

ELECTRICAL CHARACTERISTICS continued ($T_C = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
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ON CHARACTERISTICS

Gate Threshold Voltage ($V_{DS} = 10\text{ V}$, $I_D = 50\text{ }\mu\text{A}$)	$V_{GS(th)}$	1.25	3.0	4.0	Vdc
Gate Quiescent Voltage ($V_{DS} = 26\text{ Vdc}$, $I_D = 100\text{ mA}$)	$V_{GS(Q)}$	2.25	4.0	5.0	Vdc
Drain–Source On–Voltage ($V_{GS} = 10\text{ V}$, $I_D = 0.5\text{ A}$)	$V_{DS(on)}$	—	—	0.9	Vdc

DYNAMIC CHARACTERISTICS

Input Capacitance ($V_{DS} = 26\text{ V}$, $V_{GS} = 0\text{ V}$, $f = 1.0\text{ MHz}$)	C_{iss}	—	17	—	pF
Output Capacitance ($V_{DS} = 26\text{ V}$, $V_{GS} = 0\text{ V}$, $f = 1.0\text{ MHz}$)	C_{oss}	—	10	—	pF
Reverse Transfer Capacitance ($V_{DS} = 26\text{ V}$, $V_{GS} = 0\text{ V}$, $f = 1.0\text{ MHz}$)	C_{rss}	—	0.9	—	pF

FUNCTIONAL TESTS (In Motorola Test Fixture, 50 ohm system)

Common–Source Power Gain ($V_{DS} = 26\text{ V}$, $P_{out} = 10\text{ W CW}$, $I_{DQ} = 100\text{ mA}$, $f = 960\text{ MHz}$)	G_{ps}	15	17	—	dB
Drain Efficiency ($V_{DS} = 26\text{ V}$, $P_{out} = 10\text{ W CW}$, $I_{DQ} = 100\text{ mA}$, $f = 960\text{ MHz}$)	η	48	50	—	%
Input Return Loss ($V_{DS} = 26\text{ V}$, $P_{out} = 10\text{ W CW}$, $I_{DQ} = 100\text{ mA}$, $f = 960\text{ MHz}$)	IRL	—	—	–9	dB

