

To our customers,

Old Company Name in Catalogs and Other Documents

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Renesas Electronics website: <http://www.renesas.com>

April 1st, 2010
Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (<http://www.renesas.com>)

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Phase-out/Discontinued

DESCRIPTION The 2SJ44 is designed for use in driver stage of AF low noise amplifier.

- FEATURES**
- Low Noise Figure
 $e_n = 1.5 \text{ nV}/\sqrt{\text{Hz}}$ TYP. ($V_{DS} = -10 \text{ V}$, $I_D = -1.0 \text{ mA}$, $f = 1.0 \text{ kHz}$)
 $NV \leq 20 \text{ mV}$
 - High Voltage, High $|Y_{fs}|$, and Wide Dynamic Range
 $V_{GDO} \geq 40 \text{ V}$
 $|Y_{fs}| = 9.0 \text{ mS}$ TYP. ($V_{DS} = -10 \text{ V}$, $I_D = -1.0 \text{ mA}$, $f = 1.0 \text{ kHz}$)
 - Complementary to NEC 2SK163

ABSOLUTE MAXIMUM RATINGS

Maximum Temperatures

Storage Temperature -55 to $+125^\circ\text{C}$

Junction Temperature $+125^\circ\text{C}$ Maximum

Maximum Power Dissipation ($T_a = 25^\circ\text{C}$)

Total Power Dissipation 400 mW

Maximum Voltages and Currents ($T_a = 25^\circ\text{C}$)

V_{GDO} Gate to Drain Voltage 40 V

V_{GSO} Gate to Source Voltage 40 V

V_{DSX}^* Drain to Source Voltage -40 V

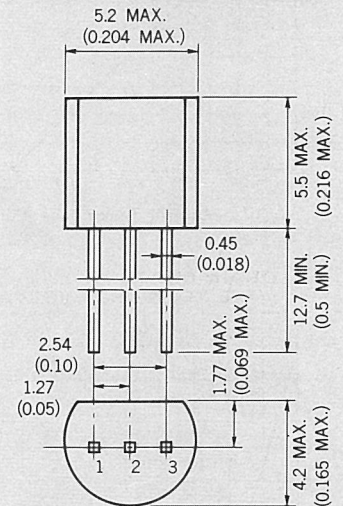
I_D Drain Current -30 mA

I_G Gate Current -10 mA

* $V_{GS} = -2.0 \text{ V}$

PACKAGE DIMENSIONS

in millimeters (inches)



