TOSHIBA

Unit in mm

TOSHIBA FIELD EFFECT TRANSISTOR SILICON N CHANNEL JUNCTION TYPE

9 2 S K 2 O

AUDIO FREQUENCY LOW NOISE AMPLIFIER APPLICATIONS

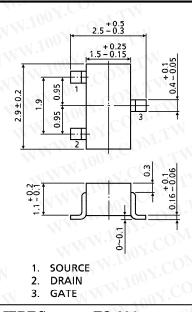
- High |Yfs : $|Y_{fs}| = 15 \text{mS} (\text{Typ.}) \text{ at } V_{DS} = 10 \text{V}, V_{GS} = 0$
- High Breakdown Voltage : $V_{GDS} = -50V$
- Low Noise

: NF=1.0dB (Typ.) at V_{DS}=10V, I_D=0.5mA, f=1kHz, R_G=1k Ω

- High Input Impedance : $I_{GSS} = -1nA$ (Max.) at $V_{GS} = -30V$
- Small Package

MAXIMUM RATINGS (Ta = 25° C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Gate-Drain Voltage	VGDS	-50	v
Gate Current	IG	10	mA
Drain Power Dissipation	PD	150	mW
Junction Temperature	Тj	125	°C
Storage Temperature Range	T _{stg}	$-55 \sim 125$	°C



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N	EIAJ	SC-59	~~~\
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ELECTRICAL CHARACTERISTICS ($Ta = 25^{\circ}C$)

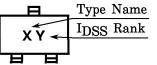
ELECTRICAL CHARACTERISTICS	(Ta = 25°C)	N 11 1001.00	Weight: 0	.012g	War	100 -
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Cut-off Current	IGSS	$V_{GS} = -30V, V_{DS} = 0$	-0 <u>1.</u>		-1.0	nA
Gate-Drain Breakdown Voltage	V (BR) GDS	$V_{DS} = 0, I_G = -100 \mu A$	-50	_		V
Drain Current	I _{DSS} (Note)	$V_{DS}=10V, V_{GS}=0$	1.2	<u>-</u> //	14.0	mA
Gate-Source Cut-off Voltage	VGS (OFF)	$V_{DS} = 10V, I_D = 0.1 \mu A$	-0.2	TH.	-1.5	V
Forward Transfer Admittance	Y _{fs}	$V_{DS} = 10V, V_{GS} = 0, f = 1kHz$	z 4.0	15	_	mS
Input Capacitance	C _{iss}	$V_{DS} = 10V, V_{GS} = 0, f = 1MH$	z —	13	_	pF
Reverse Transfer Capacitance	C _{rss}	V_{DG} =10V, I_{D} =0, f=1MHz	Jun CO	3	- I	pF
Noise Figure	NF (1)	$V_{DS}=10V, R_{G}=1k\Omega$ $I_{D}=0.5mA, f=10Hz$	1.100 X.C	5	- N	dB
Noise Figure	NF (2)	$V_{DS}=10V, R_{G}=1k\Omega$ $I_{D}=0.5mA, f=1kHz$	W. IOON.	1		dB

Note : IDSS Classification

Y: 1.2~3.0mA, GR: 2.6~6.5mA, BL: 6.0~14mA

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胜	特力	电	子(深	[圳)	86-755-83298787
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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.

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力材料 886-3-5753170 特 胜特力电子(上海) 86-21-54151736 胜特力电子(深圳) 86-755-83298787 Http://www. 100y. com. tw

 $I_D - V_{DS}$ ID - VGS COMMON SOURCE COMMON SOURCE V_{DS}=10V 12 (WW) Ta=25°C (mA) $Ta = 25^{\circ}C$ 0 Ū. Ч. DRAIN CURRENT DRAIN CURRENT -0.1V $V_{GS} =$ -0.2 -0.3 0 -1.0 3 5 -0.8 0.6 0.4 GATE-SOURCE VOLTAGE V_{GS} (V) DRAIN-SOURCE VOLTAGE VDS (V) (mS) $|Y_{fs}| - I_D$ VGS(OFF) - IDSS $|Y_{fs}|$ COMMON SOURCE GATE-SOURCE CUT-OFF VOLTAGE VGS (OFF) (V) 24 $: V_{DS} = 10V$ IDSS 6.9 $I_{DSS} = 12.8 \text{mA}$ FORWARD TRANSFER ADMITTANCE $V_{GS}=0$ 4.2 $V_{GS(OFF)}: V_{DS}=10V$ $I_{D} = 0.1 \mu A$ 16 2.2 $Ta = 25^{\circ}C$ COMMON SOURCE -0.5 $V_{DS} = 10V$ f=1kHz $Ta = 25^{\circ}C$ -0. 0 3 10 12 16 0.5 5 20 ĺ٥ 4 8 1 DRAIN CURRENT ID (mA) DRAIN CURRENT IDSS (mA) NF - VDSCOMMON SOURCE $|Y_{fs}| - I_{DSS}$ $I_D = 0.5 mA$ FORWARD TRANSFER ADMITTANCE |Yfs| (mS) (qB) 50 COMMON SOURCE $R_G = 1k\Omega$ I_{DSS} : V_{DS} = 10V NF 30 $Ta = 25^{\circ}C$ $V_{GS}=0$ FIGURE : $V_{DS} = 10V$ Yfs $V_{GS}=0$ f=1kHz NOISE f = 10Hz $Ta = 25^{\circ}C$ 120Hz 1kHz 5∟ 0.5 0 20 3 10 20 30 35 5 5 10 15 25DRAIN-SOURCE VOLTAGE VDS (V) DRAIN CURRENT IDSS (mA)

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