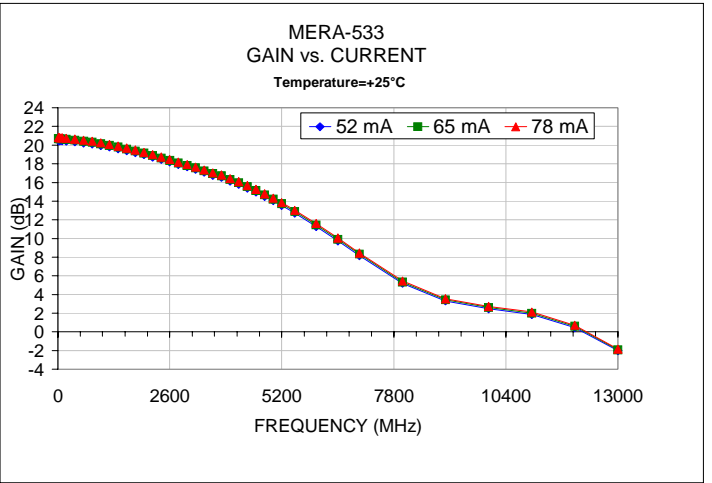
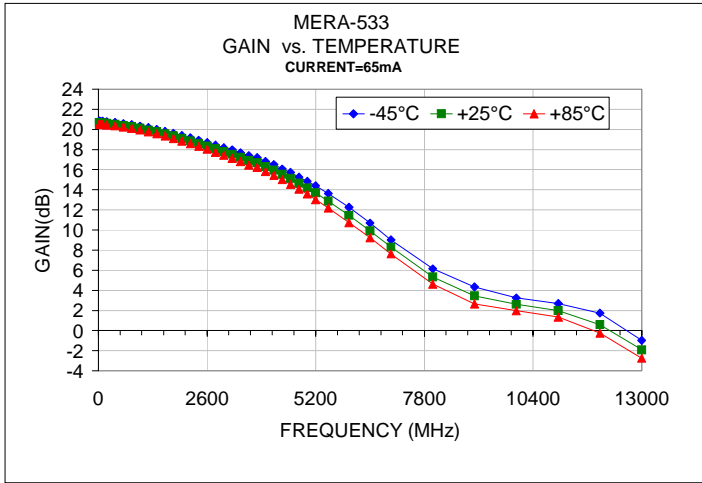
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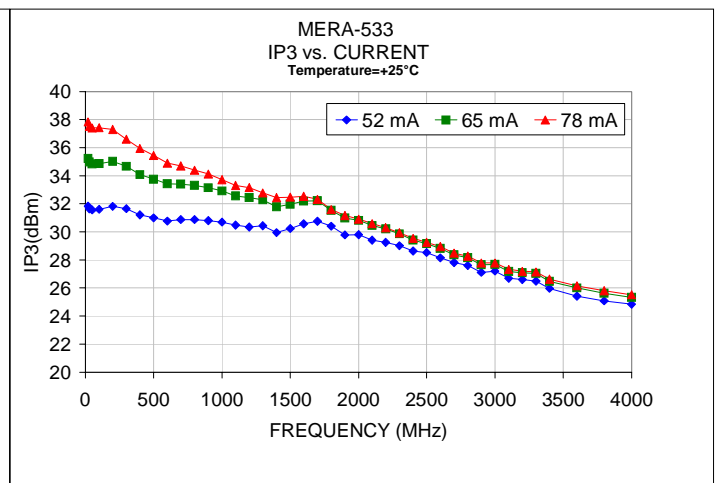
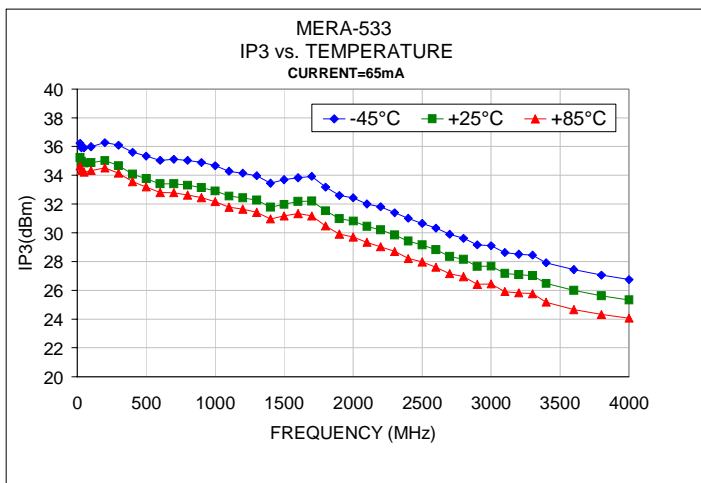
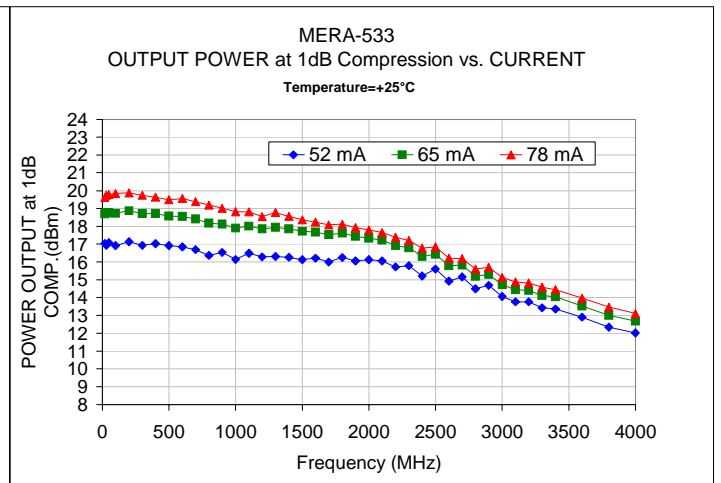
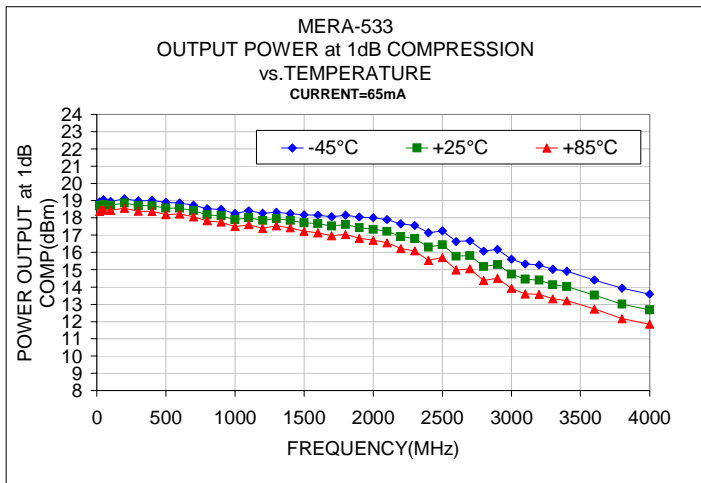
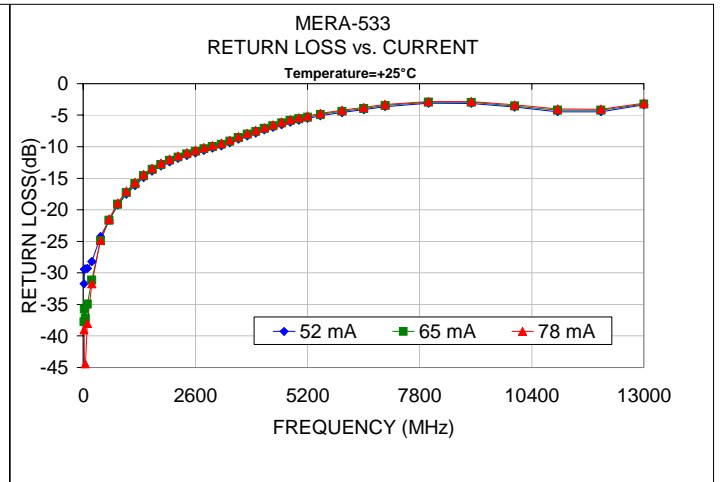
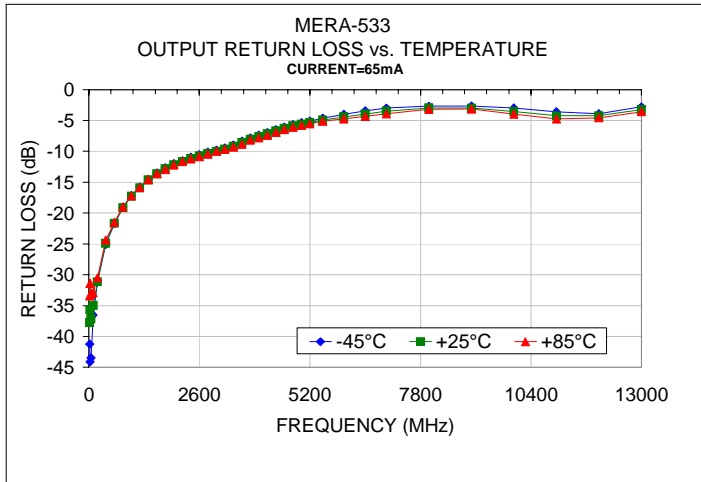
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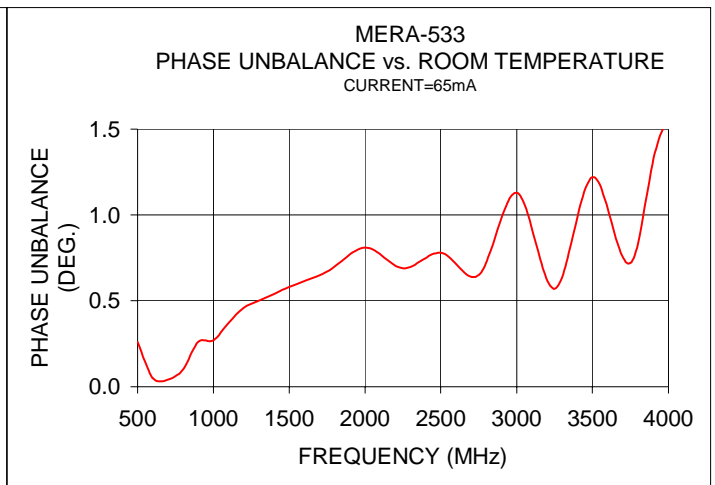
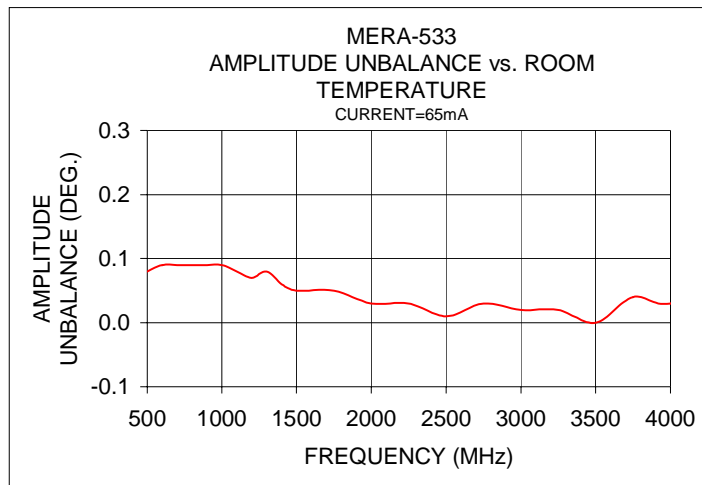
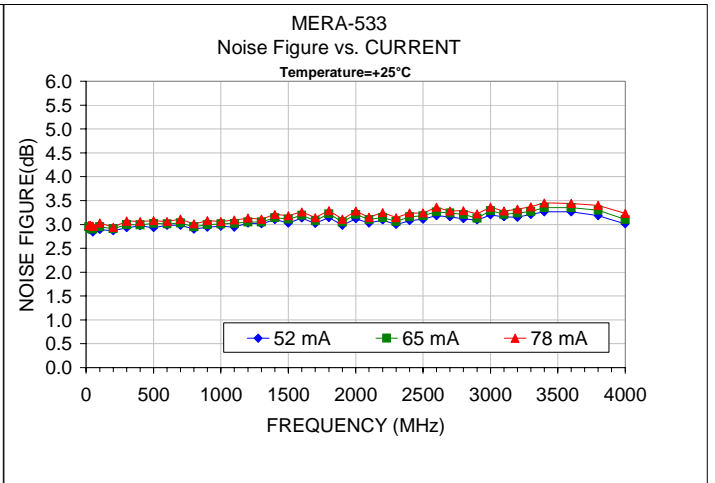
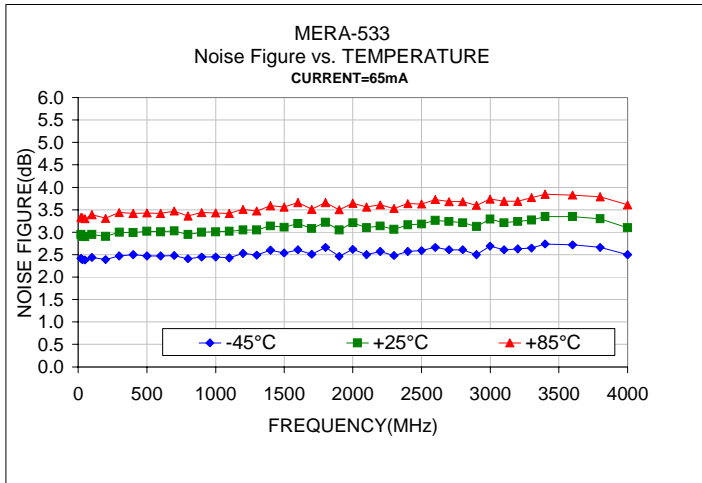
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REV. OR
M94145
MERA-533
ED-11699/5
WZ/TD/CP
041103







Freq. MHz	S11 (Input Return Loss)			S21 (Power Gain)			S12 (Isolation Out-in)			S22 (Output Return Loss)			K
	dB	Mag	ngle(deg)	dB	Mag	Angle	dB	Mag	Angle	dB	Mag	Angle	
