

TOSHIBA FIELD EFFECT TRANSISTOR SILICON N CHANNEL MOS TYPE

# 2SK3074

## RF POWER MOSFET FOR VHF-AND UHF-BAND POWER AMPLIFIER

(Note)The TOSHIBA products listed in this document are intended for high frequency Power Amplifier of telecommunications equipment. These TOSHIBA products are neither intended nor warranted for any other use. Do not use these TOSHIBA products listed in this document except for high frequency Power Amplifier of telecommunications equipment.

- Output Power :  $P_O \geq 630\text{mW}$
- Power Gain :  $G_P \geq 14.9\text{dB}$
- Drain Efficiency :  $\eta_D \geq 45\%$

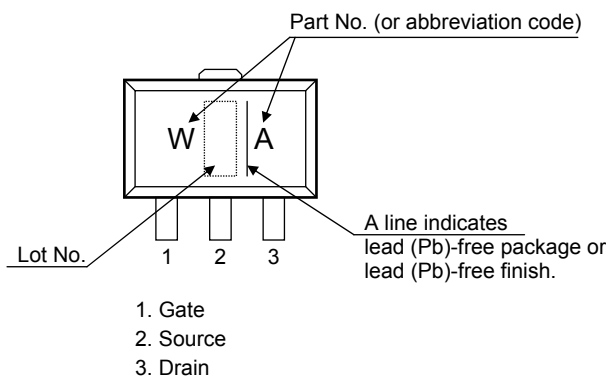
### ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Drain-Source Voltage	$V_{DSS}$	30	V
Gate-Source Voltage	$V_{GSS}$	25	V
Drain Current	$I_D$	1	A
Drain Power Dissipation	$P_D$ (Note 1)	3	W
Channel Temperature	$T_{ch}$	150	°C
Storage Temperature Range	$T_{stg}$	-45~150	°C

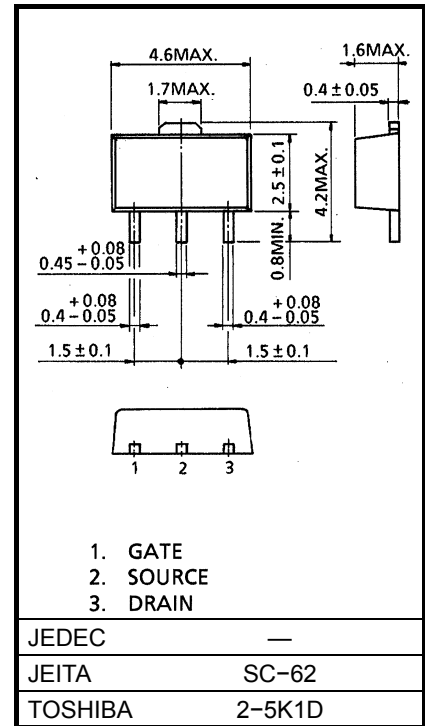
Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings. Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

Note 1:  $T_c = 25^\circ\text{C}$  When mounted on a 1.6mm glass epoxy PCB

### MARKING



Unit in mm



Weight: 0.05 g (typ.)

**Caution:** This device is sensitive to electrostatic discharge.

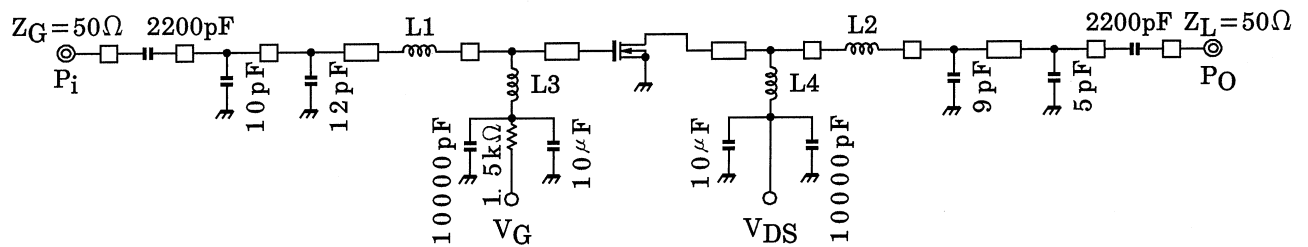
Please make enough tool and equipment earthed when you handle.

