

To our customers,

Old Company Name in Catalogs and Other Documents

On April 1st, 2010, NEC Electronics Corporation merged with Renesas Technology Corporation, and Renesas Electronics Corporation took over all the business of both companies. Therefore, although the old company name remains in this document, it is a valid Renesas Electronics document. We appreciate your understanding.

Renesas Electronics website: <http://www.renesas.com>

April 1st, 2010
Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (<http://www.renesas.com>)

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RQA0005QXDQS

Silicon N-Channel MOS FET

REJ03G1325-0100

Rev.1.00

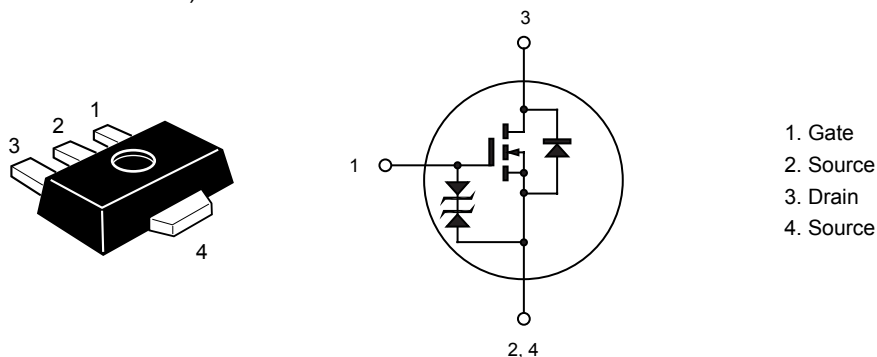
Oct 16, 2006

Features

- High Output Power, High Gain, High Efficiency
Pout = +33 dBm, Linear Gain = 21 dB, PAE = 68% (f = 520 MHz)
- Compact package capable of surface mounting

Outline

RENESAS Package code: PLZZ0004CA-A
(Package Name : UPAK®)



Note: Marking is "QX".

*UPAK is a trademark of Renesas Technology Corp.

Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	V_{DSS}	16	V
Gate to source voltage	V_{GSS}	±5	V
Drain current	I_D	0.8	A
Channel dissipation	P_{ch}^{note1}	9	W
Channel temperature	T_{ch}	150	°C
Storage temperature	T_{stg}	-55 to +150	°C

Note1: Value at $T_c = 25^\circ\text{C}$

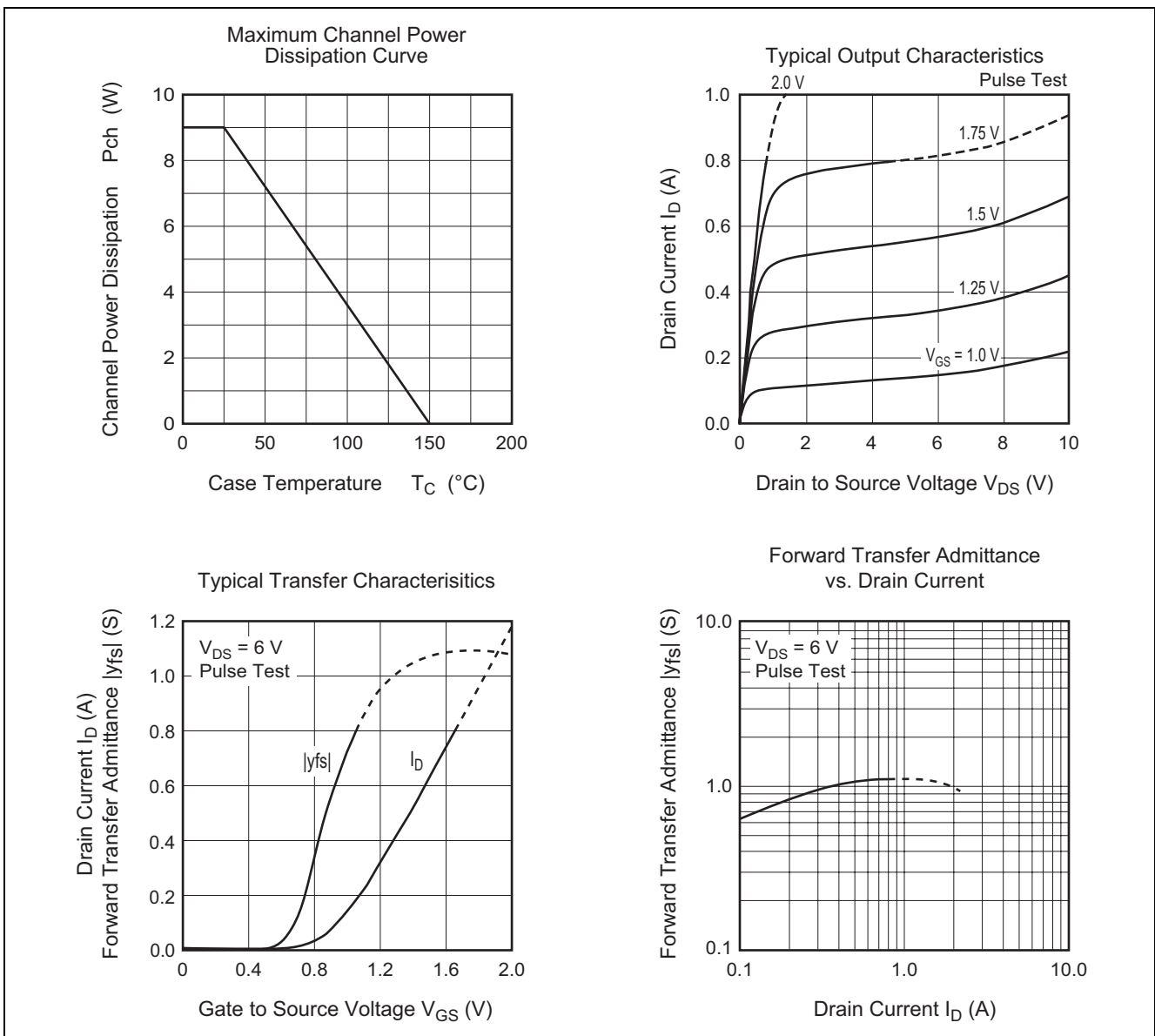
This Device is sensitive to Electro Static Discharge. An Adequate careful handling procedure is requested.

