

TOSHIBA FIELD EFFECT TRANSISTOR SILICON N CHANNEL MOS TYPE

2SK1739A

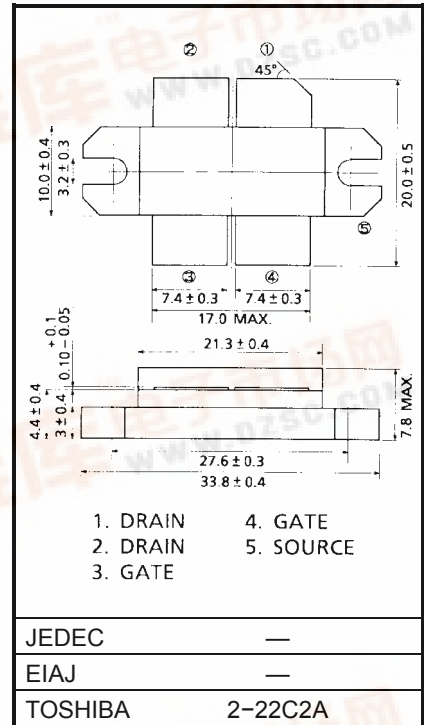
RF POWER MOS FET for UHF TV BROADCAST TRANSMITTER

- 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}	± 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

Unit in mm



Weight: 17.5 g

000707EAA1

• TOSHIBA is continually working to improve the quality and 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 comply with the standards of safety in making a safe design for the entire system, and to avoid situations in which a malfunction or failure of such TOSHIBA products 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 TOSHIBA products specifications. Also, please keep in mind the precautions and conditions set forth in the "Handling Guide for Semiconductor Devices," or "TOSHIBA Semiconductor Reliability Handbook" etc..

• The TOSHIBA products listed in this document are intended for usage in general electronics applications (computer, personal equipment, office equipment, measuring equipment, industrial robotics, domestic appliances, etc.). These TOSHIBA products are neither intended nor warranted for usage in equipment that requires extraordinarily high quality and/or reliability or a malfunction or failure of which may cause loss of human life or bodily injury ("Unintended Usage"). Unintended Usage include atomic energy control instruments, airplane or spaceship instruments, transportation instruments, traffic signal instruments, combustion control instruments, medical instruments, all types of safety devices, etc.. Unintended Usage of TOSHIBA products listed in this document shall be made at the customer's own risk.

• 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.

ELECTRICAL CHARACTERISTICS (T_c = 25°C)

