

MITSUBISHI RF POWER MOS FET
2SK2975

DESCRIPTION

2SK2975 is a MOS FET type transistor specifically designed for VHF/UHF power amplifiers applications.

FEATURES

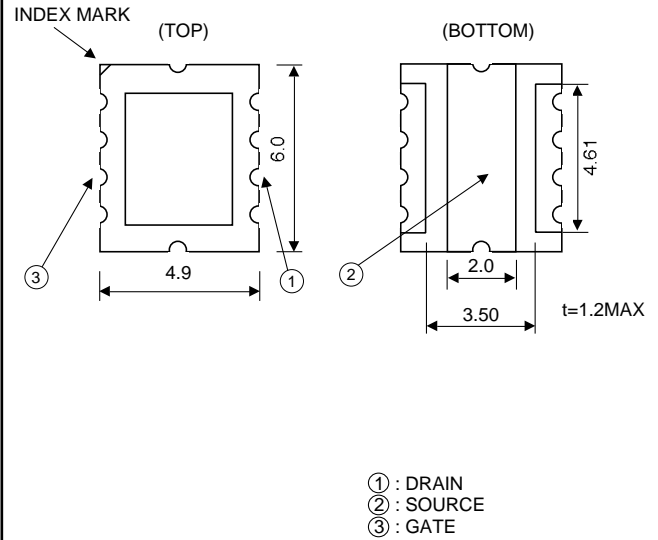
- High power gain: G_{pe} 8.4dB
@ $V_{DD}=9.6V, f=450MHz, P_{in}=30dBm$
- High efficiency: 55% typ.
- Source case type seramic package
(connected internally to source)

APPLICATION

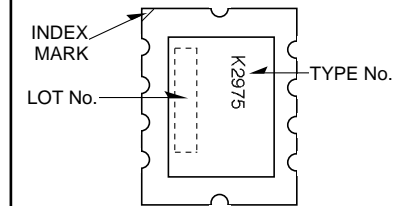
For drive stage and output stage of power amplifiers in VHF/UHF band portable radio sets.

OUTLINE DRAWING

Dimensions in mm



MARKING



ABSOLUTE MAXIMUM RATINGS ($T_c=25^\circ C$, unless otherwise noted)

Symbol	Parameter	Conditions	Ratings	Unit
V_{DSS}	Drain to source voltage		30	V
V_{GSS}	Gate to source voltage		± 20	V
P_{ch}	Channel dissipation	$T_c=25^\circ C$ (Note2)	10	W
T_j	Junction temperature		175	$^\circ C$
T_{stg}	Storage temperature		-40 to +110	$^\circ C$

