

TOSHIBA FIELD EFFECT TRANSISTOR SILICON N CHANNEL MOS TYPE

2SK1028

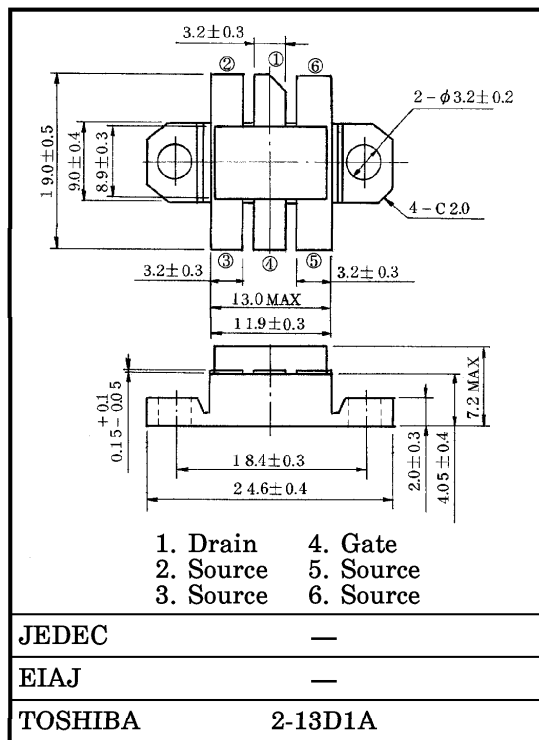
RF POWER MOS FET
for VHF TV BROADCAST TRANSMITTER

Unit in mm

- Output Power : $P_o \geq 100W$ (Min.)
- Drain Efficiency : $\eta_D = 70%$ (Typ.)
- Frequency : $f = 230MHz$

MAXIMUM RATINGS ($T_c = 25^\circ C$)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Drain-Source Voltage	V_{DSS}	100	V
Gate-Source Voltage	V_{GSS}	± 20	V
Drain Current	I_D	6	A
Reverse Drain Current	I_{DR}	6	A
Drain Power Dissipation	P_D	125	W
Channel Temperature	T_{ch}	150	$^\circ C$
Storage Temperature Range	T_{stg}	$-55 \sim 150$	$^\circ C$



ELECTRICAL CHARACTERISTICS ($T_c = 25^\circ C$)

Weight : 10g

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Output Power	P_o	$V_{DD} = 50V, I_{idle} = 0.2A$	100	—	—	W
Drain Efficiency	η_D	$P_i = 5W, f = 230MHz$	—	70	—	%
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = 10mA, V_{GS} = 0$	100	—	—	V
Drain Cut-off Current	I_{DSS}	$V_{DS} = 80V, V_{GS} = 0$	—	—	1.0	mA
Gate Threshold Voltage	V_{th}	$I_D = 1mA, V_{DS} = 10V$	0.5	—	3.0	V
Drain-Source ON Resistance	$R_{DS(on)}$	$I_D = 4A, V_{GS} = 10V$ *	—	0.9	1.5	Ω
Drain-Source ON Voltage	$V_{DS(on)}$	$I_D = 4A, V_{GS} = 10V$ *	—	3.6	6.0	V
Forward Transfer Admittance	$ Y_{fs} $	$I_D = 3A, V_{DS} = 20V$ *	0.9	1.3	—	S
Input Capacitance	C_{iss}	$V_{DS} = 50V, V_{GS} = 0$ $f = 1MHz$	—	100	—	pF
Output Capacitance	C_{oss}	$V_{DS} = 50V, V_{GS} = 0$ $f = 1MHz$	—	40	—	pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS} = 50V, V_{GS} = 0$ $f = 1MHz$	—	1	—	pF

