2SK2973

DESCRIPTION

2SK2973 is a MOS FET type transistor specifically designed for VHF/UHF power amplifiers applications.

FEATURES

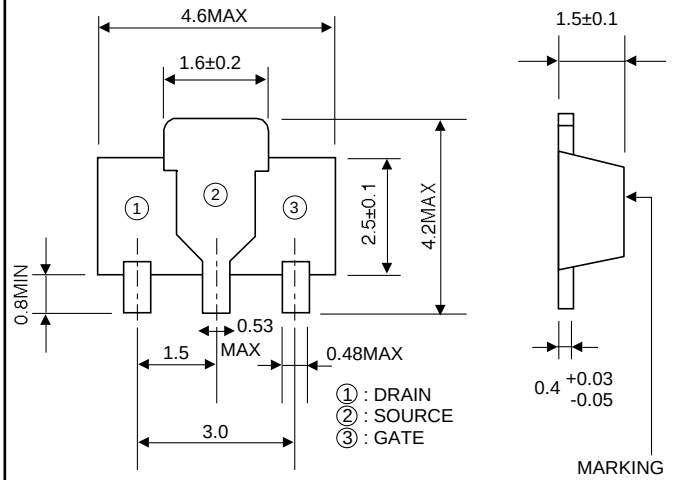
- High power gain:Gpe≥13dB
  @V_{DD}=9.6V,f=450MHz,Pin=17dBm
- High efficiency:55% typ.
- Source case type SOT-89 package
  (connected internally to source)

APPLICATION

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

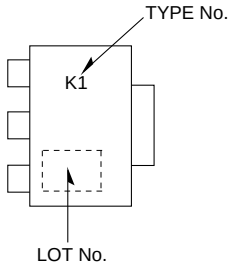
OUTLINE DRAWING

Dimensions in mm



SOT-89

MARKING



ABSOLUTE MAXIMUM RATINGS (Tc=25˚C, unless otherwise noted)

Symbol	Parameter	Conditions	Ratings	Unit
V_{DSS}	Drain to source voltage		17	V
V_{GSS}	Gate to source voltage		±10	V
P_{ch}	Channel dissipation	Tc=25˚C (Note2)	1.5	W
T_j	Junction temperature		150	˚C
T_{stg}	Storage temperature		-40 to +110	˚C

Note1: Above parameters are guaranteed independently.
2: Solder on printed board(Copper leaf area;70×70mm,t=1.6mm Epoxy glass)

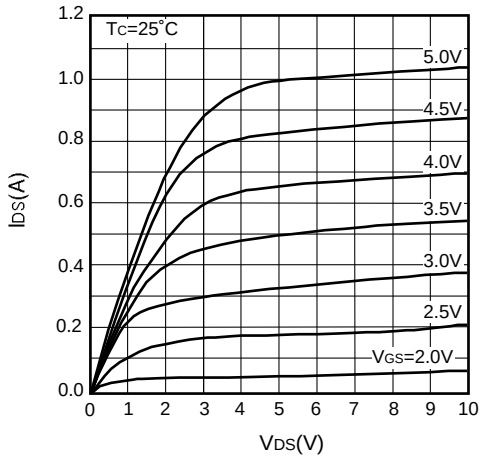
ELECTRICAL CHARACTERISTICS (Tc=25˚C, unless otherwise noted)

Symbol	Parameter	Test conditions	Limits			Unit
			Min	Typ	Max	
I_{DSS}		V_{DS}=12V, 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	1.2		1.8	V
C_{iss}		V_{GS}=10V, V_{DS}=0V,f=1MHz		10		pF
C_{oss}		V_{DS}=10V, V_{GS}=0V,f=1MHz		8		pF
P_{out}		V_{DS}=9.6V, P_{in}=50mW,f=450MHz	1	1.2		W
h_D			45	55		%

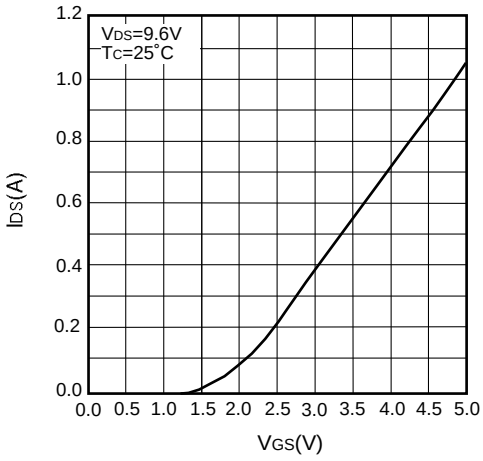
Note: Above parameters,ratings,limits and conditions are subject to change.

