

〈FIELD-EFFECT TRANSISTOR〉

**2SK433**

**FOR LOW FREQUENCY AMPLIFY APPLICATION  
N CHANNEL JUNCTION TYPE**

## DESCRIPTION

2SK433 is a super mini outline resin sealed silicon N channel junction type FET. It is designed for low frequency voltage amplify,application, analog switch application.

## FEATURE

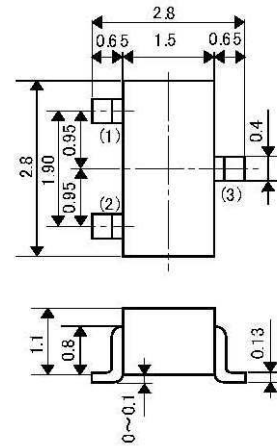
- Small type for mounting
- High  $|y_{fs}|$   $|y_{fs}| \approx 4\text{mS}(\text{typ})$
- Low  $R_{DS(ON)}$   $R_{DS(ON)} = 250\Omega \text{ typ}$

## APPLICATION

General purpose voltage amplify,analog switch circuit  
for stereo,cassette deck,VCR.

## OUTLINE DRAWING

Unit:mm



### TERMINAL CONNECTOR

- ① : SOURCE
- ② : DRAIN
- ③ : GATE

EIAJ : SC-59

JEDEC : TO-236 resemblance

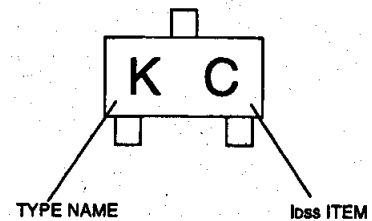
Note)

The dimension without tolerance represent central value.

## MAXIMUM RATINGS (Ta=25°C)

Symbol	Parameter	Ratings	Unit
V <sub>GD0</sub>	Gate to Drain voltage	-50	V
I <sub>G</sub>	Gate current	10	mA
P <sub>T</sub>	Total allowable dissipation(Ta=25°C)	150	mW
T <sub>ch</sub>	Channel temperature	+125	°C
T <sub>stg</sub>	Storage temperature	-55 to +125	°C

