

TOSHIBA FIELD EFFECT TRANSISTOR SILICON N CHANNEL MOS TYPE

## 2SK1028

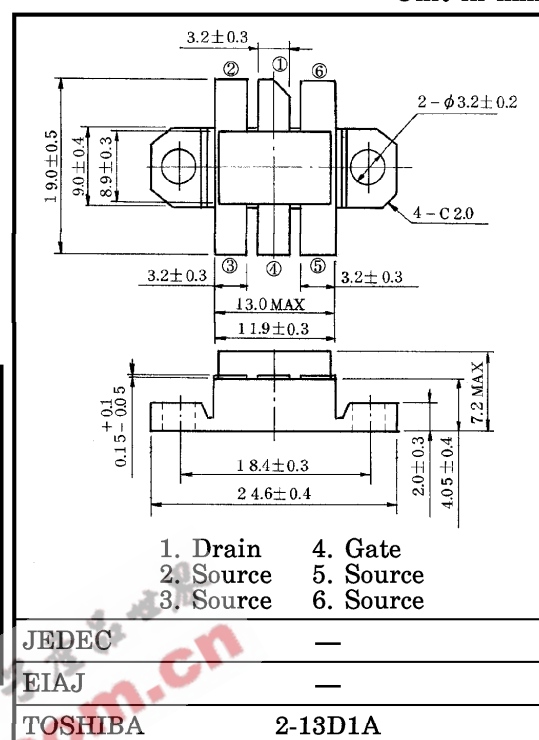
RF POWER MOS FET  
for VHF TV BROADCAST TRANSMITTER

Unit in mm

- Output Power :  $P_o \geq 100\text{W}$  (Min.)
- Drain Efficiency :  $\eta_D = 70\%$  (Typ.)
- Frequency :  $f = 230\text{MHz}$

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

CHARACTERISTIC	SYMBOL	RATING	UNIT
Drain-Source Voltage	$V_{DSS}$	100	V
Gate-Source Voltage	$V_{GSS}$	$\pm 20$	V
Drain Current	$I_D$	6	A
Reverse Drain Current	$I_{DR}$	6	A
Drain Power Dissipation	$P_D$	125	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 : 10g

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Output Power	$P_o$	$V_{DD} = 50\text{V}, I_{idle} = 0.2\text{A}$	100	—	—	W
Drain Efficiency	$\eta_D$	$P_i = 5\text{W}, f = 230\text{MHz}$	—	70	—	%
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = 10\text{mA}, V_{GS} = 0$	100	—	—	V
Drain Cut-off Current	$I_{DSS}$	$V_{DS} = 80\text{V}, V_{GS} = 0$	—	—	1.0	mA
Gate Threshold Voltage	$V_{th}$	$I_D = 1\text{mA}, V_{DS} = 10\text{V}$	0.5	—	3.0	V
Drain-Source ON Resistance	$R_{DS(on)}$	$I_D = 4\text{A}, V_{GS} = 10\text{V} *$	—	0.9	1.5	$\Omega$
Drain-Source ON Voltage	$V_{DS(on)}$	$I_D = 4\text{A}, V_{GS} = 10\text{V} *$	—	3.6	6.0	V
Forward Transfer Admittance	$ Y_{fs} $	$I_D = 3\text{A}, V_{DS} = 20\text{V} *$	0.9	1.3	—	S
Input Capacitance	$C_{iss}$	$V_{DS} = 50\text{V}, V_{GS} = 0$ $f = 1\text{MHz}$	—	100	—	pF
Output Capacitance	$C_{oss}$	$V_{DS} = 50\text{V}, V_{GS} = 0$ $f = 1\text{MHz}$	—	40	—	pF
Reverse Transfer Capacitance	$C_{rss}$	$V_{DS} = 50\text{V}, V_{GS} = 0$ $f = 1\text{MHz}$	—	1	—	pF

