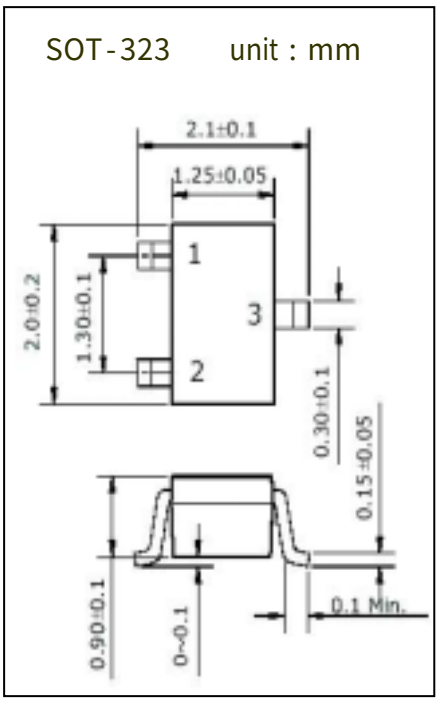
NPN Planer RF TRANSISTOR



☐ DESCRIPTION

The THN6301U is a low Noise figure and good associated gain performance at UHF,VHF and Microwave frequiecies

It is suitable for a high density surface mount since transistor has been SOT323 package

☐ FEATURES

o Low Noise Figure

N.F = 1.1dB TYP. @ f=1GHz, V_{CE}=8V, Ic=5mA

o High Gain

MAG = 17dB TYP. @ f=1GHz, V_{CE}=8V, Ic=15mA

o High Transition Frequency

f_T = 10GHz TYP. @ f=1GHz, V_{CE}=8V, Ic=15mA

PIN CONFIGURATION

PIN NO	SYMBOL	DESCRIPTION
1	B	Base
2	E	Emitter
3	C	Collector

☐ MARKING : AA1

☐ MAXIMUM RATINGS

SYMBOL	PARAMETER	CONDITION	VALUE	Unit
V_{CBO}	Collector-Base Voltage	Open Emitter	25	V
V_{CEO}	Collector-Emitter Voltage	Open Base	12	V
V_{EBO}	Emitter-Base Voltage	Open Collector	2.5	V
Ic	Collector Current (DC)		65	mA
P_T	Total Power Dissipation	Ts = 60℃	150	mW
T_{STG}	Storage Temperature		-65 ~ 150	℃
T_J	Operating Junction Temperature		150	℃

☐ Electrical Characteristics (T_A = 25 ℃)

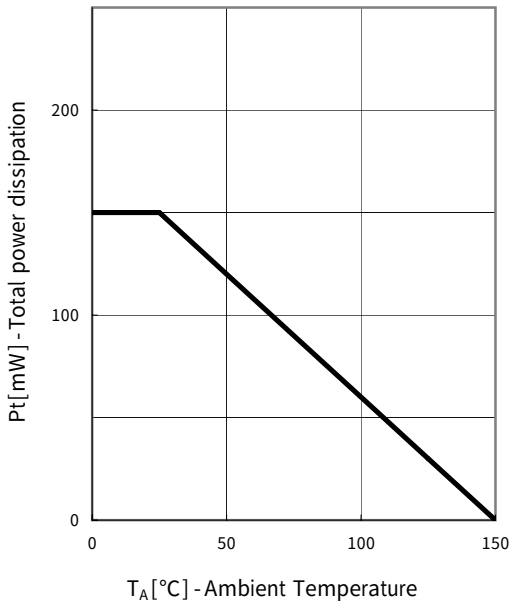
SYMBOL	PARAMETER	CONDITION	VALUE			Unit
			min	typ	max	
V_{CBO}	Collector-Base Voltage	I_{CE} = 100uA, I_E = 0	20	25		V
V_{CEO}	Collector-Emitter Voltage	I_{CE} = 100uA, I_B = 0	12	14		V
I_{CBO}	Collector-Cut-off current	V_{CB} = 10V, I_E = 0			100	n A
I_{EBO}	Emitter-Cut-off current	V_{EB} = 1V, I_C = 0			100	n A
hfe	D.C current Gain	V_{CE} = 8V, Ic = 15mA	100	200	300	
f_T	Transition Frequency	V_{CE} = 8V, Ic = 15mA		10		GHz
C_{CB}	Collector-Base Capacitance	V_{CB} = 10V, f = 1MHz		0.55		pF

☐ Performance Characteristics

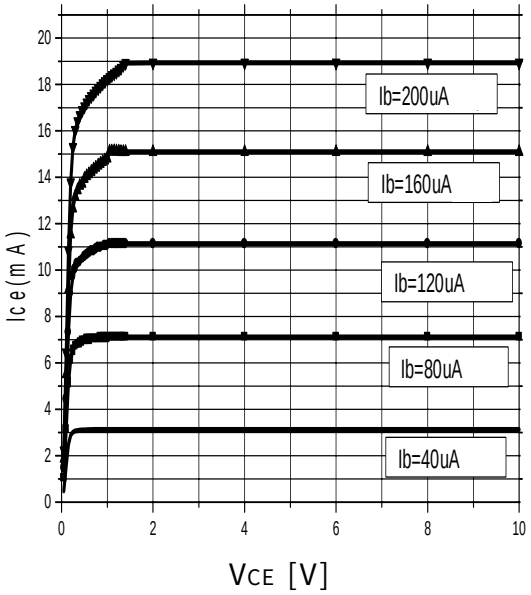
SYMBOL	PARAMETER	CONDITION	VALUE			Unit
			min	typ	max	
$[S21]^2$	Insertion Power Gain	V_{CE}=8V, Ic=5mA,f=1GHz		11.5		dB
		V_{CE}=8V, Ic=15mA,f=1GHz		13.5		
MSG	Maximum Stable Gain	V_{CE}=8V, Ic=5mA,f=1GHz		16		dB
		V_{CE}=8V, Ic=15mA,f=1GHz		17		
NFmin	Minimum Noise Figure	V_{CE}=8V, Ic=5mA,f=1GHz		1.1		dB
rn	Noise Resistance	V_{CE}=8V, Ic=5mA,f=1GHz		0.055		Ω
G_A	Associated Gain	V_{CE}=8V, Ic=5mA,f=1GHz		14.5		dB
		V_{CE}=8V, Ic=15mA,f=1GHz		15		
OIP_3	Output 3rd Intercept	V_{CE}=8V, Ic=15mA,f=1GHz		27		dBm

