

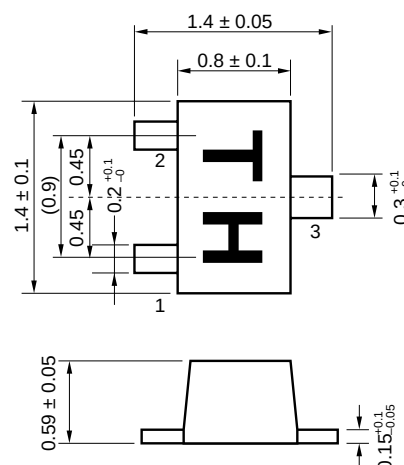
NPN EPITAXIAL SILICON TRANSISTOR FOR HIGH-FREQUENCY LOW-NOISE AMPLIFICATION

FEATURE

- Ultra super mini-mold thin flat package
(1.4 mm × 1.8 mm × 0.59 mm: TYP.)
- Contains same chip as 2SC5008

ABSOLUTE MAXIMUM RATINGS (T_A = 25 °C)

PARAMETER	SYMBOL	RATING	UNIT
Collector to Base Voltage	V _{CBO}	20	V
Collector to Emitter Voltage	V _{CEO}	10	V
Emitter to Base Voltage	V _{EBO}	1.5	V
Collector Current	I _C	35	mA
Total Power Dissipation	P _T	125	mW
Junction Temperature	T _J	150	°C
Storage Temperature	T _{stg}	−65 to +150	°C

PACKAGE DIMENSIONS (in mm)**PIN CONNECTIONS**

- 1: Emitter
2: Base
3: Collector

ELECTRICAL CHARACTERISTICS (T_A = 25 °C)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	I _{CBO}	V _{CB} = 10 V, I _E = 0			1000	nA
Emitter Cut-off Current	I _{EBO}	V _{EB} = 1 V, I _C = 0			1000	nA
DC Current Gain	h _{FE}	V _{CE} = 3 V, I _C = 5 mA ^{Note 1}	80		145	
Gain Bandwidth Product	f _T	V _{CE} = 3 V, I _C = 5 mA, f = 2 GHz	5.5	80		GHz
Reverse Transfer Capacitance	C _{re}	V _{CB} = 3 V, I _E = 0, f = 1 MHz ^{Note 2}		0.3	0.7	pF
Insertion Power Gain	S _{21e} ²	V _{CE} = 3 V, I _C = 5 mA, f = 2 GHz	5.5	7.5		dB
Noise Figure	NF	V _{CE} = 3 V, I _C = 5 mA, f = 2 GHz		1.9	3.2	dB

