

TOSHIBA FIELD EFFECT TRANSISTOR SILICON N CHANNEL MOS TYPE

2SK1310A

RF POWER MOS FET for VHF TV BROADCAST TRANSMITTER

- Output Power : $P_o \geq 190$ W (Min.)
- Drain Efficiency : $\eta_D = 65\%$ (Typ.)
- Frequency : $f = 230$ MHz
- Push-Pull Structure Package

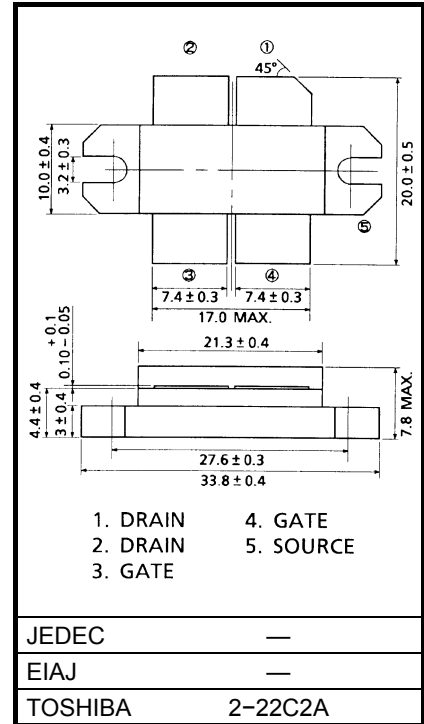
ABSOLUTE MAXIMUM RATINGS (Tc = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Drain-Source Voltage	V_{DSS}	100	V
Gate-Source Voltage	V_{GSS}	± 20	V
Drain Current	I_D	12	A
Reverse Drain Current	I_{DR}	12	A
Drain Power Dissipation	P_D	250	W
Channel Temperature	T_{ch}	150	°C
Storage Temperature Range	T_{stg}	-55~150	°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).

Unit in mm



Weight: 17.5 g

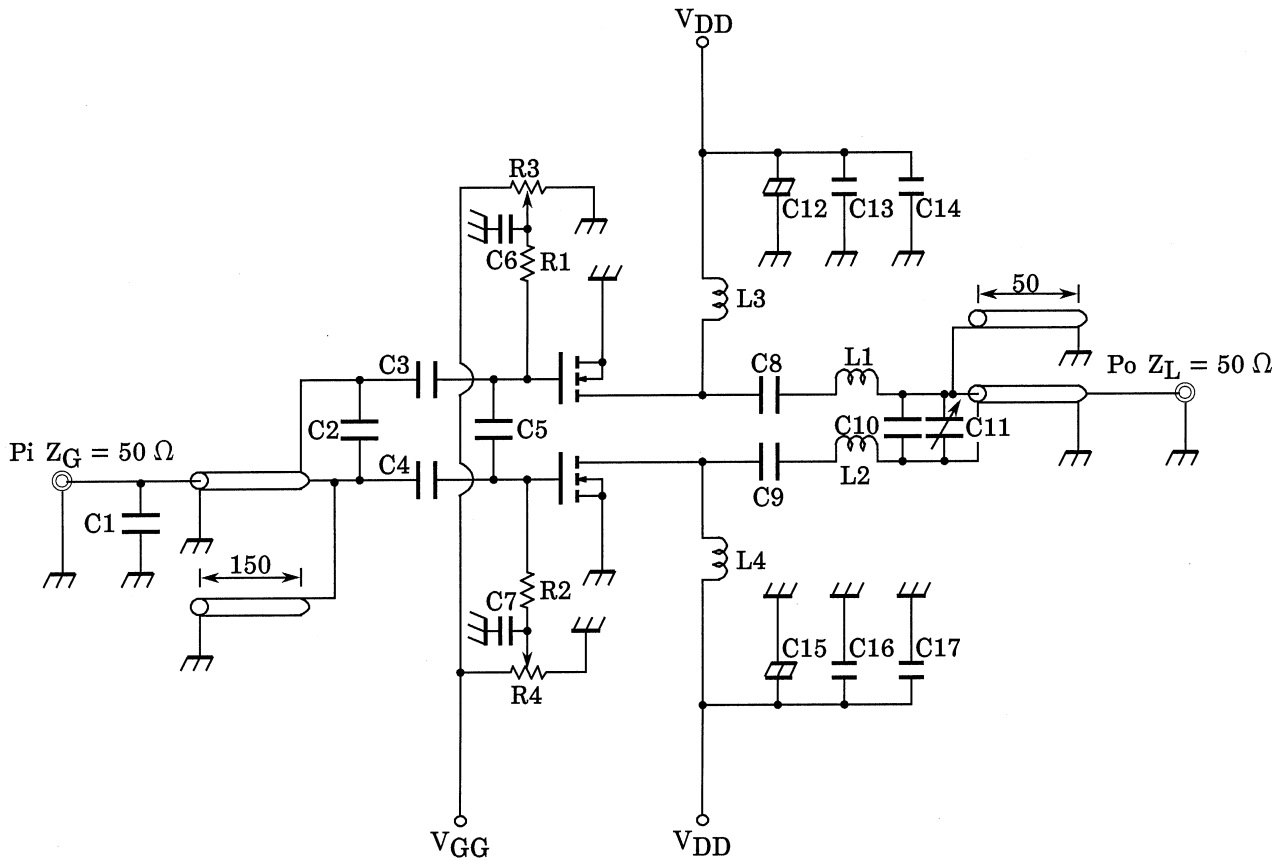
ELECTRICAL CHARACTERISTICS (Tc = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Output Power	P _o	V _{DD} = 50 V, I _{idle} = 0.2 A × 2 P _i = 10 W, f = 230 MHz *	190	220	—	W
Drain Efficiency	η _D		—	65	—	%
Drain-Source Breakdown Voltage	V _{(BR)DSS}	I _D = 10 mA, V _{GS} = 0	100	—	—	V
Drain Cut-off Current	I _{DSS}	V _{DS} = 80 V, V _{GS} = 0	—	—	1.0	mA
Gate Threshold Voltage	V _{th}	I _D = 1 mA, V _{DS} = 10 V	0.5	—	3.0	V
Drain-Source ON Resistance	R _{DS(on)}	I _D = 4 A, V _{GS} = 10 V **	—	0.9	1.5	Ω
Drain-Source ON Voltage	V _{DS(on)}	I _D = 4 A, V _{GS} = 10 V **	—	3.6	6.0	V
Forward Transfer Admittance	Y _{fs}	I _D = 3 A, V _{DS} = 20 V **	0.9	1.3	—	S
Input Capacitance	C _{iss}	V _{DS} = 50 V, V _{GS} = 0, f = 1 MHz	—	100	—	pF
Output Capacitance	C _{oss}	V _{DS} = 50 V, V _{GS} = 0, f = 1 MHz	—	40	—	pF
Reverse Transfer Capacitance	C _{rss}	V _{DS} = 50 V, V _{GS} = 0, f = 1 MHz	—	1	—	pF