Total power dissipation *Pt = f(T A)*

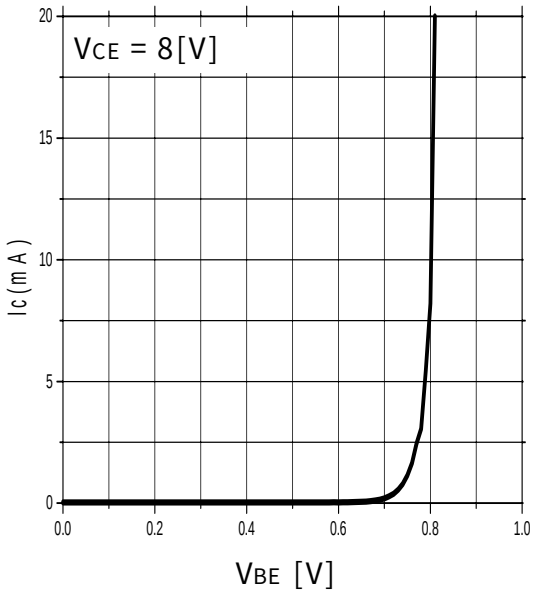
(T_A = 25 ℃)



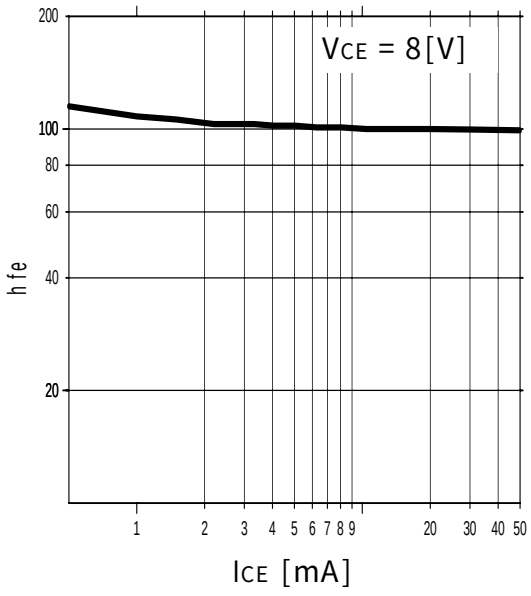
Icc vs. VCE



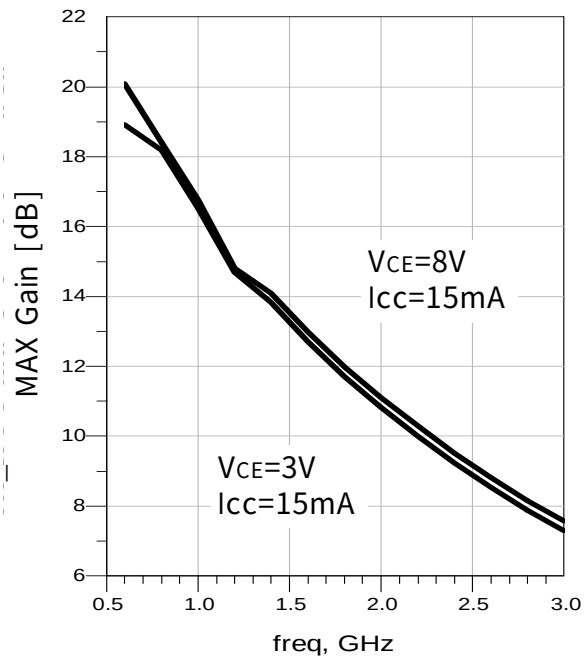
Icc vs. VBE



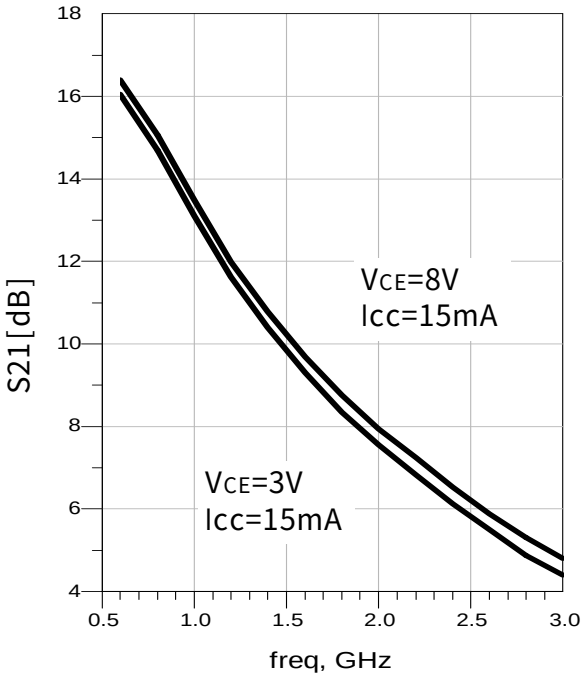
hfe vs. Icc



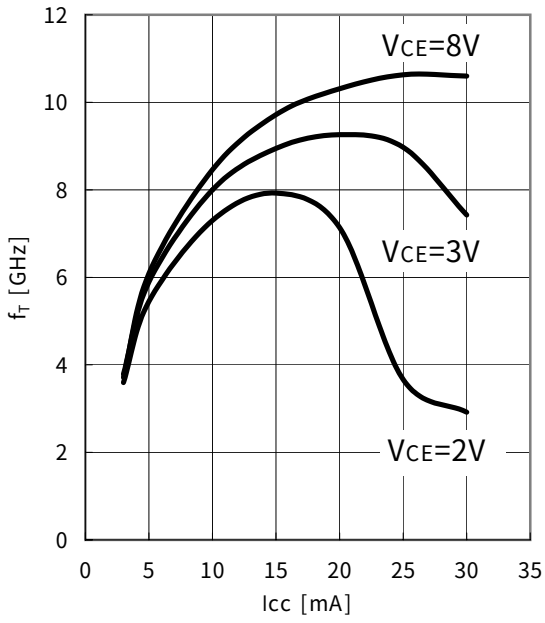
Power Gain : MSG vs. Frequency



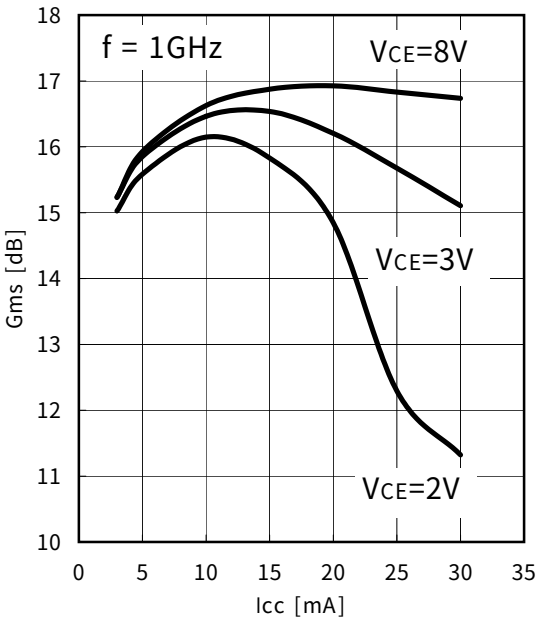
Power Gain : S_{21} vs. Frequency



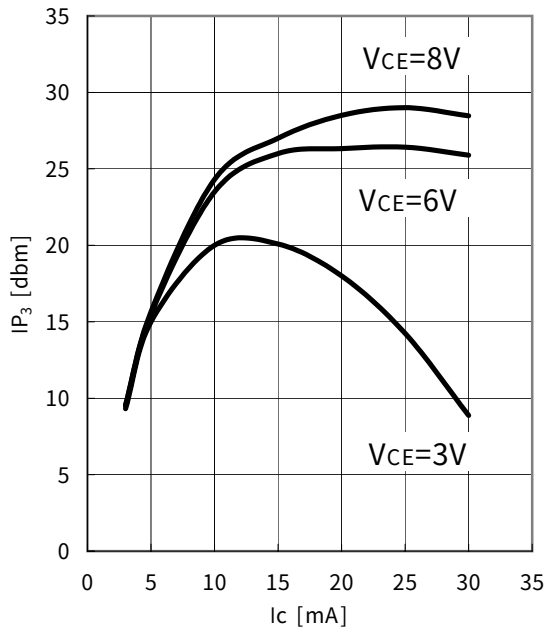
Transition Frequency : fT vs. Icc



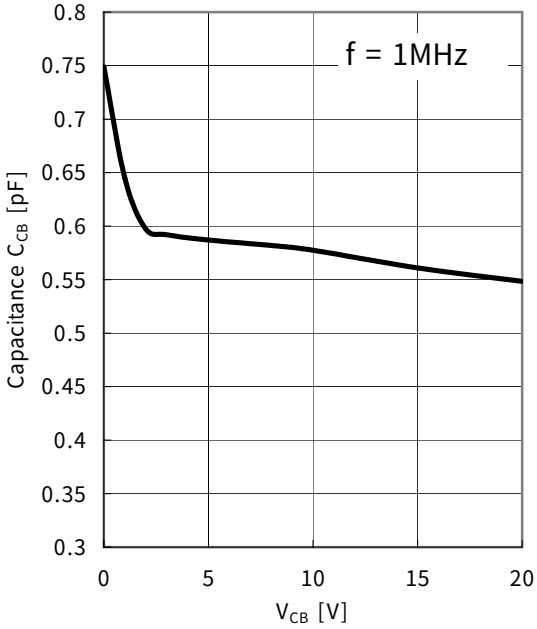
Power Gain : MSG vs. Icc



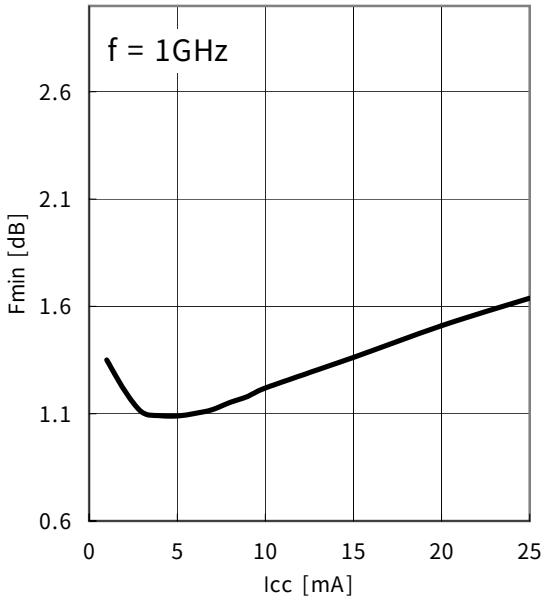
Intermodulation Intercept Point *IP3=f(Ic)*
(Z_S =Z_L= 50 Ω)



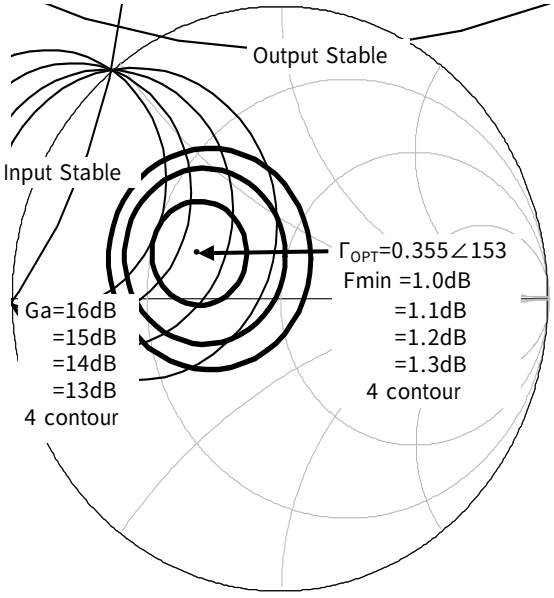
CCB vs. VCB



Fmin vs. Icc
VCE = 8V, Icc = parameter, Zs = Zsopt



Noise Figure Contours & Constant Gain
f = 1 GHz, VCE = 8V, Icc = 5mA



☐ Common Emitter S-Parameter Data

V_{CE} = 3V, I_{CC} = 3mA

freq	S(1,1)	S(2,1)	S(1,2)	S(2,2)