20.00	-21.16	0.09	11.49	20.39	10.46	176.61	-23.75	0.06	-5.55	-28.74	0.04	-13.18	1.07
30.00	-21.55	0.08	-2.66	20.41	10.48	175.52	-23.75	0.06	-4.46	-28.15	0.04	-1.26	1.07
50.00	-21.25	0.09	-7.43	20.39	10.46	173.29	-23.93	0.06	-4.51	-28.89	0.04	-8.52	1.08
100.00	-21.54	0.08	-16.53	20.36	10.42	167.04	-23.88	0.06	-8.48	-28.54	0.04	-26.43	1.08
200.00	-21.15	0.09	-32.89	20.30	10.35	154.60	-24.02	0.06	-16.66	-27.57	0.04	-54.61	1.09
400.00	-20.59	0.09	-65.12	20.23	10.27	129.76	-23.72	0.07	-33.76	-24.78	0.06	-98.81	1.07
600.00	-20.20	0.10	-93.87	20.06	10.07	105.40	-23.77	0.06	-50.35	-22.50	0.07	-134.64	1.08
800.00	-19.45	0.11	-122.66	19.97	9.97	80.73	-23.73	0.07	-67.52	-20.35	0.10	-163.79	1.07
1000.00	-18.87	0.11	-148.55	19.77	9.74	56.54	-23.57	0.07	-84.42	-18.89	0.11	170.26	1.07
1200.00	-18.19	0.12	-172.47	19.58	9.53	32.27	-23.45	0.07	-101.19	-17.52	0.13	144.44	1.06
