TOSHIBA 2SK1310A

TOSHIBA FIELD EFFECT TRANSISTOR SILICON N CHANNEL MOS TYPE

2 S K 1 3 1 0 A

RF POWER MOS FET for VHF TV BROADCAST TRANSMITTER

Output Power : $Po \ge 190 W$ (Min.)

Drain Efficiency : $\eta_{\rm D} = 65\%$ (Typ.)

Frequency : f = 230 MHz

Push - Pull Structure Package

MAXIMUM RATINGS (Tc = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Drain-Source Voltage	$v_{ m DSS}$	100	V
Gate-Source Voltage	V_{GSS}	±20	V
Drain Current	$I_{\mathbf{D}}$	12	Α
Reverse Drain Current	$I_{ m DR}$	12	Α
Drain Power Dissipation	$P_{\mathbf{D}}$	250	W
Channel Temperature	$\mathrm{T_{ch}}$	150	°C
Storage Temperature Range	$\mathrm{T_{stg}}$	-55~150	°C

2 1 20.0 ± 0.5 6 4 7.4 ± 0.3 • | | • 7.4 ± 0.3 • 17.0 MAX. 21.3 ± 0.4 27.6 ± 0.3 4. Gate 1. Drain 2. Drain 5. Source 3. Gate **JEDEC**

2-22C2A

Unit in mm

Weight: 17.5 g

EIAJ TOSHIBA

ELECTRICAL CHARACTERISTICS (Tc = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT			
Output Power	Po	$V_{DD} = 50 \text{ V}, I_{idle} = 0.2 \text{ A} \times 2$	190	220	_	W			
Drain Efficiency	$\eta_{\mathbf{D}}$	Pi = 10 W, f = 230 MHz *	_	65		%			
Drain-Source Breakdown Voltage	V (BR) DSS	$I_{\mathrm{D}}=10\mathrm{mA},~\mathrm{V}_{\mathrm{GS}}=0$	100	_	_	V			
Drain Cut-off Current	$I_{ m DSS}$	$V_{DS} = 80 \text{ V}, \ V_{GS} = 0$	_	_	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	Ω			
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}	$I_D = 3 A, V_{DS} = 20 V **$	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	Coss	$V_{DS} = 50 \text{ V}, \ V_{GS} = 0, \ f = 1 \text{ MHz}$	_	40	_	pF			
Reverse Transfer Capacitance	$\mathrm{C}_{\mathrm{rss}}$	$ m V_{DS} = 50 \ 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.

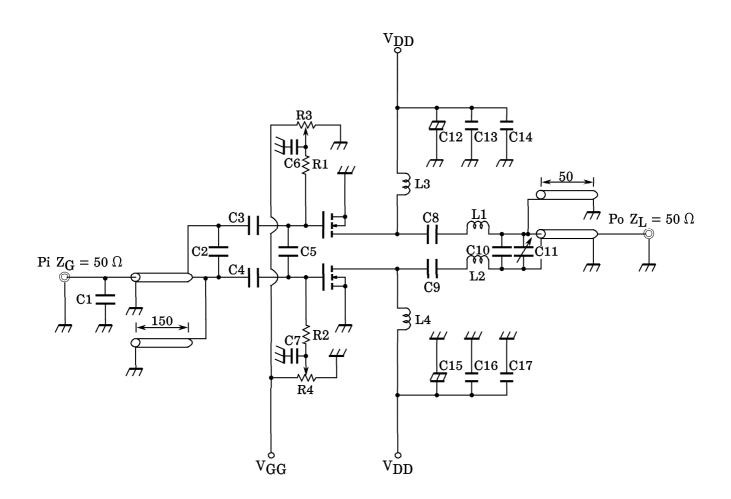
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RF OUTPUT POWER TEST FIXTURE



C1 : 1pF MICA CAPACITOR C2 : 33 pF \times 3 (PARALLEL) MICA CAPACITOR

C3, C4, C8, C9, C13, C16 : 1000 pF MICA CAPACITOR
C5 : 33 pF MICA CAPACITOR

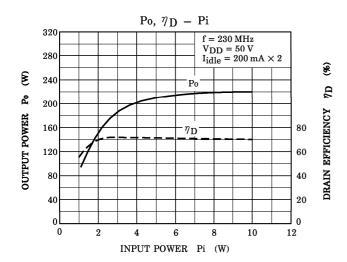
C6, C7 : $0.01\,\mu\text{F} \times 2$ (PARALLEL) CERAMIC CAPACITOR C10 : $14\,\mu\text{F}$ MICA CAPACITOR

C11 : $\sim 20~\rm pF$ AIR TRIMMER CAPACITOR C12, C15 : $100~\mu F$, $100~\rm V$ ELECTROLYTIC CAPACITOR C14, C17 : $4700~\rm pF$ CERAMIC CAPACITOR

L1, L2 : 0.5T, 5ID ø1.0 SILVER PLATED COPPER WIRE L3, L4 : 3.0T, 5ID ø1.0 SILVER PLATED COPPER WIRE

R1, R2 : $220 \Omega \times 2$ (PARALLEL)

R3, R4 : $1 \text{ k}\Omega$ VARIABLE RESISTOR



CAUTION

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