

2SK3391

Silicon N-Channel MOS FET UHF Power Amplifier

REJ03G0209-0300

Rev.3.00

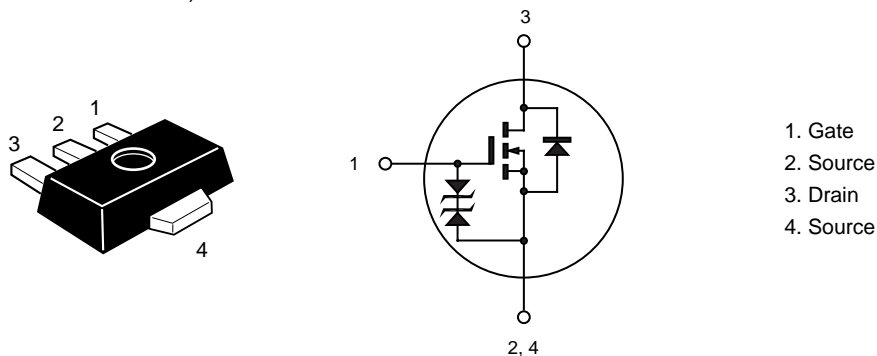
Nov 08, 2007

Features

- High power output, High gain, High efficiency
PG = 18 dB, Pout = 1.6 W, $\eta_{add} = 58\%$ min. (f = 836 MHz)
- Compact package capable of surface mounting

Outline

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



Note: Marking is "JX".

*UPAK is a trademark of Renesas Technology Corp.

Absolute Maximum Ratings

(Ta = 25°C)

| Item | Symbol | Ratings | Unit |
|-------------------------|--------------------------------------|-------------|------|
| Drain to source voltage | V_{DSS} | 17 | V |
| Gate to source voltage | V_{GSS} | ± 10 | V |
| Drain current | I_D | 0.3 | A |
| Drain peak current | $I_D(\text{pulse})$ ^{Note1} | 0.75 | A |
| Channel dissipation | Pch ^{Note2} | 5 | W |
| Channel temperature | Tch | 150 | °C |
| Storage temperature | Tstg | -45 to +150 | °C |

Notes: 1. PW < 1sec, Tch < 150°C

2. Value at Tc = 25°C

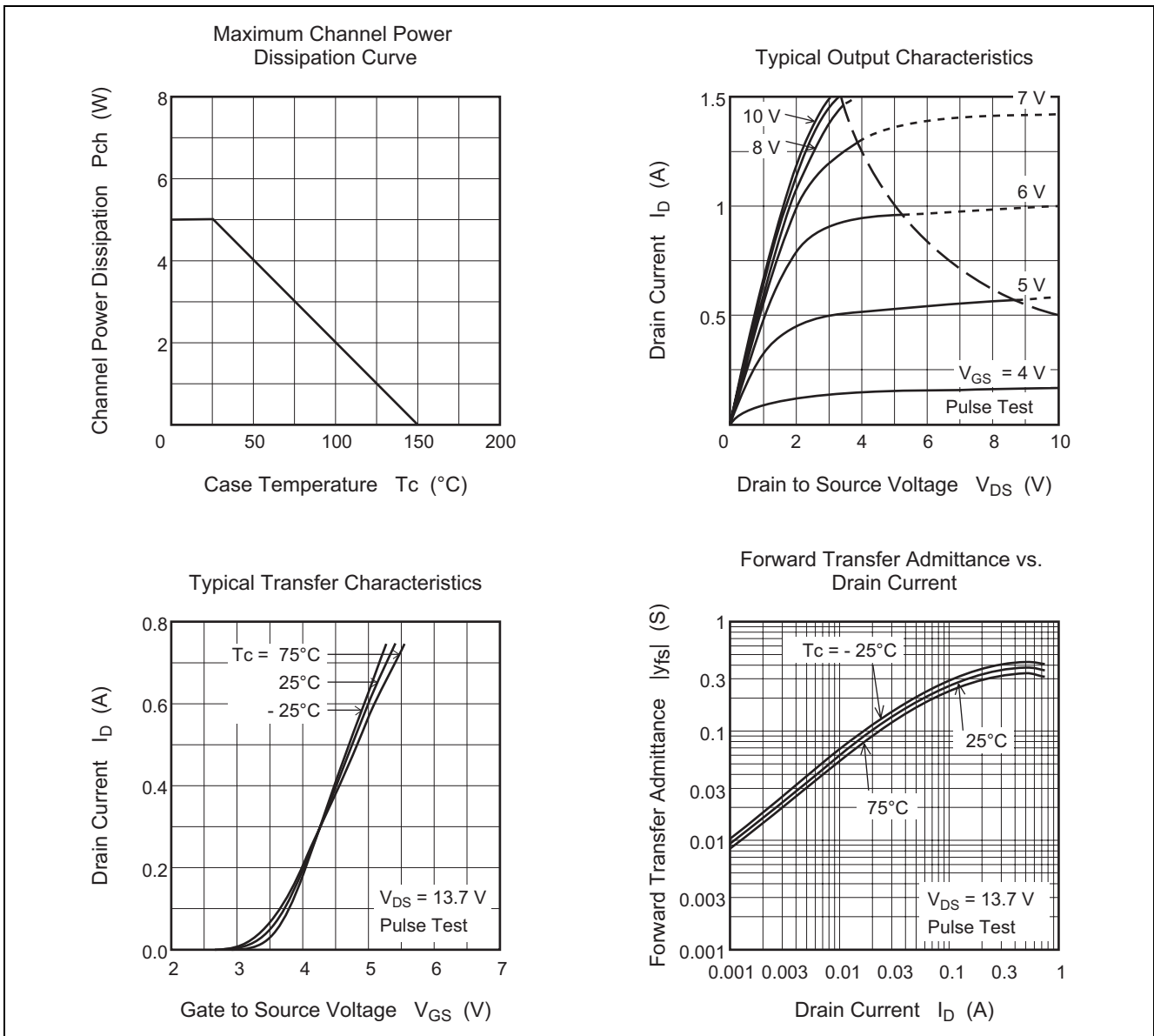
This device is sensitive to electro static discharge. An adequate careful handling procedure is requested.