Electrical Characteristics

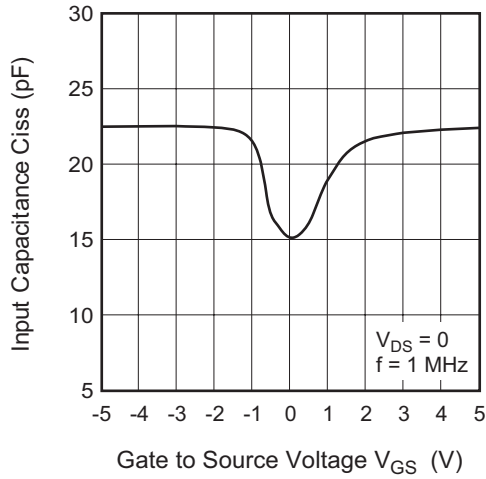
(Ta = 25°C)

Item	Symbol	Min.	Typ	Max.	Unit	Test Conditions
Zero gate voltage drain current	I_{DSS}	—	—	10	μA	$V_{DS} = 16\text{ V}, V_{GS} = 0$
Gate to source leak current	I_{GSS}	—	—	± 2	μA	$V_{GS} = \pm 5\text{ V}, V_{DS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	0.15	0.45	0.75	V	$V_{DS} = 6\text{ V}, I_D = 1\text{ mA}$
Forward Transfer Admittance	$ y_{fs} $	0.6	1.1	1.6	S	$V_{DS} = 6\text{ V}, I_D = 600\text{ mA}$
Input capacitance	C_{iss}	—	22	—	pF	$V_{GS} = 5\text{ V}, V_{DS} = 0, f = 1\text{ MHz}$
Output capacitance	C_{oss}	—	12	—	pF	$V_{DS} = 6\text{ V}, V_{GS} = 0, f = 1\text{ MHz}$
Reverse transfer capacitance	C_{rss}	—	2.6	—	pF	$V_{DG} = 6\text{ V}, V_{GS} = 0, f = 1\text{ MHz}$
Output Power	P_{out}	32	33	—	dBm	$V_{DS} = 6\text{ V}, I_{DQ} = 200\text{ mA}$
		1.58	2	—	W	$f = 520\text{ MHz}$
Power Added Efficiency	PAE	55	68	—	%	$P_{in} = +20\text{ dBm}(100\text{mW})$

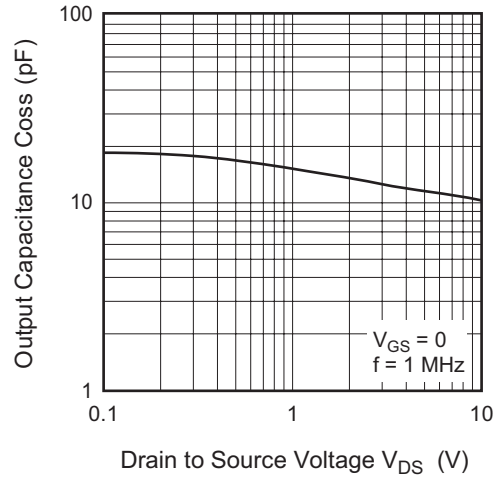
Main Characteristics



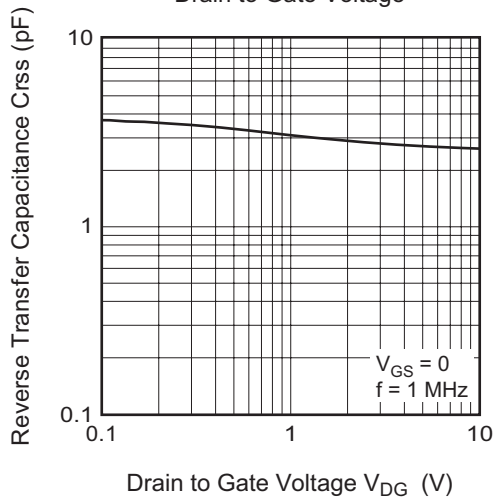
Input Capacitance vs. Gate to Source Voltage



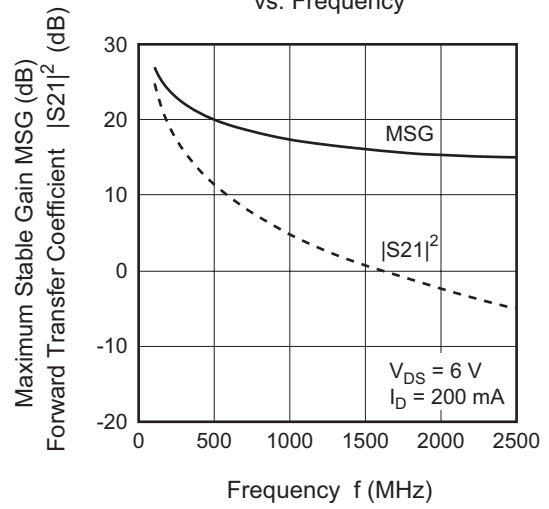
Output Capacitance vs. Drain to Source Voltage



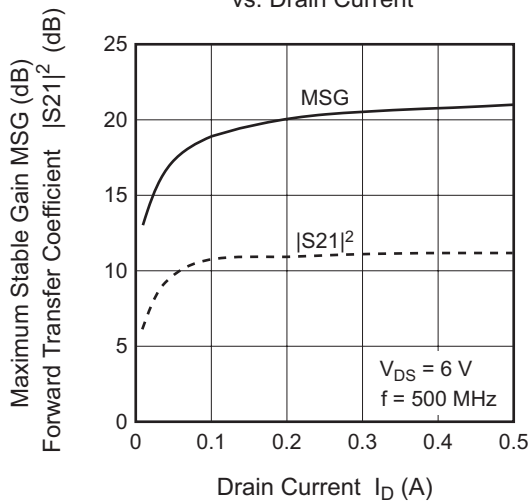
Reverse Transfer Capacitance vs. Drain to Gate Voltage



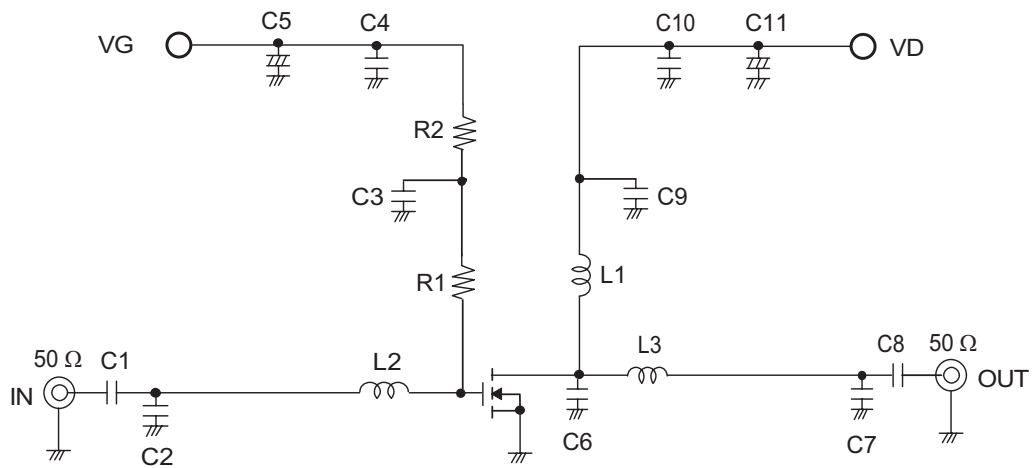
Maximum Stable Gain, $|S_{21}|^2$ vs. Frequency