Notes 1. Pulse measurement P_w ≤ 350 μs, duty cycle ≤ 2 %

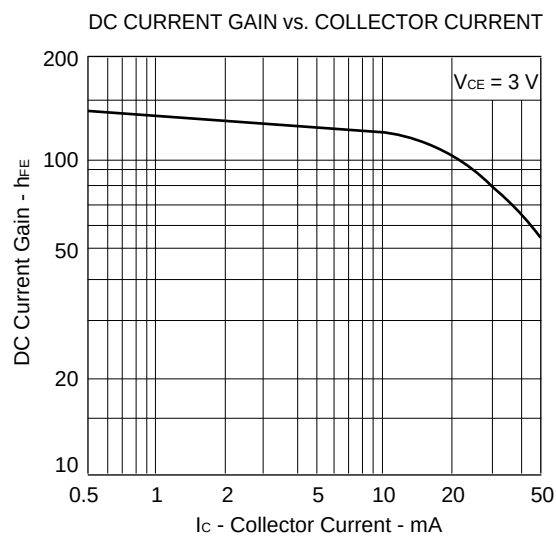
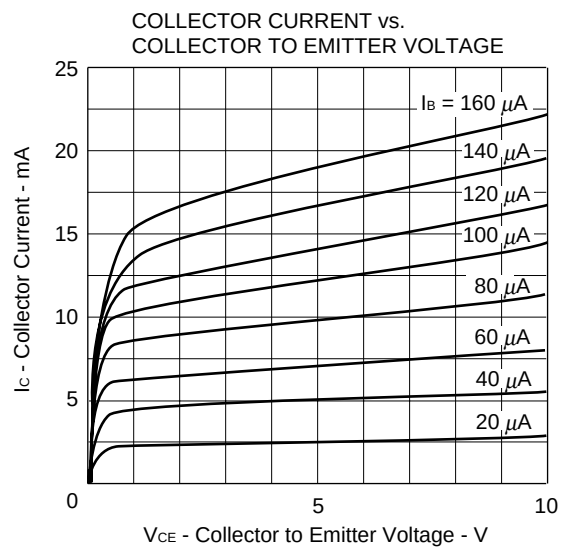
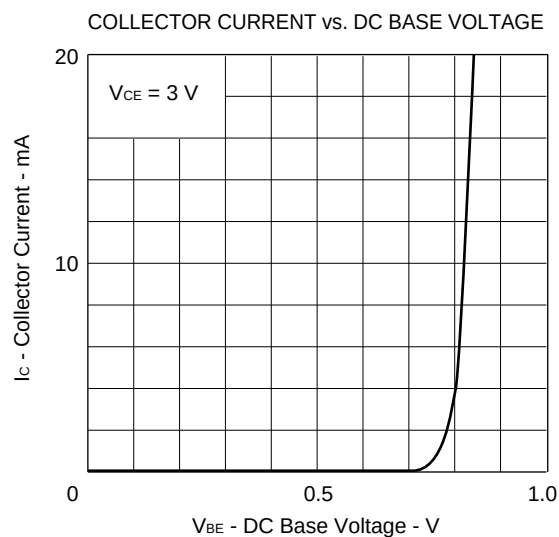
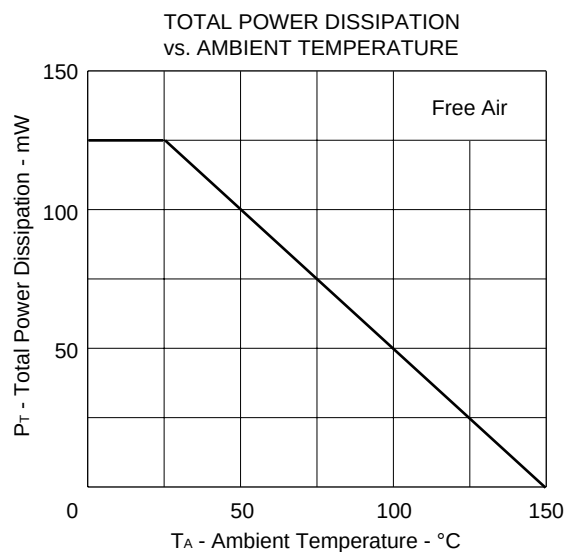
2. Collector to base capacitance measured by capacitance meter (automatic balance bridge method) when emitter pin is connected to the guard pin.

