

# 2SK3656

## VHF- and UHF-band Amplifier Applications

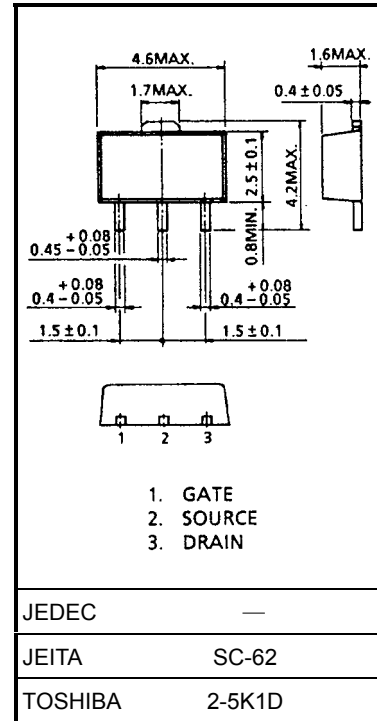
Unit: mm

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

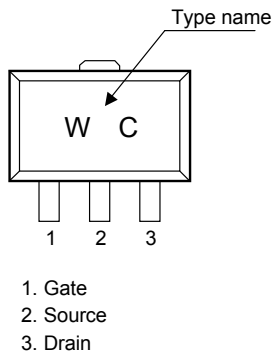
### Maximum Ratings ( $T_a = 25^\circ\text{C}$ )

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

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



### Caution

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

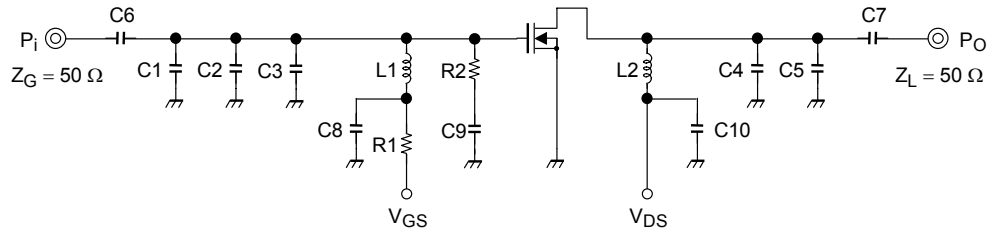
## Electrical Characteristics (Ta = 25°C)

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	$\eta_D$		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	$\mu\text{A}$
Gate-source leakage current	$I_{GSS}$	$V_{GS} = 3.5\text{ V}$ , $V_{DS} = 0\text{ V}$	—	—	5	$\mu\text{A}$
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

