

TOSHIBA Field Effect Transistor Silicon N Channel MOS Type

## 2SK3078A

### VHF/UHF Band Amplifier Applications

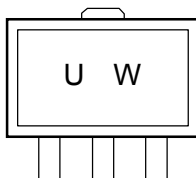
- Output power:  $P_o \geq 28.0\text{dBmW}$
- Gain:  $G_p \geq 8.0\text{dB}$
- Drain Efficiency:  $\eta_D \geq 50\%$

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

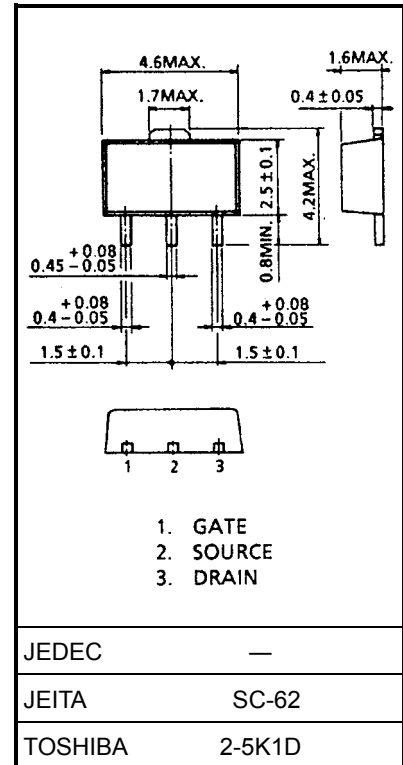
Characteristics	Symbol	Rating	Unit
Drain-source voltage	$V_{DSS}$	10	V
Gate-source voltage	$V_{GSS}$	5	V
Drain current	$I_D$	0.5	A
Power dissipation	$P_D$ (Note 1)	3	W
Channel temperature	$T_{ch}$	150	$^\circ\text{C}$
Storage temperature range	$T_{stg}$	-45~150	$^\circ\text{C}$

Note 1:  $T_c = 25^\circ\text{C}$

### Marking



Unit: mm



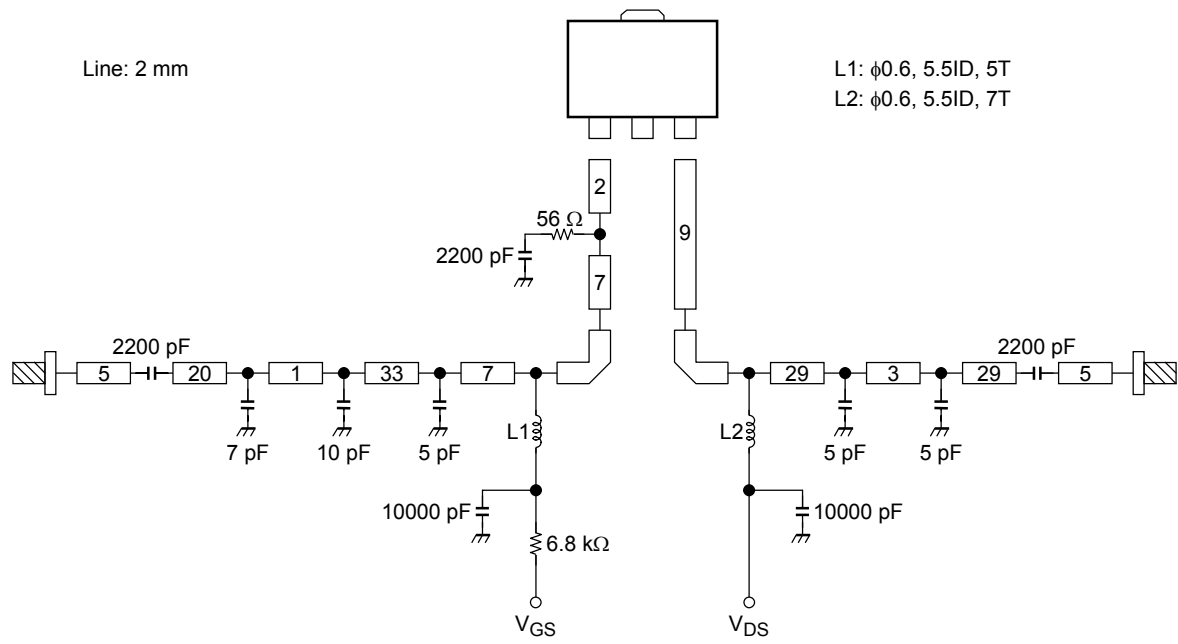
### Electrical Characteristics ( $T_a = 25^\circ\text{C}$ )