Maximum Stable Gain, $|S_{21}|^2$ vs. Drain Current

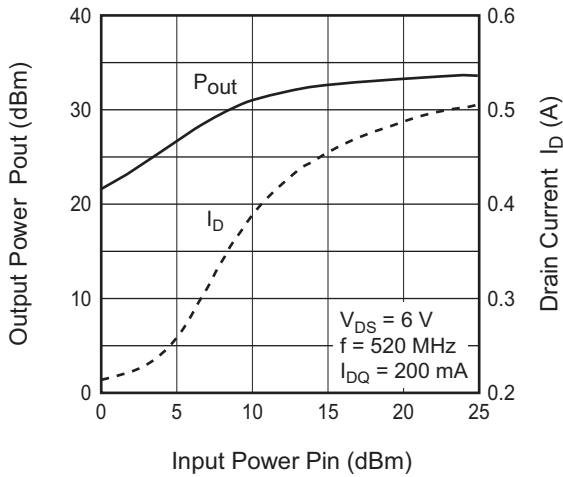


Evaluation Circuit (f = 520 MHz)

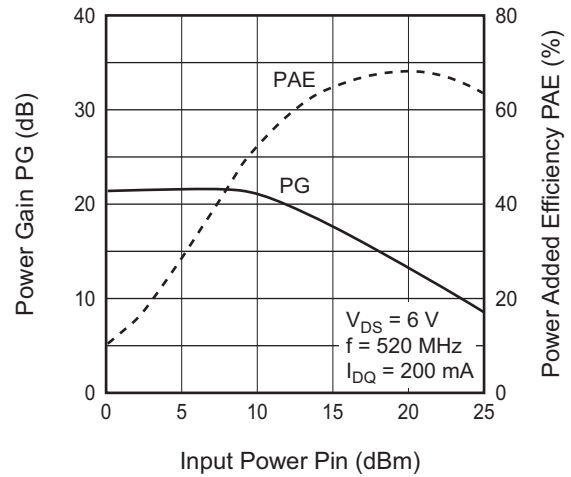


C1, C8	68 pF Chip Capacitor
C2	18 pF Chip Capacitor
C3, C9	100 pF Chip Capacitor
C4, C10	1000 pF Chip Capacitor
C5, C11	2.2 μF Electrolysis Capacitor
C6	4 pF Chip Capacitor
C7	11 pF Chip Capacitor
L1	8 Turns D: 0.5 mm, φ 2.4 mm Enamel Wire
L2	2.2 nH Chip Inductor
L3	3.3 nH Chip Inductor
R1	33 Ω Chip Resistor
R2	2.7 kΩ Chip Resistor

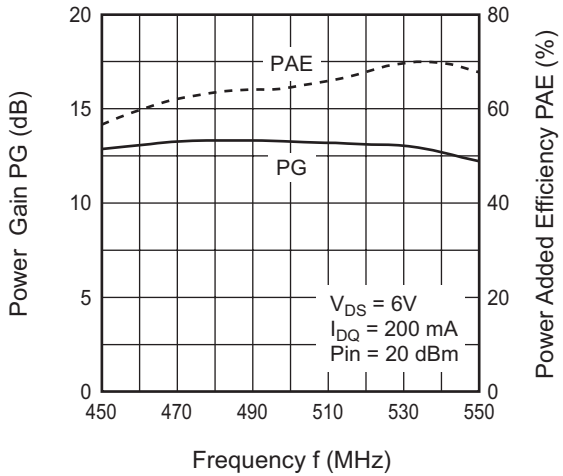
Output Power, Drain Current vs. Input Power



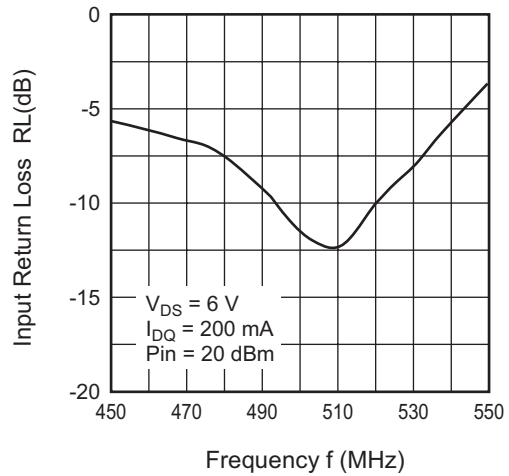
Power Gain, Power Added Efficiency vs. Input Power



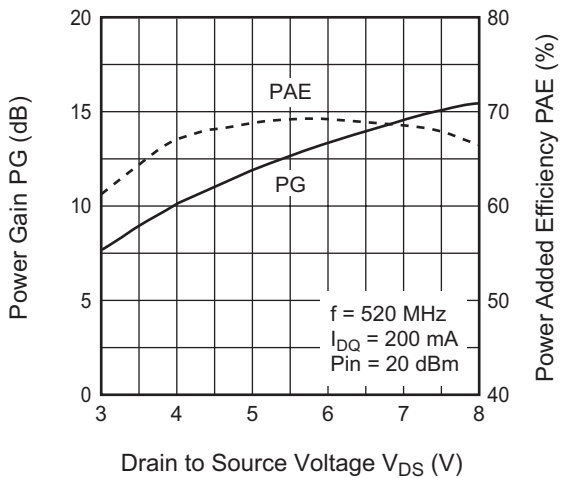
Power Gain, Power Added Efficiency vs. Frequency



