

TOSHIBA FIELD EFFECT TRANSISTOR SILICON N CHANNEL MOS TYPE

2SK1310

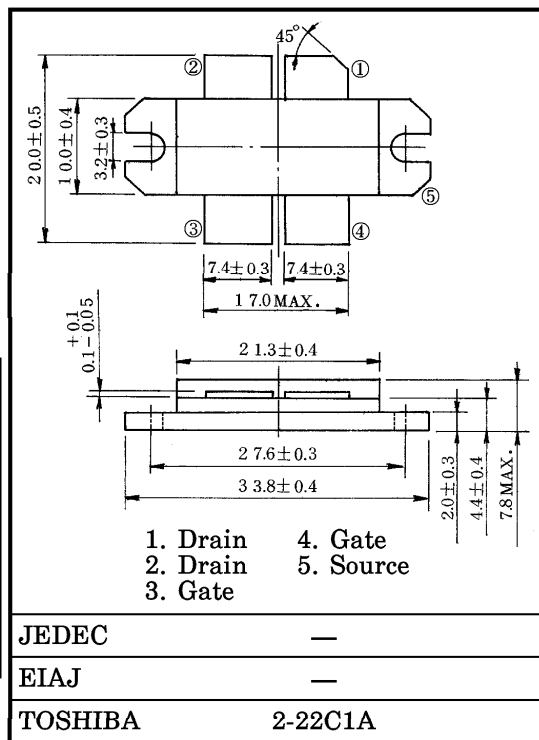
RF POWER MOS FET
for VHF TV BROADCAST TRANSMITTER

Unit in mm

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

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 | 12 | A |
| Reverse Drain Current | I_{DR} | 12 | A |
| Drain Power Dissipation | P_D | 250 | W |
| Channel Temperature | T_{ch} | 150 | $^\circ C$ |
| Storage Temperature Range | T_{stg} | $-55 \sim 150$ | $^\circ C$ |



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

| CHARACTERISTIC | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|--------------------------------|---------------|--|------|------|------|----------|
| Output Power | P_o | $V_{DD} = 50V, I_{idle} = 0.2A \times 2$ | 190 | 220 | — | W |
| Drain Efficiency | η_D | $P_i = 10W, f = 230MHz *$ | — | 65 | — | % |
| 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 |