## MARKING



## ELECTRICAL CHARACTERISTICS (Ta=25°C)

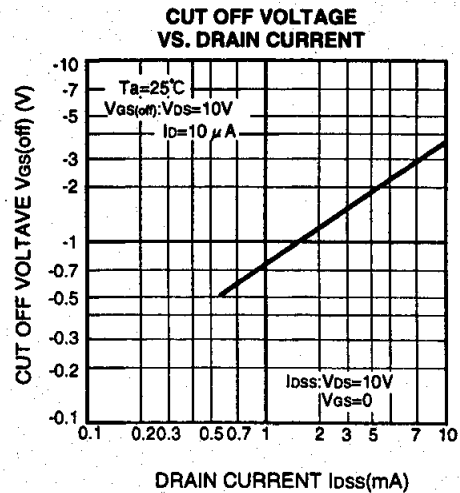
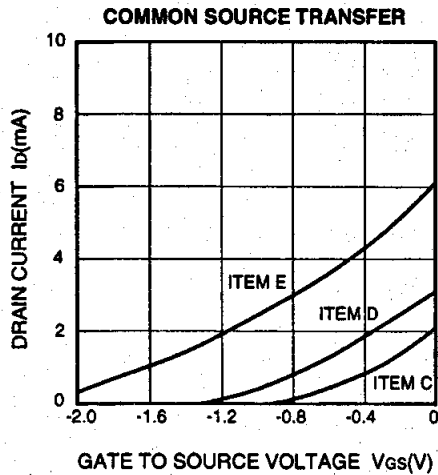
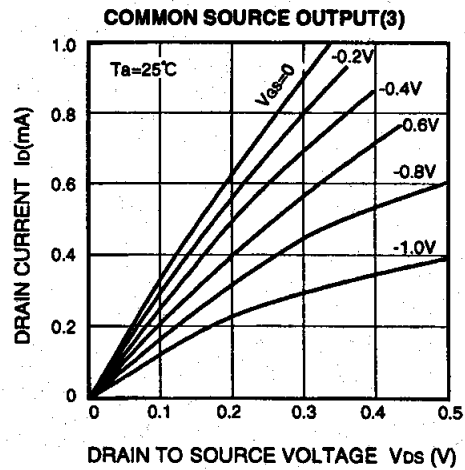
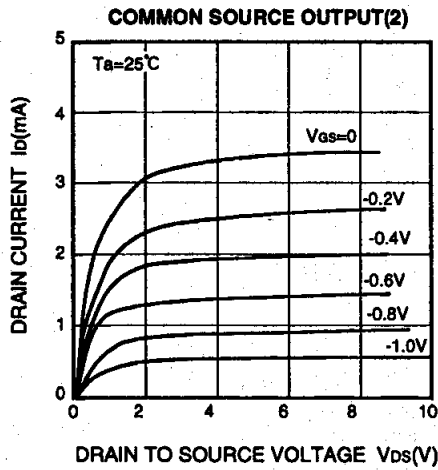
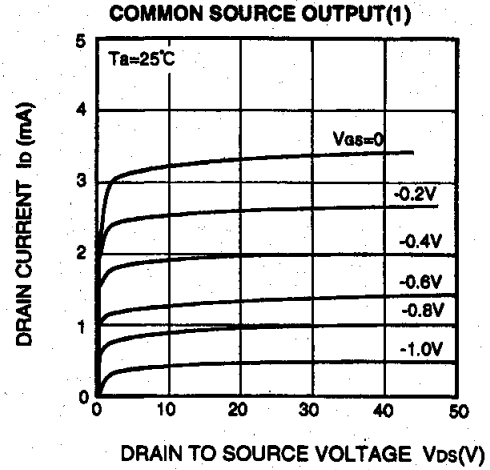
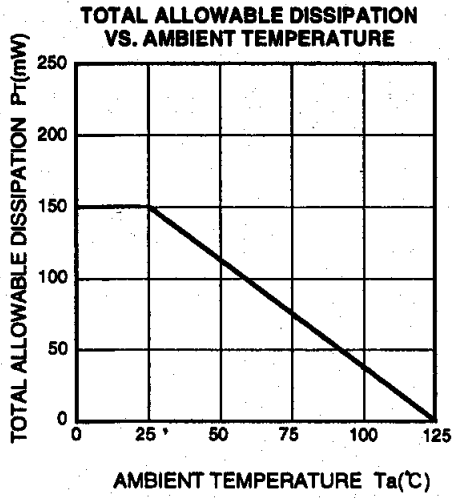
Symbol	Parameter	Test conditions	Limits			Unit
			Min	Typ	Max	
V <sub>(BR)GDO</sub>	G to D break down voltage	I <sub>G</sub> = -10 μA, I <sub>S</sub> = 0	-50			V
I <sub>GSS</sub>	Gate leakage current	V <sub>GS</sub> = -30V, V <sub>DS</sub> = 0			-1	nA
I <sub>DSS</sub> *	Drain current	V <sub>DS</sub> = 10V, V <sub>GS</sub> = 0	0.6		12	mA
V <sub>GS(off)</sub>	Cut off voltage	V <sub>DS</sub> = 10V, I <sub>D</sub> = 10 μA	-0.3	-1.5	-6.0	V
y <sub>fs</sub>	Forward transfer admittance	V <sub>DS</sub> = 10V, V <sub>GS</sub> = 0, f = 1kHz	1.0	3.0		mS
y <sub>os</sub>	Output admittance	V <sub>DS</sub> = 10V, V <sub>GS</sub> = 0, f = 1kHz		10		μS
C <sub>iss</sub>	Input capacitance	V <sub>DS</sub> = 10V, V <sub>GS</sub> = 0, f = 1MHz		8		pF
C <sub>rss</sub>	Feed back capacitance	V <sub>DS</sub> = 10V, V <sub>GS</sub> = 0, f = 1MHz		1.5		pF
R <sub>DS(ON)</sub>	Drain to source resistor	V <sub>DS</sub> = 10mVrms(1kHz), V <sub>GS</sub> = 0, I <sub>DSS</sub> = 5mA		250		Ω