TYPICAL PERFORMANCE DATA

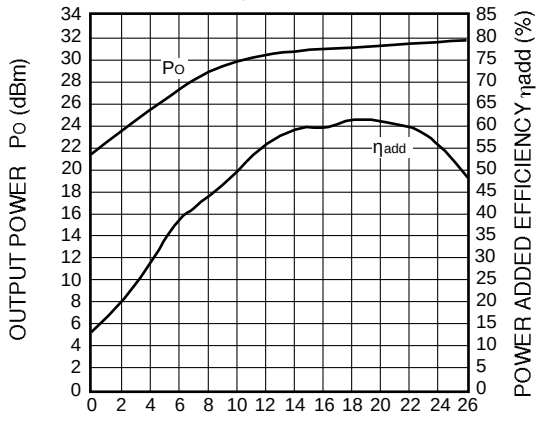
IDS VS. VDS



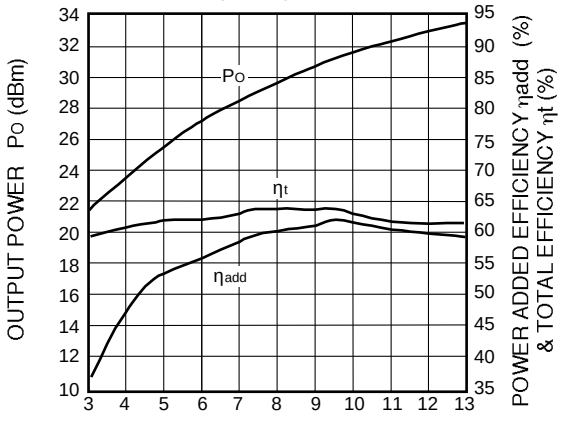
IDS VS. VGS



Po, ηadd VS. Pin

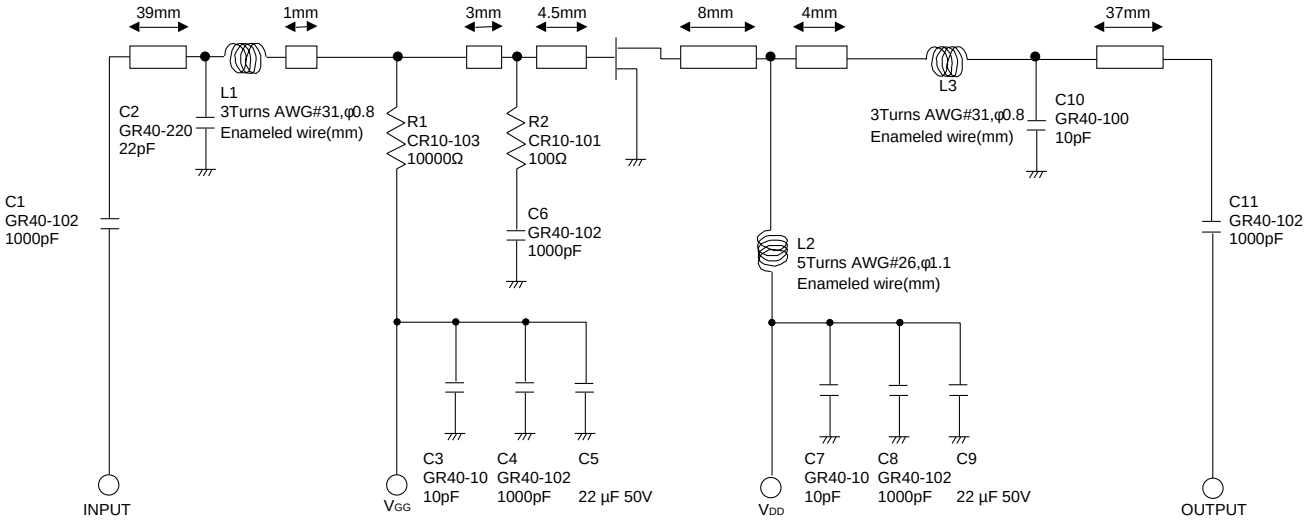


Po, ηadd, ηt VS. VDD



EQUIVALENT CIRCUIT

@VDD=9.6V Match



Note: Board material-glass epoxi substrate
micro strip line width=1mm, ε r :4.8,t=0.6mm

S-PARAMETER DATA(TYPICAL)

