

2SK3656

VHF- and UHF-band Amplifier Applications

- Output power: $P_O = 28.4 \text{ dBmW}$ (typ)
- Gain: $G_P = 15.4 \text{ dB}$ (typ)
- Drain efficiency: $\eta_D = 64\%$ (typ)

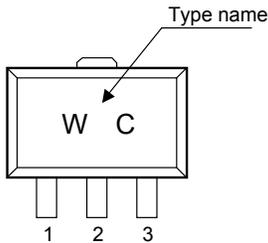
Maximum Ratings (Ta = 25°C)

Characteristics	Symbol	Rating	Unit
Drain-source voltage	V_{DSS}	7.5	V
Gain-source voltage	V_{GSS} (Note 1)	3.5	V
Drain current	I_D	0.5	A
Power dissipation	P_D (Note 2)	3	W
Channel temperature	T_{ch}	150	°C
Storage temperature range	T_{stg}	-45~150	°C

Note 1: Recommended Operation Condition: 0~3.5V

Note 2: $T_c = 25^\circ\text{C}$ (When mounted on a 1.6 mm glass epoxy PCB)

Marking

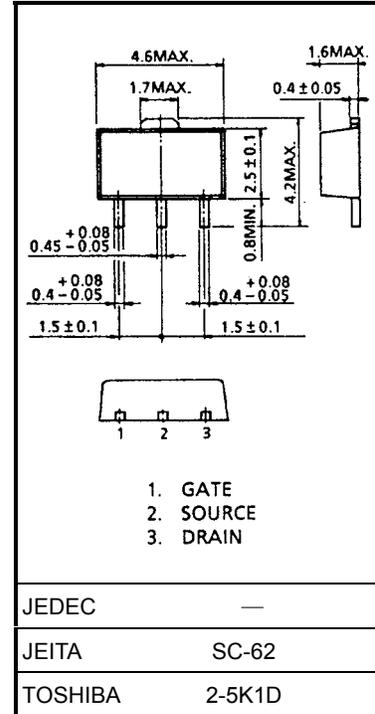


1. Gate
2. Source
3. Drain

Caution

Please take care to avoid generating static electricity when handling this transistor.

Unit: mm



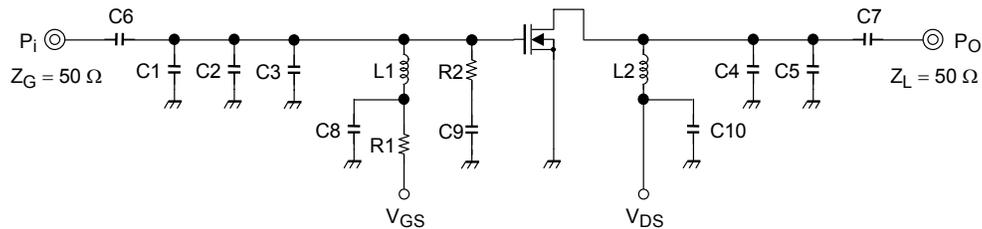
Electrical Characteristics (Ta = 25°C)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Output power	P_O	$V_{DS} = 3.6\text{ V}$, $I_{idle} = 50\text{ mA}$ ($V_{GS} = \text{adjust}$), $f = 470\text{ MHz}$, $P_i = 13\text{ dBmW}$,	27.5	28.4	—	dBmW
Drain efficiency	η_D		50	64	—	%
Power gain	G_P		—	15.4	—	dB
Threshold voltage	V_{th}	$V_{DS} = 3.6\text{ V}$, $I_D = 0.5\text{ mA}$	0.2	—	1.2	V
Drain cut-off current	I_{DSS}	$V_{DS} = 7.5\text{ V}$, $V_{GS} = 0\text{ V}$	—	—	10	μA
Gate-source leakage current	I_{GSS}	$V_{GS} = 3.5\text{ V}$, $V_{DS} = 0\text{ V}$	—	—	5	μA
Load Mismatch (Note 3)	—	$V_{DS} = 3.6\text{ V}$, $f = 470\text{ MHz}$, $P_i = 13\text{ dBmW}$, $P_o = 27\text{ dBmW}$ ($V_{GS} = \text{adjust}$), VSWR LOAD 10:1 all phase	No Degradation			—

