

TOSHIBA FIELD EFFECT TRANSISTOR SILICON N CHANNEL MOS TYPE

2SK1739A

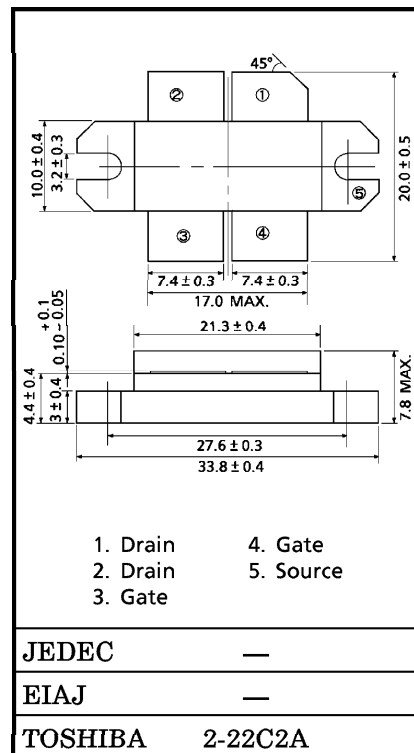
RF POWER MOS FET for UHF TV BROADCAST TRANSMITTER

Unit in mm

- Output Power : $P_o \geq 90 \text{ W (Min.)}$
- Drain Efficiency : $\eta_D = 50\% \text{ (Typ.)}$
- 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 : 17.5 g

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	η_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	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

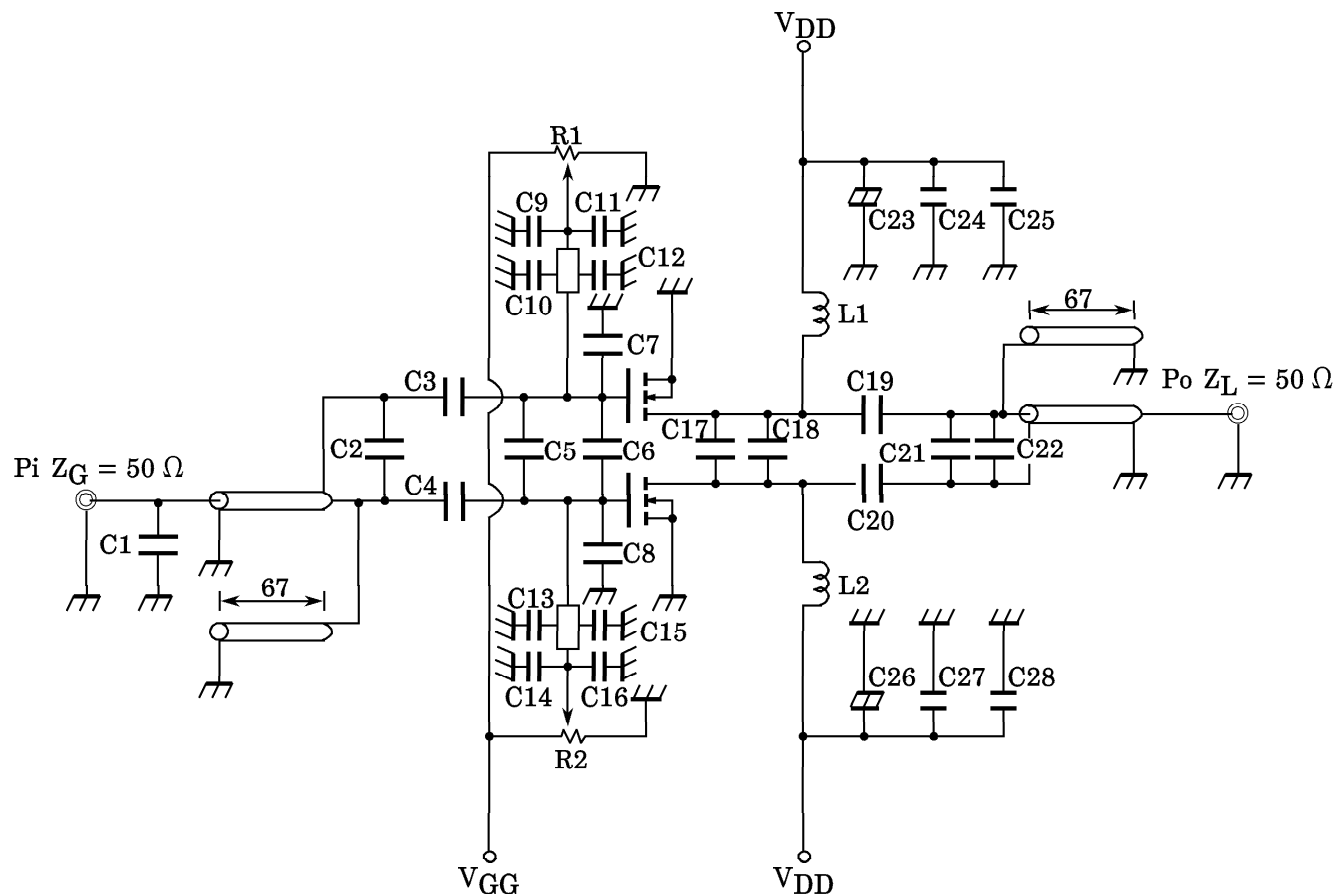
* : Push-Pull Operation ** : Pulse Test

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

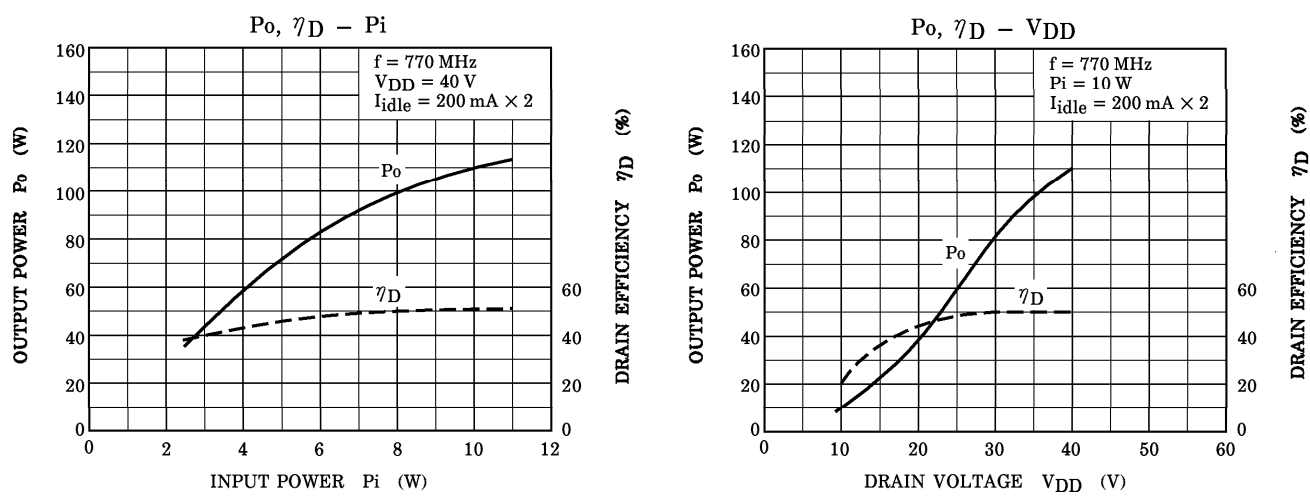
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RF OUTPUT POWER TEST FIXTURE



C1 :	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.