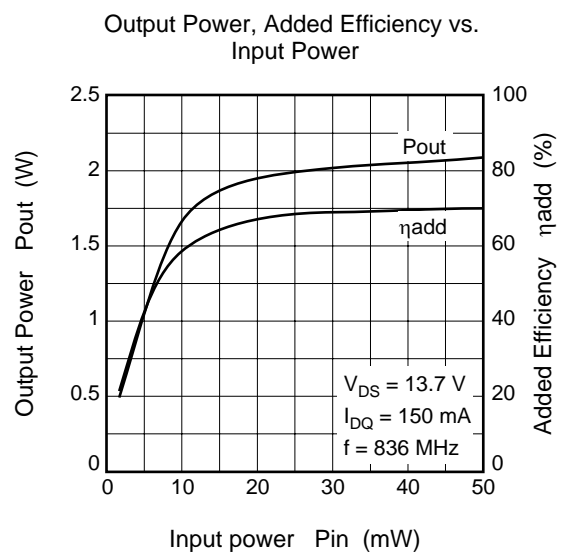
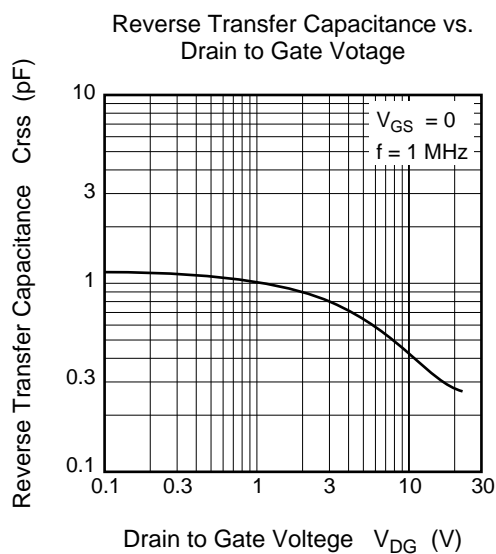
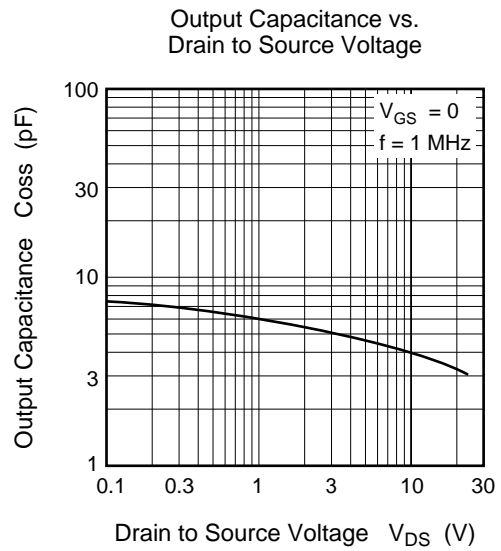
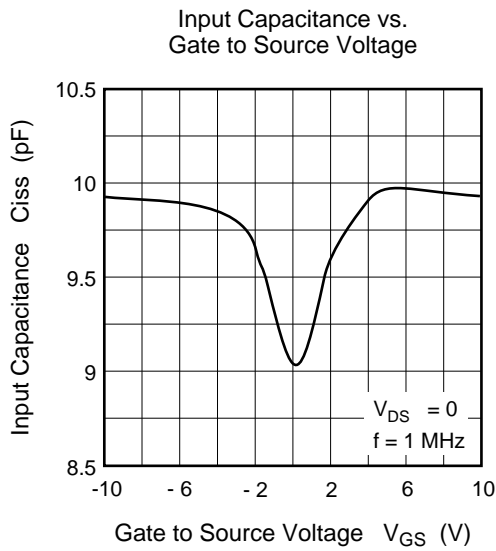
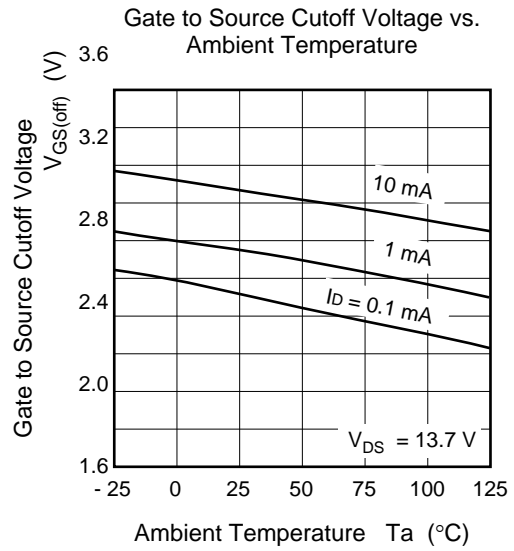
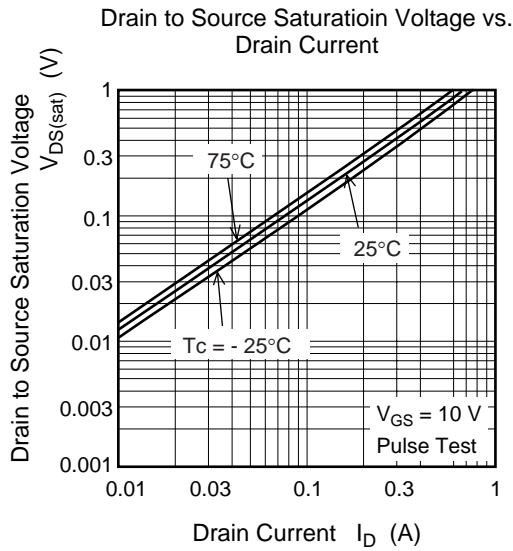
Electrical Characteristics