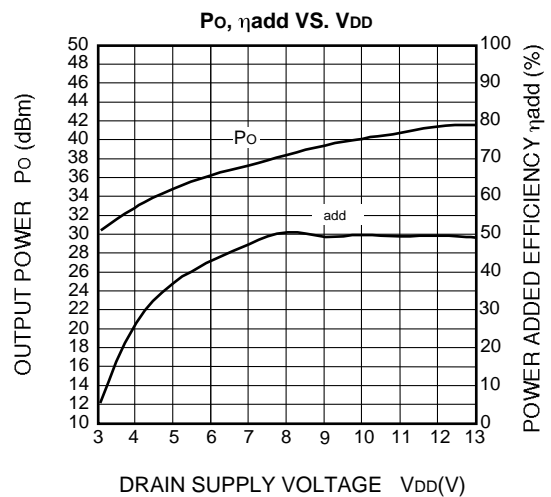
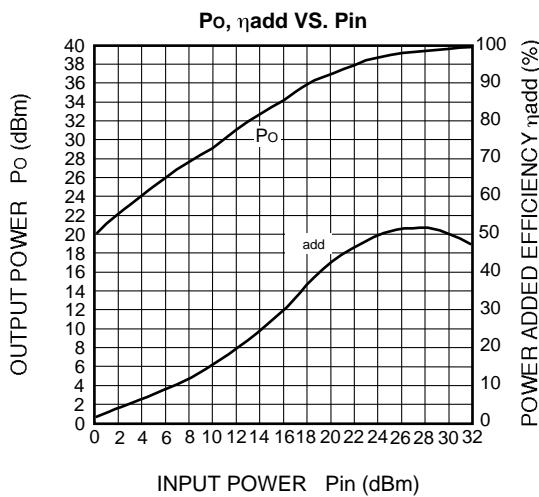
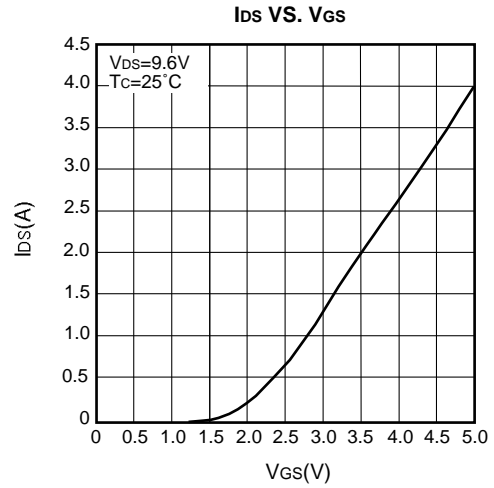
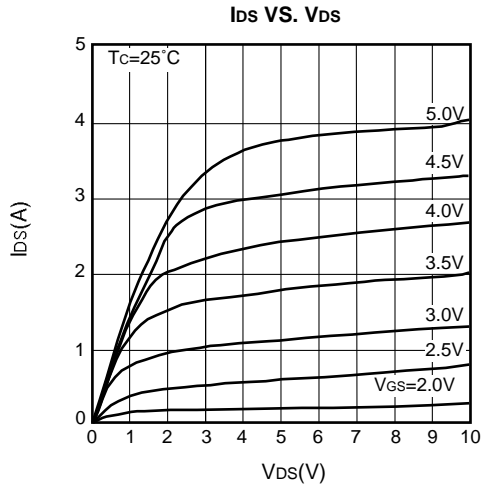
Note1: Above parameters are guaranteed independently.
2: Solder source pad on Copper Block(14×2.8×2mm)

ELECTRICAL CHARACTERISTICS ($T_c=25^\circ C$, unless otherwise noted)

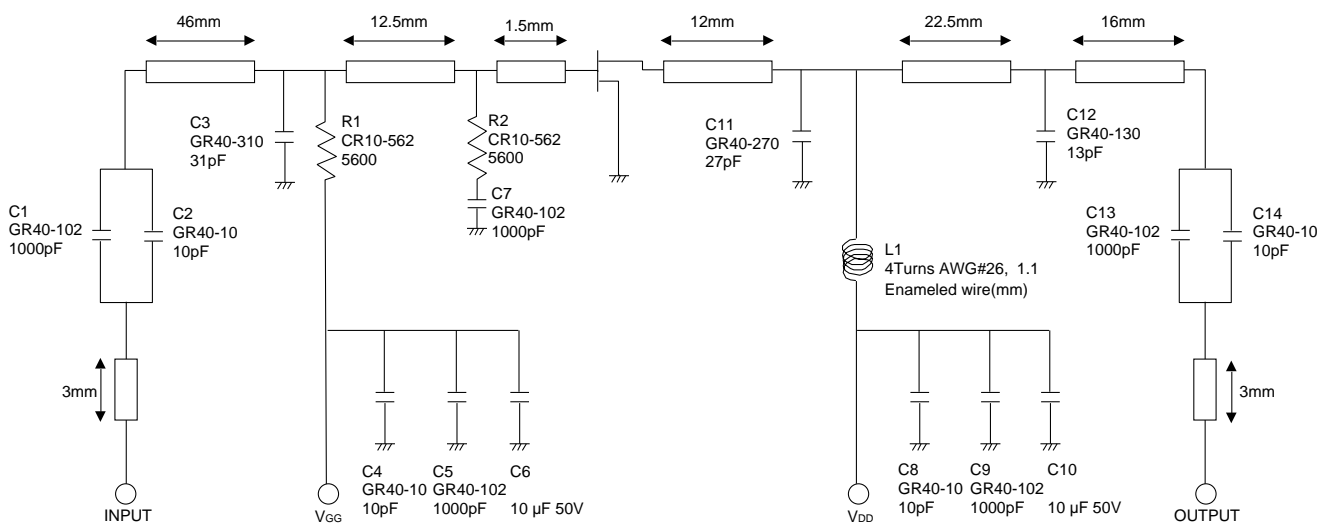
Symbol	Parameter	Test conditions	Limits			Unit
			Min	Typ	Max	
I_{DSS}		$V_{DS}=17V, V_{GS}=0V$	—	—	10	μA
I_{GSS}		$V_{GS}=10V, V_{DS}=0V$	—	—	1	μA
V_{TH}	Threshold voltage	$V_{DS}=7V, I_{DS}=1mA$	1.0		1.7	V
C_{iss}		$V_{GS}=10V, V_{DS}=0V, f=1MHz$		45		pF
C_{oss}		$V_{DS}=10V, V_{GS}=0V, f=1MHz$		80		pF
P_{out}		$V_{DS}=9.6V, P_{in}=1W, f=450MHz$	7	8		W
hD			50	55		%