600.0MHz	0.628 / -124.123	4.518 / 91.099	0.108 / 21.413	0.536 / -75.880
800.0MHz	0.618 / -135.087	3.900 / 85.735	0.107 / 20.973	0.530 / -84.300
1.000GHz	0.607 / -146.051	3.283 / 80.371	0.106 / 20.533	0.524 / -92.720
1.200GHz	0.611 / -156.194	2.780 / 71.840	0.104 / 19.576	0.513 / -100.394
1.400GHz	0.621 / -163.802	2.411 / 64.003	0.101 / 20.733	0.517 / -107.407
1.600GHz	0.616 / -171.144	2.117 / 57.311	0.099 / 23.299	0.531 / -113.173
1.800GHz	0.623 / -177.725	1.886 / 50.822	0.098 / 26.777	0.546 / -119.060
2.000GHz	0.630 / 176.974	1.689 / 44.982	0.100 / 31.423	0.565 / -124.438
2.200GHz	0.646 / 172.598	1.542 / 39.621	0.104 / 36.035	0.579 / -129.833
2.400GHz	0.655 / 168.349	1.406 / 34.422	0.111 / 40.785	0.587 / -135.193
2.600GHz	0.666 / 164.332	1.291 / 29.527	0.121 / 43.950	0.602 / -140.460
2.800GHz	0.679 / 159.641	1.194 / 24.762	0.132 / 46.466	0.621 / -145.041
3.000GHz	0.677 / 154.525	1.117 / 21.415	0.145 / 48.549	0.642 / -148.545