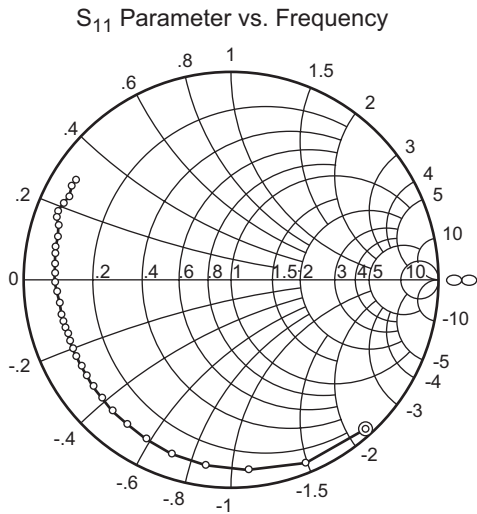
(Ta = 25°C)

| Item | Symbol | Min. | Typ | Max. | Unit | Test Conditions |
|---------------------------------|---------------|------|-----|---------|---------|--|
| Zero gate voltage drain current | I_{DSS} | — | — | 10 | μA | $V_{DS} = 13.7 V, V_{GS} = 0$ |
| Gate to source leak current | I_{GSS} | — | — | ± 5 | μA | $V_{GS} = \pm 10 V, V_{DS} = 0$ |
| Gate to source cutoff voltage | $V_{GS(off)}$ | 2.3 | — | 3.1 | V | $V_{DS} = 13.7 V, I_D = 1 mA$ |
| Input capacitance | C_{iss} | — | 10 | — | pF | $V_{GS} = 5 V, V_{DS} = 0, f = 1 MHz$ |
| Output capacitance | C_{oss} | — | 3.5 | — | pF | $V_{DS} = 13.7 V, V_{GS} = 0, f = 1 MHz$ |
| Output Power | P_{out} | 1.6 | — | — | W | $V_{DS} = 13.7 V, I_{D0} = 150 mA$ |
| Added Efficiency | η_{add} | 58 | — | — | % | $f = 836 MHz, P_{in} = 25.1 mW$ |

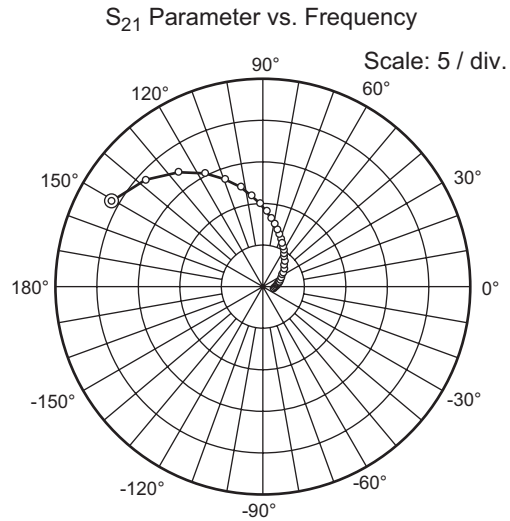
Main Characteristics



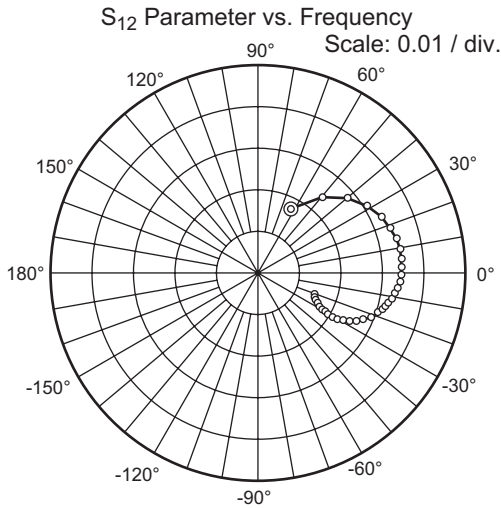




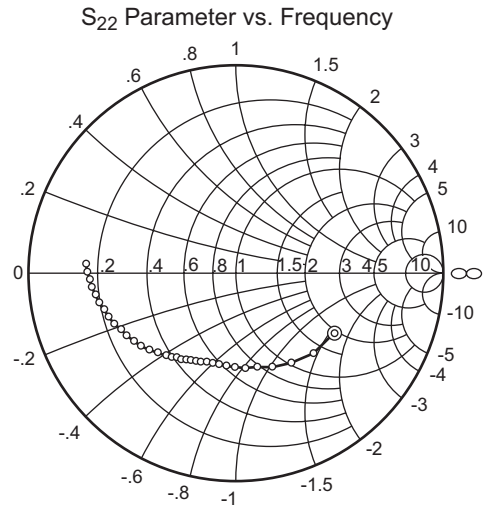
Condition: $V_{DS} = 13.7\text{ V}$, $I_{DQ} = 150\text{ mA}$, $Z_o = 50\ \Omega$
 100 to 1000 MHz (50 MHz Step)
 1000 to 2500 MHz (100 MHz Step)



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 100 to 1000 MHz (50 MHz Step)
 1000 to 2500 MHz (100 MHz Step)