TYPICAL CHARACTERISTICS

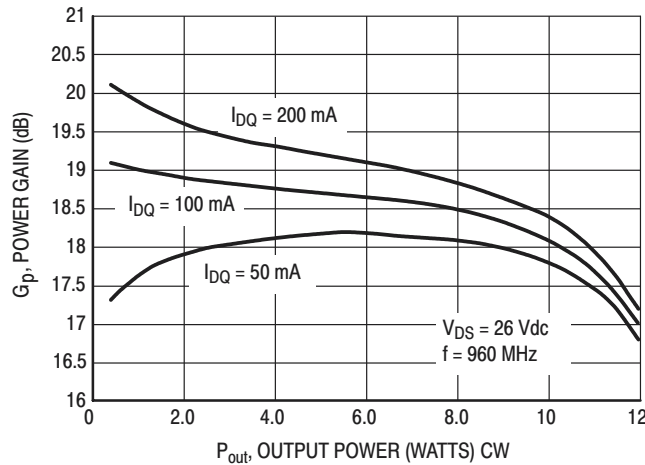


Figure 1. Power Gain versus Output Power

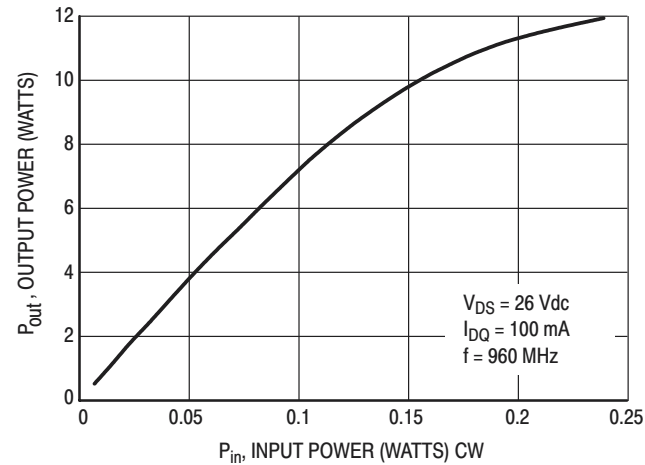


Figure 2. Output Power versus Input Power

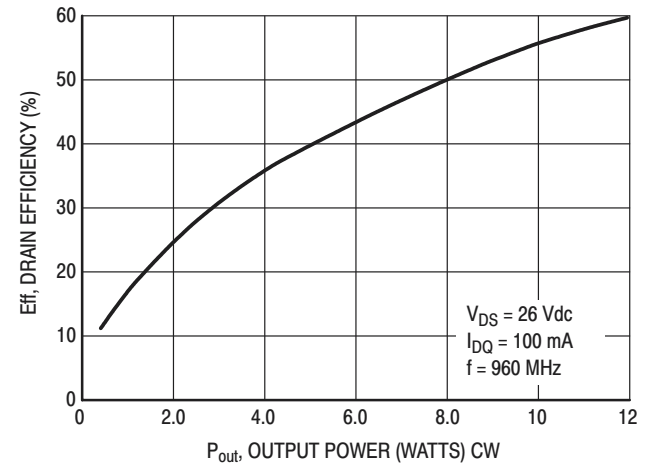


Figure 3. Drain Efficiency versus Output Power

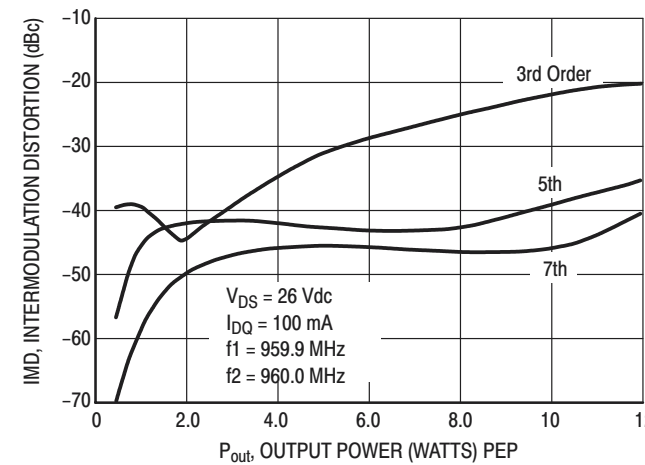
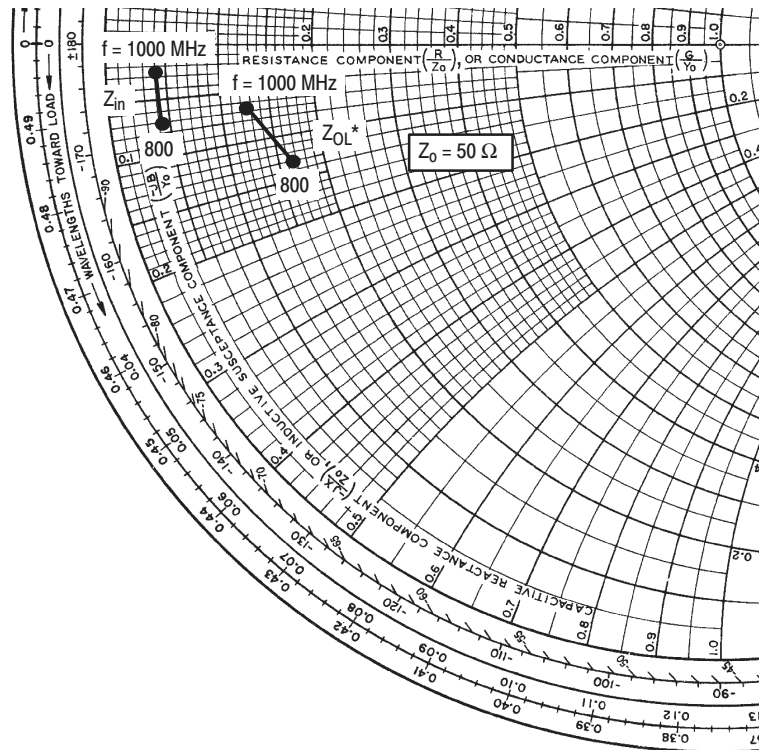