V_{CE} = 3V, I_{CC} = 5mA

freq	S(1,1)	S(2,1)	S(1,2)	S(2,2)
600.0MHz	0.486 / -145.584	5.284 / 86.053	0.083 / 36.732	0.390 / -76.426
800.0MHz	0.489 / -152.278	4.557 / 81.095	0.091 / 40.663	0.382 / -84.452
1.000GHz	0.492 / -158.972	3.829 / 76.137	0.100 / 44.593	0.375 / -92.477
1.200GHz	0.488 / -168.718	3.248 / 68.459	0.108 / 47.641	0.364 / -99.061
1.400GHz	0.497 / -177.376	2.833 / 60.924	0.120 / 50.835	0.367 / -105.646
1.600GHz	0.490 / 174.349	2.506 / 54.604	0.134 / 53.425	0.376 / -111.172
1.800GHz	0.500 / 166.610	2.254 / 48.040	0.149 / 55.025	0.387 / -117.219
2.000GHz	0.508 / 159.866	2.050 / 42.104	0.168 / 56.173	0.401 / -123.042
2.200GHz	0.522 / 153.962	1.891 / 36.557	0.189 / 56.060	0.412 / -129.327
2.400GHz	0.541 / 148.517	1.746 / 31.025	0.212 / 55.820	0.416 / -135.896
2.600GHz	0.558 / 143.698	1.613 / 26.062	0.236 / 54.236	0.431 / -142.773
2.800GHz	0.575 / 137.498	1.505 / 20.645	0.261 / 52.297	0.450 / -149.049
3.000GHz	0.589 / 131.468	1.415 / 16.722	0.287 / 50.368	0.470 / -154.460

V_{CE} = 3V, I_{CC} = 10mA

freq	S(1,1)	S(2,1)	S(1,2)	S(2,2)
600.0MHz	0.435 / -168.998	6.079 / 81.622	0.069 / 53.083	0.265 / -86.098
800.0MHz	0.452 / -171.594	5.221 / 77.558	0.084 / 55.427	0.271 / -94.922
1.000GHz	0.468 / -174.190	4.363 / 73.494	0.098 / 57.771	0.277 / -103.746
1.200GHz	0.467 / 176.804	3.681 / 66.803	0.114 / 59.300	0.275 / -109.573
1.400GHz	0.475 / 170.775	3.201 / 60.184	0.131 / 59.990	0.284 / -115.417
1.600GHz	0.474 / 163.905	2.823 / 54.513	0.149 / 60.041	0.297 / -120.189
1.800GHz	0.489 / 156.718	2.537 / 48.677	0.169 / 59.440	0.311 / -125.427
2.000GHz	0.493 / 151.514	2.309 / 43.168	0.189 / 58.543	0.326 / -130.609
2.200GHz	0.503 / 146.772	2.129 / 38.219	0.211 / 56.894	0.339 / -136.252
2.400GHz	0.520 / 142.245	1.964 / 32.949	0.233 / 55.361	0.343 / -142.396
2.600GHz	0.535 / 138.271	1.820 / 28.094	0.255 / 53.030	0.360 / -148.681
2.800GHz	0.557 / 132.441	1.703 / 23.139	0.279 / 50.579	0.379 / -154.399
3.000GHz	0.568 / 126.274	1.604 / 19.036	0.302 / 48.236	0.398 / -159.254

V_{CE} = 3V, I_{CC} = 15mA

freq	S(1,1)	S(2,1)	S(1,2)	S(2,2)
600.0MHz	0.480 / -174.461	6.347 / 79.775	0.065 / 59.483	0.214 / -93.185
800.0MHz	0.474 / -178.091	5.432 / 76.016	0.083 / 61.347	0.227 / -101.903
1.000GHz	0.468 / 178.278	4.517 / 72.256	0.100 / 63.211	0.240 / -110.620
1.200GHz	0.473 / 171.554	3.812 / 65.997	0.118 / 63.530	0.243 / -115.958
1.400GHz	0.479 / 165.151	3.314 / 59.729	0.137 / 63.046	0.254 / -121.335
1.600GHz	0.480 / 159.080	2.916 / 54.395	0.157 / 62.310	0.269 / -125.596
1.800GHz	0.487 / 152.966	2.615 / 48.664	0.177 / 60.908	0.284 / -130.396
2.000GHz	0.493 / 147.402	2.385 / 43.450	0.198 / 59.379	0.300 / -135.226
2.200GHz	0.509 / 142.995	2.193 / 38.479	0.220 / 57.262	0.314 / -140.509
2.400GHz	0.521 / 138.933	2.026 / 33.465	0.242 / 55.261	0.318 / -146.488
2.600GHz	0.531 / 135.199	1.882 / 28.670	0.264 / 52.583	0.335 / -152.518
2.800GHz	0.558 / 130.314	1.753 / 23.936	0.287 / 49.959	0.354 / -157.918
3.000GHz	0.562 / 124.563	1.658 / 20.055	0.309 / 47.439	0.374 / -162.542