S Parameter

 $(V_{DS} = 4.5 \text{ V}, I_{DQ} = 150 \text{ mA}, Z_o = 50 \Omega)$

| f (MHz) | S11 | | S21 | | S12 | | S22 | |
|---------|-------|------------|-------|------------|-------|------------|-------|------------|
| | MAG | ANG (deg.) | MAG | ANG (deg.) | MAG | ANG (deg.) | MAG | ANG (deg.) |
| 100 | 0.942 | -62.0 | 12.61 | 141.7 | 0.036 | 52.5 | 0.426 | -76.6 |
| 150 | 0.920 | -85.7 | 11.22 | 128.5 | 0.045 | 38.2 | 0.455 | -99.8 |
| 200 | 0.885 | -105.8 | 10.04 | 116.4 | 0.050 | 28.2 | 0.473 | -115.6 |
| 250 | 0.854 | -120.3 | 9.15 | 107.5 | 0.053 | 20.8 | 0.484 | -126.7 |
| 300 | 0.836 | -130.3 | 8.11 | 100.8 | 0.054 | 15.1 | 0.503 | -134.5 |
| 350 | 0.814 | -138.2 | 7.32 | 95.3 | 0.055 | 10.3 | 0.509 | -140.5 |
| 400 | 0.809 | -144.2 | 6.64 | 90.6 | 0.056 | 6.2 | 0.517 | -145.0 |
| 450 | 0.806 | -148.9 | 6.04 | 86.7 | 0.056 | 2.3 | 0.520 | -148.5 |
| 500 | 0.802 | -152.9 | 5.54 | 82.9 | 0.056 | -0.7 | 0.526 | -151.5 |
| 550 | 0.796 | -156.2 | 5.10 | 79.5 | 0.056 | -3.6 | 0.530 | -154.1 |
| 600 | 0.795 | -159.2 | 4.71 | 76.4 | 0.055 | -6.4 | 0.535 | -156.2 |
| 650 | 0.795 | -162.0 | 4.37 | 73.2 | 0.055 | -8.8 | 0.540 | -158.1 |
| 700 | 0.795 | -164.5 | 4.06 | 70.3 | 0.055 | -11.1 | 0.544 | -159.8 |
| 750 | 0.796 | -166.8 | 3.79 | 67.5 | 0.054 | -13.1 | 0.550 | -161.5 |
| 800 | 0.795 | -168.7 | 3.53 | 64.6 | 0.053 | -15.4 | 0.556 | -162.9 |
| 850 | 0.796 | -170.6 | 3.33 | 62.1 | 0.053 | -17.2 | 0.561 | -164.3 |
| 900 | 0.799 | -172.6 | 3.15 | 59.5 | 0.052 | -19.0 | 0.567 | -165.6 |
| 950 | 0.802 | -174.5 | 2.97 | 57.0 | 0.052 | -20.7 | 0.574 | -166.7 |
| 1000 | 0.802 | -175.9 | 2.80 | 54.8 | 0.051 | -22.6 | 0.580 | -168.0 |
| 1050 | 0.802 | -177.5 | 2.65 | 52.3 | 0.050 | -24.4 | 0.586 | -169.2 |
| 1100 | 0.803 | -179.3 | 2.51 | 50.1 | 0.050 | -26.0 | 0.592 | -170.4 |
| 1150 | 0.807 | -179.3 | 2.39 | 47.9 | 0.049 | -27.4 | 0.597 | -171.4 |
| 1200 | 0.809 | -177.6 | 2.27 | 45.4 | 0.048 | -28.8 | 0.602 | -172.5 |
| 1250 | 0.813 | -176.3 | 2.16 | 43.1 | 0.047 | -30.2 | 0.606 | -173.8 |
| 1300 | 0.818 | -175.1 | 2.06 | 41.0 | 0.047 | -31.6 | 0.612 | -174.7 |
| 1350 | 0.818 | -173.9 | 1.97 | 38.8 | 0.046 | -33.0 | 0.617 | -175.7 |
| 1400 | 0.820 | -172.8 | 1.88 | 36.7 | 0.045 | -34.1 | 0.620 | -176.7 |
| 1450 | 0.817 | -171.6 | 1.80 | 34.8 | 0.044 | -35.4 | 0.625 | -177.9 |
| 1500 | 0.821 | -170.1 | 1.72 | 32.9 | 0.043 | -36.5 | 0.630 | -178.9 |
| 1550 | 0.825 | -168.7 | 1.64 | 30.9 | 0.043 | -37.7 | 0.635 | -179.9 |
| 1600 | 0.830 | -167.5 | 1.57 | 28.9 | 0.042 | -38.9 | 0.639 | -178.6 |
| 1650 | 0.832 | -166.6 | 1.51 | 26.9 | 0.041 | -40.0 | 0.646 | -177.6 |
| 1700 | 0.833 | -165.5 | 1.45 | 24.9 | 0.040 | -41.0 | 0.649 | -176.5 |
| 1750 | 0.831 | -164.0 | 1.41 | 22.9 | 0.039 | -42.1 | 0.654 | -175.3 |
| 1800 | 0.833 | -162.4 | 1.36 | 21.0 | 0.039 | -42.7 | 0.660 | -174.2 |
| 1850 | 0.836 | -160.8 | 1.32 | 19.5 | 0.038 | -43.6 | 0.664 | -173.0 |
| 1900 | 0.842 | -159.3 | 1.28 | 17.9 | 0.037 | -44.3 | 0.670 | -171.9 |
| 1950 | 0.854 | -157.9 | 1.23 | 16.4 | 0.037 | -45.5 | 0.675 | -170.7 |
| 2000 | 0.869 | -156.9 | 1.19 | 14.9 | 0.036 | -46.4 | 0.682 | -169.6 |
| 2050 | 0.871 | -156.4 | 1.15 | 13.3 | 0.035 | -47.2 | 0.684 | -168.5 |
| 2100 | 0.870 | -155.7 | 1.11 | 11.4 | 0.034 | -48.2 | 0.689 | -167.3 |
| 2150 | 0.864 | -154.5 | 1.07 | 9.3 | 0.034 | -48.6 | 0.696 | -166.2 |
| 2200 | 0.860 | -153.1 | 1.04 | 7.2 | 0.033 | -49.4 | 0.699 | -165.2 |
| 2250 | 0.858 | -151.9 | 1.01 | 5.5 | 0.032 | -50.1 | 0.702 | -164.1 |
| 2300 | 0.855 | -150.3 | 0.98 | 3.8 | 0.032 | -50.8 | 0.706 | -162.8 |
| 2350 | 0.860 | -149.1 | 0.95 | 2.5 | 0.031 | -51.5 | 0.713 | -161.7 |
| 2400 | 0.868 | -147.7 | 0.92 | 0.5 | 0.031 | -51.9 | 0.714 | -160.7 |
| 2450 | 0.868 | -146.7 | 0.89 | -1.1 | 0.030 | -52.4 | 0.716 | -159.6 |
| 2500 | 0.865 | -145.2 | 0.86 | -3.2 | 0.029 | -53.1 | 0.720 | -158.3 |

