

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

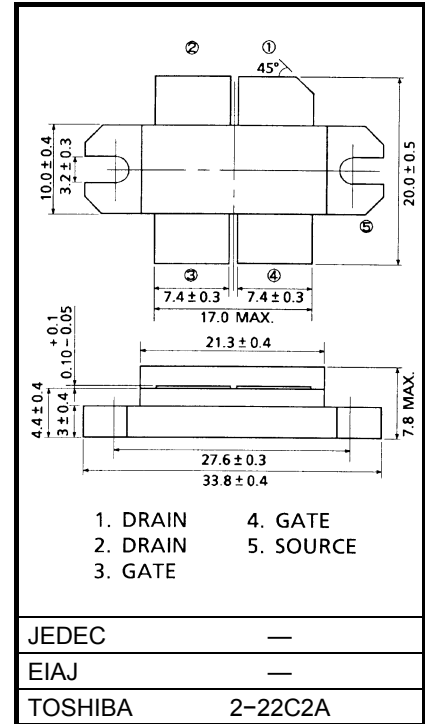
Unit in mm

ABSOLUTE 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

Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings.

Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc).



Weight: 17.5 g

ELECTRICAL CHARACTERISTICS (T_c = 25°C)

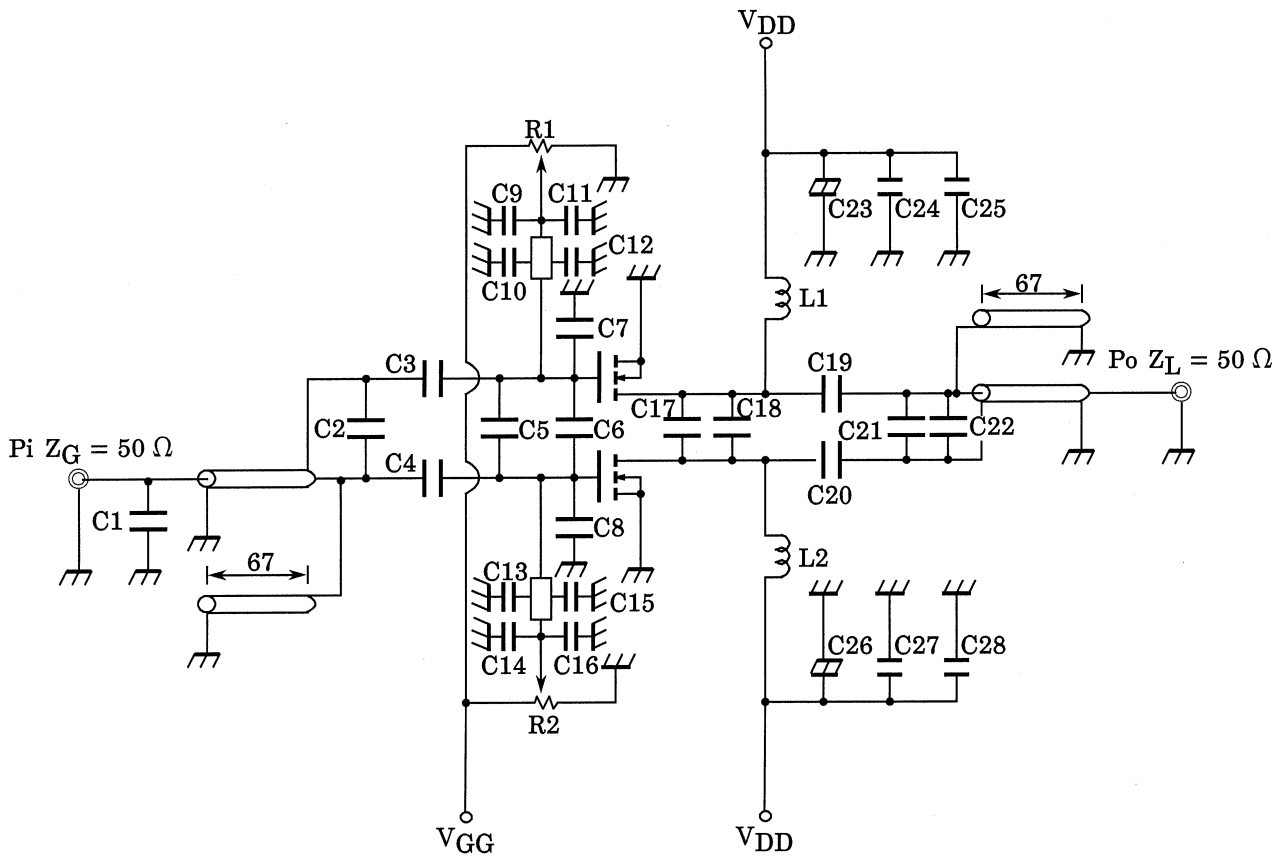
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Output Power	P _o	V _{DD} = 40 V, I _{idle} = 0.2 A × 2 P _i = 10 W, f = 770 MHz *	90	110	—	W
Drain Efficiency	η _D		—	50	—	%
Drain-Source Breakdown Voltage	V _{(BR)DSS}	I _D = 5 mA, V _{GS} = 0	80	—	—	V
Drain Cut-off Current	I _{DSS}	V _{DS} = 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

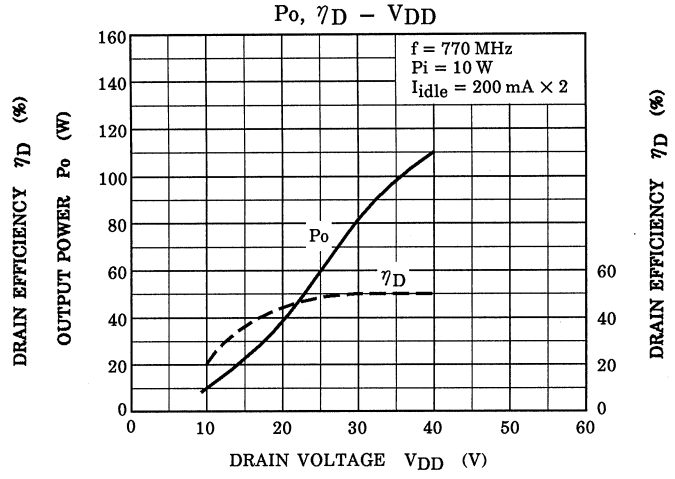
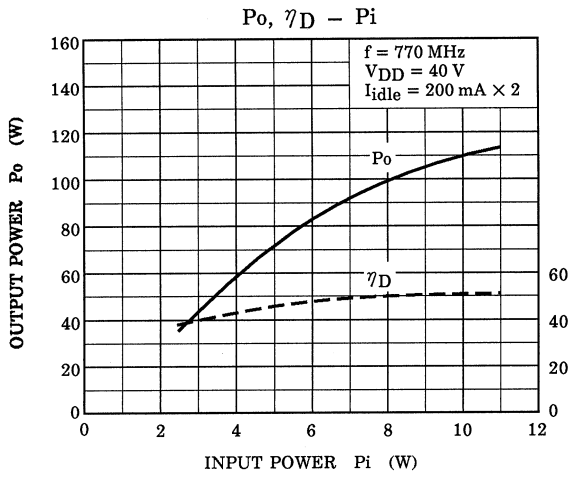
** : Pulse Test

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.

RESTRICTIONS ON PRODUCT USE

20070701-EN GENERAL

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