

TOSHIBA FIELD EFFECT TRANSISTOR SILICON N CHANNEL MOS TYPE

# 2SK1739A

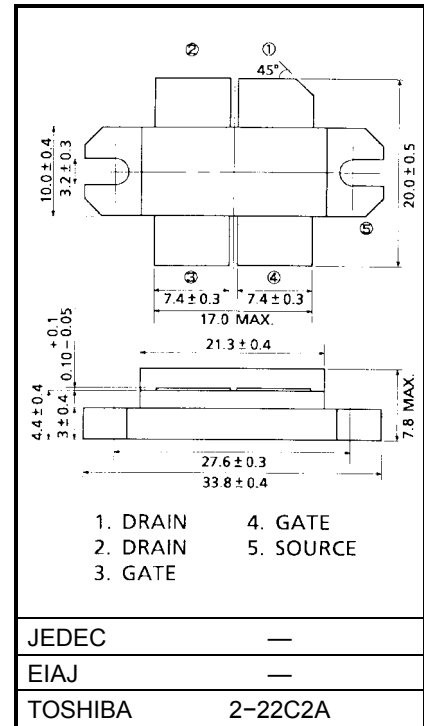
RF POWER MOS FET for UHF TV BROADCAST TRANSMITTER

Unit in mm

- Output Power :  $P_o \geq 90$  W (Min.)
- Drain Efficiency :  $\eta_D = 50\%$  (Typ.)
- Frequency :  $f = 770$  MHz
- Push-Pull Structure Package

## MAXIMUM RATINGS (Tc = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Drain-Source Voltage	$V_{DSS}$	80	V
Gate-Source Voltage	$V_{GSS}$	$\pm 20$	V
Drain Current	$I_D$	11	A
Reverse Drain Current	$I_{DR}$	11	A
Drain Power Dissipation	$P_D$	250	W
Channel Temperature	$T_{ch}$	150	°C
Storage Temperature Range	$T_{stg}$	-55~150	°C



Weight: 17.5 g

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

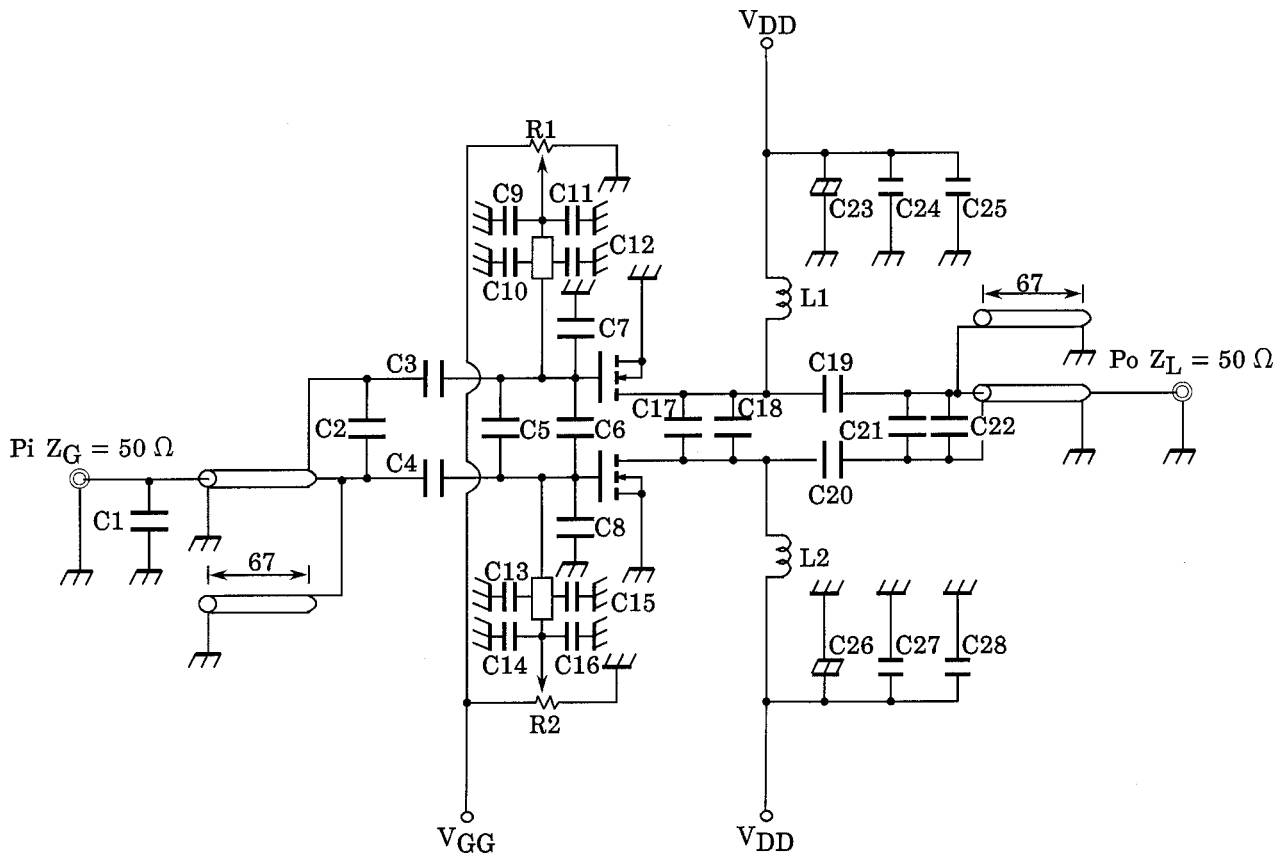
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Output Power	$P_o$	$V_{DD} = 40\text{ V}$ , $I_{idle} = 0.2\text{ A} \times 2$ $P_i = 10\text{ W}$ , $f = 770\text{ MHz}$ *	90	110	—	W
Drain Efficiency	$\eta_D$		—	50	—	%
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = 5\text{ mA}$ , $V_{GS} = 0$	80	—	—	V
Drain Cut-off Current	$I_{DSS}$	$V_{DS} = 60\text{ V}$ , $V_{GS} = 0$	—	—	1.0	mA
Gate Threshold Voltage	$V_{th}$	$I_D = 0.5\text{ mA}$ , $V_{DS} = 10\text{ V}$	0.5	—	3.0	V
Drain-Source ON Resistance	$R_{DS(on)}$	$I_D = 2\text{ A}$ , $V_{GS} = 10\text{ V}$ **	—	0.5	1.5	$\Omega$
Drain-Source ON Voltage	$V_{DS(on)}$	$I_D = 2\text{ A}$ , $V_{GS} = 10\text{ V}$ **	—	1.0	3.0	V
Forward Transfer Admittance	$ Y_{fs} $	$I_D = 1.5\text{ A}$ , $V_{DS} = 20\text{ V}$ **	0.9	1.3	—	S
Input Capacitance	$C_{iss}$	$V_{DS} = 40\text{ V}$ , $V_{GS} = 0$ , $f = 1\text{ MHz}$	—	80	—	pF
Output Capacitance	$C_{oss}$	$V_{DS} = 40\text{ V}$ , $V_{GS} = 0$ , $f = 1\text{ MHz}$	—	40	—	pF
Reverse Transfer Capacitance	$C_{rss}$	$V_{DS} = 40\text{ V}$ , $V_{GS} = 0$ , $f = 1\text{ MHz}$	—	1	—	pF

