

OKI electronic components

KGF1305T

Power FET (Ceramic Package Type)

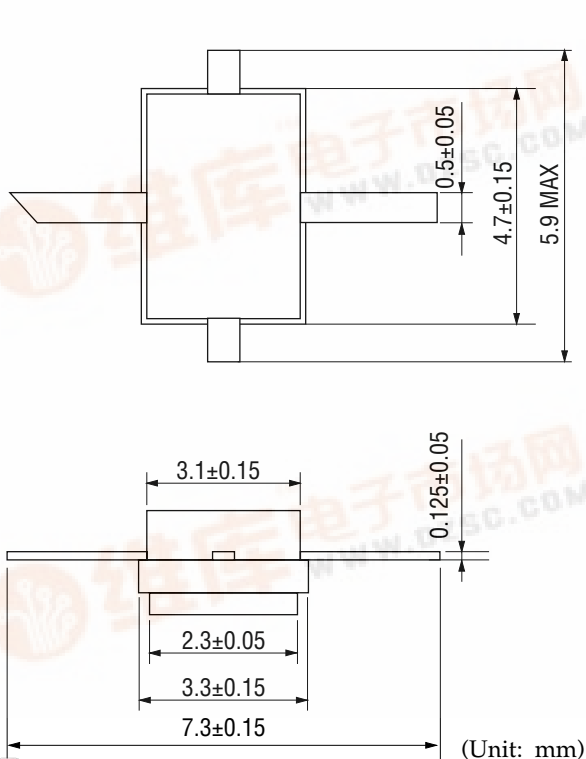
GENERAL DESCRIPTION

The KGF1305T, housed in a ceramic package with integrated heat sink, is a discrete UHF-band power FET that features high efficiency, high output power, and low current operation. The KGF1305T specifications are guaranteed to a fixed matching circuit for 5.4 V and 850 MHz; external impedance-matching circuits are also required. Because of its high efficiency, high output power (more than 31.5 dBm), and low thermal resistance, the KGF1305T is ideal as a transmitter-final-stage amplifier for personal handy phones, such as analog cellular phones.

FEATURES

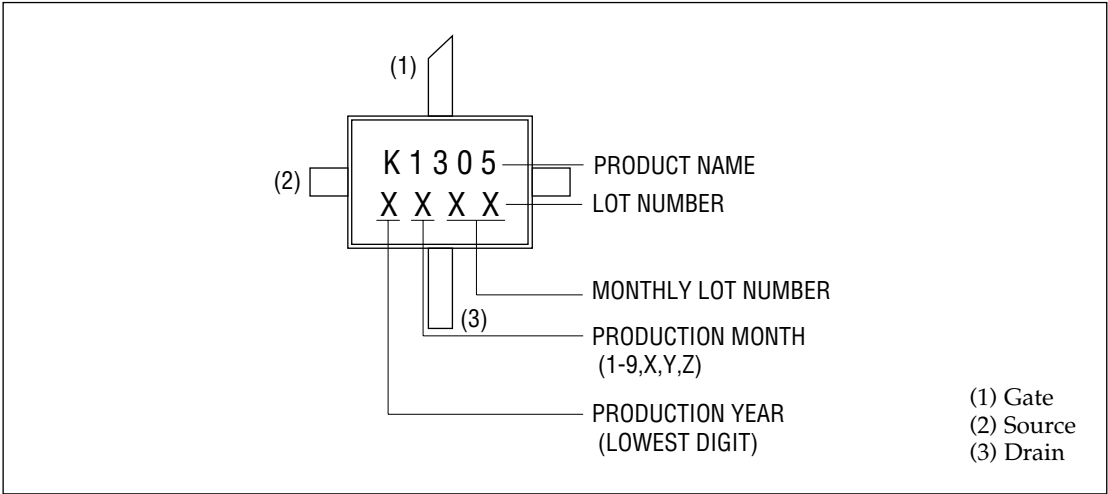
- High output power: 31.5 dBm (min.)
- High efficiency: 66% (min.)
- Low thermal resistance: 12°C/W (typ.)
- Package: 3PHTP