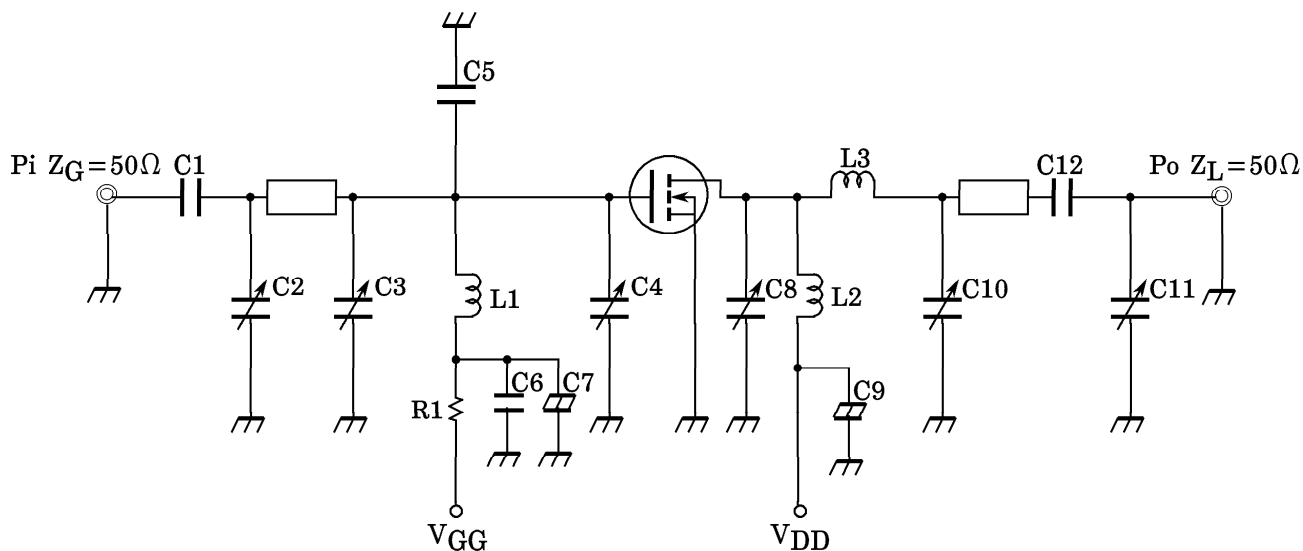
* Pulse Test

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

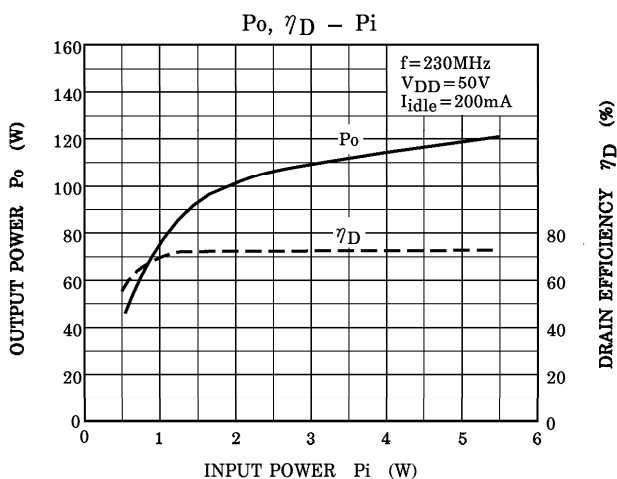
961001EAA2

- TOSHIBA is continually working to improve the quality and the 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 observe standards of safety, and to avoid situations in which a malfunction or failure of a TOSHIBA product 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 products specifications. Also, please keep in mind the precautions and conditions set forth in the TOSHIBA Semiconductor Reliability Handbook.
- The information contained herein is presented only as a guide for the applications of our products. No responsibility is assumed by TOSHIBA CORPORATION for any infringements of intellectual property or other rights of the third parties which may result from its use. No license is granted by implication or otherwise under any intellectual property or other rights of TOSHIBA CORPORATION or others.
- The information contained herein is subject to change without notice.

RF OUTPUT POWER TEST FIXTURE



C1, C12	:	4700pF	CERAMIC CAPACITOR
C2, C3, C4, C10, C11	:	~30pF	VARIABLE CAPACITOR
C5	:	47pF	CERAMIC CAPACITOR
C6	:	10,000pF	CERAMIC CAPACITOR
C7	:	10μF, 50V	ELECTROLYTIC CAPACITOR
C8	:	~5pF	VARIABLE CAPACITOR
C9	:	10μF, 250V	ELECTROLYTIC CAPACITOR
L1	:	9T, 6ID φ1.0	ENAMEL WIRE
L2	:	5T, 7ID φ1.0	ENAMEL WIRE
L3	:	0.5T, 3ID φ1.0	ENAMEL WIRE
R1	:	9.1kΩ	



CAUTION

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