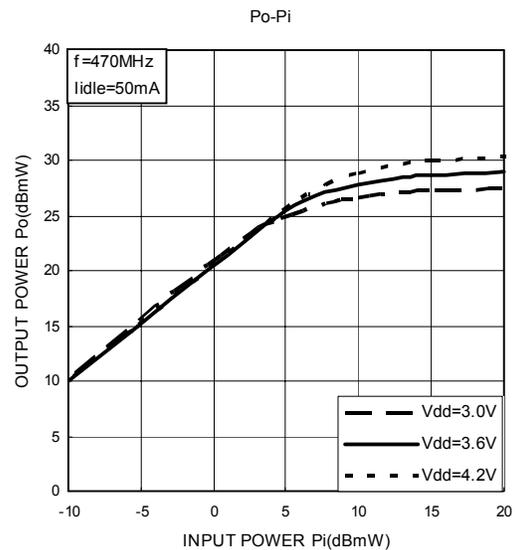
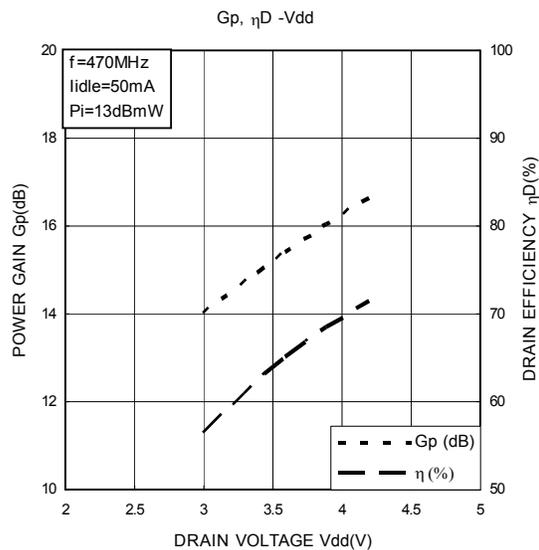
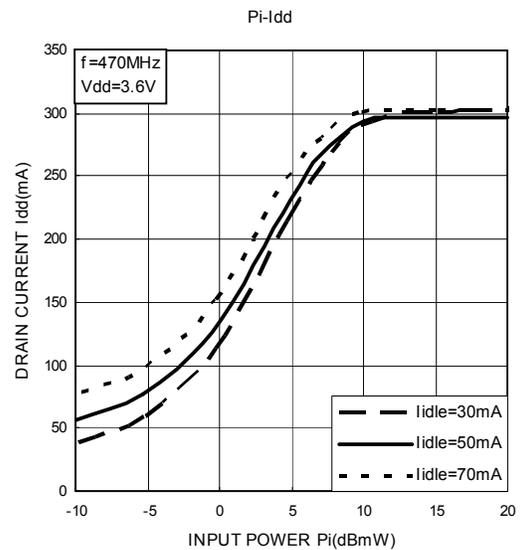
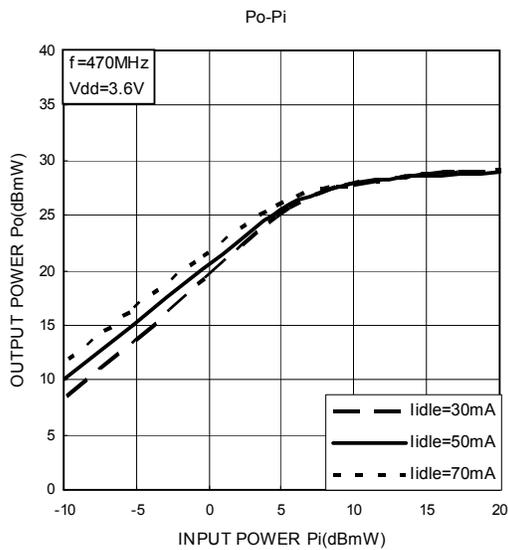
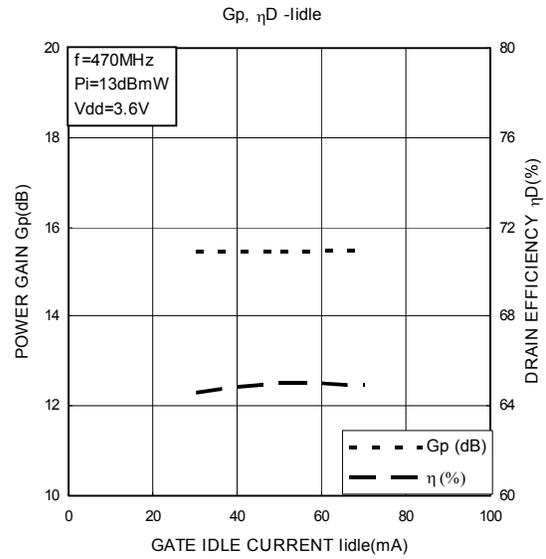
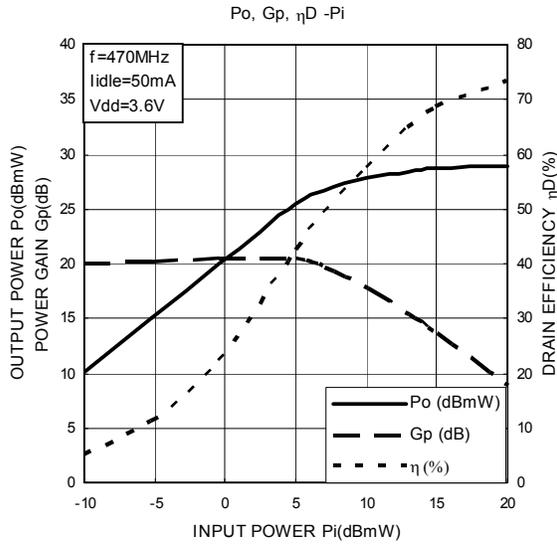
Note 3: These characteristic values are measured using measurement tools specified by Toshiba.