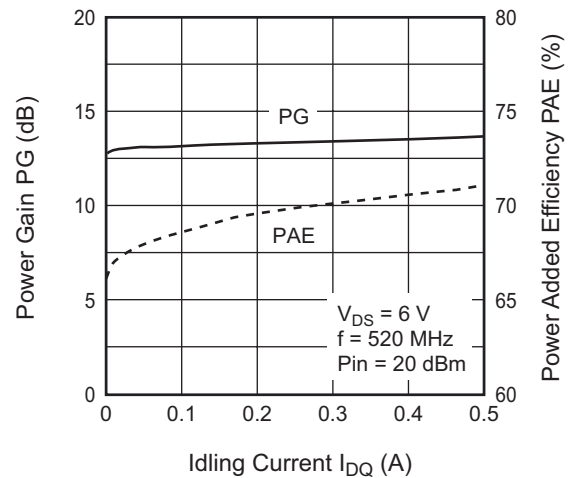
Input Return Loss vs. Frequency



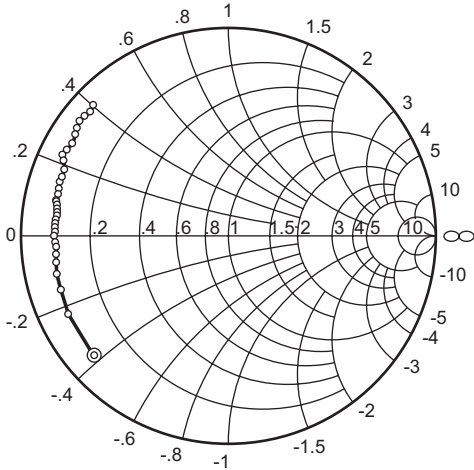
Power Gain, Power Added Efficiency, vs. Drain to Source Voltage



Power Gain, Power Added Efficiency vs. Idling Current

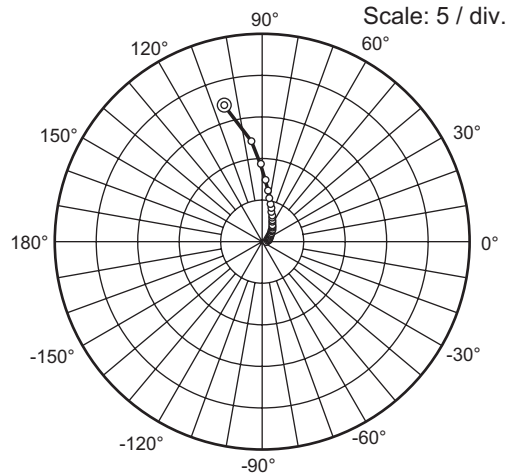


S₁₁ Parameter vs. Frequency



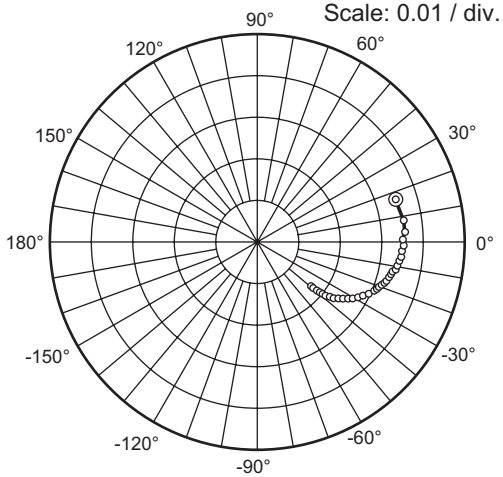
Condition: $V_{DS} = 6V$, $I_{DQ} = 200\text{ mA}$, $Z_o = 50\ \Omega$
 100 to 1000 MHz (50 MHz Step)
 1000 to 2500 MHz (200 MHz Step)

S₂₁ Parameter vs. Frequency



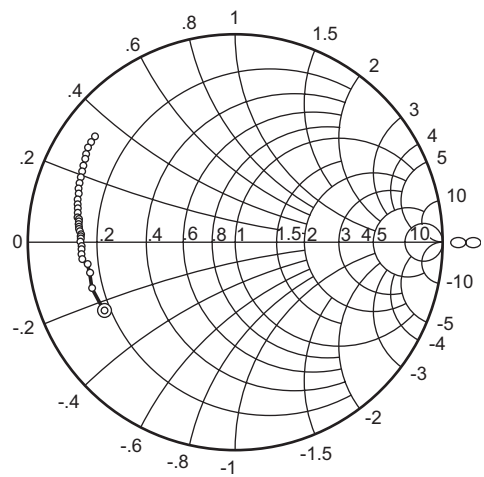
Condition: $V_{DS} = 6V$, $I_{DQ} = 200\text{ mA}$, $Z_o = 50\ \Omega$
 100 to 1000 MHz (50 MHz Step)
 1000 to 2500 MHz (200 MHz Step)

S₁₂ Parameter vs. Frequency



Condition: $V_{DS} = 6V$, $I_{DQ} = 200\text{ mA}$, $Z_o = 50\ \Omega$
 100 to 1000 MHz (50 MHz Step)
 1000 to 2500 MHz (200 MHz Step)

S₂₂ Parameter vs. Frequency



Condition: $V_{DS} = 6V$, $I_{DQ} = 200\text{ mA}$, $Z_o = 50\ \Omega$
 100 to 1000 MHz (50 MHz Step)
 1000 to 2500 MHz (200 MHz Step)