V_{CE} = 3V, I_{CC} = 20mA

freq	S(1,1)	S(2,1)	S(1,2)	S(2,2)
600.0MHz	0.501 / 179.000	6.412 / 78.355	0.065 / 64.518	0.185 / -97.544
800.0MHz	0.486 / 176.996	5.474 / 74.821	0.083 / 65.247	0.203 / -106.118
1.000GHz	0.471 / 174.991	4.536 / 71.287	0.102 / 65.976	0.221 / -114.693
1.200GHz	0.479 / 167.748	3.821 / 65.328	0.121 / 65.690	0.227 / -119.712
1.400GHz	0.490 / 161.513	3.316 / 59.141	0.141 / 64.752	0.240 / -124.733
1.600GHz	0.493 / 156.297	2.919 / 53.914	0.161 / 63.439	0.256 / -128.698
1.800GHz	0.493 / 150.329	2.623 / 48.253	0.182 / 61.718	0.272 / -133.226
2.000GHz	0.501 / 144.893	2.387 / 43.280	0.203 / 59.937	0.289 / -137.866
2.200GHz	0.516 / 140.654	2.195 / 38.353	0.225 / 57.538	0.303 / -142.980
2.400GHz	0.531 / 137.024	2.028 / 33.363	0.248 / 55.373	0.308 / -148.908
2.600GHz	0.549 / 133.791	1.881 / 28.837	0.269 / 52.568	0.326 / -154.775
2.800GHz	0.557 / 128.103	1.761 / 23.902	0.291 / 49.702	0.345 / -160.022
3.000GHz	0.572 / 123.024	1.661 / 20.174	0.314 / 47.162	0.365 / -164.600

V_{CE} = 3V, I_{CC} = 25mA

freq	S(1,1)	S(2,1)	S(1,2)	S(2,2)
600.0MHz	0.525 / 175.704	6.212 / 76.276	0.063 / 67.129	0.167 / -99.049
800.0MHz	0.508 / 173.814	5.325 / 73.372	0.083 / 67.478	0.189 / -107.570
1.000GHz	0.490 / 171.923	4.439 / 70.467	0.102 / 67.826	0.210 / -116.092
1.200GHz	0.498 / 164.867	3.727 / 64.388	0.122 / 67.206	0.218 / -120.878
1.400GHz	0.510 / 159.607	3.240 / 58.358	0.142 / 66.072	0.233 / -125.668
1.600GHz	0.504 / 154.521	2.854 / 53.044	0.163 / 64.505	0.251 / -129.603
1.800GHz	0.513 / 148.205	2.559 / 47.386	0.184 / 62.577	0.268 / -134.011
2.000GHz	0.519 / 143.292	2.326 / 42.329	0.206 / 60.537	0.286 / -138.650
2.200GHz	0.531 / 139.106	2.142 / 37.623	0.228 / 57.978	0.301 / -143.780
2.400GHz	0.549 / 135.133	1.984 / 32.564	0.251 / 55.758	0.307 / -149.754
2.600GHz	0.563 / 132.076	1.832 / 28.026	0.273 / 52.787	0.325 / -155.587
2.800GHz	0.574 / 126.860	1.711 / 23.186	0.295 / 49.846	0.345 / -160.876
3.000GHz	0.590 / 121.474	1.620 / 19.434	0.318 / 47.237	0.365 / -165.424

V_{CE} = 3V, I_{CC} = 30mA

freq	S(1,1)	S(2,1)	S(1,2)	S(2,2)
600.0MHz	0.547 / 166.970	5.696 / 74.652	0.063 / 70.175	0.155 / -94.416
800.0MHz	0.542 / 168.157	4.864 / 71.475	0.082 / 69.899	0.180 / -103.160
1.000GHz	0.536 / 169.345	4.031 / 68.298	0.101 / 69.623	0.205 / -111.904
1.200GHz	0.546 / 162.728	3.392 / 62.237	0.122 / 68.970	0.217 / -116.806
1.400GHz	0.551 / 157.365	2.942 / 56.044	0.142 / 67.749	0.235 / -122.004
1.600GHz	0.554 / 152.221	2.586 / 50.730	0.164 / 66.148	0.257 / -126.316
1.800GHz	0.561 / 146.524	2.320 / 44.979	0.185 / 64.043	0.277 / -131.236
2.000GHz	0.563 / 141.268	2.108 / 39.843	0.208 / 61.968	0.297 / -136.264
2.200GHz	0.577 / 136.913	1.939 / 34.827	0.231 / 59.265	0.314 / -141.777
2.400GHz	0.592 / 133.182	1.788 / 29.760	0.255 / 56.878	0.322 / -148.012
2.600GHz	0.602 / 129.327	1.653 / 25.199	0.278 / 53.730	0.341 / -154.230
2.800GHz	0.626 / 124.722	1.546 / 20.614	0.301 / 50.722	0.363 / -159.860
3.000GHz	0.627 / 118.888	1.454 / 16.638	0.325 / 47.846	0.384 / -164.660

V_{CE} = 6V, I_{CC} = 5mA

freq	S(1,1)	S(2,1)	S(1,2)	S(2,2)
600.0MHz	0.464 / -143.141	5.364 / 86.191	0.085 / 36.044	0.402 / -75.704
800.0MHz	0.474 / -149.675	4.635 / 81.728	0.093 / 40.123	0.392 / -83.906
1.000GHz	0.484 / -156.209	3.905 / 77.266	0.100 / 44.202	0.383 / -92.107
1.200GHz	0.480 / -167.326	3.315 / 69.415	0.108 / 47.114	0.370 / -98.802
1.400GHz	0.483 / -175.765	2.895 / 62.092	0.119 / 50.223	0.371 / -105.346
1.600GHz	0.487 / 176.327	2.561 / 55.675	0.133 / 52.856	0.379 / -110.909
1.800GHz	0.489 / 168.625	2.301 / 49.066	0.148 / 54.620	0.388 / -116.913
2.000GHz	0.494 / 161.814	2.096 / 43.180	0.166 / 55.767	0.402 / -122.664
2.200GHz	0.511 / 155.795	1.935 / 37.613	0.187 / 55.902	0.412 / -128.895
2.400GHz	0.527 / 150.078	1.786 / 32.136	0.210 / 55.633	0.415 / -135.456
2.600GHz	0.545 / 145.547	1.653 / 27.027	0.233 / 54.150	0.430 / -142.290
2.800GHz	0.573 / 139.190	1.545 / 21.832	0.258 / 52.412	0.448 / -148.541
3.000GHz	0.578 / 132.532	1.453 / 17.814	0.284 / 50.510	0.467 / -153.959