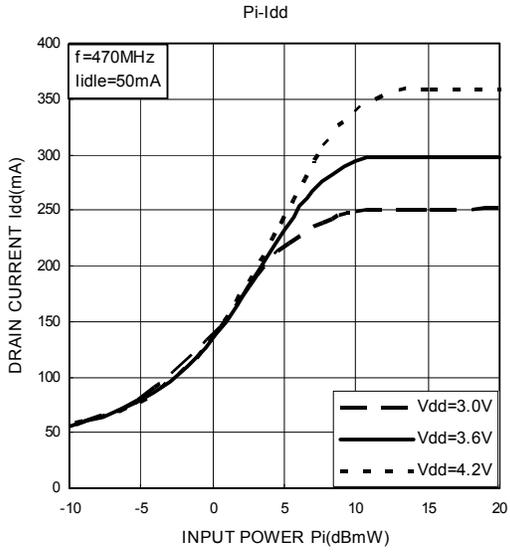
Output Power Test Fixture

(Test Condition: $f = 470\text{ MHz}$, $V_{DS} = 3.6\text{ V}$, $I_{idle} = 50\text{ mA}$, $P_i = 13\text{ dBmW}$)



- | | | |
|---------------|---|--------------------|
| C1: 7 pF | L1: $\phi 0.6\text{ mm}$ enamel wire, 5.5ID, 5T | R1: 6.8 k Ω |
| C2: 10 pF | L2: $\phi 0.6\text{ mm}$ enamel wire, 5.5ID, 7T | R2: 56 Ω |
| C3: 5 pF | | |
| C4: 13 pF | | |
| C5: 8 pF | | |
| C6: 2200 pF | | |
| C7: 2200 pF | | |
| C8: 10000 pF | | |
| C9: 2200 pF | | |
| C10: 10000 pF | | |





Note 2: These are only typical curves and devices are not necessarily guaranteed at these curves.

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