## ELECTRICAL CHARACTERISTICS (Ta = 25°C)

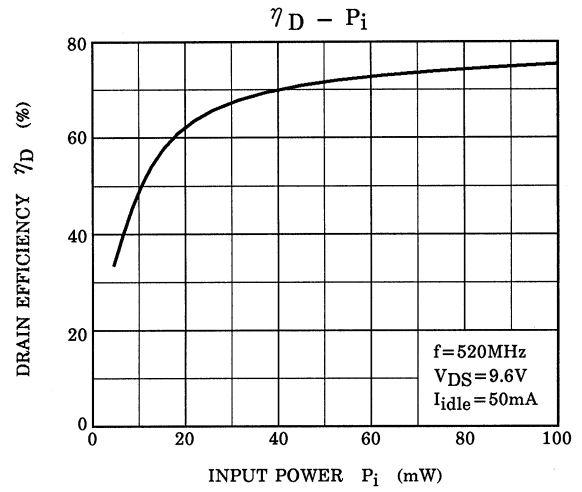
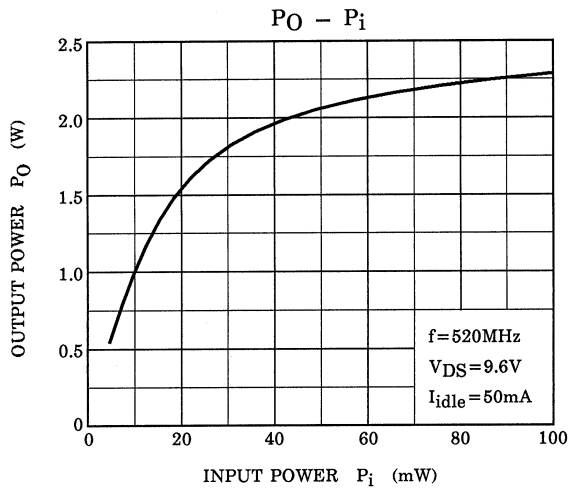
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Output Power	P <sub>O</sub>	V <sub>DS</sub> = 9.6V I <sub>idle</sub> = 50mA (V <sub>GS</sub> = adjust) f = 520MHz, P <sub>i</sub> = 20mW	630	—	—	mW
Drain Efficiency	η <sub>D</sub>		45	—	—	%
Power Gain	G <sub>p</sub>		14.9	—	—	dB
Gate Threshold Voltage	V <sub>th</sub>	V <sub>DS</sub> = 9.6V, I <sub>D</sub> = 0.5mA	1.4	1.9	2.4	V
Drain Cut-off Current	I <sub>DSS</sub>	V <sub>DS</sub> = 20V, V <sub>GS</sub> = 0	—	—	10	μA
Gate-Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> = 10V, V <sub>DS</sub> = 0	—	—	5	μA

Note 2: These characteristic values are measured using measurement tools specified by Toshiba.

## RF OUTPUT POWER TEST FIXTURE



- L1, L2 : φ0.8, 2ID, 1T
- L3 : φ0.8, 5.5ID, 4T
- L4 : φ0.8, 5.5ID, 8T



Note 3: These are only typical curves and devices are not necessarily guaranteed at these curves.

**RESTRICTIONS ON PRODUCT USE**

20070701-EN GENERAL

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- TOSHIBA is continually working to improve the quality and reliability of its products. Nevertheless, semiconductor devices in general can malfunction or fail due to their inherent electrical sensitivity and vulnerability to physical stress. It is the responsibility of the buyer, when utilizing TOSHIBA products, to comply with the standards of safety in making a safe design for the entire system, and to avoid situations in which a malfunction or failure of such TOSHIBA products could cause loss of human life, bodily injury or damage to property.  
In developing your designs, please ensure that TOSHIBA products are used within specified operating ranges as set forth in the most recent TOSHIBA products specifications. Also, please keep in mind the precautions and conditions set forth in the "Handling Guide for Semiconductor Devices," or "TOSHIBA Semiconductor Reliability Handbook" etc.
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