PACKAGE DIMENSIONS

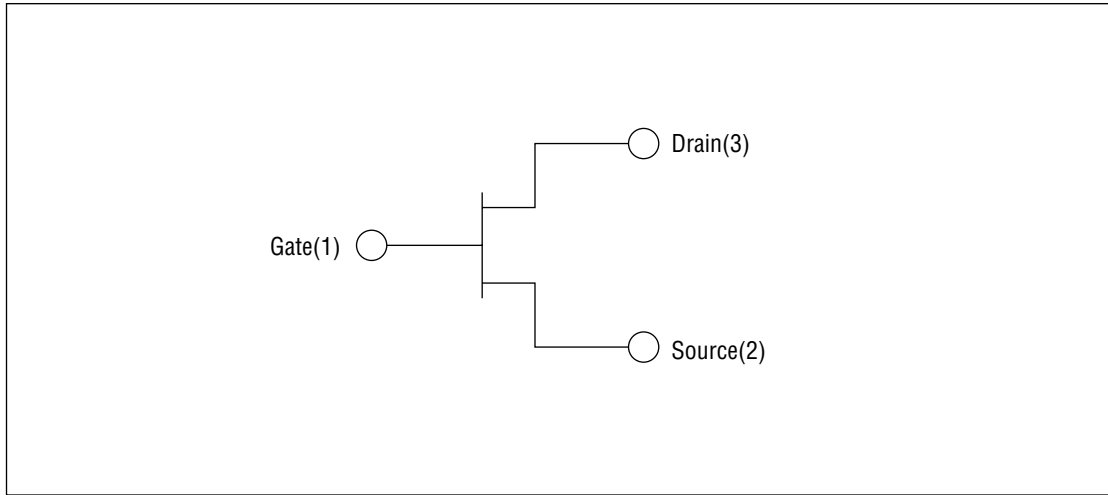


Package material	Al ₂ O ₃
Lead frame material	Fe-Ni-Co alloy
Pin treatment	Ni/Au plating
plate thickness	Au: 1.0 μm or more

MARKING



CIRCUIT



ABSOLUTE MAXIMUM RATINGS

Item	Symbol	Condition	Unit	Min.	Max.
Drain-source voltage	V_{DS}	$T_a = 25^\circ\text{C}$	V	—	10
Gate-source voltage	V_{GS}	$T_a = 25^\circ\text{C}$	V	-6.0	0.4
Drain current	I_{DS}	$T_a = 25^\circ\text{C}$	A	—	2
Total power dissipation	P_{tot}	$T_a = T_c = 25^\circ\text{C}$	W	—	3
Channel temperature	T_{ch}	—	$^\circ\text{C}$	—	150
Storage temperature	T_{stg}	—	$^\circ\text{C}$	-45	125

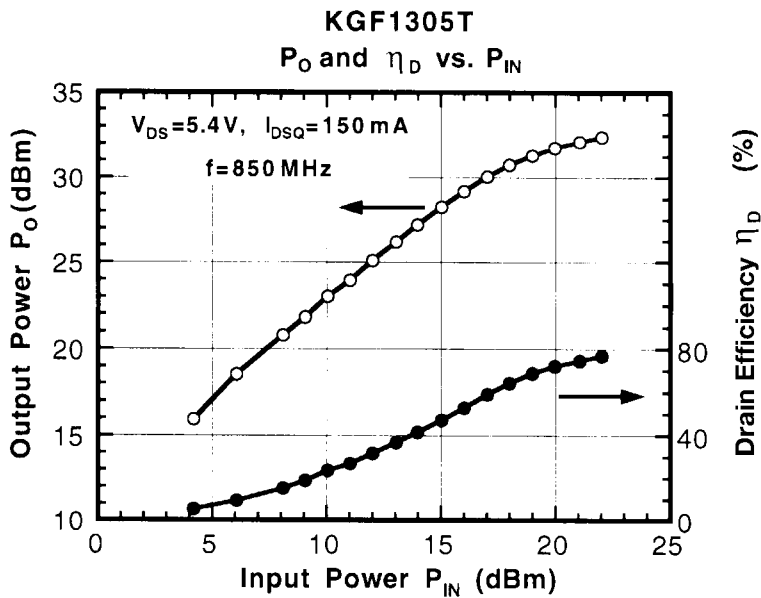
ELECTRICAL CHARACTERISTICS

(Ta = 25°C)