S Parameter

 $(V_{DS} = 6\text{ V}, I_{DQ} = 50\text{ mA}, Z_o = 50\ \Omega)$

f (MHz)	S11		S21		S12		S22	
	MAG	ANG (deg.)	MAG	ANG (deg.)	MAG	ANG (deg.)	MAG	ANG (deg.)
100	0.830	-120.1	14.22	111.4	0.055	21.1	0.656	-130.6
150	0.817	-141.3	10.45	99.2	0.057	9.9	0.657	-145.7
200	0.786	-152.5	8.13	91.6	0.058	3.3	0.643	-154.5
250	0.780	-159.3	6.44	86.1	0.057	-1.0	0.645	-159.6
300	0.791	-163.6	5.37	81.6	0.057	-5.0	0.662	-162.8
350	0.785	-167.4	4.58	77.5	0.057	-8.5	0.666	-165.5
400	0.786	-170.2	3.98	74.0	0.056	-11.6	0.672	-167.8
450	0.787	-172.2	3.51	70.5	0.055	-14.4	0.677	-169.3
500	0.792	-174.1	3.14	67.4	0.055	-17.1	0.678	-170.9
550	0.791	-175.8	2.83	64.2	0.054	-19.4	0.685	-172.1
600	0.796	-177.2	2.57	61.2	0.053	-21.8	0.691	-173.4
650	0.796	-178.6	2.36	58.3	0.052	-24.1	0.697	-174.3
700	0.798	180.0	2.17	55.4	0.051	-26.3	0.703	-175.5
750	0.802	178.5	2.01	52.6	0.051	-28.5	0.713	-176.2
800	0.803	177.2	1.86	50.1	0.049	-30.4	0.718	-177.2
850	0.810	175.9	1.73	47.3	0.049	-32.6	0.724	-178.0
900	0.813	174.8	1.62	44.9	0.048	-34.4	0.727	-179.2
950	0.820	173.7	1.51	42.2	0.047	-36.2	0.736	179.9
1000	0.822	172.9	1.42	40.0	0.046	-38.1	0.744	179.0
1050	0.824	172.1	1.34	37.7	0.044	-39.9	0.750	178.1
1100	0.828	171.0	1.26	35.2	0.043	-41.6	0.758	177.0
1150	0.826	169.7	1.19	32.9	0.042	-43.1	0.762	175.9
1200	0.832	168.7	1.13	30.7	0.041	-44.8	0.770	175.1
1250	0.837	167.6	1.07	28.3	0.040	-46.2	0.774	174.0
1300	0.840	166.5	1.01	26.1	0.039	-47.7	0.781	173.2
1350	0.843	165.6	0.96	24.0	0.038	-49.2	0.785	172.2
1400	0.845	164.6	0.91	21.9	0.037	-50.7	0.792	171.3
1450	0.842	163.3	0.87	19.7	0.036	-52.1	0.797	170.1
1500	0.846	161.8	0.83	17.4	0.035	-53.3	0.800	169.1
1550	0.853	160.7	0.79	15.3	0.034	-54.6	0.803	167.9
1600	0.866	159.3	0.76	13.4	0.033	-55.6	0.809	167.0
1650	0.877	158.3	0.73	11.3	0.032	-56.7	0.814	165.8
1700	0.882	157.7	0.70	9.4	0.031	-58.2	0.815	164.9
1750	0.882	156.6	0.68	7.5	0.030	-59.4	0.819	163.7
1800	0.880	155.4	0.65	5.6	0.029	-60.5	0.826	162.2
1850	0.878	154.1	0.62	3.8	0.028	-61.3	0.829	161.1
1900	0.878	152.8	0.60	2.2	0.027	-62.4	0.832	160.0
1950	0.882	151.3	0.58	0.8	0.027	-63.3	0.837	158.9
2000	0.889	150.0	0.56	-1.0	0.026	-64.1	0.842	157.7
2050	0.899	148.8	0.53	-2.7	0.025	-65.0	0.846	156.6
2100	0.900	148.0	0.51	-4.4	0.024	-65.9	0.851	155.3
2150	0.903	146.7	0.49	-6.5	0.023	-66.3	0.853	154.5
2200	0.905	145.4	0.48	-8.5	0.022	-66.8	0.857	153.3
2250	0.904	144.5	0.46	-10.4	0.022	-66.9	0.861	152.2
2300	0.903	143.2	0.44	-12.2	0.021	-68.1	0.863	151.1
2350	0.904	142.0	0.43	-13.8	0.020	-68.6	0.871	149.9
2400	0.905	140.9	0.41	-15.7	0.019	-68.7	0.868	148.9
2450	0.908	139.6	0.40	-17.2	0.019	-69.2	0.871	147.7
2500	0.911	138.5	0.39	-18.8	0.018	-69.8	0.874	146.5

S Parameter

(V_{DS} = 6 V, I_{DQ} = 100 mA, Z_o = 50 Ω)

f (MHz)	S11		S21		S12		S22	
	MAG	ANG (deg.)	MAG	ANG (deg.)	MAG	ANG (deg.)	MAG	ANG (deg.)
100	0.853	-132.0	16.16	107.8	0.043	18.5	0.692	-144.3
150	0.838	-150.1	11.60	97.0	0.044	8.7	0.698	-156.6
200	0.824	-159.2	8.86	90.8	0.044	3.3	0.687	-163.0
250	0.810	-164.6	7.01	86.3	0.044	0.3	0.689	-166.9
300	0.822	-168.5	5.86	82.4	0.044	-3.1	0.709	-169.7
350	0.816	-171.6	5.00	79.0	0.044	-6.1	0.709	-172.1
400	0.814	-174.1	4.35	75.9	0.043	-8.6	0.714	-174.1
450	0.818	-176.1	3.85	72.9	0.043	-11.0	0.713	-175.5
500	0.819	-177.8	3.46	70.2	0.042	-13.0	0.715	-176.8
550	0.818	-179.3	3.12	67.6	0.042	-14.8	0.718	-177.8
600	0.820	179.5	2.84	64.8	0.041	-16.7	0.723	-178.8
650	0.819	178.0	2.61	62.1	0.041	-18.4	0.728	-179.7
700	0.817	176.6	2.41	59.7	0.040	-20.5	0.726	179.3
750	0.819	175.2	2.23	57.2	0.040	-22.2	0.735	178.3
800	0.819	174.1	2.08	54.8	0.039	-23.6	0.737	177.6
850	0.821	172.8	1.94	52.5	0.039	-25.3	0.742	176.7
900	0.828	171.8	1.82	50.2	0.038	-26.8	0.745	175.8
950	0.831	170.7	1.71	47.9	0.038	-28.2	0.749	175.0
1000	0.835	170.1	1.61	45.8	0.037	-29.8	0.754	174.3
1050	0.836	169.4	1.52	43.6	0.036	-31.3	0.755	173.4
1100	0.835	168.3	1.44	41.2	0.036	-32.5	0.762	172.6
1150	0.834	167.2	1.37	39.3	0.035	-33.8	0.764	171.8
1200	0.839	166.1	1.30	37.3	0.034	-35.1	0.769	170.9
1250	0.842	165.1	1.24	35.0	0.033	-36.2	0.774	170.0
1300	0.845	164.1	1.17	33.0	0.033	-37.6	0.777	169.2
1350	0.847	163.3	1.12	30.9	0.032	-38.8	0.781	168.3
1400	0.846	162.4	1.06	28.8	0.031	-40.0	0.786	167.5
1450	0.846	161.0	1.02	26.7	0.030	-40.9	0.787	166.6
1500	0.848	159.8	0.97	24.7	0.030	-41.9	0.791	165.6
1550	0.854	158.5	0.94	22.8	0.029	-42.8	0.794	164.6
1600	0.866	157.3	0.90	20.6	0.029	-43.9	0.799	163.9
1650	0.876	156.1	0.87	18.7	0.028	-44.9	0.801	162.8
1700	0.883	155.7	0.84	16.7	0.027	-45.9	0.802	161.8
1750	0.881	154.7	0.81	14.6	0.026	-47.1	0.806	160.9
1800	0.881	153.6	0.78	12.9	0.026	-47.7	0.810	159.5
1850	0.875	152.5	0.75	11.3	0.025	-48.3	0.815	158.6
1900	0.873	151.1	0.73	9.7	0.024	-49.2	0.817	157.4
1950	0.876	149.7	0.70	8.1	0.024	-49.8	0.822	156.5
2000	0.887	148.2	0.68	6.5	0.023	-50.4	0.825	155.4
2050	0.893	147.1	0.65	4.8	0.022	-50.9	0.829	154.2
2100	0.896	146.1	0.63	2.9	0.022	-51.7	0.831	153.2
2150	0.899	145.0	0.60	1.0	0.021	-51.9	0.840	152.3
2200	0.901	144.0	0.59	-1.0	0.021	-52.2	0.843	151.4
2250	0.899	143.0	0.56	-2.8	0.020	-52.3	0.844	150.3
2300	0.897	141.9	0.55	-4.7	0.020	-53.0	0.848	149.2
2350	0.898	140.6	0.53	-6.6	0.019	-53.4	0.851	148.1
2400	0.901	139.5	0.51	-8.3	0.018	-53.6	0.854	147.2
2450	0.902	138.3	0.50	-10.0	0.018	-53.8	0.853	146.1
2500	0.904	137.3	0.48	-11.7	0.017	-53.5	0.855	144.9

