

TOSHIBA FIELD EFFECT TRANSISTOR SILICON N CHANNEL MOS TYPE

2SK1739

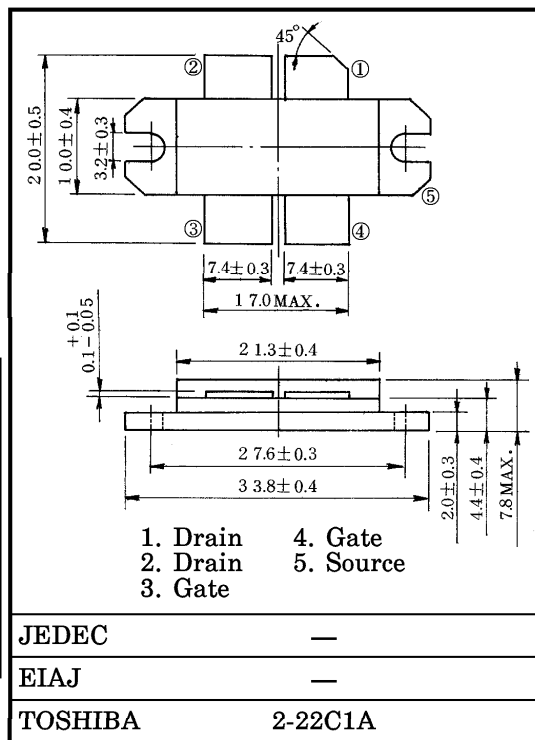
RF POWER MOS FET
for UHF TV BROADCAST TRANSMITTER

Unit in mm

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

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

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	$^\circ C$
Storage Temperature Range	T_{stg}	$-55 \sim 150$	$^\circ C$