1. DRAIN EIAJ : SC-43A
 2. GATE JEDEC : TO-92
 3. SOURCE IEC : PA33

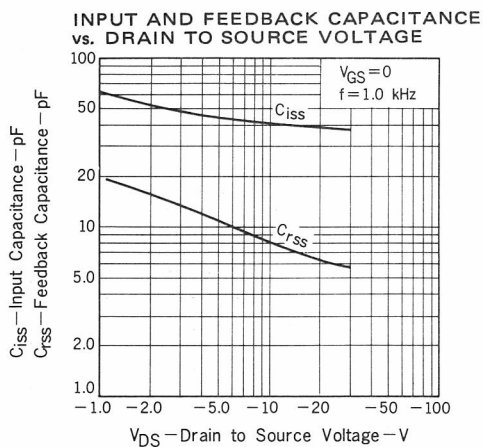
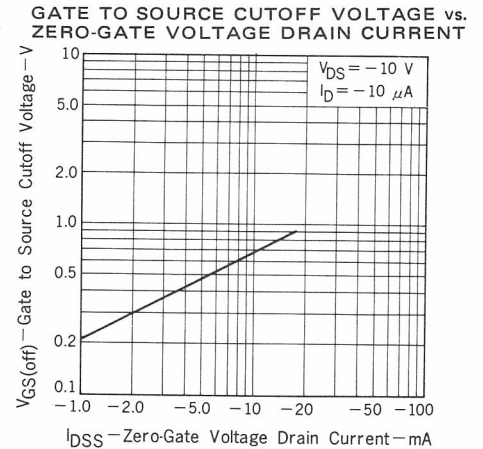
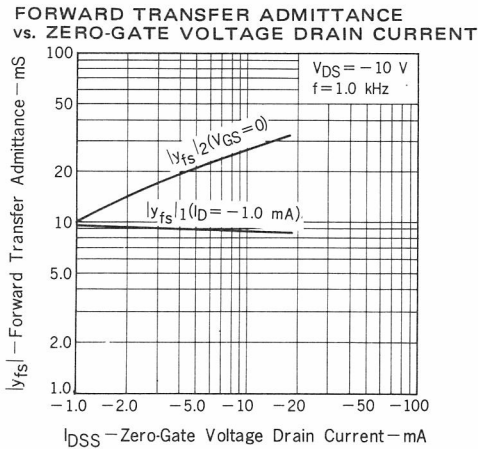
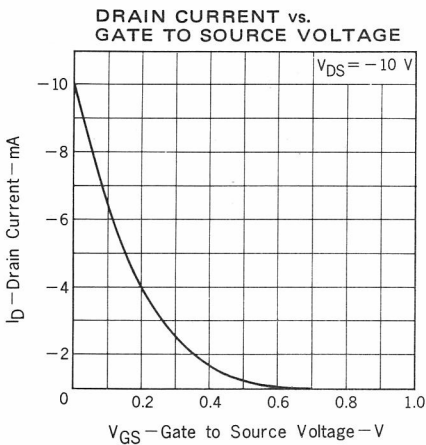
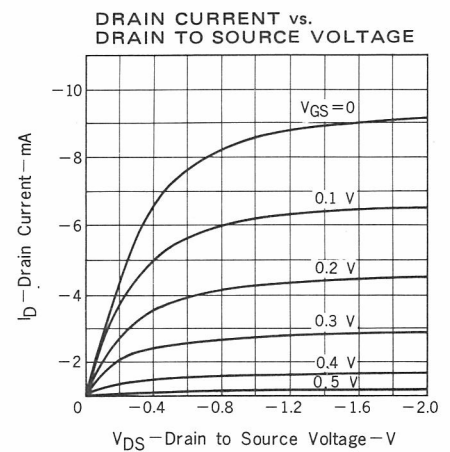
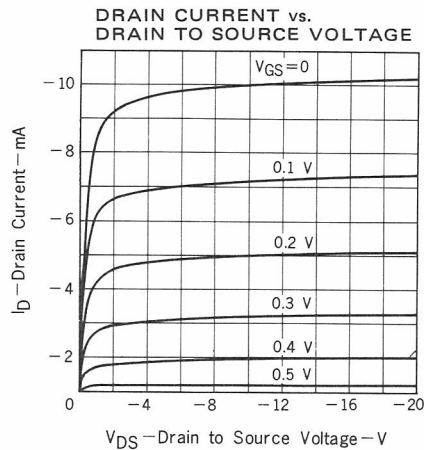
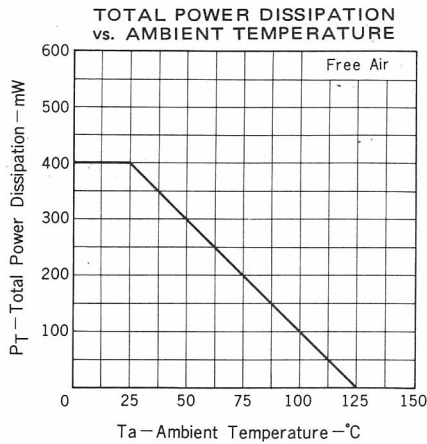
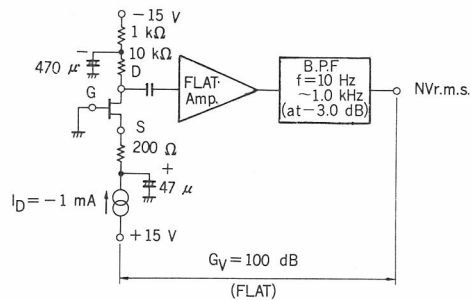
ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
I_{DSS}	Zero-Gate Voltage Drain Current	-1.0	-9.0	-18	mA	$V_{DS} = -10 \text{ V}$, $V_{GS} = 0$
$ Y_{fs1} $	Forward Transfer Admittance	7.0	9.0		mS	$V_{DS} = -10 \text{ V}$, $I_D = -1.0 \text{ mA}$, $f = 1.0 \text{ kHz}$
$ Y_{fs2} $	Forward Transfer Admittance	7.0			mS	$V_{DS} = -10 \text{ V}$, $V_{GS} = 0$, $f = 1.0 \text{ kHz}$
C_{iss}	Input Capacitance		50		pF	$V_{DS} = -10 \text{ V}$, $V_{GS} = 0$, $f = 1.0 \text{ MHz}$
C_{rss}	Feedback Capacitance		10		pF	$V_{DS} = -10 \text{ V}$, $V_{GS} = 0$, $f = 1.0 \text{ MHz}$
NV	Noise Voltage		16	20	mV	See test circuit
I_{GSS}	Gate Cutoff Current			1.0	nA	$V_{GS} = 20 \text{ V}$, $V_{DS} = 0$
$V_{GS(off)}$	Gate to Source Cutoff Voltage	0.2		1.5	V	$V_{DS} = -10 \text{ V}$, $I_D = -10 \mu\text{A}$

Classification of I_{DSS}

Rank	K	L	M	N
$I_{DSS}(\text{mA})$	$-1.0 - -6.0$	$-5.0 - -10$	$-9.0 - -14$	$-13 - -18$

I_{DSS} Test Conditions : $V_{DS} = -10 \text{ V}$, $V_{GS} = 0$

Phase-out/DiscontinuedTYPICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$ unless otherwise noted)**NOISE VOLTAGE TEST CIRCUIT**

$V_{DS} = -4\text{ V}$, $I_D = -1.0\text{ mA}$, $R_G = 0$, $G_V = 100\text{ dB}$,
 $f = 10\text{ Hz} - 1.0\text{ kHz}$ (at -3.0 dB)

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