C2: 10 pF

C3: 5 pF

C4: 13 pF

C5: 8 pF

C6: 2200 pF

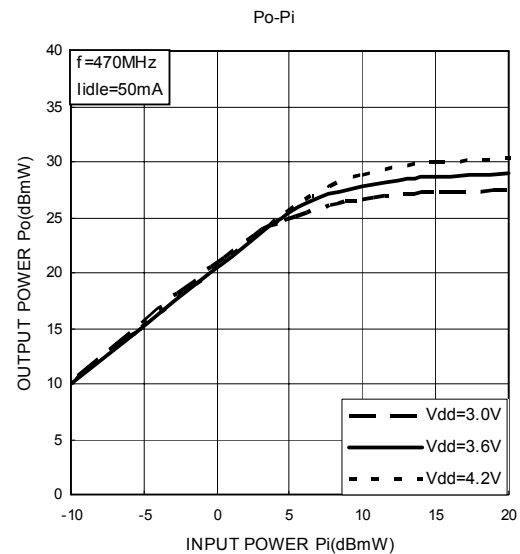
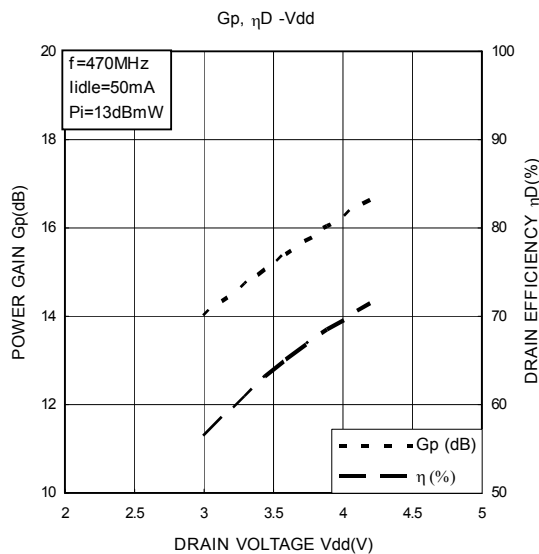
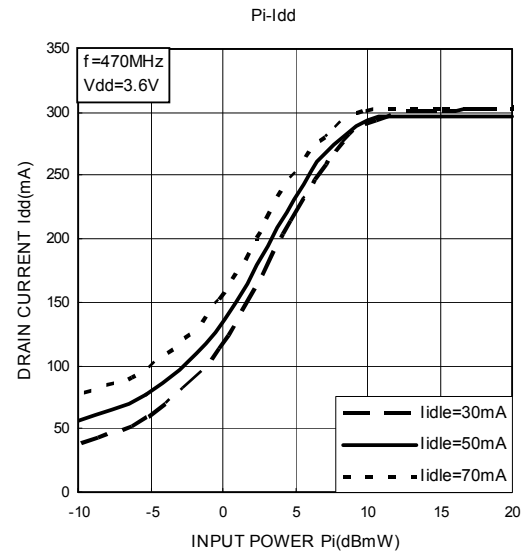
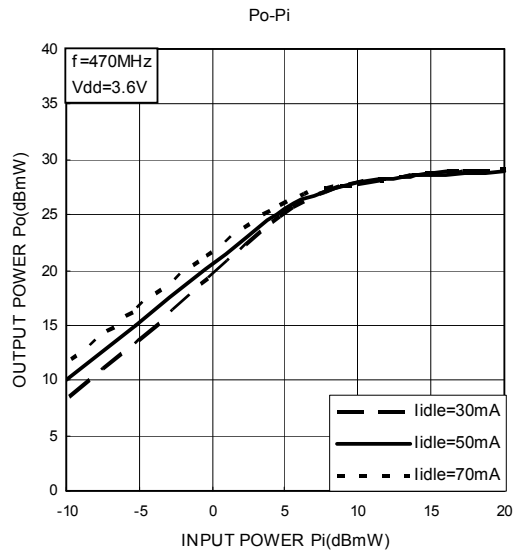
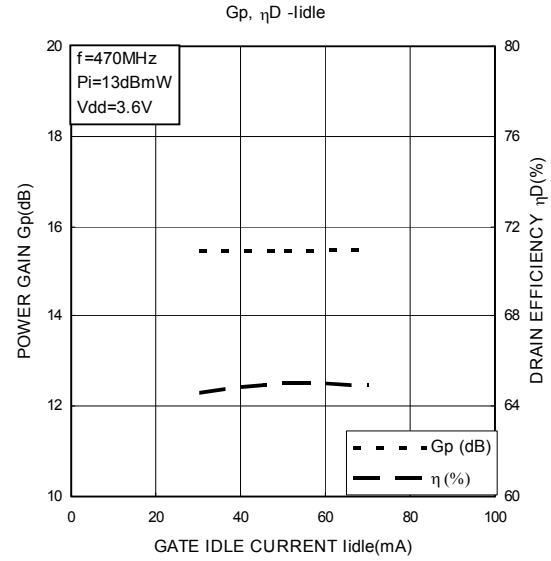
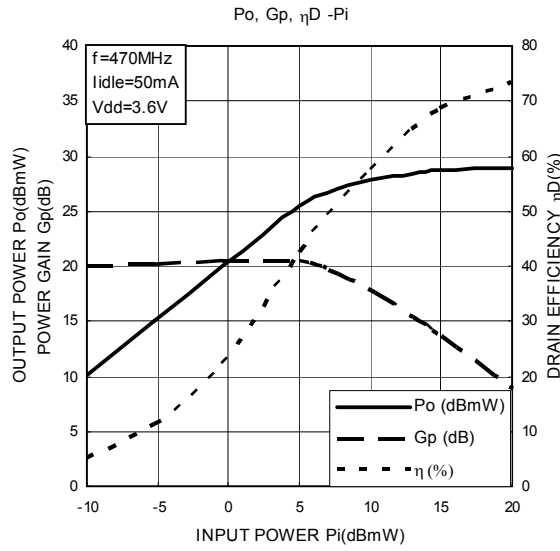
C7: 2200 pF

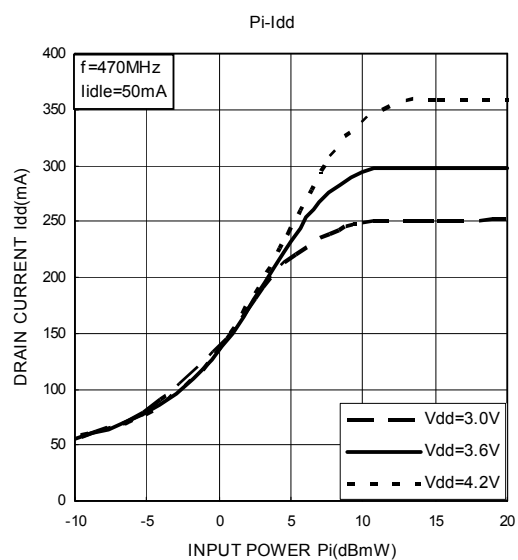
C8: 10000 pF

C9: 2200 pF

C10: 10000 pF

L1:  $\phi 0.6\text{ mm}$  enamel wire, 5.5ID, 5TL2:  $\phi 0.6\text{ mm}$  enamel wire, 5.5ID, 7TR1: 6.8 k $\Omega$ R2: 56  $\Omega$





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

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