S Parameter

 $(V_{DS} = 6\text{ V}, I_{DQ} = 150\text{ mA}, Z_o = 50\ \Omega)$

| f (MHz) | S11 | | S21 | | S12 | | S22 | |
|---------|-------|------------|-------|------------|-------|------------|-------|------------|
| | MAG | ANG (deg.) | MAG | ANG (deg.) | MAG | ANG (deg.) | MAG | ANG (deg.) |
| 100 | 0.941 | -60.5 | 15.47 | 142.1 | 0.030 | 53.5 | 0.476 | -61.7 |
| 150 | 0.916 | -83.6 | 13.68 | 129.2 | 0.040 | 40.8 | 0.471 | -83.8 |
| 200 | 0.886 | -102.5 | 12.16 | 117.5 | 0.044 | 30.8 | 0.468 | -100.1 |
| 250 | 0.856 | -115.8 | 11.01 | 109.0 | 0.047 | 23.1 | 0.465 | -112.0 |
| 300 | 0.838 | -125.6 | 9.74 | 102.6 | 0.049 | 17.0 | 0.475 | -120.8 |
| 350 | 0.824 | -133.4 | 8.74 | 96.9 | 0.050 | 11.9 | 0.475 | -127.9 |
| 400 | 0.816 | -139.4 | 7.89 | 92.0 | 0.050 | 7.5 | 0.479 | -133.1 |
| 450 | 0.812 | -144.5 | 7.17 | 87.8 | 0.051 | 3.6 | 0.482 | -137.2 |
| 500 | 0.807 | -148.8 | 6.50 | 83.7 | 0.051 | 0.2 | 0.485 | -140.7 |
| 550 | 0.804 | -152.6 | 5.99 | 80.2 | 0.051 | -2.6 | 0.489 | -143.7 |
| 600 | 0.800 | -155.8 | 5.50 | 76.9 | 0.050 | -5.6 | 0.495 | -146.1 |
| 650 | 0.797 | -158.7 | 5.09 | 73.9 | 0.050 | -8.2 | 0.500 | -148.3 |
| 700 | 0.800 | -161.7 | 4.73 | 70.5 | 0.049 | -10.6 | 0.506 | -150.3 |
| 750 | 0.800 | -164.1 | 4.40 | 67.6 | 0.049 | -12.6 | 0.513 | -152.2 |
| 800 | 0.801 | -166.2 | 4.11 | 64.7 | 0.048 | -15.1 | 0.520 | -153.9 |
| 850 | 0.802 | -168.3 | 3.87 | 62.0 | 0.048 | -16.7 | 0.526 | -155.3 |
| 900 | 0.802 | -170.3 | 3.65 | 59.4 | 0.047 | -18.6 | 0.535 | -156.9 |
| 950 | 0.803 | -171.9 | 3.44 | 56.9 | 0.046 | -20.4 | 0.543 | -158.3 |
| 1000 | 0.807 | -173.7 | 3.24 | 54.5 | 0.046 | -22.2 | 0.551 | -159.7 |
| 1050 | 0.806 | -175.5 | 3.08 | 51.9 | 0.045 | -24.0 | 0.559 | -161.1 |
| 1100 | 0.808 | -177.2 | 2.91 | 49.8 | 0.044 | -25.7 | 0.566 | -162.5 |
| 1150 | 0.811 | -178.9 | 2.77 | 47.2 | 0.043 | -27.1 | 0.574 | -163.7 |
| 1200 | 0.815 | -179.6 | 2.63 | 44.9 | 0.043 | -28.5 | 0.580 | -165.0 |
| 1250 | 0.818 | -178.1 | 2.50 | 42.5 | 0.042 | -29.9 | 0.586 | -166.4 |
| 1300 | 0.824 | -176.8 | 2.39 | 40.2 | 0.041 | -31.2 | 0.594 | -167.6 |
| 1350 | 0.824 | -175.8 | 2.28 | 38.0 | 0.040 | -32.6 | 0.600 | -168.7 |
| 1400 | 0.827 | -174.4 | 2.17 | 36.1 | 0.040 | -33.6 | 0.605 | -169.9 |
| 1450 | 0.825 | -173.1 | 2.07 | 33.9 | 0.039 | -34.9 | 0.611 | -171.2 |
| 1500 | 0.827 | -171.6 | 1.98 | 31.9 | 0.038 | -36.0 | 0.617 | -172.5 |
| 1550 | 0.832 | -170.3 | 1.89 | 30.1 | 0.037 | -37.1 | 0.622 | -173.8 |
| 1600 | 0.838 | -168.9 | 1.81 | 27.9 | 0.036 | -38.2 | 0.628 | -175.2 |
| 1650 | 0.842 | -168.0 | 1.74 | 25.9 | 0.036 | -39.2 | 0.636 | -176.4 |
| 1700 | 0.840 | -166.8 | 1.68 | 23.6 | 0.035 | -40.2 | 0.640 | -177.6 |
| 1750 | 0.838 | -165.3 | 1.62 | 21.6 | 0.034 | -41.1 | 0.646 | -179.0 |
| 1800 | 0.840 | -163.7 | 1.57 | 19.9 | 0.033 | -41.5 | 0.652 | -179.8 |
| 1850 | 0.843 | -162.0 | 1.51 | 18.1 | 0.033 | -42.3 | 0.658 | -178.5 |
| 1900 | 0.852 | -160.4 | 1.47 | 16.7 | 0.032 | -42.9 | 0.664 | -177.2 |
| 1950 | 0.860 | -159.1 | 1.41 | 15.2 | 0.031 | -43.9 | 0.670 | -175.9 |
| 2000 | 0.873 | -158.1 | 1.36 | 13.6 | 0.031 | -44.6 | 0.677 | -174.7 |
| 2050 | 0.879 | -157.4 | 1.31 | 12.0 | 0.030 | -45.4 | 0.680 | -173.5 |
| 2100 | 0.877 | -156.7 | 1.26 | 10.1 | 0.029 | -46.1 | 0.686 | -172.1 |
| 2150 | 0.871 | -155.4 | 1.22 | 8.0 | 0.029 | -46.3 | 0.693 | -171.0 |
| 2200 | 0.869 | -154.2 | 1.19 | 6.0 | 0.028 | -46.9 | 0.697 | -169.8 |
| 2250 | 0.865 | -152.8 | 1.15 | 4.1 | 0.027 | -47.4 | 0.701 | -168.7 |
| 2300 | 0.863 | -151.2 | 1.12 | 2.4 | 0.027 | -47.7 | 0.705 | -167.3 |
| 2350 | 0.868 | -149.6 | 1.08 | 0.8 | 0.026 | -48.2 | 0.712 | -166.2 |
| 2400 | 0.875 | -148.6 | 1.05 | -0.9 | 0.026 | -48.2 | 0.713 | -165.1 |
| 2450 | 0.876 | -147.4 | 1.01 | -2.7 | 0.025 | -48.7 | 0.716 | -163.9 |
| 2500 | 0.872 | -146.1 | 0.98 | -4.6 | 0.025 | -49.0 | 0.720 | -162.4 |

