

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 :  $\eta_D \geq 45\%$

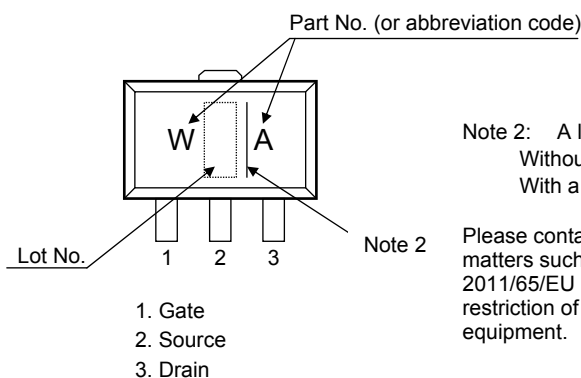
## ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

Characteristics	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 to 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

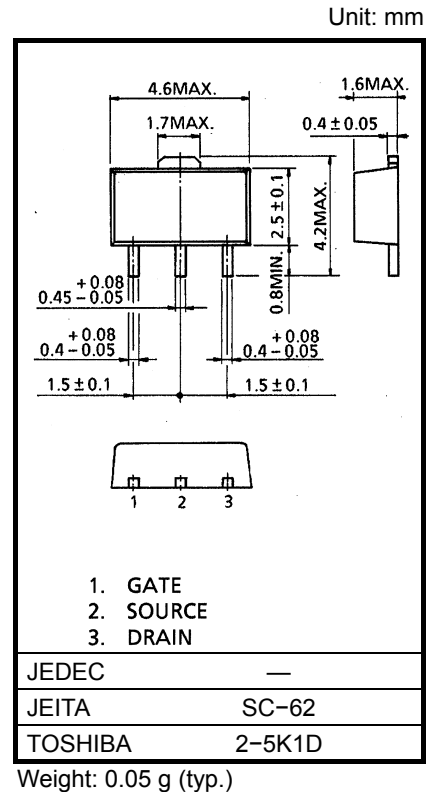
## MARKING



Note 2: A line beside a Lot No. identifies the indication of product Labels.  
Without a line:  $[[Pb]]/INCLUDES > MCV$   
With a line:  $[[G]]/RoHS COMPATIBLE$  or  $[[G]]/RoHS [[Pb]]$

Please contact your TOSHIBA sales representative for details as to environmental matters such as the RoHS compatibility of Product. The RoHS is the Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

**Caution:** This device is sensitive to electrostatic discharge.  
Please make enough tool and equipment earthed when you handle.



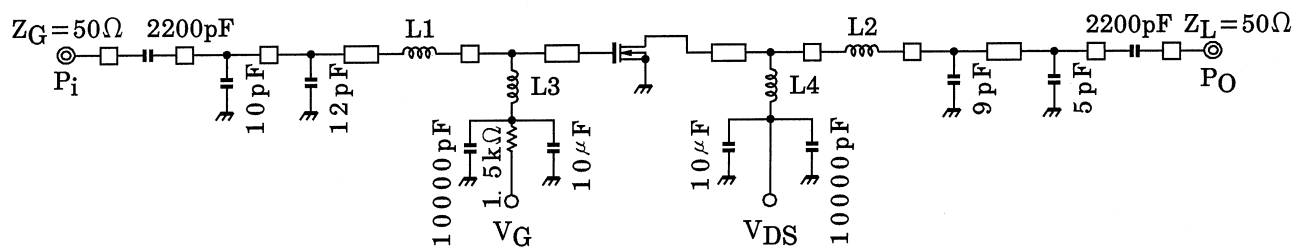
Start of commercial production  
1998-06

## ELECTRICAL CHARACTERISTICS (Ta = 25°C)

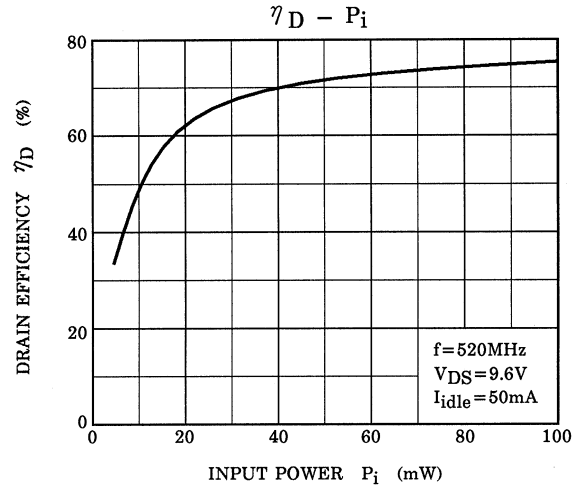
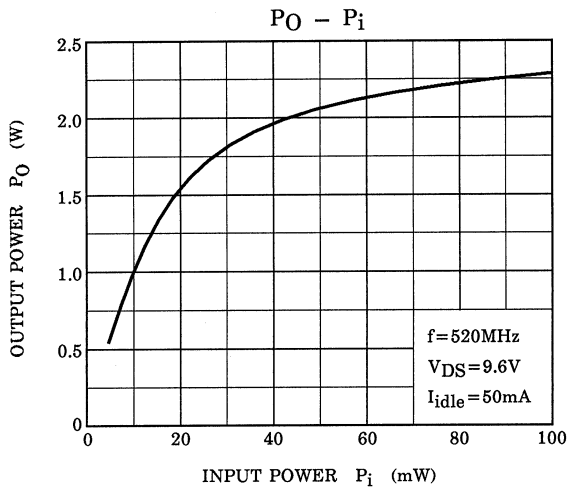
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Output Power	P <sub>O</sub>	V <sub>DS</sub> = 9.6V	630	—	—	mW
Drain Efficiency	η <sub>D</sub>	I <sub>D</sub> = 50mA (V <sub>GS</sub> = adjust)	45	—	—	%
Power Gain	G <sub>p</sub>	f = 520MHz, P <sub>i</sub> = 20mW	14.9	—	—	dB
Gate Threshold Voltage	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 3: 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.

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