1400.00	-17.53	0.13	163.59	19.38	9.31	8.13	-23.30	0.07	-118.57	-16.33	0.15	120.24	1.05
1600.00	-17.08	0.14	139.88	19.17	9.09	-15.81	-23.12	0.07	-136.17	-15.27	0.17	95.73	1.05
1800.00	-16.71	0.15	116.55	18.93	8.84	-39.79	-22.96	0.07	-153.31	-14.38	0.19	72.51	1.04
2000.00	-16.44	0.15	94.11	18.69	8.60	-63.44	-22.77	0.07	-171.43	-13.49	0.21	48.50	1.03
2200.00	-16.25	0.15	69.20	18.46	8.38	-87.09	-22.52	0.07	170.66	-12.91	0.23	25.80	1.02
2400.00	-16.30	0.15	46.22	18.24	8.17	-110.76	-22.27	0.08	152.49	-12.21	0.25	2.16	1.01
2600.00	-16.46	0.15	21.04	17.98	7.93	-134.31	-22.04	0.08	134.76	-11.76	0.26	-21.68	1.00
2800.00	-16.24	0.15	-5.42	17.75	7.72	-157.99	-21.80	0.08	115.94	-11.27	0.27	-46.23	0.99
3000.00	-16.25	0.15	-34.28	17.47	7.47	178.29	-21.61	0.08	96.71	-10.88	0.29	-70.98	0.99
3200.00	-16.49	0.15	-63.23	17.21	7.25	154.88	-21.36	0.09	77.86	-10.61	0.29	-96.55	0.99