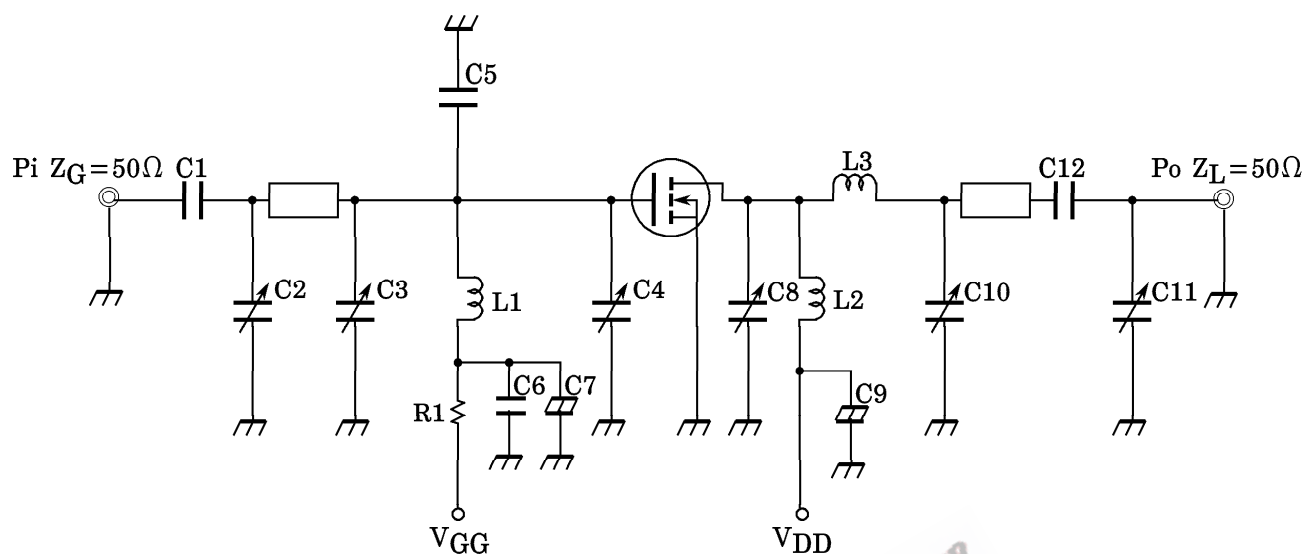
\* Pulse Test

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

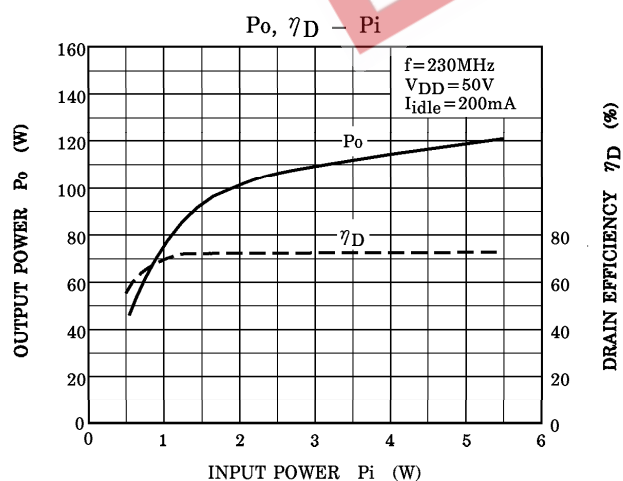
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## RF OUTPUT POWER TEST FIXTURE



C1, C12	:	4700pF	CERAMIC CAPACITOR
C2, C3, C4, C10, C11	:	~30pF	VARIABLE CAPACITOR
C5	:	47pF	CERAMIC CAPACITOR
C6	:	10,000pF	CERAMIC CAPACITOR
C7	:	10 $\mu$ F, 50V	ELECTROLYTIC CAPACITOR
C8	:	~5pF	VARIABLE CAPACITOR
C9	:	10 $\mu$ F, 250V	ELECTROLYTIC CAPACITOR
L1	:	9T, 6ID $\phi$ 1.0	ENAMEL WIRE
L2	:	5T, 7ID $\phi$ 1.0	ENAMEL WIRE
L3	:	0.5T, 3ID $\phi$ 1.0	ENAMEL WIRE
R1	:	9.1k $\Omega$	



## CAUTION

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