Figure 4. Intermodulation Distortion Products versus Output Power



f MHz	Z _{in} Ohms	Z _{OL} [*] Ohms
800	2.20 – j3.00	8.50 – j6.20
825	2.20 – j2.80	8.43 – j6.15
850	2.20 – j2.60	8.35 – j6.10
875	2.20 – j2.40	8.28 – j6.08
900	2.20 – j2.20	8.20 – j6.05
925	2.19 – j1.86	7.95 – j5.70
950	2.13 – j1.68	7.50 – j4.75
975	2.03 – j1.45	6.90 – j3.58
1000	2.00 – j1.00	6.50 – j3.00

Z_{in} = Complex conjugate of source impedance.
Z_{OL}^{*} = Complex conjugate of the optimum load impedance into which the device operates at a given output power, voltage, current and frequency.

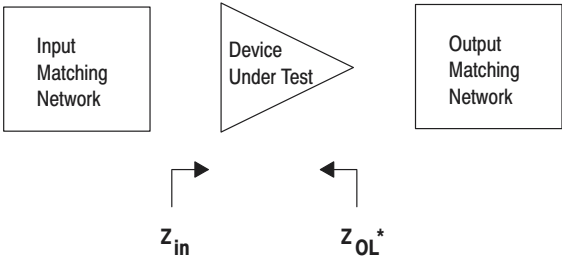


Figure 5. Series Equivalent Input and Output Impedance

Table 1. Common Source S-Parameters at $V_{DS} = 12$ Vdc, $I_D = 100$ mAdc

f GHz	S ₁₁		S ₂₁		S ₁₂		S ₂₂	
	S ₁₁	∠ φ	S ₂₁	∠ φ	S ₁₂	∠ φ	S ₂₂	∠ φ
0.500	0.794	-158	2.77	54	0.050	-29	0.720	-150
0.525	0.800	-159	2.61	52	0.049	-32	0.730	-151
0.550	0.807	-160	2.45	49	0.048	-33	0.738	-152
0.575	0.811	-161	2.31	48	0.047	-35	0.746	-153
0.600	0.816	-162	2.18	46	0.046	-37	0.755	-154
0.625	0.822	-163	2.06	44	0.045	-38	0.763	-155
0.650	0.826	-164	1.95	42	0.043	-40	0.770	-156
0.675	0.832	-165	1.85	40	0.042	-41	0.779	-157
0.700	0.836	-166	1.75	39	0.041	-41	0.785	-158
0.725	0.841	-166	1.66	37	0.040	-42	0.793	-159
0.750	0.846	-167	1.58	35	0.039	-44	0.800	-160
0.775	0.851	-168	1.51	34	0.038	-45	0.805	-161
0.800	0.855	-168	1.44	32	0.037	-46	0.812	-162
0.825	0.858	-169	1.37	31	0.036	-47	0.818	-163
0.850	0.863	-170	1.31	29	0.035	-48	0.824	-164
0.875	0.866	-171	1.25	28	0.034	-49	0.830	-165
0.900	0.869	-172	1.20	27	0.033	-50	0.835	-166
0.925	0.872	-172	1.15	25	0.031	-51	0.840	-166
0.950	0.876	-173	1.10	24	0.030	-52	0.846	-167
0.975	0.879	-174	1.06	23	0.029	-52	0.850	-168
1.000	0.882	-174	1.02	22	0.028	-53	0.853	-169