S Parameter

 $(V_{DS} = 7.5 \text{ V}, I_{DQ} = 150 \text{ mA}, Z_o = 50 \Omega)$

| f (MHz) | S11 | | S21 | | S12 | | S22 | |
|---------|-------|------------|-------|------------|-------|------------|-------|------------|
| | MAG | ANG (deg.) | MAG | ANG (deg.) | MAG | ANG (deg.) | MAG | ANG (deg.) |
| 100 | 0.946 | -58.3 | 17.64 | 143.8 | 0.027 | 55.8 | 0.500 | -52.7 |
| 150 | 0.920 | -80.2 | 15.56 | 130.9 | 0.036 | 42.9 | 0.483 | -73.1 |
| 200 | 0.889 | -98.1 | 13.78 | 119.7 | 0.040 | 32.7 | 0.470 | -88.9 |
| 250 | 0.867 | -110.4 | 12.44 | 111.4 | 0.043 | 25.1 | 0.460 | -101.0 |
| 300 | 0.844 | -120.8 | 10.97 | 104.3 | 0.045 | 18.8 | 0.453 | -110.0 |
| 350 | 0.832 | -129.0 | 9.80 | 98.4 | 0.046 | 13.5 | 0.458 | -117.7 |
| 400 | 0.821 | -135.6 | 8.80 | 93.3 | 0.047 | 8.9 | 0.461 | -123.3 |
| 450 | 0.819 | -141.1 | 7.96 | 88.8 | 0.047 | 4.8 | 0.463 | -127.8 |
| 500 | 0.816 | -145.8 | 7.25 | 84.6 | 0.047 | 1.2 | 0.466 | -131.6 |
| 550 | 0.809 | -149.8 | 6.64 | 80.7 | 0.047 | -1.8 | 0.469 | -135.0 |
| 600 | 0.807 | -153.2 | 6.09 | 77.4 | 0.046 | -4.7 | 0.475 | -137.7 |
| 650 | 0.804 | -156.5 | 5.63 | 74.1 | 0.046 | -7.3 | 0.481 | -140.0 |
| 700 | 0.806 | -159.3 | 5.22 | 70.7 | 0.046 | -9.8 | 0.488 | -142.4 |
| 750 | 0.806 | -161.9 | 4.86 | 67.7 | 0.045 | -12.1 | 0.494 | -144.5 |
| 800 | 0.806 | -164.2 | 4.54 | 64.7 | 0.044 | -14.3 | 0.502 | -146.3 |
| 850 | 0.807 | -166.3 | 4.26 | 62.0 | 0.044 | -16.3 | 0.510 | -148.2 |
| 900 | 0.808 | -168.6 | 4.02 | 59.3 | 0.043 | -18.0 | 0.519 | -149.9 |
| 950 | 0.811 | -170.4 | 3.79 | 56.8 | 0.043 | -19.9 | 0.528 | -151.5 |
| 1000 | 0.812 | -172.2 | 3.57 | 54.3 | 0.042 | -21.8 | 0.537 | -153.1 |
| 1050 | 0.816 | -174.0 | 3.38 | 51.8 | 0.041 | -23.4 | 0.546 | -154.6 |
| 1100 | 0.814 | -175.8 | 3.21 | 49.3 | 0.041 | -25.2 | 0.555 | -156.1 |
| 1150 | 0.818 | -177.5 | 3.05 | 47.0 | 0.040 | -26.5 | 0.563 | -157.6 |
| 1200 | 0.820 | -179.1 | 2.89 | 44.5 | 0.039 | -28.0 | 0.569 | -159.1 |
| 1250 | 0.826 | -179.4 | 2.75 | 42.1 | 0.038 | -29.3 | 0.578 | -160.6 |
| 1300 | 0.829 | -178.0 | 2.62 | 39.8 | 0.037 | -30.7 | 0.585 | -161.9 |
| 1350 | 0.831 | -176.8 | 2.50 | 37.5 | 0.037 | -31.9 | 0.592 | -163.2 |
| 1400 | 0.832 | -175.5 | 2.38 | 35.4 | 0.036 | -33.1 | 0.597 | -164.6 |
| 1450 | 0.830 | -174.1 | 2.28 | 33.2 | 0.035 | -34.0 | 0.605 | -166.0 |
| 1500 | 0.835 | -172.6 | 2.17 | 31.3 | 0.034 | -35.1 | 0.611 | -167.4 |
| 1550 | 0.835 | -171.2 | 2.07 | 29.2 | 0.034 | -36.2 | 0.618 | -168.8 |
| 1600 | 0.843 | -169.7 | 1.98 | 27.1 | 0.033 | -37.2 | 0.624 | -170.4 |
| 1650 | 0.846 | -168.8 | 1.90 | 25.1 | 0.032 | -38.1 | 0.632 | -171.6 |
| 1700 | 0.845 | -167.4 | 1.83 | 22.9 | 0.031 | -38.9 | 0.636 | -173.0 |
| 1750 | 0.845 | -166.1 | 1.77 | 21.1 | 0.030 | -39.8 | 0.642 | -174.5 |
| 1800 | 0.845 | -164.5 | 1.71 | 19.1 | 0.030 | -40.0 | 0.649 | -175.9 |
| 1850 | 0.848 | -162.7 | 1.65 | 17.2 | 0.029 | -40.8 | 0.656 | -177.2 |
| 1900 | 0.855 | -161.2 | 1.60 | 15.7 | 0.028 | -41.3 | 0.661 | -178.6 |
| 1950 | 0.867 | -159.9 | 1.54 | 14.3 | 0.028 | -42.0 | 0.668 | -180.0 |
| 2000 | 0.880 | -158.8 | 1.49 | 12.6 | 0.027 | -42.5 | 0.676 | -178.7 |
| 2050 | 0.883 | -158.1 | 1.43 | 10.9 | 0.026 | -43.0 | 0.679 | -177.4 |
| 2100 | 0.882 | -157.2 | 1.37 | 9.1 | 0.026 | -43.5 | 0.685 | -176.0 |
| 2150 | 0.876 | -156.1 | 1.33 | 7.0 | 0.025 | -43.5 | 0.692 | -174.7 |
| 2200 | 0.873 | -154.6 | 1.29 | 4.8 | 0.025 | -43.9 | 0.697 | -173.5 |
| 2250 | 0.871 | -153.3 | 1.25 | 3.1 | 0.024 | -44.0 | 0.701 | -172.2 |
| 2300 | 0.869 | -151.8 | 1.21 | 1.5 | 0.023 | -44.2 | 0.705 | -170.7 |
| 2350 | 0.873 | -150.3 | 1.17 | -0.1 | 0.023 | -44.5 | 0.712 | -169.7 |
| 2400 | 0.880 | -149.0 | 1.14 | -2.2 | 0.022 | -44.4 | 0.714 | -168.4 |
| 2450 | 0.881 | -147.7 | 1.10 | -3.7 | 0.022 | -44.4 | 0.717 | -167.1 |
| 2500 | 0.878 | -146.5 | 1.06 | -5.5 | 0.021 | -44.6 | 0.721 | -165.6 |