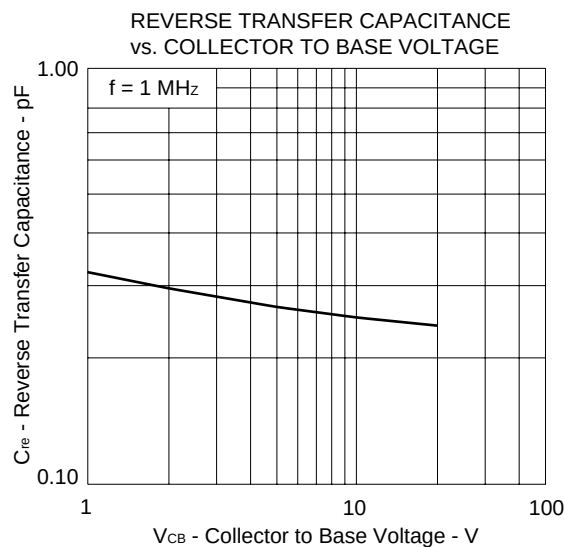
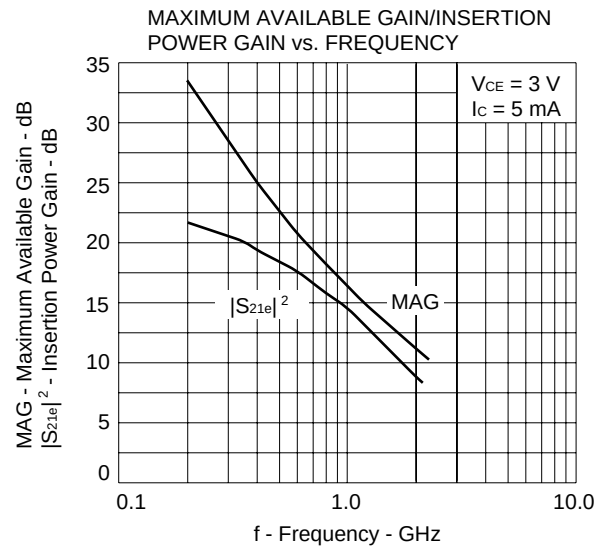
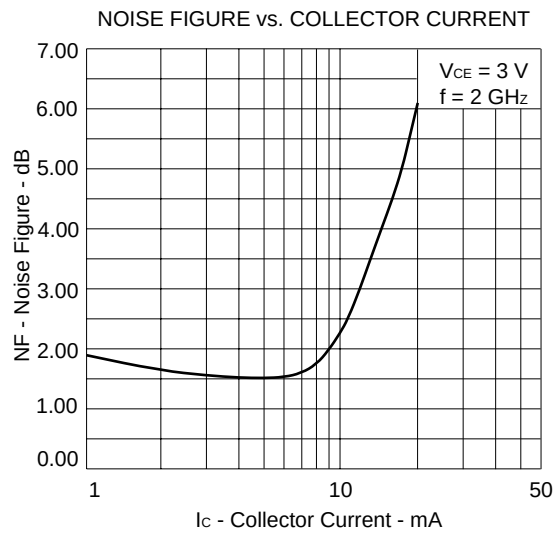
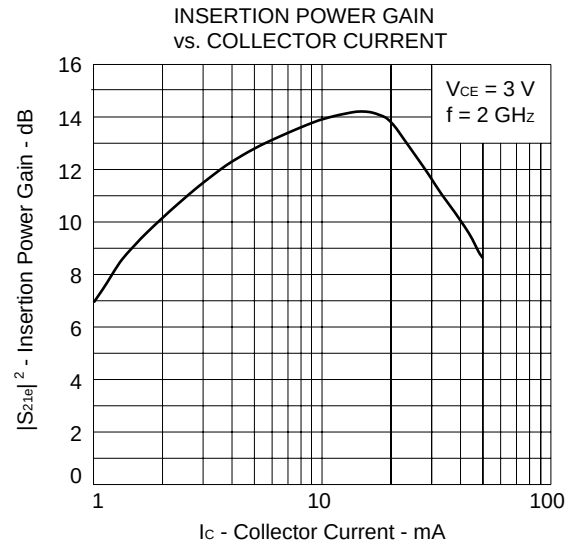
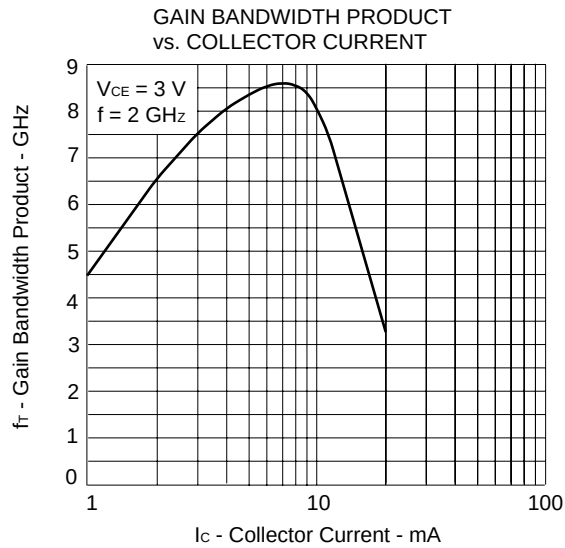
Because this product uses high-frequency process, avoid excessive input of static electricity, etc.

The information in this document is subject to change without notice.

h_{FE} CLASSIFICATION

RANK	EB	FB
Marking	TH	TJ
h_{FE}	80 to 110	100 to 145

TYPICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$)