S Parameter

 $(V_{DS} = 6 \text{ V}, I_{DQ} = 200 \text{ mA}, Z_o = 50 \Omega)$

f (MHz)	S11		S21		S12		S22	
	MAG	ANG (deg.)	MAG	ANG (deg.)	MAG	ANG (deg.)	MAG	ANG (deg.)
100	0.873	-138.5	17.05	105.8	0.035	16.9	0.714	-152.4
150	0.861	-154.0	12.18	96.4	0.036	8.2	0.730	-162.4
200	0.854	-162.2	9.29	90.9	0.036	3.7	0.719	-167.9
250	0.850	-167.3	7.37	86.6	0.035	0.7	0.723	-171.4
300	0.845	-171.0	6.14	83.2	0.035	-1.7	0.742	-173.7
350	0.839	-173.8	5.26	80.2	0.035	-4.2	0.747	-175.3
400	0.837	-176.2	4.58	77.5	0.035	-6.2	0.745	-177.1
450	0.840	-178.0	4.05	74.6	0.035	-8.0	0.744	-178.4
500	0.841	-179.7	3.64	72.0	0.034	-9.9	0.748	-180.0
550	0.840	178.8	3.29	69.6	0.034	-11.5	0.748	178.9
600	0.840	177.4	3.00	67.3	0.034	-12.7	0.750	178.1
650	0.838	176.1	2.76	64.8	0.033	-14.0	0.751	177.3
700	0.838	174.8	2.57	62.5	0.033	-15.4	0.754	176.3
750	0.836	173.5	2.37	60.2	0.033	-17.2	0.759	175.5
800	0.838	172.2	2.22	57.9	0.032	-18.1	0.760	174.6
850	0.841	171.1	2.07	55.7	0.032	-19.5	0.760	173.8
900	0.844	170.0	1.95	53.8	0.031	-20.7	0.764	172.8
950	0.848	169.1	1.84	51.7	0.031	-21.9	0.766	172.1
1000	0.849	168.4	1.73	49.7	0.031	-23.0	0.772	171.2
1050	0.849	167.6	1.64	47.6	0.030	-24.3	0.770	170.7
1100	0.849	166.7	1.56	45.5	0.030	-25.3	0.773	169.6
1150	0.847	165.6	1.48	43.5	0.029	-26.2	0.777	169.0
1200	0.851	164.5	1.41	41.7	0.029	-27.3	0.779	168.0
1250	0.854	163.4	1.35	39.6	0.028	-28.1	0.782	167.2
1300	0.854	162.4	1.28	37.7	0.028	-29.1	0.785	166.6
1350	0.855	161.6	1.22	35.7	0.027	-30.0	0.788	165.6
1400	0.855	160.7	1.17	33.6	0.027	-31.0	0.790	164.9
1450	0.855	159.4	1.12	31.7	0.026	-31.5	0.792	163.9
1500	0.856	158.2	1.07	29.6	0.026	-32.4	0.793	163.2
1550	0.863	156.7	1.03	27.6	0.025	-33.2	0.795	162.2
1600	0.875	155.8	1.00	25.6	0.025	-33.7	0.799	161.4
1650	0.883	154.8	0.96	23.9	0.024	-34.5	0.802	160.5
1700	0.890	154.1	0.93	22.0	0.024	-35.4	0.804	159.5
1750	0.887	153.4	0.90	19.9	0.023	-36.0	0.806	158.4
1800	0.884	152.2	0.87	18.2	0.023	-36.8	0.812	157.4
1850	0.879	151.0	0.84	16.5	0.022	-37.0	0.811	156.7
1900	0.877	149.7	0.81	15.1	0.022	-37.4	0.811	155.4
1950	0.880	148.4	0.79	13.6	0.021	-38.3	0.818	154.4
2000	0.888	147.0	0.76	12.0	0.021	-38.6	0.821	153.5
2050	0.893	145.7	0.74	10.4	0.020	-38.8	0.821	152.5
2100	0.899	144.9	0.71	8.5	0.020	-39.1	0.828	151.2
2150	0.902	143.7	0.69	6.4	0.020	-39.5	0.831	150.4
2200	0.904	142.7	0.67	4.5	0.019	-39.4	0.837	149.6
2250	0.900	141.7	0.64	2.7	0.019	-39.2	0.834	148.7
2300	0.902	140.5	0.62	0.9	0.019	-39.9	0.843	147.4
2350	0.899	139.4	0.61	-1.1	0.018	-40.1	0.843	146.4
2400	0.899	138.2	0.59	-2.9	0.018	-40.1	0.844	145.7
2450	0.904	137.1	0.58	-4.3	0.017	-40.1	0.845	144.7
2500	0.904	136.0	0.56	-6.2	0.017	-40.1	0.847	143.3