S Parameter

(V_{DS} = 13.7 V, I_{DQ} = 150 mA, Z_o = 50 Ω)

| f (MHz) | S11 | | S21 | | S12 | | S22 | |
|---------|-------|------------|-------|------------|-------|------------|-------|------------|
| | MAG | ANG (deg.) | MAG | ANG (deg.) | MAG | ANG (deg.) | MAG | ANG (deg.) |
| 100 | 0.968 | -47.9 | 20.87 | 150.6 | 0.017 | 63.3 | 0.557 | -31.9 |
| 150 | 0.951 | -67.8 | 19.11 | 137.9 | 0.024 | 49.8 | 0.536 | -46.4 |
| 200 | 0.918 | -85.0 | 17.04 | 126.4 | 0.028 | 39.6 | 0.512 | -58.9 |
| 250 | 0.897 | -98.0 | 15.32 | 117.2 | 0.031 | 31.5 | 0.488 | -69.3 |
| 300 | 0.882 | -109.0 | 13.72 | 109.6 | 0.033 | 24.6 | 0.466 | -77.5 |
| 350 | 0.870 | -118.4 | 12.29 | 102.7 | 0.034 | 18.8 | 0.460 | -85.1 |
| 400 | 0.855 | -125.9 | 11.02 | 97.1 | 0.034 | 13.9 | 0.454 | -91.3 |
| 450 | 0.852 | -132.2 | 10.01 | 92.3 | 0.035 | 9.5 | 0.451 | -96.3 |
| 500 | 0.846 | -137.6 | 9.12 | 87.8 | 0.035 | 5.7 | 0.451 | -100.7 |
| 550 | 0.841 | -142.4 | 8.37 | 83.3 | 0.035 | 2.3 | 0.451 | -104.8 |
| 600 | 0.835 | -146.5 | 7.69 | 79.6 | 0.035 | -0.8 | 0.456 | -108.3 |
| 650 | 0.833 | -150.2 | 7.11 | 75.8 | 0.034 | -3.5 | 0.464 | -111.6 |
| 700 | 0.833 | -153.6 | 6.58 | 72.4 | 0.034 | -6.4 | 0.469 | -114.7 |
| 750 | 0.836 | -156.5 | 6.14 | 68.9 | 0.033 | -8.5 | 0.477 | -117.7 |
| 800 | 0.833 | -159.2 | 5.72 | 65.9 | 0.033 | -11.0 | 0.486 | -120.4 |
| 850 | 0.832 | -161.8 | 5.37 | 62.8 | 0.032 | -12.8 | 0.494 | -122.9 |
| 900 | 0.834 | -164.1 | 5.05 | 59.9 | 0.032 | -14.7 | 0.503 | -125.4 |
| 950 | 0.834 | -166.1 | 4.75 | 57.1 | 0.031 | -16.4 | 0.514 | -127.8 |
| 1000 | 0.836 | -168.2 | 4.50 | 54.6 | 0.031 | -18.3 | 0.525 | -130.2 |
| 1050 | 0.837 | -170.3 | 4.24 | 51.8 | 0.030 | -19.8 | 0.535 | -132.5 |
| 1100 | 0.838 | -172.3 | 4.03 | 49.1 | 0.029 | -21.4 | 0.544 | -134.7 |
| 1150 | 0.839 | -174.5 | 3.83 | 46.3 | 0.029 | -22.7 | 0.554 | -136.8 |
| 1200 | 0.843 | -176.0 | 3.63 | 44.0 | 0.028 | -23.9 | 0.563 | -138.8 |
| 1250 | 0.848 | -177.7 | 3.46 | 41.6 | 0.027 | -24.9 | 0.571 | -140.9 |
| 1300 | 0.851 | -179.3 | 3.29 | 39.1 | 0.026 | -25.9 | 0.580 | -142.8 |
| 1350 | 0.851 | 179.5 | 3.13 | 36.8 | 0.026 | -27.0 | 0.588 | -144.7 |
| 1400 | 0.852 | 177.9 | 2.98 | 34.4 | 0.025 | -27.6 | 0.594 | -146.5 |
| 1450 | 0.851 | 176.4 | 2.85 | 32.3 | 0.024 | -28.4 | 0.602 | -148.4 |
| 1500 | 0.853 | 175.0 | 2.72 | 30.0 | 0.023 | -29.1 | 0.609 | -150.3 |
| 1550 | 0.857 | 173.3 | 2.59 | 27.8 | 0.023 | -29.5 | 0.616 | -152.1 |
| 1600 | 0.861 | 171.8 | 2.48 | 25.6 | 0.022 | -30.2 | 0.623 | -154.0 |
| 1650 | 0.864 | 170.8 | 2.37 | 23.5 | 0.022 | -30.3 | 0.631 | -155.7 |