2SC5434 S PARAMETER

 $V_{CE} = 3\text{ V}$, $I_C = 10\text{ mA}$, $Z_0 = 50\ \Omega$

FREQUENCY MHz	S ₁₁		S ₂₁		S ₁₂		S ₂₂	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
200.00	0.589	-46.2	15.156	134.5	0.027	63.5	0.772	-23.5
400.00	0.366	-73.1	9.926	112.1	0.038	58.9	0.561	-28.9
600.00	0.265	-91.3	7.179	99.2	0.048	59.0	0.465	-30.3
800.00	0.205	-104.1	5.703	92.4	0.056	61.0	0.429	-31.0
1000.00	0.165	-117.4	4.740	87.6	0.066	62.6	0.415	-30.3
1200.00	0.143	-132.6	4.069	82.7	0.077	63.9	0.398	-28.6
1400.00	0.135	-145.6	3.508	77.5	0.088	64.8	0.377	-28.4
1600.00	0.131	-158.5	3.075	73.8	0.100	65.9	0.353	-29.4
1800.00	0.133	-171.6	2.729	70.5	0.110	68.1	0.335	-31.9
2000.00	0.146	176.2	2.474	67.2	0.120	67.3	0.323	-35.1
2200.00	0.166	168.7	2.285	62.9	0.130	66.7	0.312	-37.1
2400.00	0.184	164.3	2.154	58.8	0.143	65.6	0.293	-40.2
2600.00	0.200	159.7	2.057	56.3	0.158	65.6	0.278	-44.5
2800.00	0.218	155.6	1.918	54.3	0.168	66.4	0.273	-49.0
3000.00	0.236	152.9	1.785	50.7	0.175	65.8	0.265	-52.6

 $V_{CE} = 3\text{ V}$, $I_C = 7\text{ mA}$, $Z_0 = 50\ \Omega$

FREQUENCY MHz	S ₁₁		S ₂₁		S ₁₂		S ₂₂	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
200.00	0.687	-38.0	13.645	140.8	0.030	66.7	0.830	-21.6
400.00	0.458	-63.0	9.604	118.2	0.044	58.2	0.613	-30.3
600.00	0.339	-80.5	7.166	104.1	0.054	56.2	0.497	-34.0
800.00	0.264	-92.0	5.746	96.1	0.062	57.4	0.447	-35.5
1000.00	0.210	-102.5	4.830	90.8	0.072	58.2	0.422	-34.6
1200.00	0.172	-115.0	4.162	85.7	0.082	59.5	0.396	-32.8
1400.00	0.153	-127.5	3.604	80.1	0.093	60.3	0.370	-32.5
1600.00	0.141	-140.3	3.164	76.0	0.105	62.1	0.343	-33.4
1800.00	0.134	-154.2	2.816	72.5	0.114	64.1	0.324	-35.5
2000.00	0.139	-168.8	2.546	69.0	0.122	64.1	0.309	-38.2
2200.00	0.155	-179.6	2.355	64.7	0.133	63.2	0.296	-40.0
2400.00	0.172	173.9	2.219	60.5	0.145	62.2	0.276	-43.1
2600.00	0.187	168.0	2.120	57.9	0.159	62.4	0.261	-47.1
2800.00	0.203	162.6	1.983	55.9	0.170	63.3	0.255	-51.5
3000.00	0.221	159.0	1.843	52.3	0.176	62.9	0.247	-54.9

 $V_{CE} = 3\text{ V}$, $I_C = 5\text{ mA}$, $Z_0 = 50\ \Omega$

FREQUENCY MHz	S ₁₁		S ₂₁		S ₁₂		S ₂₂	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
200.00	0.777	-30.9	11.368	147.0	0.032	69.9	0.883	-18.7
400.00	0.562	-53.6	8.634	125.2	0.051	57.8	0.688	-29.1
600.00	0.431	-71.4	6.753	109.9	0.062	53.9	0.559	-35.3
800.00	0.344	-82.7	5.525	100.7	0.071	53.6	0.496	-38.3
1000.00	0.273	-91.9	4.677	94.6	0.080	53.4	0.460	-38.2
1200.00	0.220	-102.3	4.070	88.9	0.089	53.9	0.424	-36.8
1400.00	0.189	-113.6	3.534	82.8	0.099	54.9	0.391	-36.7
1600.00	0.165	-125.3	3.113	78.1	0.109	57.1	0.358	-37.6
1800.00	0.149	-138.6	2.768	74.2	0.118	58.9	0.336	-39.7
2000.00	0.143	-154.5	2.513	70.6	0.125	58.9	0.319	-42.1
2200.00	0.153	-168.3	2.326	65.9	0.135	58.2	0.303	-43.9
2400.00	0.167	-177.1	2.189	61.6	0.146	57.8	0.282	-47.1
2600.00	0.180	175.5	2.092	58.8	0.160	58.0	0.266	-51.3
2800.00	0.194	168.8	1.955	56.7	0.168	59.4	0.259	-55.2
3000.00	0.210	163.5	1.819	53.1	0.174	59.0	0.252	-58.5