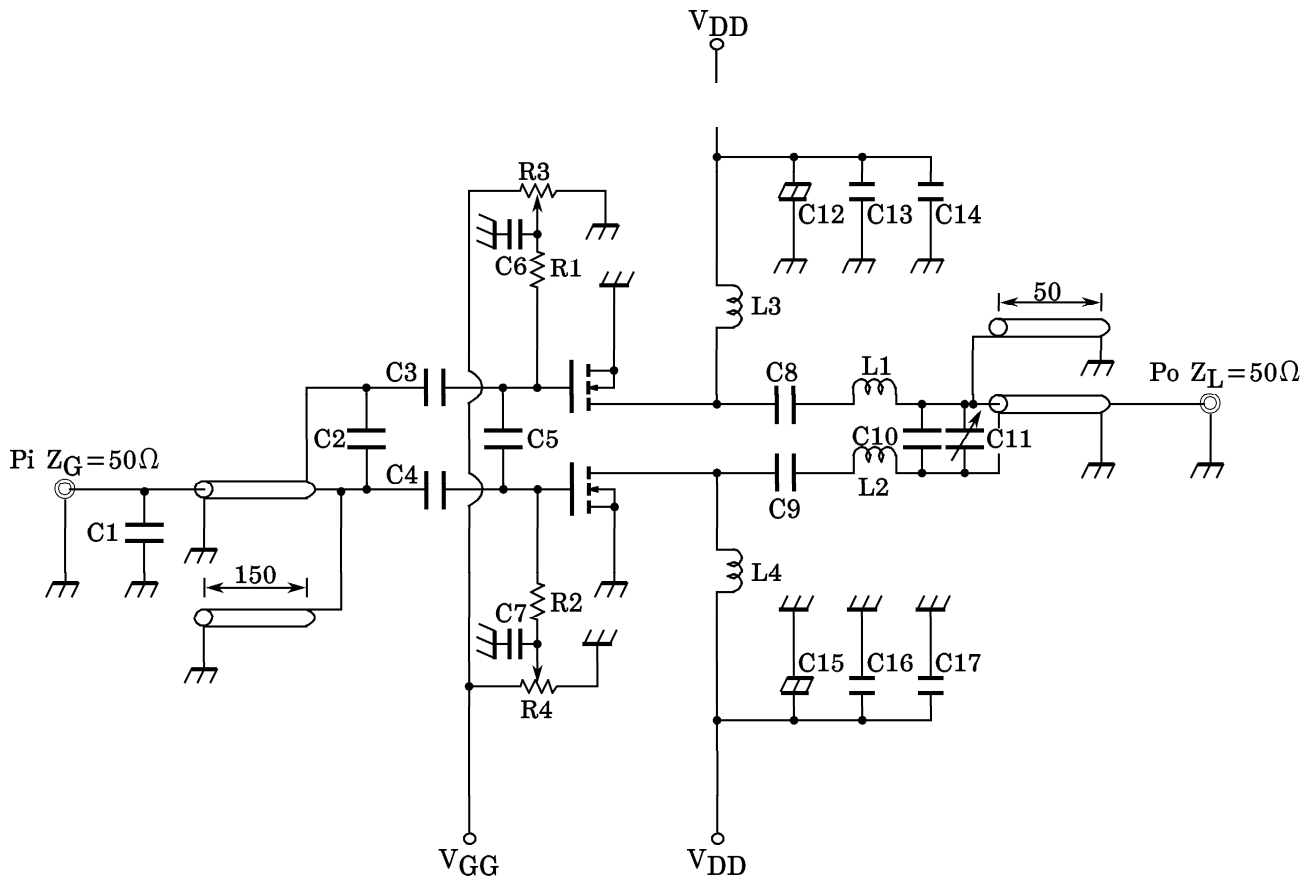
* Push-Pull Operation ** Pulse Test

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

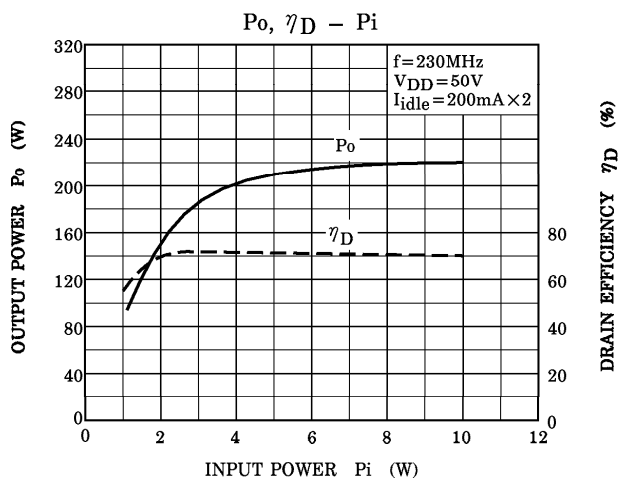
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RF OUTPUT POWER TEST FIXTURE



| | | |
|----------------------------|-----------------------|---------------------------|
| C1 : | 1pF | MICA CAPACITOR |
| C2 : | 33pF × 3 (PARALLEL) | MICA CAPACITOR |
| C3, C4, C8, C9, C13, C16 : | 1000pF | MICA CAPACITOR |
| C5 : | 33pF | MICA CAPACITOR |
| C6, C7 : | 0.01μF × 2 (PARALLEL) | CERAMIC CAPACITOR |
| C10 : | 14pF | MICA CAPACITOR |
| C11 : | ~20pF | AIR TRIMMER CAPACITOR |
| C12, C15 : | 100μF, 100V | ELECTROLYTIC CAPACITOR |
| C14, C17 : | 4700pF | 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 : | 1kΩ | VARIABLE RESISTOR |



CAUTION

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