Table 2. Common Source S-Parameters at $V_{DS} = 12$ Vdc, $I_D = 250$ mAdc

f GHz	S ₁₁		S ₂₁		S ₁₂		S ₂₂	
	S ₁₁	∠ φ	S ₂₁	∠ φ	S ₁₂	∠ φ	S ₂₂	∠ φ
0.500	0.784	-164	3.49	59	0.041	-22	0.690	-158
0.525	0.789	-165	3.29	57	0.040	-25	0.697	-159
0.550	0.794	-166	3.11	55	0.040	-26	0.705	-160
0.575	0.798	-167	2.94	53	0.038	-26	0.711	-160
0.600	0.802	-167	2.79	51	0.037	-28	0.719	-161
0.625	0.806	-168	2.65	50	0.037	-30	0.726	-162
0.650	0.811	-169	2.52	48	0.036	-31	0.732	-162
0.675	0.814	-169	2.40	46	0.035	-32	0.740	-163
0.700	0.819	-170	2.28	45	0.034	-32	0.747	-164
0.725	0.823	-171	2.18	43	0.034	-34	0.753	-164
0.750	0.827	-171	2.08	42	0.032	-36	0.760	-165
0.775	0.831	-172	1.99	40	0.032	-36	0.765	-166
0.800	0.834	-172	1.90	39	0.031	-36	0.772	-166
0.825	0.838	-173	1.82	37	0.031	-38	0.778	-167
0.850	0.842	-174	1.74	36	0.029	-38	0.783	-168
0.875	0.845	-174	1.67	35	0.028	-39	0.790	-169
0.900	0.850	-175	1.61	33	0.028	-39	0.797	-169
0.925	0.852	-175	1.54	32	0.027	-41	0.801	-170
0.950	0.854	-176	1.48	31	0.027	-42	0.807	-170
0.975	0.859	-176	1.43	30	0.025	-41	0.810	-171
1.000	0.861	-177	1.38	28	0.025	-42	0.815	-171

Table 3. Common Source S-Parameters at $V_{DS} = 26$ Vdc, $I_D = 100$ mAdc

f GHz	S ₁₁		S ₂₁		S ₁₂		S ₂₂	
	S ₁₁	∠ φ	S ₂₁	∠ φ	S ₁₂	∠ φ	S ₂₂	∠ φ
0.500	0.832	-155	4.05	56	0.033	-25	0.687	-135
0.525	0.836	-156	3.81	54	0.033	-27	0.697	-137
0.550	0.841	-157	3.58	51	0.034	-28	0.707	-138
0.575	0.845	-159	3.38	49	0.032	-31	0.718	-140
0.600	0.849	-160	3.19	47	0.031	-32	0.728	-141
0.625	0.853	-161	3.02	45	0.030	-34	0.737	-143
0.650	0.856	-162	2.86	43	0.029	-35	0.746	-144
0.675	0.861	-163	2.71	42	0.028	-37	0.755	-145
0.700	0.865	-164	2.57	40	0.028	-37	0.762	-147
0.725	0.868	-165	2.44	38	0.026	-38	0.771	-148
0.750	0.871	-166	2.32	37	0.025	-40	0.779	-149
0.775	0.875	-166	2.21	35	0.025	-41	0.786	-150
0.800	0.877	-167	2.11	33	0.023	-41	0.793	-151
0.825	0.880	-168	2.02	32	0.022	-43	0.800	-152
0.850	0.884	-169	1.92	30	0.022	-43	0.808	-154
0.875	0.886	-170	1.84	29	0.021	-44	0.815	-155
0.900	0.889	-171	1.76	27	0.020	-43	0.820	-156
0.925	0.892	-171	1.68	26	0.020	-46	0.826	-157
0.950	0.894	-172	1.61	24	0.019	-45	0.832	-158
0.975	0.897	-173	1.55	23	0.018	-47	0.837	-159
1.000	0.899	-173	1.49	22	0.017	-48	0.842	-160