3400.00	-16.06	0.16	-94.09	16.88	6.98	131.65	-21.14	0.09	58.98	-10.20	0.31	-121.33	0.99
3600.00	-15.33	0.17	-123.78	16.61	6.77	108.16	-20.82	0.09	39.03	-9.59	0.33	-146.63	0.98
3800.00	-14.40	0.19	-158.33	16.31	6.54	84.12	-20.79	0.09	18.79	-8.98	0.36	-174.38	0.99
4000.00	-13.49	0.21	171.80	15.97	6.29	60.40	-20.67	0.09	-0.87	-8.47	0.38	160.09	0.99
4200.00	-12.38	0.24	142.81	15.57	6.00	36.72	-20.59	0.09	-20.68	-7.93	0.40	134.76	1.00
4400.00	-11.30	0.27	115.56	15.14	5.71	13.03	-20.51	0.09	-40.76	-7.32	0.43	110.11	1.00
4600.00	-10.19	0.31	89.96	14.71	5.44	-10.37	-20.49	0.09	-60.65	-6.77	0.46	85.45	1.01
4800.00	-9.19	0.35	64.93	14.26	5.16	-33.90	-20.53	0.09	-80.93	-6.31	0.48	61.79	1.02
5000.00	-8.29	0.39	41.22	13.75	4.87	-57.01	-20.56	0.09	-101.04	-5.87	0.51	38.09	1.03
5200.00	-7.47	0.42	18.45	13.19	4.57	-80.13	-20.68	0.09	-120.75	-5.45	0.53	14.49	1.04