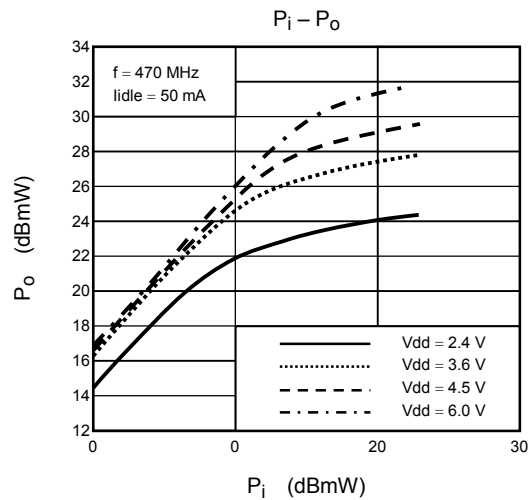
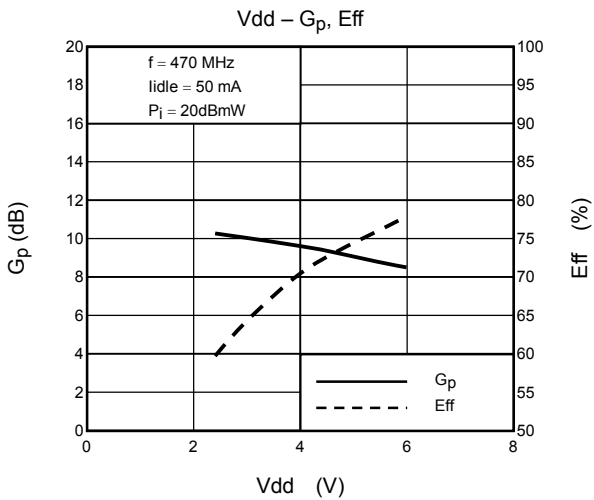
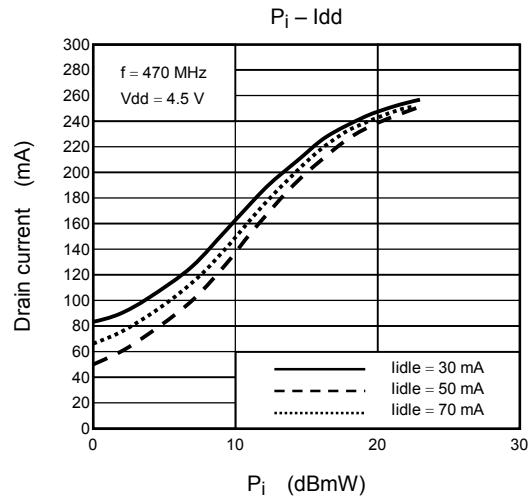
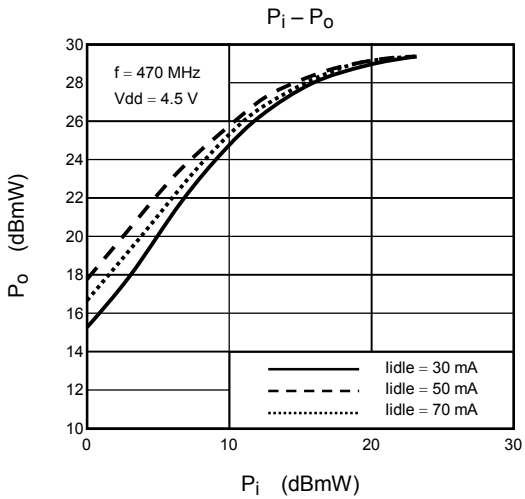
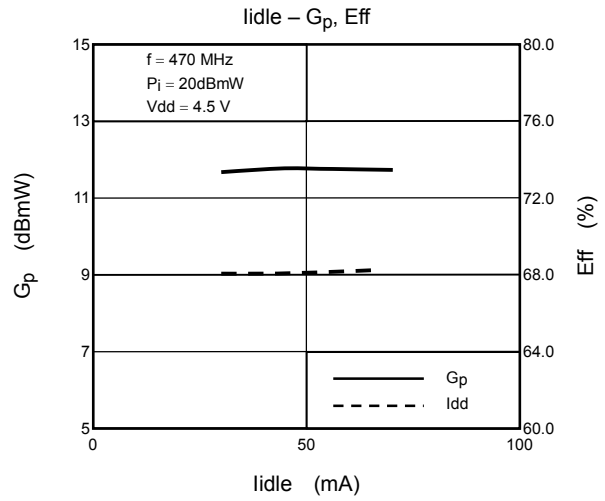
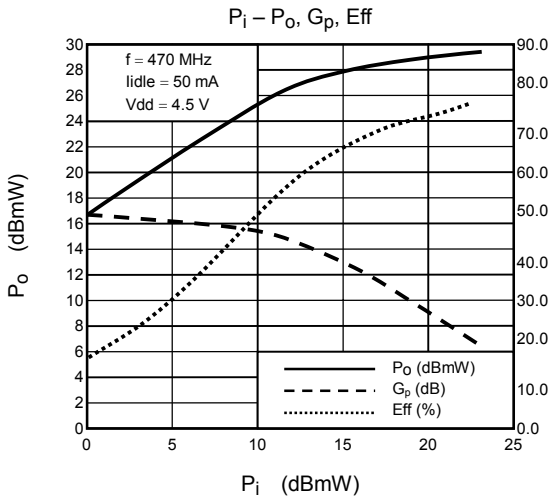
Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Output power	$P_O$	$V_{DS} = 4.5\text{ V}$ , $I_{idle} = 50\text{ mA}$	28.0	—	—	dBmW
Drain efficiency	$\eta_D$	$(V_{GS} = \text{adjust})$ $f = 470\text{ MHz}$ , $P_i = 20\text{dBmW}$	50	—	—	%
Power gain	$G_p$	$Z_G = Z_L = 50\ \Omega$	8.0	—	—	dB
Threshold voltage	$V_{th}$	$V_{DS} = 4.8\text{ V}$ , $I_D = 0.5\text{ mA}$	0.20	—	1.20	V
Drain cut-off current	$I_{DSS}$	$V_{DS} = 10\text{ V}$ , $V_{GS} = 0\text{ V}$	—	—	10	$\mu\text{A}$