S Parameter

 $(V_{DS} = 6 \text{ V}, I_{DQ} = 300 \text{ mA}, Z_o = 50 \Omega)$

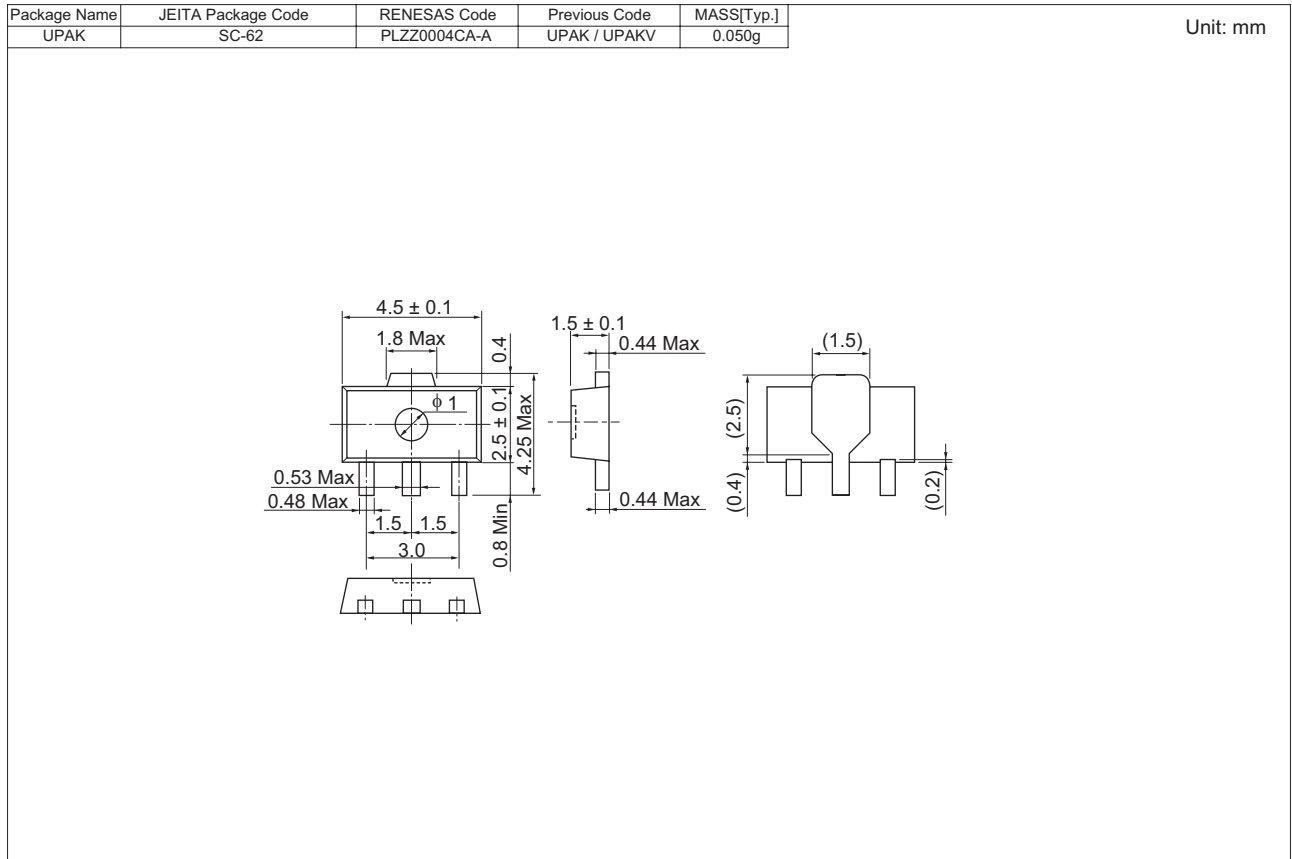
f (MHz)	S11		S21		S12		S22	
	MAG	ANG (deg.)	MAG	ANG (deg.)	MAG	ANG (deg.)	MAG	ANG (deg.)
100	0.893	-138.4	17.02	105.9	0.032	17.9	0.721	-155.6
150	0.871	-154.6	12.28	96.5	0.032	8.2	0.742	-164.6
200	0.862	-162.9	9.39	91.1	0.033	4.2	0.733	-169.8
250	0.857	-167.9	7.47	86.9	0.032	1.5	0.735	-172.9
300	0.854	-171.5	6.23	83.5	0.032	-1.2	0.752	-175.1
350	0.848	-174.5	5.33	80.5	0.032	-3.5	0.758	-176.8
400	0.850	-176.8	4.66	77.7	0.032	-5.2	0.756	-178.7
450	0.850	-178.7	4.12	75.2	0.031	-7.2	0.757	-179.7
500	0.850	179.9	3.72	72.8	0.031	-8.5	0.758	179.0
550	0.846	178.3	3.35	70.3	0.031	-9.6	0.759	177.9
600	0.847	177.0	3.06	68.1	0.031	-11.2	0.762	177.1
650	0.847	175.6	2.82	65.7	0.030	-12.3	0.764	176.0
700	0.846	174.4	2.61	63.5	0.030	-13.8	0.760	175.2
750	0.843	173.0	2.43	61.3	0.030	-14.8	0.768	174.5
800	0.845	171.6	2.26	59.1	0.029	-15.8	0.766	173.7
850	0.848	170.6	2.12	56.9	0.029	-17.1	0.769	172.7
900	0.850	169.4	2.00	54.8	0.029	-18.0	0.772	172.0
950	0.853	168.4	1.88	52.8	0.028	-19.0	0.775	171.2
1000	0.857	167.8	1.77	51.0	0.028	-20.3	0.778	170.3
1050	0.855	167.1	1.68	49.0	0.028	-21.4	0.777	169.3
1100	0.856	166.2	1.60	47.0	0.027	-22.1	0.780	168.7
1150	0.854	164.9	1.53	45.0	0.027	-22.9	0.783	168.0
1200	0.855	163.9	1.45	43.1	0.026	-23.9	0.785	167.0
1250	0.858	163.1	1.38	41.2	0.026	-24.5	0.787	166.3
1300	0.860	161.9	1.32	39.4	0.026	-25.4	0.790	165.7
1350	0.859	160.8	1.26	37.2	0.025	-26.2	0.792	164.9
1400	0.859	160.1	1.20	35.3	0.025	-27.1	0.794	163.9
1450	0.860	158.9	1.15	33.4	0.024	-27.6	0.796	162.9
1500	0.861	157.6	1.11	31.3	0.024	-28.3	0.795	162.4
1550	0.866	156.3	1.07	29.5	0.024	-28.8	0.797	161.3
1600	0.880	155.2	1.04	27.6	0.023	-29.6	0.800	160.5
1650	0.889	154.3	1.00	25.7	0.023	-30.1	0.803	159.7
1700	0.895	153.6	0.97	23.9	0.022	-30.7	0.805	158.5
1750	0.892	152.9	0.93	21.9	0.022	-31.3	0.808	157.6
1800	0.886	151.5	0.91	20.1	0.022	-31.8	0.811	156.5
1850	0.883	150.4	0.88	18.6	0.021	-32.3	0.811	155.6
1900	0.880	149.3	0.85	16.9	0.021	-32.5	0.813	154.5
1950	0.882	147.9	0.82	15.5	0.020	-33.0	0.818	153.6
2000	0.889	146.3	0.79	13.9	0.020	-33.1	0.821	152.7
2050	0.899	145.1	0.77	12.1	0.020	-33.3	0.824	151.6
2100	0.902	144.1	0.74	10.5	0.019	-33.7	0.827	150.6
2150	0.907	143.1	0.72	8.6	0.019	-33.8	0.832	149.7
2200	0.907	142.3	0.69	6.4	0.019	-34.1	0.832	148.9
2250	0.904	141.3	0.67	4.7	0.018	-33.7	0.835	147.7
2300	0.901	140.0	0.65	2.9	0.018	-34.3	0.838	146.7
2350	0.902	138.9	0.63	1.0	0.018	-34.3	0.844	145.8
2400	0.904	137.7	0.62	-0.7	0.017	-34.2	0.843	145.0
2450	0.905	136.6	0.60	-2.3	0.017	-34.2	0.845	143.8
2500	0.905	135.6	0.59	-4.1	0.017	-34.5	0.847	142.5