V_{DD}=7V,I_D=100mA

FREQ. (MHz)	S_{11}		S_{12}		S_{21}		S_{22}	
50	0.962	-30.909	0.019	70.131	15.173	155.450	0.517	-33.518
100	0.877	-57.078	0.030	55.726	13.006	134.869	0.497	-60.987
150	0.797	-76.635	0.036	44.160	10.709	119.517	0.482	-80.439
200	0.741	-91.748	0.038	40.231	8.877	107.569	0.475	-94.398
250	0.711	-103.034	0.038	38.866	7.448	97.989	0.478	-103.912
300	0.691	-111.898	0.036	41.687	6.331	90.515	0.482	-111.111
350	0.683	-119.086	0.036	45.980	5.489	83.918	0.490	-117.019
400	0.680	-125.145	0.036	54.414	4.833	78.172	0.504	-121.733
450	0.680	-130.461	0.038	62.799	4.299	73.186	0.515	-125.706
500	0.684	-135.027	0.041	70.422	3.863	68.210	0.528	-129.494
550	0.689	-139.643	0.047	77.349	3.488	63.808	0.538	-132.827
600	0.695	-143.458	0.054	81.691	3.180	59.700	0.550	-136.175
650	0.704	-147.473	0.062	85.975	2.937	55.733	0.563	-139.265
700	0.710	-151.333	0.072	88.284	2.710	51.615	0.575	-142.636
750	0.719	-154.997	0.082	89.530	2.509	48.016	0.587	-145.786
800	0.725	-158.593	0.094	89.900	2.346	44.142	0.599	-149.500
850	0.736	-162.473	0.106	89.449	2.190	40.196	0.607	-152.741
900	0.739	-166.136	0.118	88.195	2.032	36.568	0.614	-156.200
950	0.751	-169.642	0.131	86.908	1.910	32.944	0.628	-159.932
1000	0.759	-173.163	0.145	85.477	1.767	29.492	0.632	-163.560
1050	0.763	-176.805	0.158	83.221	1.663	26.400	0.640	-167.393
1100	0.772	-179.819	0.170	81.026	1.561	23.026	0.648	-171.167
1150	0.777	176.141	0.183	78.964	1.448	19.886	0.654	-174.329
1200	0.788	172.631	0.195	76.775	1.351	17.290	0.656	-177.882
1250	0.793	169.504	0.207	74.515	1.263	14.209	0.659	178.966
1300	0.797	165.990	0.220	72.443	1.168	12.331	0.655	176.140
1350	0.804	162.470	0.230	69.906	1.082	10.481	0.651	173.319
1400	0.809	159.531	0.240	67.648	1.008	9.729	0.658	171.233
1450	0.816	156.335	0.251	65.743	0.953	9.000	0.661	169.940
1500	0.825	153.305	0.259	63.341	0.902	8.358	0.668	168.226

V_{DD}=13V,I_D=100mA

FREQ. (MHz)	S_{11}		S_{12}		S_{21}		S_{22}	
50	0.969	-28.167	0.014	71.719	15.673	157.229	0.584	-25.160
100	0.895	-52.309	0.023	58.790	13.660	137.611	0.550	-46.574
150	0.818	-71.057	0.028	50.602	11.486	122.578	0.519	-62.601
200	0.766	-85.910	0.030	46.574	9.627	110.613	0.498	-75.182
250	0.731	-97.535	0.030	45.714	8.179	101.187	0.490	-84.524
300	0.713	-106.770	0.030	48.027	7.015	93.440	0.487	-91.913
350	0.699	-114.312	0.028	55.670	6.113	86.760	0.491	-98.343
400	0.691	-120.895	0.031	62.737	5.388	80.878	0.500	-103.694
450	0.694	-126.479	0.032	73.404	4.823	75.886	0.508	-107.961
500	0.692	-131.266	0.037	80.763	4.335	70.903	0.519	-112.507
550	0.694	-136.032	0.043	87.314	3.935	66.204	0.529	-116.209
600	0.698	-140.107	0.050	92.097	3.611	62.009	0.539	-120.031
650	0.705	-144.290	0.059	95.477	3.331	58.175	0.551	-123.436
700	0.711	-148.279	0.069	96.935	3.095	53.864	0.564	-126.986
750	0.714	-151.821	0.079	98.151	2.875	49.913	0.575	-130.446
800	0.719	-155.417	0.091	97.664	2.685	46.260	0.585	-134.470
850	0.731	-159.212	0.102	96.976	2.511	42.090	0.595	-137.974
900	0.735	-162.934	0.116	95.996	2.342	38.080	0.605	-141.841
950	0.745	-166.562	0.128	94.383	2.215	34.580	0.619	-145.830
1000	0.750	-170.178	0.142	92.828	2.064	30.750	0.623	-149.638
1050	0.757	-173.594	0.155	90.415	1.936	27.264	0.632	-153.862
1100	0.769	-177.132	0.168	87.874	1.817	23.902	0.642	-158.231
1150	0.775	179.157	0.182	85.838	1.693	20.361	0.650	-161.799
1200	0.782	175.539	0.195	82.989	1.585	17.461	0.653	-165.820
1250	0.793	172.187	0.208	80.799	1.476	14.114	0.657	-169.544
1300	0.799	169.041	0.221	78.268	1.360	11.831	0.656	-172.628
1350	0.807	165.082	0.233	75.458	1.263	9.495	0.651	-176.074
1400	0.814	162.211	0.243	72.924	1.163	8.102	0.659	-178.678
1450	0.816	158.932	0.255	71.005	1.097	7.206	0.660	179.809
1500	0.829	155.796	0.264	68.509	1.039	6.401	0.668	177.692