\*: Push-Pull Operation

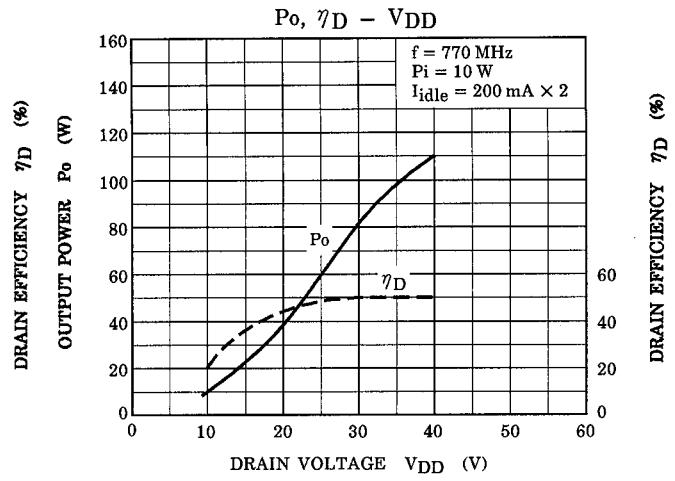
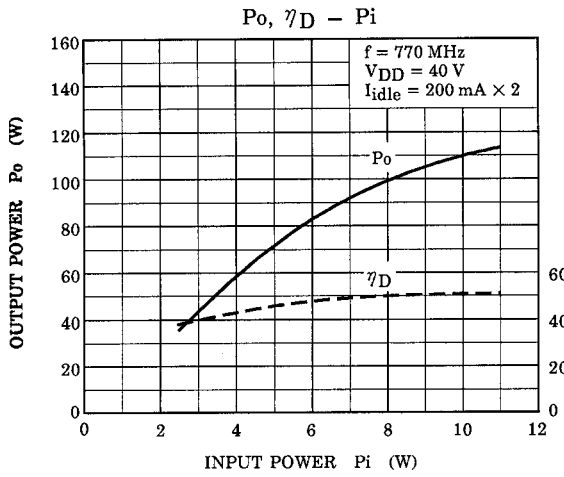
\*\*: Pulse Test

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

## RF OUTPUT POWER TEST FIXTURE



C1 :	2 pF	MICA CAPACITOR
C2, C21 :	1 pF	MICA CAPACITOR
C3, C4 :	220 pF	MICA CAPACITOR
C5 :	6 pF	MICA CAPACITOR
C6 :	10 pF	MICA CAPACITOR
C7, C8, C9, C10, C13, C14, C25, C28 :	4700 pF	CERAMIC CAPACITOR
C11, C12, C15, C16 :	10000 pF	CERAMIC CAPACITOR
C17, C18 :	8 pF	MICA CAPACITOR
C19, C20 :	200 pF × 2	CERAMIC CAPACITOR
C22 :	3 pF	MICA CAPACITOR
C23, C26 :	100 μF, 80 V	ELECTROLYTIC CAPACITOR
C24, C27 :	1000 pF	MICA CAPACITOR
L1, L2 :	4.0T, 5.0ID, ø1.0	SILVER PLATED COPPER WIRE
R1, R2 :	1 kΩ	VARIABLE RESISTOR



**CAUTION**

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