S Parameter

 $(V_{DS} = 6 \text{ V}, I_{DQ} = 400 \text{ mA}, Z_o = 50 \Omega)$

f (MHz)	S11		S21		S12		S22	
	MAG	ANG (deg.)	MAG	ANG (deg.)	MAG	ANG (deg.)	MAG	ANG (deg.)
100	0.898	-137.8	16.87	106.6	0.030	18.0	0.724	-157.3
150	0.875	-154.8	12.27	96.8	0.031	8.5	0.747	-165.4
200	0.867	-163.1	9.43	91.2	0.031	4.4	0.737	-170.5
250	0.860	-168.0	7.48	87.1	0.030	2.0	0.741	-173.6
300	0.857	-171.7	6.26	83.6	0.030	-0.7	0.760	-175.8
350	0.855	-174.5	5.35	80.9	0.030	-3.1	0.760	-177.5
400	0.851	-176.8	4.67	78.1	0.030	-4.6	0.762	-179.0
450	0.856	-178.8	4.15	75.5	0.030	-6.5	0.760	179.7
500	0.854	179.5	3.72	73.1	0.030	-7.7	0.761	178.7
550	0.851	178.1	3.37	70.7	0.030	-9.0	0.763	177.6
600	0.853	176.7	3.08	68.3	0.029	-10.3	0.766	176.5
650	0.850	175.4	2.84	65.9	0.029	-11.5	0.770	175.7
700	0.848	174.2	2.63	63.7	0.029	-12.8	0.766	174.6
750	0.848	172.8	2.44	61.6	0.028	-13.8	0.769	173.9
800	0.850	171.5	2.28	59.6	0.028	-14.8	0.771	173.3
850	0.851	170.2	2.13	57.3	0.028	-15.8	0.770	172.5
900	0.853	169.1	2.01	55.4	0.027	-16.9	0.776	171.4
950	0.857	168.3	1.89	53.7	0.027	-17.7	0.778	170.6
1000	0.861	167.6	1.79	51.6	0.027	-18.7	0.778	169.9
1050	0.858	166.8	1.70	49.6	0.027	-19.5	0.780	169.2
1100	0.860	165.9	1.61	47.6	0.026	-20.5	0.784	168.3
1150	0.856	164.8	1.53	45.5	0.026	-21.3	0.784	167.5
1200	0.859	163.7	1.46	43.7	0.025	-22.1	0.787	166.6
1250	0.862	162.5	1.40	41.7	0.025	-22.8	0.788	165.9
1300	0.861	161.7	1.33	40.0	0.025	-23.4	0.792	165.1
1350	0.862	160.8	1.27	37.9	0.024	-24.4	0.793	164.5
1400	0.862	159.9	1.21	35.8	0.024	-25.1	0.795	163.6
1450	0.861	158.6	1.17	34.1	0.023	-25.6	0.795	162.8
1500	0.864	157.4	1.12	32.2	0.023	-26.4	0.796	161.7
1550	0.870	156.0	1.08	30.3	0.023	-27.0	0.798	160.9
1600	0.882	155.0	1.05	28.1	0.022	-26.9	0.802	160.1
1650	0.891	154.0	1.01	26.4	0.022	-27.7	0.802	159.2
1700	0.895	153.4	0.98	24.5	0.022	-28.3	0.805	158.2
1750	0.892	152.5	0.95	22.8	0.021	-29.1	0.808	157.3
1800	0.888	151.3	0.92	20.9	0.021	-29.2	0.809	156.3
1850	0.884	150.3	0.89	19.3	0.021	-29.5	0.811	155.3
1900	0.881	148.9	0.86	17.9	0.020	-29.9	0.813	154.3
1950	0.883	147.5	0.83	16.3	0.020	-30.4	0.818	153.3
2000	0.892	146.1	0.81	14.6	0.019	-30.3	0.820	152.2
2050	0.899	144.8	0.78	13.1	0.019	-30.4	0.821	151.4
2100	0.903	143.8	0.75	11.2	0.019	-31.0	0.826	150.4
2150	0.907	142.9	0.73	9.4	0.019	-30.9	0.830	149.4
2200	0.910	141.8	0.70	7.1	0.018	-31.1	0.831	148.3
2250	0.906	140.8	0.68	5.4	0.018	-30.6	0.833	147.3
2300	0.903	139.8	0.66	3.6	0.018	-31.3	0.837	146.6
2350	0.906	138.6	0.65	1.8	0.017	-31.2	0.840	145.5
2400	0.905	137.4	0.63	0.0	0.017	-31.2	0.841	144.7
2450	0.906	136.4	0.61	-1.6	0.017	-31.1	0.843	143.5
2500	0.905	135.3	0.59	-3.4	0.017	-30.9	0.843	142.3

Package Dimensions



Ordering Information

Part Name	Quantity	Shipping Container
RQA0005QXTL-E	1000 pcs.	$\phi 178$ mm Reel, 12 mm Emboss Taping

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Renesas Technology Hong Kong Ltd.
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Tel: <852> 2265-6688, Fax: <852> 2730-6071

Renesas Technology Taiwan Co., Ltd.
10th Floor, No.99, Fushing North Road, Taipei, Taiwan
Tel: <886> (2) 2715-2888, Fax: <886> (2) 2713-2999

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1 Harbour Front Avenue, #06-10, Keppel Bay Tower, Singapore 098632
Tel: <65> 6213-0200, Fax: <65> 6278-8001

Renesas Technology Korea Co., Ltd.
Kukje Center Bldg. 18th Fl., 191, 2-ka, Hangang-ro, Yongsan-ku, Seoul 140-702, Korea
Tel: <82> (2) 796-3115, Fax: <82> (2) 796-2145

Renesas Technology Malaysia Sdn. Bhd
Unit 906, Block B, Menara Amcorp, Amcorp Trade Centre, No.18, Jalan Persiaran Barat, 46050 Petaling Jaya, Selangor Darul Ehsan, Malaysia
Tel: <603> 7955-9390, Fax: <603> 7955-9510