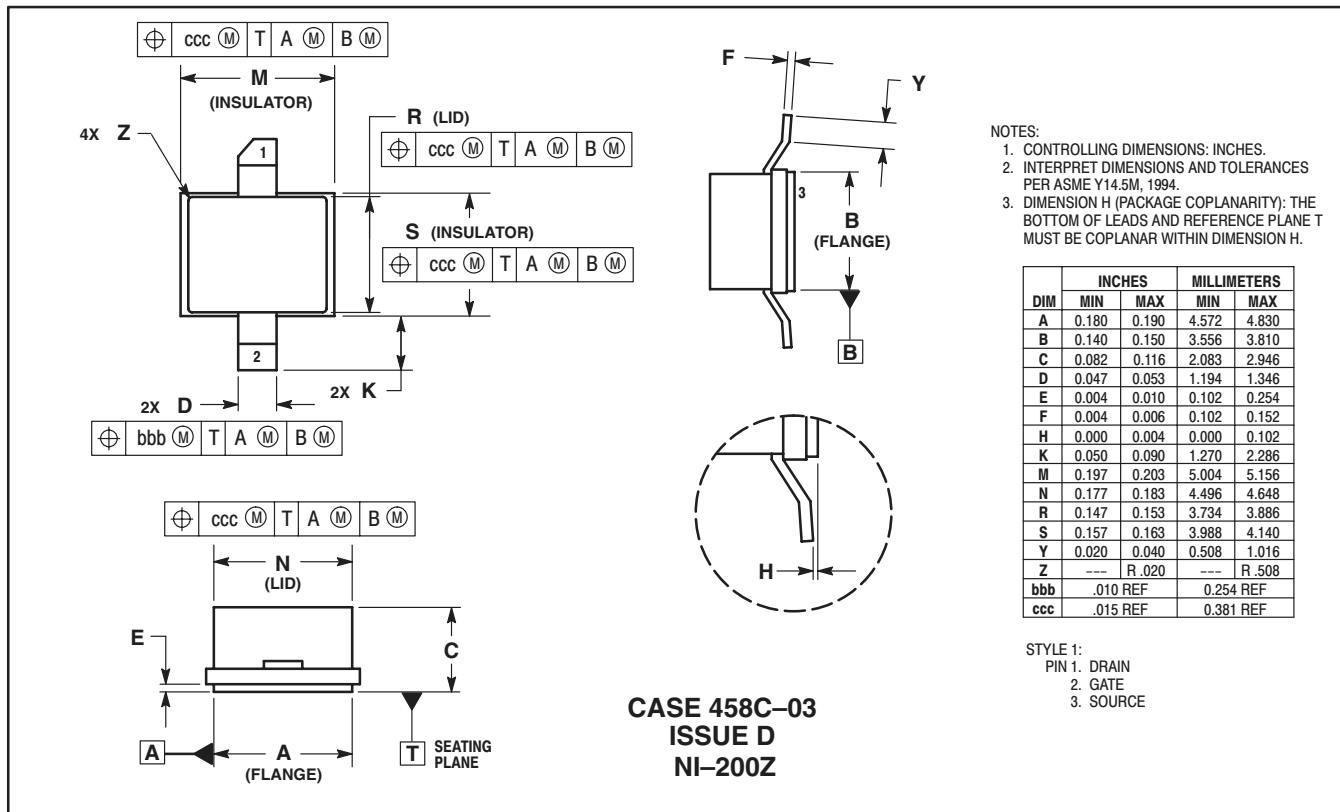
Table 4. Common Source S-Parameters at $V_{DS} = 26$ Vdc, $I_D = 250$ mAdc