Weight : 17.5g

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

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

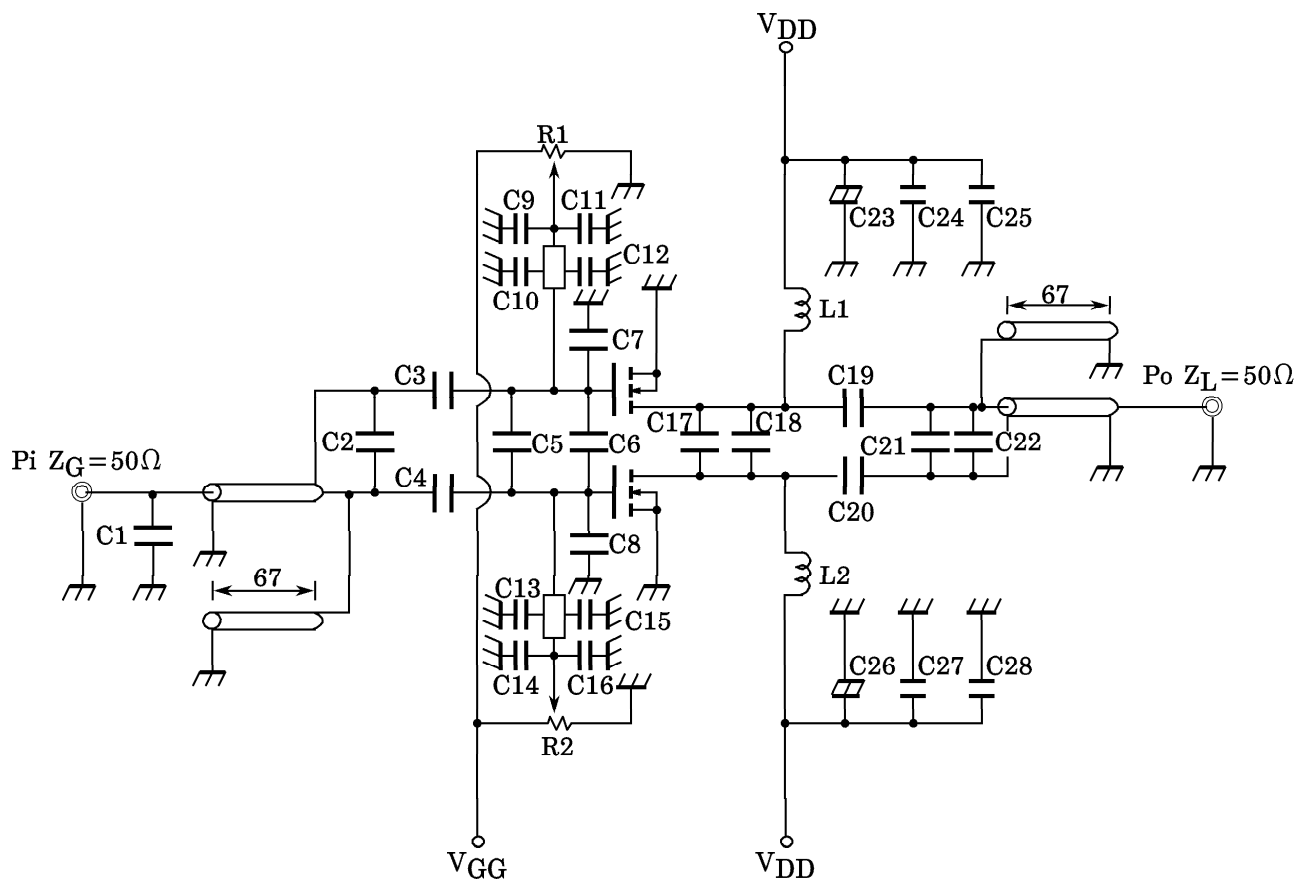
* Push-Pull Operation ** Pulse Test

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

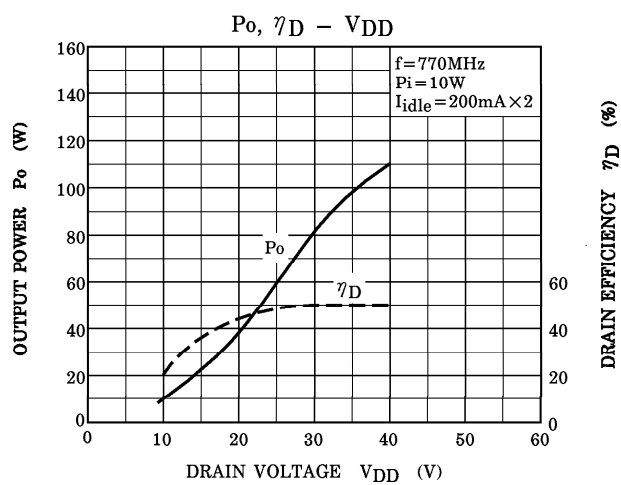
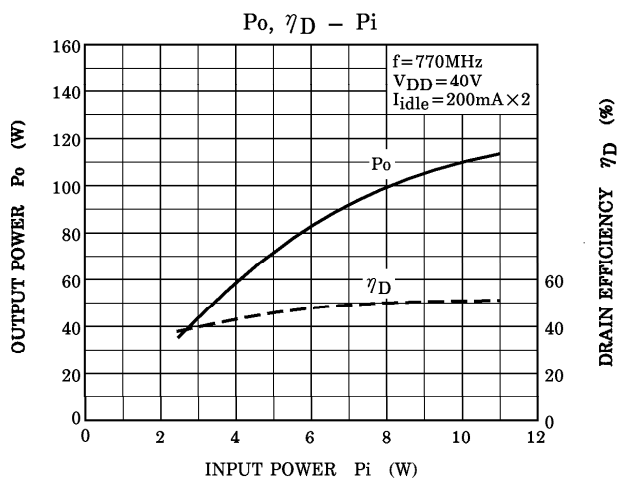
961001EAA2

- TOSHIBA is continually working to improve the quality and the reliability of its products. Nevertheless, semiconductor devices in general can malfunction or fail due to their inherent electrical sensitivity and vulnerability to physical stress. It is the responsibility of the buyer, when utilizing TOSHIBA products, to observe standards of safety, and to avoid situations in which a malfunction or failure of a TOSHIBA product could cause loss of human life, bodily injury or damage to property. In developing your designs, please ensure that TOSHIBA products are used within specified operating ranges as set forth in the most recent products specifications. Also, please keep in mind the precautions and conditions set forth in the TOSHIBA Semiconductor Reliability Handbook.
- The information contained herein is presented only as a guide for the applications of our products. No responsibility is assumed by TOSHIBA CORPORATION for any infringements of intellectual property or other rights of the third parties which may result from its use. No license is granted by implication or otherwise under any intellectual property or other rights of TOSHIBA CORPORATION or others.
- The information contained herein is subject to change without notice.

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.