Note: Above parameters, ratings, limits and conditions are subject to change.

TYPICAL PERFORMANCE DATA



EQUIVALENT CIRCUIT



Note: Board material-glass epoxy substrate
 micro strip line width=2.8mm, $r:4.8, t=1.6\text{mm}$

mitsubishi rf power mos fet
2SK2975

S-PARAMETER DATA(TYPICAL)

$V_D=9.6V, P_{in}=10dBm$

FREQ. (MHz)	S11		S12		S21		S22	
	Real	Imag	Real	Imag	Real	Imag	Real	Imag
50	0.836	-115.463	0.021	11.967	19.136	97.418	0.559	-143.723
100	0.807	-141.825	0.021	-16.870	10.141	65.065	0.636	-154.490
150	0.819	-151.724	0.020	-37.649	6.556	40.799	0.680	-158.082
200	0.835	-156.464	0.018	-50.731	4.625	20.767	0.720	-159.659
250	0.858	-159.472	0.016	-62.227	3.475	2.085	0.759	-160.702
300	0.872	-161.678	0.014	-72.477	2.709	-14.865	0.778	-161.884
350	0.886	-163.630	0.012	-77.156	2.175	-30.984	0.807	-163.331
400	0.899	-165.272	0.010	-82.951	1.788	-46.429	0.830	-164.014
450	0.909	-166.371	0.010	-79.763	1.501	-61.362	0.839	-164.860
500	0.915	-167.628	0.010	-77.947	1.279	-75.599	0.858	-165.663
550	0.924	-168.601	0.010	-77.893	1.107	-89.665	0.869	-166.475
600	0.930	-169.541	0.011	-76.571	0.969	-103.303	0.874	-166.923
650	0.933	-170.535	0.013	-82.268	0.855	-116.569	0.885	-167.633
700	0.935	-171.602	0.015	-88.668	0.759	-130.173	0.891	-168.317
750	0.944	-172.164	0.017	-93.156	0.690	-143.380	0.893	-168.904
800	0.946	-173.164	0.019	-103.513	0.625	-156.123	0.905	-169.826
850	0.948	-173.673	0.021	-113.867	0.570	-169.394	0.908	-170.437
900	0.949	-174.773	0.024	-124.065	0.525	-177.293	0.909	-171.046
950	0.951	-175.444	0.026	-134.453	0.487	-165.298	0.915	-171.892
1000	0.956	-175.951	0.028	-144.025	0.446	-152.305	0.915	-172.318
1050	0.957	-177.019	0.031	-157.299	0.411	-139.706	0.915	-173.122
1100	0.954	-177.922	0.033	-169.332	0.386	-127.148	0.924	-174.349
1150	0.953	-178.800	0.035	-179.717	0.368	-115.532	0.926	-174.354
1200	0.954	-179.511	0.038	-167.673	0.337	-102.465	0.925	-174.989
1250	0.956	-179.625	0.040	-155.999	0.323	-90.520	0.930	-175.742
1300	0.954	-178.904	0.042	-144.195	0.303	-78.449	0.927	-176.300
1350	0.954	-177.726	0.045	-132.079	0.287	-66.533	0.929	-177.658
1400	0.950	-176.753	0.046	-119.508	0.270	-53.720	0.927	-178.157
1450	0.950	-175.847	0.049	-107.540	0.260	-41.671	0.931	-178.520
1500	0.950	-174.793	0.051	-95.929	0.244	-29.932	0.927	-179.724