5500.00	-6.48	0.47	-14.58	12.33	4.14	-114.23	-20.86	0.09	-150.35	-4.96	0.56	-19.54	1.06
6000.00	-5.27	0.55	-66.80	10.81	3.47	-169.66	-21.27	0.09	161.54	-4.32	0.61	-73.97	1.11
6500.00	-4.52	0.59	-116.54	9.28	2.91	136.91	-21.69	0.08	113.95	-3.85	0.64	-124.50	1.17
7000.00	-4.00	0.63	-165.34	7.79	2.45	84.52	-21.91	0.08	68.30	-3.67	0.66	-172.89	1.24
8000.00	-3.61	0.66	103.54	5.34	1.85	-15.69	-22.16	0.08	-21.06	-3.66	0.66	92.35	1.45
9000.00	-3.52	0.67	11.13	3.60	1.51	-115.08	-22.00	0.08	-114.03	-3.44	0.67	0.67	1.54
10000.00	-3.60	0.66	-88.19	2.37	1.31	143.16	-21.65	0.08	147.44	-3.47	0.67	-91.35	1.63
11000.00	-3.61	0.66	166.21	1.05	1.13	35.59	-22.05	0.08	44.56	-3.57	0.66	169.40	1.93
12000.00	-3.30	0.68	60.70	-1.13	0.88	-73.87	-22.37	0.08	-74.32	-3.58	0.66	67.37	2.22
13000.00	-2.68	0.73	-43.04	-4.14	0.62	176.67	-24.29	0.06	148.78	-2.86	0.72	-44.87	2.64