

TOSHIBA FIELD EFFECT TRANSISTOR SILICON N CHANNEL MOS TYPE

2SK1739

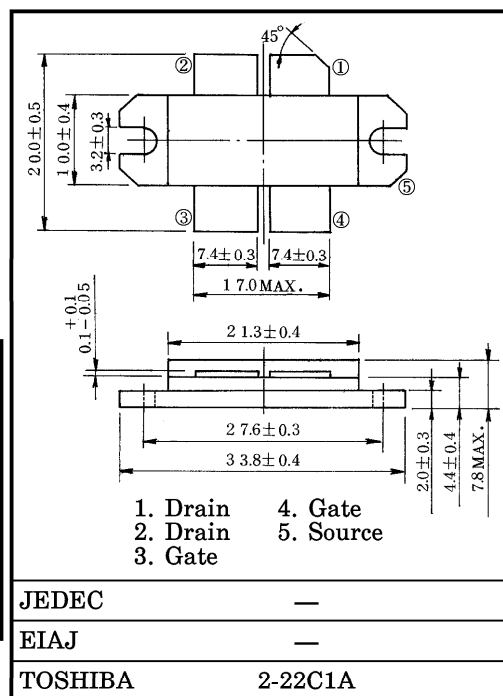
RF POWER MOS FET
for UHF TV BROADCAST TRANSMITTER

Unit in mm

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

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

CHARACTERISTIC	SYMBOL	RATING	UNIT
Drain-Source Voltage	V_{DSS}	80	V
Gate-Source Voltage	V_{GSS}	± 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	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	$-55 \sim 150$	$^\circ\text{C}$

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

Weight : 17.5g

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Output Power	P_o	$V_{DD} = 40\text{V}$, $I_{idle} = 0.2\text{A} \times 2$	90	110	—	W
Drain Efficiency	η_D	$P_i = 10\text{W}$, $f = 770\text{MHz}$ *	—	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	Ω
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

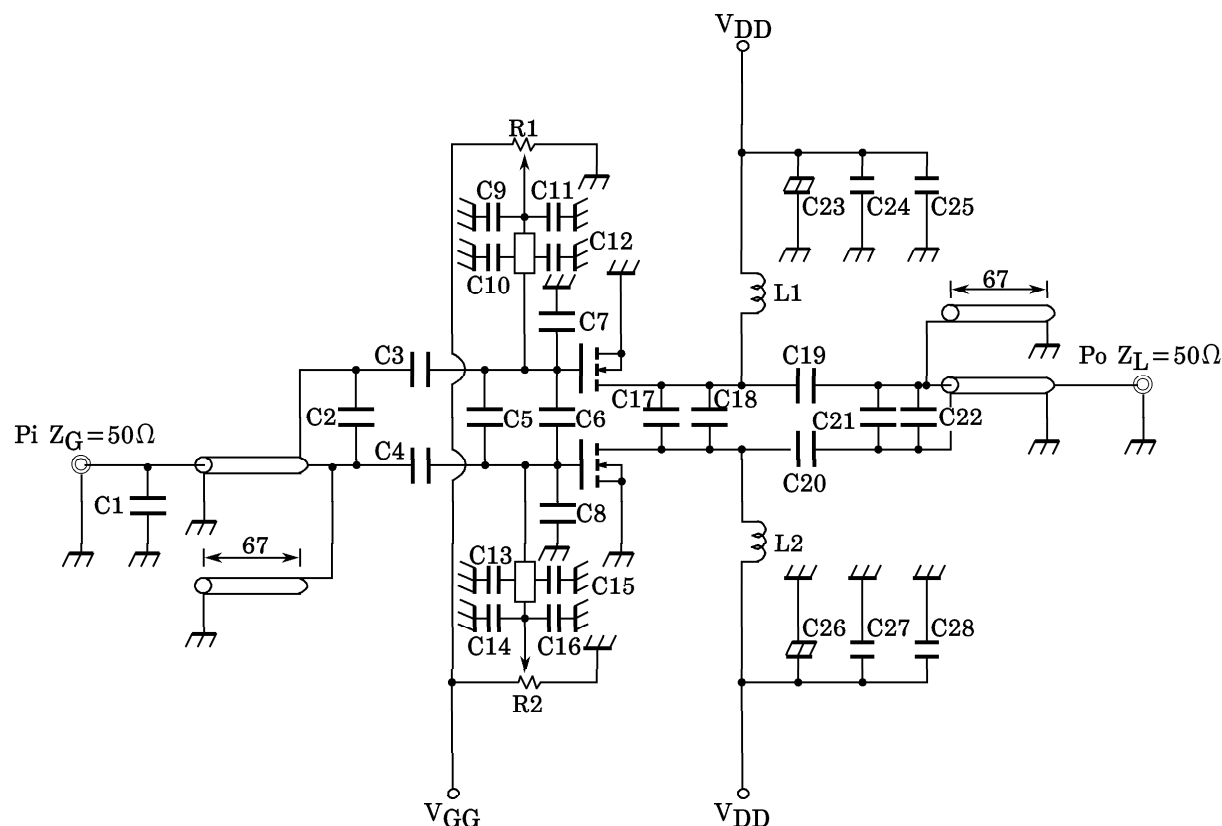
* Push-Pull Operation ** Pulse Test

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

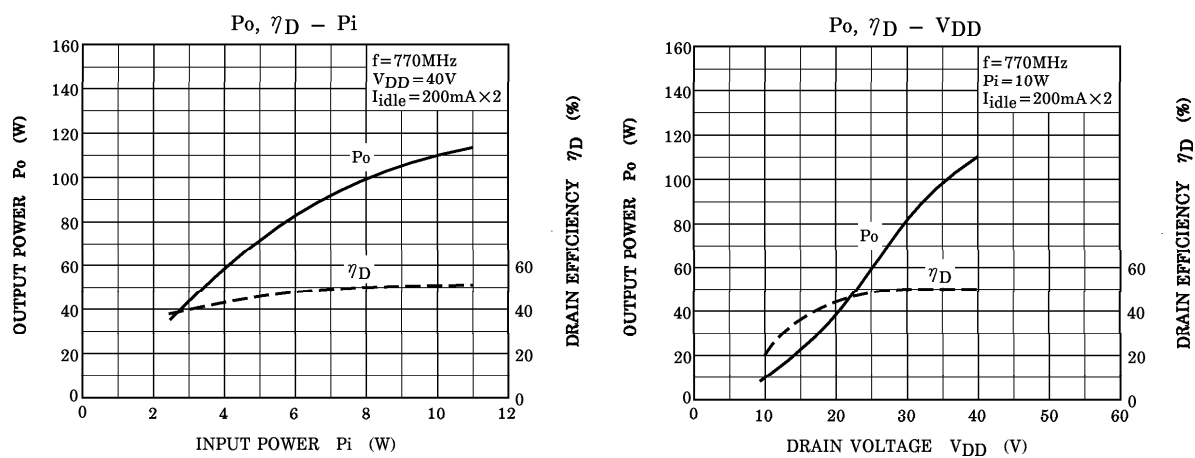
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RF OUTPUT POWER TEST FIXTURE



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

**CAUTION**

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