| 1700 | 0.862 | 169.4 | 2.29 | 21.2 | 0.021 | -30.7 | 0.637 | -157.5 |
| 1750 | 0.860 | 167.9 | 2.20 | 19.4 | 0.020 | -30.7 | 0.643 | -159.3 |
| 1800 | 0.861 | 166.2 | 2.13 | 17.3 | 0.020 | -30.4 | 0.651 | -161.0 |
| 1850 | 0.866 | 164.3 | 2.05 | 15.5 | 0.019 | -30.1 | 0.657 | -162.7 |
| 1900 | 0.873 | 162.6 | 1.98 | 13.9 | 0.019 | -29.7 | 0.664 | -164.5 |
| 1950 | 0.884 | 161.3 | 1.90 | 12.2 | 0.018 | -29.7 | 0.671 | -166.2 |
| 2000 | 0.895 | 160.4 | 1.83 | 10.6 | 0.018 | -29.5 | 0.679 | -167.9 |
| 2050 | 0.901 | 159.5 | 1.77 | 8.5 | 0.017 | -28.9 | 0.683 | -169.4 |
| 2100 | 0.898 | 158.7 | 1.70 | 6.7 | 0.017 | -28.5 | 0.689 | -171.1 |
| 2150 | 0.891 | 157.4 | 1.65 | 4.6 | 0.016 | -27.4 | 0.697 | -172.8 |
| 2200 | 0.887 | 155.9 | 1.60 | 2.5 | 0.016 | -26.8 | 0.702 | -174.2 |
| 2250 | 0.882 | 154.5 | 1.54 | 0.7 | 0.016 | -26.2 | 0.705 | -175.7 |
| 2300 | 0.880 | 153.0 | 1.49 | -0.9 | 0.015 | -24.9 | 0.709 | -177.4 |
| 2350 | 0.887 | 151.4 | 1.45 | -2.8 | 0.015 | -24.2 | 0.718 | -178.9 |
| 2400 | 0.892 | 149.9 | 1.40 | -4.7 | 0.015 | -22.7 | 0.720 | 179.7 |
| 2450 | 0.894 | 148.7 | 1.35 | -6.4 | 0.015 | -21.7 | 0.724 | 178.3 |
| 2500 | 0.890 | 147.5 | 1.31 | -8.5 | 0.015 | -20.7 | 0.727 | 176.6 |

Package Dimensions

| Package Name | JEITA Package Code | RENESAS Code | Previous Code | MASS[Typ.] | Unit: mm |
|--------------|--------------------|--------------|---------------|------------|----------|
| UPAK | SC-62 | PLZZ0004CA-A | UPAK / UPAKV | 0.050g | |

The drawing shows three views of the package:

- Top View:** Overall width is 4.5 ± 0.1 mm. The lead spacing is 1.5 mm. The lead width is 0.48 mm Max. The lead height is 0.53 mm Max. The diameter of the central hole is $\phi 1$ mm. The distance from the hole to the lead edge is 1.8 mm Max. The total length of the package is 4.25 mm Max. The distance from the hole to the bottom edge is 2.5 ± 0.1 mm. The distance from the lead edge to the bottom edge is 0.8 mm Min.
- Side View:** The package height is 1.5 ± 0.1 mm. The lead height is 0.44 mm Max. The distance from the lead edge to the bottom edge is 0.44 mm Max.
- Bottom View:** The package width is 1.5 mm. The lead width is 0.4 mm. The distance from the lead edge to the bottom edge is 0.2 mm.

Ordering Information

| Part Name | Quantity | Shipping Container |
|---------------|-----------|---|
| 2SK3391JXTL-E | 1000 pcs. | ϕ 178 mm Reel, 12 mm Emboss Taping |

Note: For some grades, production may be terminated. Please contact the Renesas sales office to check the state of production before ordering the product.

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