2SC5434 S PARAMETER

 $V_{CE} = 3\text{ V}$, $I_C = 3\text{ mA}$, $Z_0 = 50\ \Omega$

FREQUENCY MHz	S ₁₁		S ₂₁		S ₁₂		S ₂₂	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
200.00	0.866	-23.3	8.242	154.2	0.034	73.1	0.934	-14.4
400.00	0.693	-42.6	6.829	134.4	0.058	61.3	0.784	-24.9
600.00	0.565	-60.3	5.662	118.8	0.075	54.0	0.657	-33.3
800.00	0.474	-72.1	4.819	108.1	0.084	51.0	0.588	-38.5
1000.00	0.390	-80.9	4.196	101.0	0.092	48.6	0.543	-39.9
1200.00	0.321	-89.8	3.702	94.7	0.102	47.7	0.495	-39.5
1400.00	0.274	-99.4	3.260	87.8	0.111	48.6	0.453	-40.0
1600.00	0.237	-109.3	2.889	82.1	0.119	50.7	0.413	-41.4
1800.00	0.209	-119.5	2.590	77.8	0.124	52.1	0.386	-43.8
2000.00	0.187	-133.1	2.383	74.0	0.130	51.9	0.365	-46.2
2200.00	0.183	-147.1	2.189	68.7	0.138	51.5	0.344	-48.2
2400.00	0.190	-157.5	2.066	63.9	0.148	51.3	0.321	-51.6
2600.00	0.197	-166.2	1.982	60.8	0.161	52.3	0.306	-55.8
2800.00	0.204	-174.4	1.861	58.4	0.167	53.7	0.299	-59.6
3000.00	0.215	178.1	1.735	54.5	0.171	53.6	0.289	-62.5

 $V_{CE} = 3\text{ V}$, $I_C = 1\text{ mA}$, $Z_0 = 50\ \Omega$

FREQUENCY MHz	S ₁₁		S ₂₁		S ₁₂		S ₂₂	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
200.00	0.959	-12.8	3.416	164.4	0.038	79.7	0.984	-7.5
400.00	0.880	-24.9	3.110	150.1	0.070	68.7	0.922	-14.6
600.00	0.792	-38.9	2.829	136.8	0.097	60.3	0.843	-22.9
800.00	0.739	-50.7	2.654	125.2	0.118	53.8	0.801	-30.5
1000.00	0.669	-59.5	2.539	116.6	0.132	47.5	0.774	-34.6
1200.00	0.590	-67.2	2.307	109.5	0.146	42.7	0.726	-36.6
1400.00	0.520	-75.5	2.081	100.9	0.159	40.4	0.670	-39.0
1600.00	0.458	-84.6	1.965	93.1	0.163	39.4	0.616	-42.0
1800.00	0.412	-92.6	1.839	87.1	0.164	38.3	0.579	-45.6
2000.00	0.360	-101.7	1.698	81.6	0.165	35.1	0.551	-49.1
2200.00	0.324	-112.8	1.590	74.9	0.169	33.6	0.523	-51.9
2400.00	0.313	-124.0	1.520	68.9	0.173	32.9	0.491	-56.0
2600.00	0.303	-132.2	1.474	64.5	0.177	33.6	0.474	-60.7
2800.00	0.291	-140.2	1.401	61.1	0.174	34.2	0.471	-64.4
3000.00	0.281	-149.5	1.315	56.6	0.172	34.3	0.457	-67.1