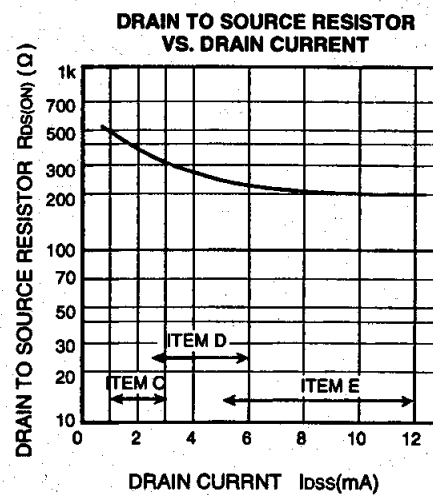
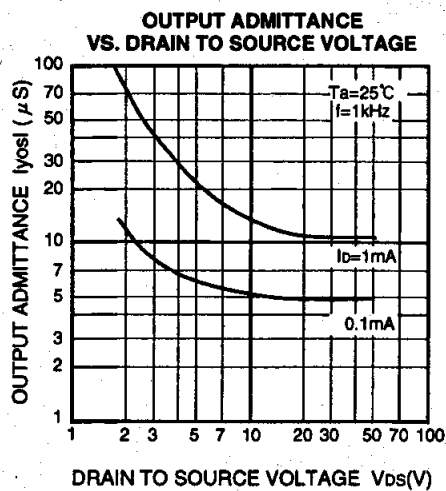
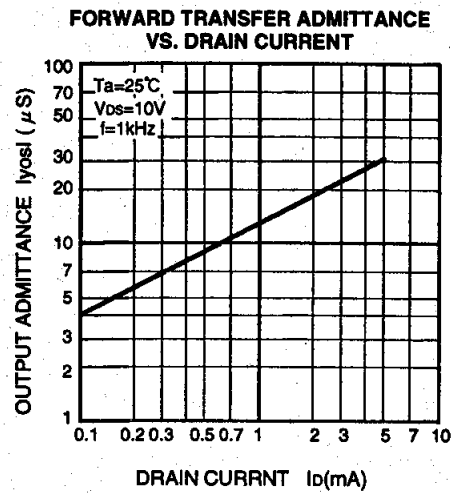
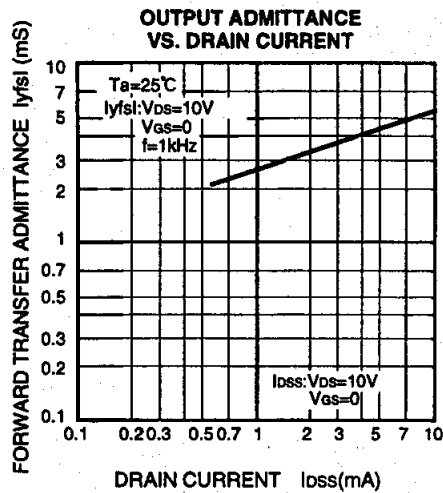
\* : It shows loss classification in right table.

Item	B	C	D	E
loss	0.6 to 1.5	1.0 to 3.0	2.5 to 6.0	5.0 to 12

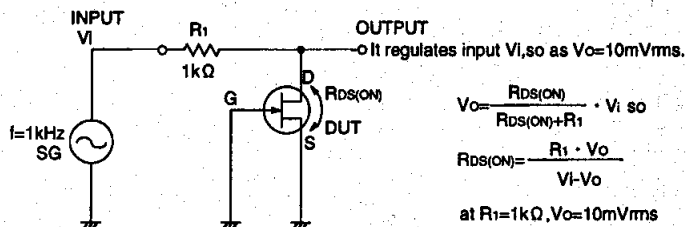
**ISAHAYA ELECTRONICS CORPORATION**

FOR LOW FREQUENCY AMPLIFY APPLICATION  
N CHANNEL JUNCTION TYPE

**TYPICAL CHARACTERISTICS**



**DRAIN TO SOURCE RESISTOR  $R_{ds(on)}$  TEST CIRCUIT**



$$V_o = \frac{R_{ds(on)}}{R_{ds(on)} + R_1} \cdot V_i \text{ so}$$

$$R_{ds(on)} = \frac{R_1 \cdot V_o}{V_i - V_o}$$

at  $R_1=1\text{k}\Omega$ ,  $V_o=10\text{mVrms}$



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**Keep safety first in your circuit designs!**

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