f GHz	S ₁₁		S ₂₁		S ₁₂		S ₂₂	
	S ₁₁	∠ φ	S ₂₁	∠ φ	S ₁₂	∠ φ	S ₂₂	∠ φ
0.500	0.824	-160	5.02	59	0.029	-21	0.627	-143
0.525	0.828	-161	4.74	57	0.027	-22	0.638	-144
0.550	0.832	-162	4.47	55	0.026	-22	0.648	-145
0.575	0.835	-163	4.23	53	0.027	-24	0.658	-146
0.600	0.838	-164	4.01	51	0.025	-26	0.669	-147
0.625	0.842	-165	3.81	50	0.025	-26	0.678	-148
0.650	0.844	-166	3.61	48	0.024	-25	0.687	-150
0.675	0.848	-167	3.43	46	0.023	-28	0.697	-150
0.700	0.851	-168	3.27	44	0.023	-30	0.706	-151
0.725	0.855	-168	3.12	43	0.022	-30	0.714	-152
0.750	0.858	-169	2.97	41	0.021	-31	0.723	-153
0.775	0.861	-170	2.84	39	0.021	-31	0.731	-154
0.800	0.863	-170	2.72	38	0.020	-32	0.738	-155
0.825	0.866	-171	2.60	36	0.019	-33	0.746	-156
0.850	0.870	-172	2.49	35	0.018	-34	0.754	-157
0.875	0.871	-173	2.38	33	0.018	-34	0.763	-158
0.900	0.875	-173	2.29	32	0.017	-35	0.768	-159
0.925	0.877	-174	2.20	30	0.016	-36	0.776	-160
0.950	0.879	-175	2.11	29	0.016	-36	0.782	-161
0.975	0.883	-175	2.03	28	0.016	-34	0.787	-161
1.000	0.885	-176	1.95	27	0.015	-34	0.793	-162

Table 5. Common Source S-Parameters at $V_{DS} = 26$ Vdc, $I_D = 500$ mAdc

f GHz	S ₁₁		S ₂₁		S ₁₂		S ₂₂	
	S ₁₁	∠ φ	S ₂₁	∠ φ	S ₁₂	∠ φ	S ₂₂	∠ φ
0.500	0.832	-162	5.08	60	0.025	-17	0.612	-145
0.525	0.834	-162	4.80	58	0.025	-20	0.624	-146
0.550	0.838	-164	4.53	56	0.024	-21	0.635	-147
0.575	0.840	-164	4.29	54	0.024	-21	0.644	-148
0.600	0.844	-165	4.07	52	0.023	-23	0.655	-149
0.625	0.847	-166	3.86	50	0.023	-24	0.664	-150
0.650	0.849	-167	3.66	48	0.022	-25	0.673	-151
0.675	0.852	-168	3.48	46	0.021	-27	0.682	-152
0.700	0.856	-169	3.32	45	0.021	-28	0.690	-153
0.725	0.858	-170	3.17	43	0.020	-28	0.701	-154
0.750	0.861	-170	3.02	41	0.019	-30	0.709	-154
0.775	0.864	-171	2.89	40	0.019	-29	0.716	-155
0.800	0.866	-172	2.76	38	0.018	-29	0.723	-156
0.825	0.869	-172	2.65	37	0.017	-29	0.733	-157
0.850	0.872	-173	2.53	35	0.017	-31	0.742	-158
0.875	0.874	-174	2.43	34	0.016	-31	0.751	-159
0.900	0.878	-175	2.33	32	0.015	-31	0.757	-160
0.925	0.879	-175	2.24	31	0.015	-32	0.763	-161
0.950	0.881	-176	2.15	29	0.014	-31	0.770	-161
0.975	0.884	-176	2.07	28	0.014	-31	0.775	-162
1.000	0.886	-177	2.00	27	0.013	-30	0.781	-163

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USA/EUROPE/Locations Not Listed: Motorola Literature Distribution; P.O. Box 5405, Denver, Colorado 80217. 1-303-675-2140 or 1-800-441-2447

JAPAN: Motorola Japan Ltd.; SPS, Technical Information Center, 3-20-1, Minami-Azabu. Minato-ku, Tokyo 106-8573 Japan. 81-3-3440-3569

ASIA/PACIFIC: Motorola Semiconductors H.K. Ltd.; Silicon Harbour Centre, 2 Dai King Street, Tai Po Industrial Estate, Tai Po, N.T. Hong Kong. 852-26668334

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