V_{CE} = 6V, I_{CC} = 10mA

freq	S(1,1)	S(2,1)	S(1,2)	S(2,2)
600.0MHz	0.486 / -162.872	6.214 / 81.980	0.070 / 52.971	0.281 / -84.569
800.0MHz	0.467 / -167.460	5.359 / 78.358	0.084 / 55.082	0.283 / -93.534
1.000GHz	0.448 / -172.049	4.505 / 74.736	0.098 / 57.192	0.285 / -102.498
1.200GHz	0.447 / 178.748	3.798 / 67.958	0.114 / 58.750	0.281 / -108.374
1.400GHz	0.455 / 172.250	3.315 / 61.430	0.130 / 59.492	0.288 / -114.257
1.600GHz	0.458 / 165.507	2.919 / 55.810	0.148 / 59.690	0.300 / -119.057
1.800GHz	0.466 / 159.466	2.629 / 49.790	0.167 / 59.042	0.312 / -124.359
2.000GHz	0.472 / 153.207	2.389 / 44.431	0.187 / 58.343	0.326 / -129.502
2.200GHz	0.486 / 148.612	2.202 / 39.339	0.208 / 56.745	0.338 / -135.107
2.400GHz	0.504 / 143.854	2.034 / 34.061	0.230 / 55.337	0.341 / -141.183
2.600GHz	0.517 / 139.687	1.888 / 29.434	0.252 / 53.043	0.357 / -147.516
2.800GHz	0.539 / 134.130	1.765 / 24.416	0.275 / 50.710	0.375 / -153.171
3.000GHz	0.547 / 128.352	1.671 / 20.386	0.298 / 48.440	0.394 / -158.093

V_{CE} = 6V, I_{CC} = 15mA

freq	S(1,1)	S(2,1)	S(1,2)	S(2,2)
600.0MHz	0.446 / -167.545	6.672 / 80.747	0.064 / 60.076	0.230 / -90.300
800.0MHz	0.444 / -173.337	5.700 / 77.185	0.082 / 61.327	0.239 / -99.322
1.000GHz	0.443 / -179.129	4.729 / 73.622	0.100 / 62.578	0.248 / -108.345
1.200GHz	0.447 / 174.289	3.990 / 67.390	0.117 / 62.918	0.248 / -113.861
1.400GHz	0.455 / 167.946	3.467 / 61.121	0.136 / 62.602	0.257 / -119.266
1.600GHz	0.456 / 161.059	3.058 / 55.702	0.155 / 61.929	0.270 / -123.638
1.800GHz	0.463 / 154.884	2.742 / 50.126	0.174 / 60.633	0.284 / -128.518
2.000GHz	0.470 / 149.676	2.501 / 44.838	0.195 / 59.222	0.298 / -133.346
2.200GHz	0.482 / 145.189	2.302 / 40.028	0.217 / 57.187	0.310 / -138.636
2.400GHz	0.495 / 140.766	2.126 / 34.904	0.239 / 55.320	0.314 / -144.574
2.600GHz	0.514 / 137.050	1.970 / 30.294	0.260 / 52.736	0.330 / -150.583
2.800GHz	0.532 / 131.311	1.848 / 25.447	0.283 / 50.139	0.348 / -156.032
3.000GHz	0.539 / 126.171	1.748 / 21.512	0.305 / 47.726	0.366 / -160.684

V_{CE} = 6V, I_{CC} = 20mA

freq	S(1,1)	S(2,1)	S(1,2)	S(2,2)
600.0MHz	0.465 / -179.161	6.732 / 79.520	0.065 / 64.614	0.202 / -93.391
800.0MHz	0.453 / 179.388	5.789 / 76.250	0.083 / 65.031	0.215 / -102.582
1.000GHz	0.440 / 177.938	4.846 / 72.981	0.101 / 65.448	0.229 / -111.773
1.200GHz	0.444 / 170.577	4.075 / 66.869	0.119 / 65.298	0.231 / -116.917
1.400GHz	0.455 / 164.005	3.542 / 60.851	0.139 / 64.357	0.242 / -122.064
1.600GHz	0.457 / 158.479	3.122 / 55.602	0.159 / 63.173	0.256 / -126.218
1.800GHz	0.461 / 152.216	2.800 / 50.003	0.179 / 61.500	0.270 / -130.832
2.000GHz	0.465 / 146.952	2.550 / 44.967	0.200 / 59.764	0.285 / -135.499
2.200GHz	0.482 / 143.055	2.347 / 40.198	0.221 / 57.493	0.297 / -140.607
2.400GHz	0.497 / 139.195	2.168 / 35.202	0.243 / 55.457	0.301 / -146.465
2.600GHz	0.510 / 134.978	2.012 / 30.550	0.265 / 52.695	0.317 / -152.363
2.800GHz	0.531 / 130.203	1.885 / 25.715	0.286 / 49.930	0.335 / -157.611
3.000GHz	0.540 / 124.936	1.779 / 21.870	0.309 / 47.463	0.354 / -162.182

V_{CE} = 6V, I_{CC} = 25mA

freq	S(1,1)	S(2,1)	S(1,2)	S(2,2)
600.0MHz	0.534 / 175.975	6.804 / 79.095	0.066 / 66.734	0.185 / -96.000
800.0MHz	0.485 / 175.795	5.842 / 75.779	0.084 / 66.928	0.202 / -104.754
1.000GHz	0.435 / 175.616	4.879 / 72.464	0.101 / 67.121	0.218 / -113.508
1.200GHz	0.452 / 168.048	4.109 / 66.587	0.121 / 66.618	0.221 / -118.547
1.400GHz	0.456 / 162.649	3.567 / 60.639	0.141 / 65.445	0.233 / -123.463
1.600GHz	0.461 / 156.718	3.137 / 55.435	0.161 / 64.004	0.248 / -127.531
1.800GHz	0.465 / 151.025	2.821 / 49.918	0.181 / 62.136	0.263 / -132.004
2.000GHz	0.468 / 145.669	2.569 / 44.889	0.202 / 60.184	0.278 / -136.574
2.200GHz	0.485 / 141.879	2.363 / 40.129	0.224 / 57.758	0.291 / -141.598
2.400GHz	0.498 / 137.957	2.186 / 35.169	0.246 / 55.628	0.294 / -147.390
2.600GHz	0.517 / 134.969	2.025 / 30.655	0.267 / 52.783	0.311 / -153.207
2.800GHz	0.540 / 129.090	1.895 / 25.951	0.289 / 50.029	0.329 / -158.518
3.000GHz	0.537 / 124.582	1.791 / 21.988	0.311 / 47.411	0.348 / -162.987

