

TOSHIBA FIELD EFFECT TRANSISTOR SILICON N CHANNEL MOS TYPE

# 2SK1310

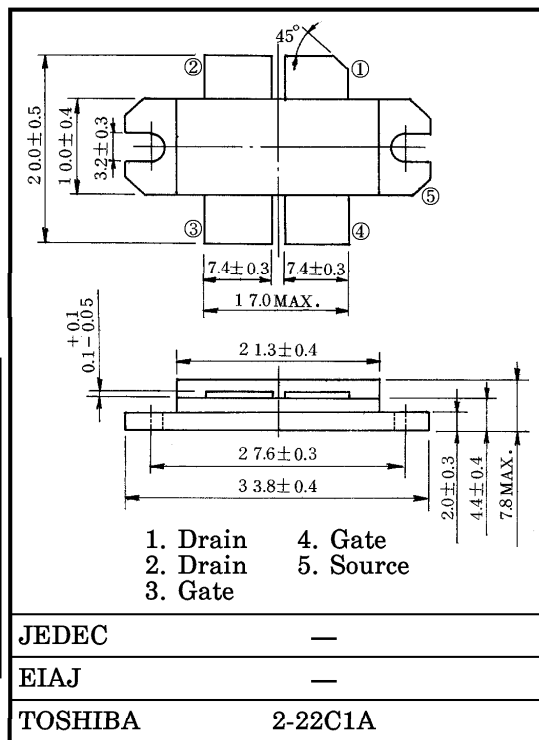
RF POWER MOS FET  
for VHF TV BROADCAST TRANSMITTER

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	$V_{GSS}$	$\pm 20$	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	$\eta_D$	$P_i = 10W, f = 230MHz *$	—	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	$\Omega$
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

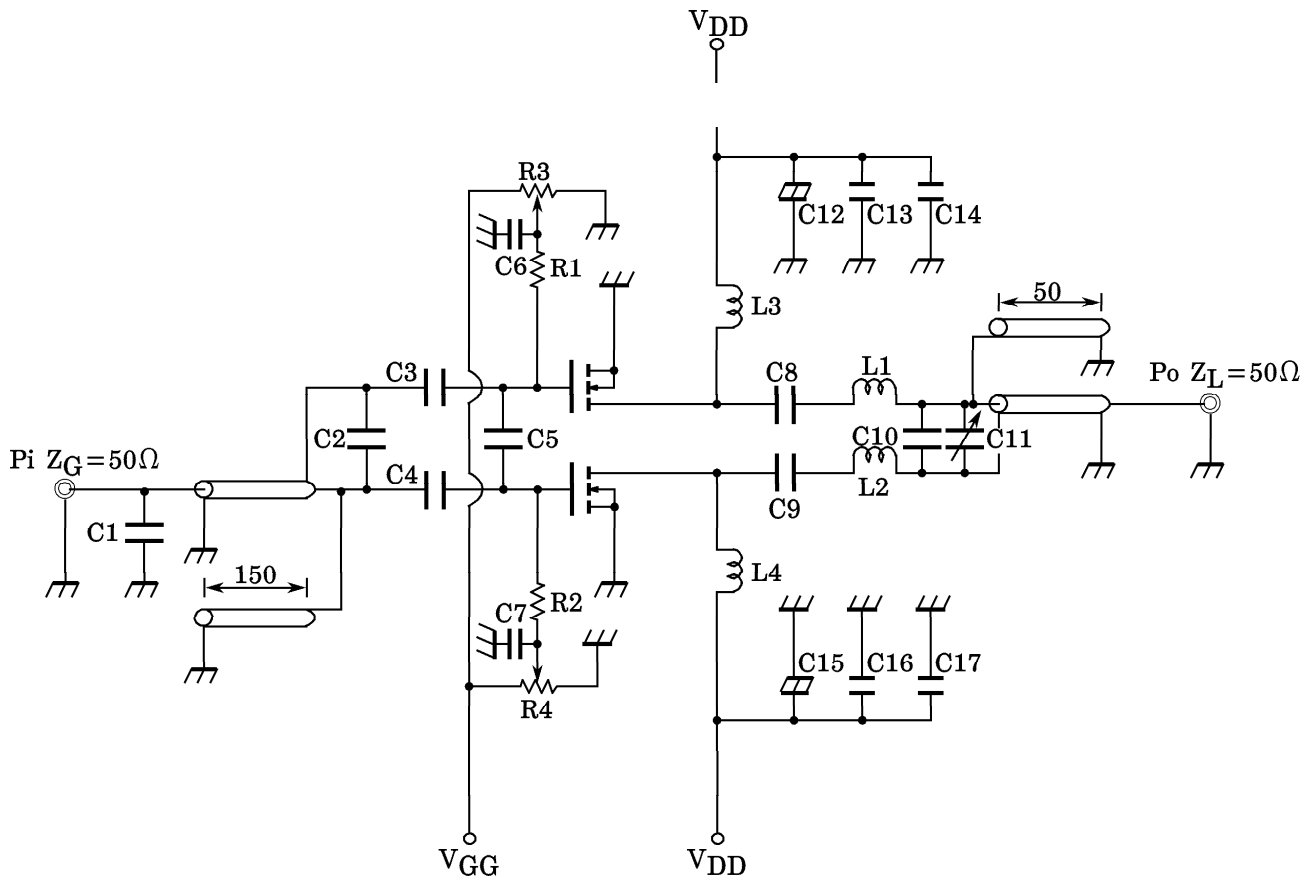
\* Push-Pull Operation    \*\* Pulse Test

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

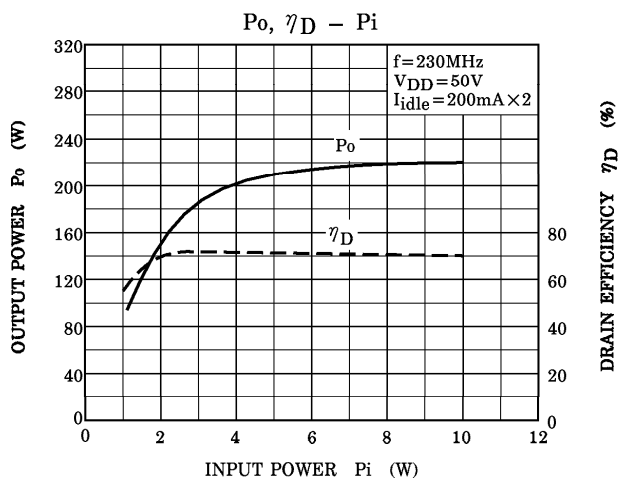
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RF OUTPUT POWER TEST FIXTURE



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.