 $V_{CE} = 1\text{ V}$, $I_C = 5\text{ mA}$, $Z_0 = 50\ \Omega$

FREQUENCY MHz	S ₁₁		S ₂₁		S ₁₂		S ₂₂	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
200.00	0.744	-36.0	10.973	143.7	0.037	66.0	0.845	-22.7
400.00	0.518	-61.7	8.030	121.2	0.057	54.5	0.624	-34.4
600.00	0.395	-80.9	6.108	106.2	0.068	51.2	0.494	-40.8
800.00	0.313	-93.7	4.965	97.5	0.076	50.9	0.429	-43.5
1000.00	0.253	-105.4	4.187	91.5	0.086	50.8	0.390	-43.2
1200.00	0.213	-118.2	3.630	86.0	0.096	51.6	0.353	-41.8
1400.00	0.193	-130.2	3.144	79.8	0.108	53.2	0.321	-41.9
1600.00	0.180	-142.3	2.769	75.2	0.119	55.2	0.291	-43.1
1800.00	0.171	-155.1	2.510	72.0	0.127	56.8	0.270	-45.6
2000.00	0.175	-168.7	2.254	68.0	0.134	56.6	0.252	-48.0
2200.00	0.191	-179.1	2.066	63.1	0.145	55.9	0.234	-50.6
2400.00	0.208	174.7	1.952	58.8	0.157	55.2	0.214	-55.0
2600.00	0.233	168.8	1.864	56.0	0.172	55.7	0.201	-60.4
2800.00	0.238	163.5	1.739	53.8	0.180	56.8	0.194	-65.4
3000.00	0.255	159.3	1.620	50.0	0.186	56.2	0.185	-69.8

2SC5434 S PARAMETER

 $V_{CE} = 1\text{ V}$, $I_C = 3\text{ mA}$, $Z_0 = 50\ \Omega$

FREQUENCY MHz	S ₁₁		S ₂₁		S ₁₂		S ₂₂	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
200.00	0.845	-26.5	8.141	152.0	0.040	72.5	0.914	-17.3
400.00	0.659	-47.9	6.589	131.2	0.067	57.7	0.740	-29.5
600.00	0.531	-66.7	5.355	115.3	0.084	50.6	0.604	-38.8
800.00	0.439	-79.3	4.509	104.9	0.093	47.4	0.530	-44.1
1000.00	0.359	-89.4	3.893	97.9	0.102	45.4	0.478	-45.5
1200.00	0.297	-100.0	3.419	91.6	0.112	44.9	0.428	-45.3
1400.00	0.258	-110.8	2.999	84.5	0.122	45.7	0.385	-46.1
1600.00	0.229	-121.7	2.665	79.2	0.129	47.7	0.346	-47.8
1800.00	0.206	-133.2	2.416	75.4	0.135	49.2	0.319	-50.4
2000.00	0.194	-147.5	2.179	71.0	0.140	48.6	0.297	-53.1
2200.00	0.199	-160.3	2.002	65.7	0.149	48.3	0.274	-55.7
2400.00	0.211	-169.1	1.890	61.0	0.160	48.4	0.253	-60.1
2600.00	0.222	-176.6	1.809	58.0	0.173	49.1	0.239	-65.3
2800.00	0.232	176.3	1.694	55.4	0.178	50.2	0.232	-69.8
3000.00	0.247	170.1	1.579	51.5	0.183	50.1	0.221	-73.5

 $V_{CE} = 1\text{ V}$, $I_C = 1\text{ mA}$, $Z_0 = 50\ \Omega$

FREQUENCY MHz	S ₁₁		S ₂₁		S ₁₂		S ₂₂	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
200.00	0.954	-14.1	3.423	163.2	0.045	78.6	0.979	-8.8
400.00	0.865	-27.4	3.090	148.0	0.081	66.6	0.906	-17.1
600.00	0.772	-42.4	2.783	133.9	0.113	57.5	0.818	-26.4
800.00	0.714	-54.6	2.594	122.0	0.134	50.4	0.768	-34.5
1000.00	0.637	-63.9	2.450	113.2	0.150	44.2	0.731	-38.8
1200.00	0.557	-72.2	2.206	105.8	0.164	39.3	0.676	-41.1
1400.00	0.489	-81.2	1.991	97.0	0.177	36.8	0.618	-43.9
1600.00	0.432	-90.6	1.871	89.4	0.180	35.9	0.563	-47.2
1800.00	0.388	-99.1	1.743	83.4	0.181	34.3	0.525	-51.1
2000.00	0.339	-109.2	1.602	77.9	0.180	31.3	0.495	-54.6
2200.00	0.310	-120.9	1.499	71.1	0.185	29.5	0.464	-57.8
2400.00	0.305	-132.1	1.432	65.2	0.188	28.9	0.434	-62.7
2600.00	0.298	-140.4	1.388	61.1	0.192	29.4	0.418	-67.8
2800.00	0.290	-148.7	1.313	57.7	0.188	29.9	0.414	-71.7
3000.00	0.286	-157.6	1.234	53.0	0.186	29.5	0.398	-74.8

[MEMO]

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