V_{CE} = 6V, I_{CC} = 30mA

freq	S(1,1)	S(2,1)	S(1,2)	S(2,2)
600.0MHz	0.421 / 175.809	6.883 / 78.497	0.064 / 68.834	0.179 / -96.483
800.0MHz	0.436 / 174.331	5.876 / 75.224	0.083 / 68.667	0.195 / -105.305
1.000GHz	0.451 / 172.853	4.869 / 71.951	0.102 / 68.501	0.211 / -114.128
1.200GHz	0.450 / 166.687	4.101 / 66.196	0.122 / 67.719	0.216 / -118.988
1.400GHz	0.458 / 162.004	3.564 / 60.246	0.142 / 66.303	0.228 / -123.874
1.600GHz	0.463 / 155.907	3.135 / 55.086	0.162 / 64.672	0.244 / -127.879
1.800GHz	0.472 / 149.512	2.818 / 49.593	0.183 / 62.640	0.259 / -132.297
2.000GHz	0.474 / 144.797	2.559 / 44.630	0.204 / 60.589	0.274 / -136.802
2.200GHz	0.488 / 140.438	2.365 / 39.937	0.226 / 58.080	0.288 / -141.833
2.400GHz	0.503 / 137.200	2.176 / 34.971	0.248 / 55.817	0.292 / -147.663
2.600GHz	0.516 / 132.914	2.021 / 30.241	0.270 / 52.931	0.308 / -153.473
2.800GHz	0.538 / 128.546	1.889 / 25.716	0.291 / 50.082	0.327 / -158.702
3.000GHz	0.544 / 123.395	1.787 / 21.757	0.313 / 47.478	0.346 / -163.223

V_{CE} = 8V, I_{CC} = 3mA

freq	S(1,1)	S(2,1)	S(1,2)	S(2,2)
600.0MHz	0.608 / -122.460	4.613 / 91.427	0.106 / 23.455	0.547 / -75.355
800.0MHz	0.609 / -133.688	3.993 / 86.531	0.106 / 22.187	0.539 / -83.915
1.000GHz	0.609 / -144.916	3.372 / 81.635	0.106 / 20.919	0.531 / -92.475
1.200GHz	0.604 / -154.155	2.851 / 73.024	0.104 / 19.889	0.518 / -100.186
1.400GHz	0.609 / -161.984	2.481 / 65.358	0.101 / 20.805	0.521 / -107.278
1.600GHz	0.610 / -169.582	2.175 / 58.622	0.099 / 23.214	0.534 / -113.064
1.800GHz	0.617 / -176.105	1.935 / 52.074	0.098 / 26.647	0.547 / -118.952
2.000GHz	0.619 / 178.339	1.743 / 46.199	0.100 / 31.184	0.566 / -124.322
2.200GHz	0.640 / 173.739	1.589 / 41.212	0.104 / 35.784	0.580 / -129.728
2.400GHz	0.649 / 169.717	1.451 / 35.824	0.111 / 40.461	0.586 / -135.085
2.600GHz	0.661 / 165.737	1.332 / 30.974	0.120 / 43.712	0.601 / -140.359
2.800GHz	0.671 / 160.483	1.232 / 26.314	0.131 / 46.309	0.619 / -144.889
3.000GHz	0.673 / 155.716	1.152 / 22.739	0.144 / 48.480	0.640 / -148.398

V_{CE} = 8V, I_{CC} = 5mA

freq	S(1,1)	S(2,1)	S(1,2)	S(2,2)
600.0MHz	0.474 / -139.690	5.426 / 87.626	0.084 / 36.892	0.406 / -75.387
800.0MHz	0.478 / -148.029	4.668 / 82.503	0.092 / 40.463	0.395 / -83.633
1.000GHz	0.481 / -156.367	3.910 / 77.381	0.100 / 44.034	0.384 / -91.878
1.200GHz	0.475 / -166.348	3.321 / 69.623	0.108 / 47.010	0.371 / -98.523
1.400GHz	0.482 / -175.198	2.902 / 62.249	0.119 / 50.097	0.371 / -105.074
1.600GHz	0.478 / 176.444	2.568 / 55.895	0.132 / 52.714	0.379 / -110.642
1.800GHz	0.483 / 168.392	2.314 / 49.376	0.148 / 54.476	0.389 / -116.617
2.000GHz	0.495 / 161.733	2.101 / 43.461	0.166 / 55.724	0.402 / -122.375
2.200GHz	0.510 / 155.877	1.942 / 38.004	0.187 / 55.830	0.412 / -128.650
2.400GHz	0.529 / 150.442	1.792 / 32.381	0.209 / 55.626	0.414 / -135.178
2.600GHz	0.544 / 144.879	1.664 / 27.153	0.233 / 54.139	0.429 / -142.012
2.800GHz	0.570 / 138.735	1.552 / 22.152	0.258 / 52.409	0.447 / -148.298
3.000GHz	0.578 / 133.181	1.459 / 17.941	0.283 / 50.506	0.466 / -153.716

V_{CE} = 8V, I_{CC} = 10mA

freq	S(1,1)	S(2,1)	S(1,2)	S(2,2)
600.0MHz	0.394 / -167.144	6.231 / 82.702	0.071 / 51.781	0.285 / -84.409
800.0MHz	0.426 / -169.087	5.368 / 78.824	0.084 / 54.309	0.287 / -93.026
1.000GHz	0.457 / -171.030	4.504 / 74.946	0.098 / 56.837	0.289 / -101.642
1.200GHz	0.448 / 179.710	3.796 / 68.134	0.113 / 58.359	0.284 / -107.593
1.400GHz	0.452 / 172.578	3.312 / 61.562	0.130 / 59.242	0.290 / -113.524
1.600GHz	0.462 / 165.748	2.918 / 55.890	0.147 / 59.441	0.302 / -118.414
1.800GHz	0.465 / 159.495	2.627 / 49.950	0.166 / 58.943	0.314 / -123.714
2.000GHz	0.472 / 153.490	2.387 / 44.520	0.186 / 58.264	0.328 / -128.865
2.200GHz	0.487 / 148.287	2.199 / 39.541	0.208 / 56.772	0.339 / -134.509
2.400GHz	0.501 / 143.560	2.037 / 34.185	0.229 / 55.389	0.342 / -140.596
2.600GHz	0.522 / 139.292	1.887 / 29.435	0.252 / 53.146	0.358 / -146.938
2.800GHz	0.545 / 134.459	1.759 / 24.563	0.274 / 50.776	0.376 / -152.679
3.000GHz	0.550 / 128.102	1.668 / 20.456	0.298 / 48.506	0.394 / -157.615