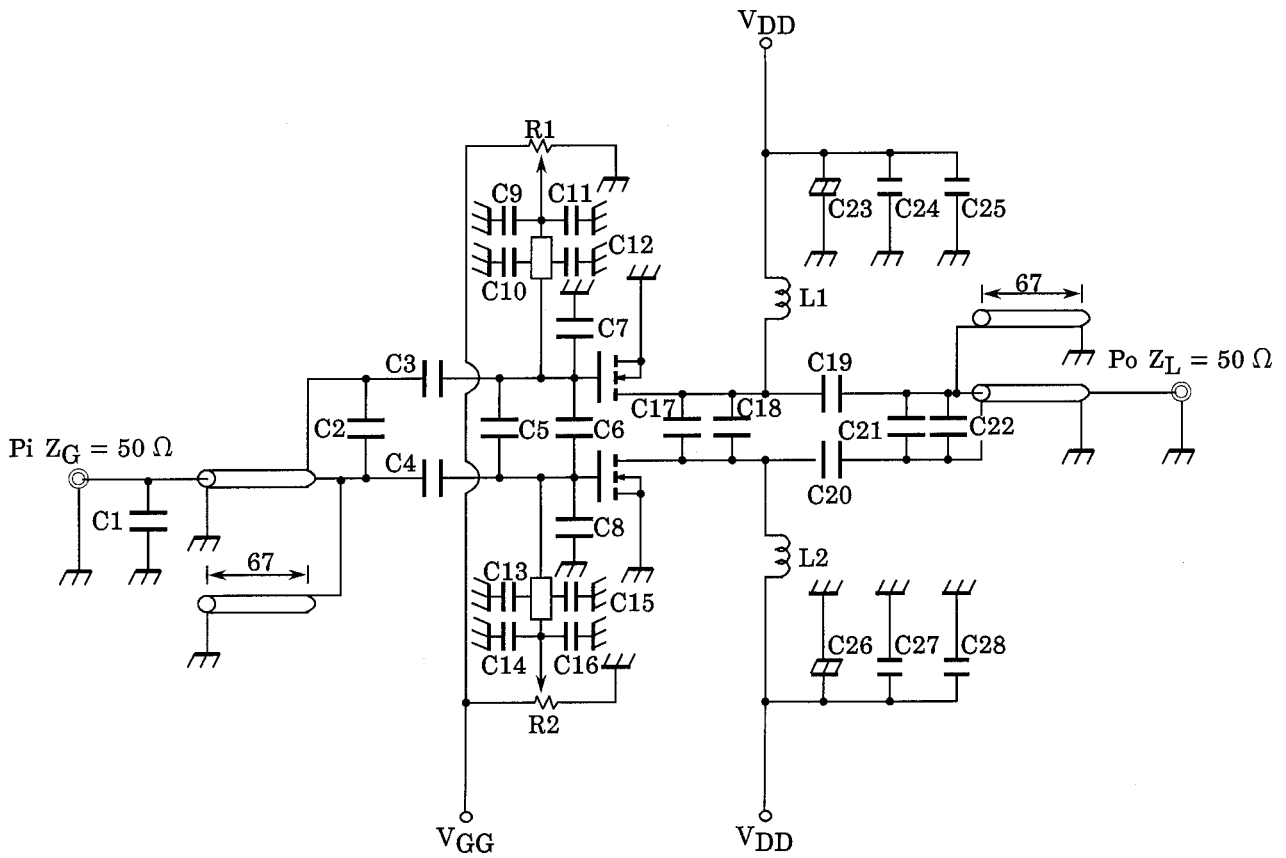
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Output Power	P _o	V _{DD} = 40 V, I _{idle} = 0.2 A × 2 P _i = 10 W, f = 770 MHz *	90	110	—	W
Drain Efficiency	η _D		—	50	—	%
Drain-Source Breakdown Voltage	V _{(BR)DSS}	I _D = 5 mA, V _{GS} = 0	80	—	—	V
Drain Cut-off Current	I _{DSS}	V _{DS} = 60 V, V _{GS} = 0	—	—	1.0	mA
Gate Threshold Voltage	V _{th}	I _D = 0.5 mA, V _{DS} = 10 V	0.5	—	3.0	V
Drain-Source ON Resistance	R _{DS(on)}	I _D = 2 A, V _{GS} = 10 V **	—	0.5	1.5	Ω
Drain-Source ON Voltage	V _{DS(on)}	I _D = 2 A, V _{GS} = 10 V **	—	1.0	3.0	V
Forward Transfer Admittance	Y _{fs}	I _D = 1.5 A, V _{DS} = 20 V **	0.9	1.3	—	S
Input Capacitance	C _{iss}	V _{DS} = 40 V, V _{GS} = 0, f = 1 MHz	—	80	—	pF
Output Capacitance	C _{oss}	V _{DS} = 40 V, V _{GS} = 0, f = 1 MHz	—	40	—	pF
Reverse Transfer Capacitance	C _{rss}	V _{DS} = 40 V, V _{GS} = 0, f = 1 MHz	—	1	—	pF

*: Push-Pull Operation

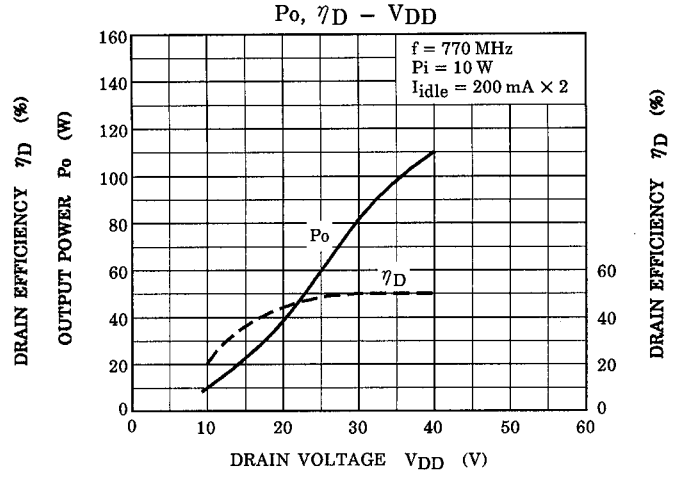
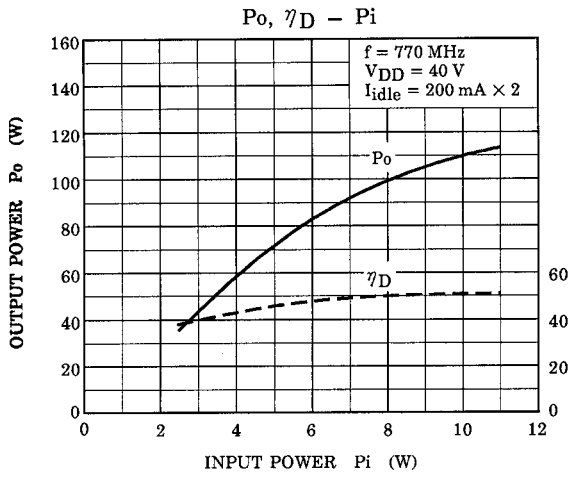
** : Pulse Test

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.