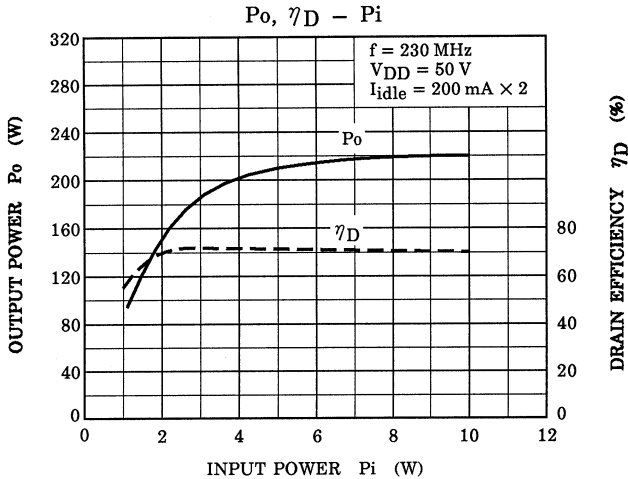
*: Push-Pull Operation **: Pulse Test

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

RF OUTPUT POWER TEST FIXTURE



- | | | |
|----------------------------|------------------------|---------------------------|
| C1 : | 1pF | MICA CAPACITOR |
| C2 : | 33 pF × 3 (PARALLEL) | MICA CAPACITOR |
| C3, C4, C8, C9, C13, C16 : | 1000 pF | MICA CAPACITOR |
| C5 : | 33 pF | MICA CAPACITOR |
| C6, C7 : | 0.01 μF × 2 (PARALLEL) | CERAMIC CAPACITOR |
| C10 : | 14 pF | MICA CAPACITOR |
| C11 : | ~20 pF | AIR TRIMMER CAPACITOR |
| C12, C15 : | 100 μF, 100 V | ELECTROLYTIC CAPACITOR |
| C14, C17 : | 4700 pF | CERAMIC CAPACITOR |
| L1, L2 : | 0.5T, 5ID φ1.0 | SILVER PLATED COPPER WIRE |
| L3, L4 : | 3.0T, 5ID φ1.0 | SILVER PLATED COPPER WIRE |
| R1, R2 : | 220 Ω × 2 (PARALLEL) | |
| R3, R4 : | 1 kΩ | VARIABLE RESISTOR |



CAUTION

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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