V_{CE} = 8V, I_{CC} = 15mA

freq	S(1,1)	S(2,1)	S(1,2)	S(2,2)
600.0MHz	0.493 / -163.898	6.610 / 80.268	0.065 / 59.161	0.236 / -89.001
800.0MHz	0.463 / -171.428	5.665 / 77.093	0.082 / 60.656	0.244 / -97.950
1.000GHz	0.434 / -178.958	4.721 / 73.918	0.099 / 62.151	0.253 / -106.900
1.200GHz	0.438 / 174.958	3.973 / 67.534	0.116 / 62.559	0.251 / -112.455
1.400GHz	0.451 / 167.691	3.460 / 61.280	0.135 / 62.412	0.260 / -118.007
1.600GHz	0.451 / 161.779	3.047 / 55.839	0.154 / 61.770	0.273 / -122.496
1.800GHz	0.463 / 155.140	2.740 / 50.207	0.173 / 60.591	0.287 / -127.439
2.000GHz	0.465 / 149.887	2.497 / 44.905	0.194 / 59.244	0.301 / -132.320
2.200GHz	0.477 / 145.147	2.300 / 39.953	0.216 / 57.183	0.313 / -137.651
2.400GHz	0.494 / 141.265	2.121 / 34.921	0.237 / 55.397	0.316 / -143.594
2.600GHz	0.509 / 136.357	1.970 / 30.244	0.259 / 52.839	0.332 / -149.686
2.800GHz	0.531 / 132.125	1.842 / 25.507	0.281 / 50.279	0.350 / -155.217
3.000GHz	0.538 / 126.494	1.739 / 21.322	0.304 / 47.861	0.368 / -159.937

V_{CE} = 8V, I_{CC} = 20mA

freq	S(1,1)	S(2,1)	S(1,2)	S(2,2)
600.0MHz	0.465 / -174.636	6.771 / 79.974	0.066 / 63.781	0.208 / -91.623
800.0MHz	0.453 / -178.050	5.796 / 76.582	0.083 / 64.410	0.221 / -100.716
1.000GHz	0.440 / 178.537	4.822 / 73.189	0.100 / 65.040	0.234 / -109.809
1.200GHz	0.445 / 170.901	4.062 / 67.037	0.119 / 64.985	0.235 / -115.084
1.400GHz	0.455 / 164.645	3.529 / 60.961	0.138 / 64.234	0.245 / -120.360
1.600GHz	0.456 / 159.134	3.106 / 55.722	0.157 / 63.085	0.259 / -124.677
1.800GHz	0.459 / 153.110	2.793 / 50.153	0.177 / 61.527	0.273 / -129.377
2.000GHz	0.466 / 148.358	2.540 / 44.946	0.198 / 59.779	0.288 / -134.092
2.200GHz	0.483 / 143.360	2.338 / 40.201	0.220 / 57.567	0.300 / -139.267
2.400GHz	0.494 / 139.639	2.163 / 35.133	0.242 / 55.553	0.304 / -145.198
2.600GHz	0.514 / 135.418	2.008 / 30.426	0.264 / 52.857	0.319 / -151.139
2.800GHz	0.534 / 129.986	1.877 / 25.858	0.285 / 50.136	0.337 / -156.578
3.000GHz	0.542 / 124.652	1.773 / 21.645	0.308 / 47.632	0.356 / -161.192

V_{CE} = 8V, I_{CC} = 25mA

freq	S(1,1)	S(2,1)	S(1,2)	S(2,2)
600.0MHz	0.455 / -173.455	6.816 / 78.937	0.064 / 65.862	0.195 / -93.202
800.0MHz	0.449 / -179.092	5.837 / 75.818	0.083 / 66.359	0.209 / -102.129
1.000GHz	0.444 / 175.271	4.858 / 72.699	0.101 / 66.856	0.224 / -111.056
1.200GHz	0.449 / 169.369	4.089 / 66.725	0.120 / 66.403	0.226 / -116.246
1.400GHz	0.454 / 163.356	3.557 / 60.712	0.139 / 65.331	0.237 / -121.389
1.600GHz	0.455 / 157.111	3.128 / 55.490	0.159 / 63.965	0.252 / -125.521
1.800GHz	0.461 / 151.069	2.813 / 49.866	0.180 / 62.156	0.266 / -130.200
2.000GHz	0.470 / 146.034	2.554 / 44.931	0.201 / 60.289	0.281 / -134.831
2.200GHz	0.482 / 142.250	2.357 / 40.165	0.223 / 57.872	0.294 / -139.983
2.400GHz	0.498 / 137.994	2.176 / 35.113	0.245 / 55.760	0.297 / -145.846
2.600GHz	0.516 / 134.456	2.019 / 30.484	0.266 / 52.944	0.314 / -151.759
2.800GHz	0.534 / 129.096	1.891 / 25.820	0.288 / 50.175	0.332 / -157.117
3.000GHz	0.541 / 124.290	1.784 / 21.843	0.310 / 47.620	0.350 / -161.710

V_{CE} = 8V, I_{CC} = 30mA

freq	S(1,1)	S(2,1)	S(1,2)	S(2,2)
600.0MHz	0.473 / -178.696	6.802 / 78.495	0.064 / 67.252	0.185 / -92.985
800.0MHz	0.457 / 177.197	5.833 / 75.419	0.083 / 67.737	0.201 / -102.193
1.000GHz	0.442 / 173.090	4.864 / 72.344	0.101 / 68.221	0.217 / -111.401
1.200GHz	0.448 / 167.778	4.090 / 66.335	0.120 / 67.435	0.221 / -116.416
1.400GHz	0.457 / 161.795	3.554 / 60.430	0.140 / 66.193	0.232 / -121.442
1.600GHz	0.464 / 155.671	3.128 / 55.248	0.161 / 64.691	0.248 / -125.611
1.800GHz	0.468 / 150.095	2.813 / 49.685	0.181 / 62.699	0.263 / -130.224
2.000GHz	0.474 / 144.796	2.559 / 44.671	0.203 / 60.730	0.278 / -134.886
2.200GHz	0.483 / 141.573	2.353 / 39.861	0.225 / 58.215	0.291 / -139.995
2.400GHz	0.504 / 136.969	2.174 / 34.923	0.247 / 56.055	0.295 / -145.893
2.600GHz	0.517 / 133.937	2.022 / 30.375	0.268 / 53.119	0.311 / -151.826
2.800GHz	0.535 / 129.051	1.885 / 25.518	0.290 / 50.312	0.329 / -157.150
3.000GHz	0.545 / 123.972	1.781 / 21.826	0.312 / 47.700	0.348 / -161.788