Item	Symbol	Condition	Unit	Min.	Typ.	Max.
Gate-source leakage current	I_{GSS}	$V_{GS} = -6\text{ V}$	mA	—	—	0.3
Gate-drain leakage current	I_{GDO}	$V_{GD} = -16\text{ V}$	mA	—	—	1
Drain-source leakage current	$I_{DS(off)}$	$V_{DS} = 10\text{ V}, V_{GS} = -6\text{ V}$	mA	—	—	3
Drain current	I_{DSS}	$V_{DS} = 1.5\text{ V}, V_{GS} = 0\text{ V}$	A	1.3	—	—
Gate-source cut-off voltage	$V_{GS(off)}$	$V_{DS} = 3\text{ V}, I_{DS} = 3\text{ mA}$	V	-4.0	—	-2.5
Transconductance	g_m	$V_{DS} = 3\text{ V}, I_{DS} = 400\text{ mA}$	mS	400	—	—
Output power	P_O	(*1), $P_{IN} = 20\text{ dBm}$	dBm	31.5	31.8	—
Drain efficiency	η_D	(*1), $P_{IN} = 20\text{ dBm}$	%	66	70	—
Thermal resistance	R_{th}	Channel to case	$^\circ\text{C/W}$	—	12	—

*1 Condition: $f = 850\text{ MHz}$, $V_{DS} = 5.4\text{ V}$, $I_{DSQ} = 150\text{ mA}$

RF CHARACTERISTICS



Typical S Parameters

 $V_{DS} = 5.4 \text{ V}$, $I_{DS} = 150 \text{ mA}$

Freq(MHz)	MAG(S ₁₁)	ANG(S ₁₁)	MAG(S ₂₁)	ANG(S ₂₁)	MAG(S ₁₂)	ANG(S ₁₂)	MAG(S ₂₂)	ANG(S ₂₂)
500.0	0.904	-138.10	5.672	98.26	0.039	24.98	0.516	-166.92
600.0	0.898	-146.17	4.851	92.74	0.040	22.59	0.524	-169.30
700.0	0.898	-152.00	4.235	88.47	0.041	21.11	0.529	-170.80
800.0	0.892	-156.82	3.758	84.26	0.042	19.99	0.533	-172.27
900.0	0.893	-160.44	3.391	80.99	0.042	19.30	0.536	-173.15
1000.0	0.888	-163.81	3.060	77.53	0.043	18.66	0.538	-174.21
1100.0	0.888	-166.54	2.818	74.38	0.044	18.46	0.537	-174.79
1200.0	0.885	-169.05	2.590	71.44	0.044	18.11	0.542	-175.71
1300.0	0.884	-171.16	2.411	68.47	0.045	18.37	0.539	-176.29
1400.0	0.883	-173.32	2.252	65.86	0.046	17.92	0.546	-176.97
1500.0	0.878	-174.86	2.111	63.20	0.046	18.30	0.540	-177.67
1600.0	0.880	-177.08	1.989	60.74	0.047	17.80	0.545	-178.16
1700.0	0.873	-178.47	1.889	58.26	0.048	18.05	0.541	-178.96
1800.0	0.874	-179.87	1.785	55.72	0.048	18.18	0.547	-179.40
1900.0	0.871	178.63	1.701	53.82	0.049	17.95	0.541	179.67
2000.0	0.867	177.01	1.625	50.52	0.050	18.30	0.546	179.38
2100.0	0.866	175.77	1.542	49.03	0.051	18.37	0.541	178.08
2200.0	0.863	174.18	1.492	46.22	0.052	18.16	0.546	178.00
2300.0	0.856	172.90	1.418	44.00	0.053	18.38	0.542	176.66
2400.0	0.860	171.57	1.380	42.12	0.053	18.08	0.542	176.41
2500.0	0.847	170.24	1.322	38.98	0.055	18.28	0.543	175.31
2600.0	0.854	169.02	1.277	37.70	0.055	18.17	0.539	174.80
2700.0	0.841	167.89	1.234	35.03	0.057	18.12	0.544	173.75
2800.0	0.850	166.46	1.198	32.92	0.057	18.16	0.539	173.20
2900.0	0.838	165.72	1.158	31.37	0.059	17.98	0.543	171.95
3000.0	0.844	163.92	1.129	28.48	0.060	17.83	0.539	171.42

Typical S Parameters