Gate-source leakage current	$I_{GSS}$	$V_{GS} = 5\text{ V}$ , $V_{DS} = 0\text{ V}$	—	—	5	$\mu\text{A}$
Load mismatch (Note 2)	—	$V_{DS} = 6.5\text{ V}$ , $f = 470\text{ MHz}$ , $P_i = 20\text{dBmW}$ , $P_o = 28.0\text{dBmW}$ ( $V_{GS} = \text{adjust}$ ) VSWR LOAD 10:1 all phase	No degradation			—

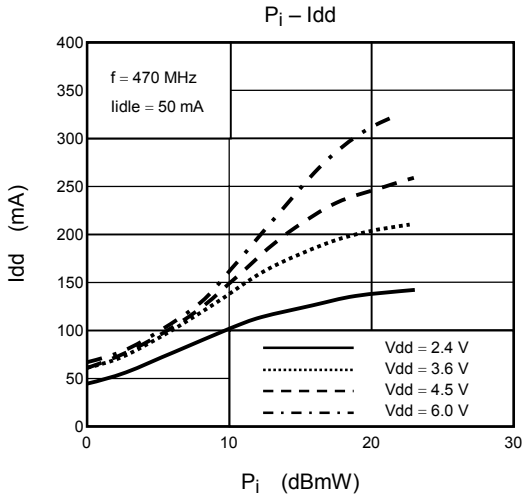
Caution: This transistor is the electrostatic sensitive device. Please handle with caution.

Note 2: When the RF output power test fixture is used

**PF Output Power Test Fixture**







Caution: These are typical curves and devices are not necessarily guaranteed at these curves.

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