〈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

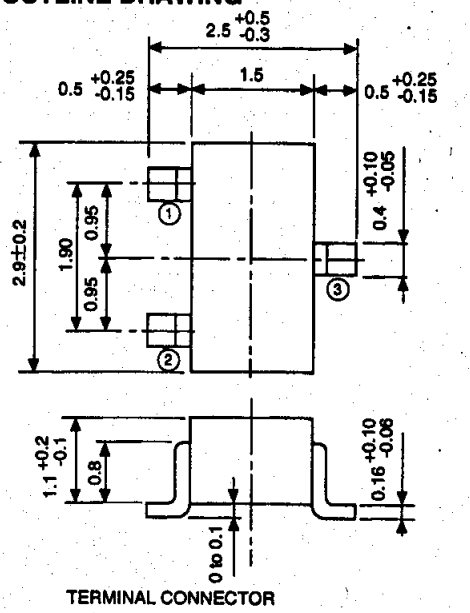
- Small type for mounting
- High $|y_{fs}|$ $|y_{fs}|$ =4mS(typ)
- Low $R_{DS(ON)}$ $R_{DS(ON)}$=250Ω typ

APPLICATION

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

OUTLINE DRAWING

Unit:mm



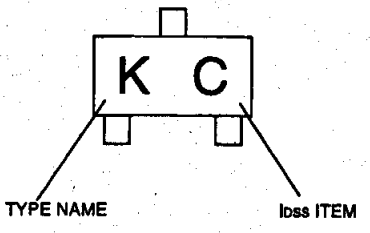
TERMINAL CONNECTOR

① : SOURCE
② : DRAIN
③ : GATE

EIAJ : SC-59
JEDEC : TO-236 resemblance

Note)
The dimension without tolerance represent central value.

MARKING



MAXIMUM RATINGS (Ta=25℃)

Symbol	Parameter	Ratings	Unit
V_{GDO}	Gate to Drain voltage	-50	V
I_G	Gate current	10	mA
P_T	Total allowable dissipation(Ta=25℃)	150	mW
T_{ch}	Channel temperature	+125	℃
T_{stg}	Storage temperature	-55 to +125	℃

ELECTRICAL CHARACTERISTICS (Ta=25℃)

Symbol	Parameter	Test conditions	Limits			Unit
			Min	Typ	Max	
$V_{(BR)GDO}$	G to D break down voltage	I_G=-10μA,I_S=0	-50			V
I_{GSS}	Gate leakage current	V_{GS}=-30V,V_{DS}=0			-1	nA
I_{DSS}*	Drain current	V_{DS}=10V,V_{GS}=0	0.6		12	mA
$V_{GS(off)}$	Cut off voltage	V_{DS}=10V,I_D=10μA	-0.3	-1.5	-6.0	V
$\|y_{fs}\|$	Forward transfer admittance	V_{DS}=10V,V_{GS}=0,f=1kHz	1.0	3.0		mS
$\|y_{os}\|$	Output admittance	V_{DS}=10V,V_{GS}=0,f=1kHz		10		μS
C_{iss}	Input capacitance	V_{DS}=10V,V_{GS}=0,f=1MHz		8		pF
C_{rss}	Feed back capacitance	V_{DS}=10V,V_{GS}=0,f=1MHz		1.5		pF
$R_{DS(ON)}$	Drain to source resistor	V_{DS}=10mVrms(1kHz),V_{GS}=0,I_{DSS}=5mA		250		Ω

* : It shows Idss classification in right table.

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

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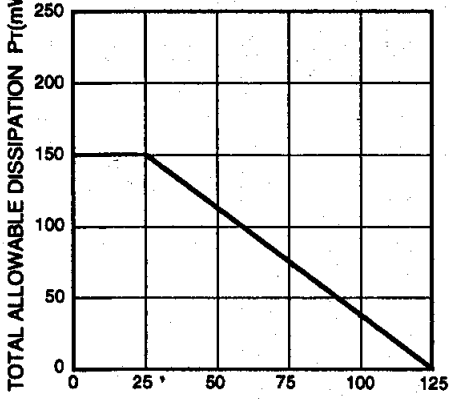
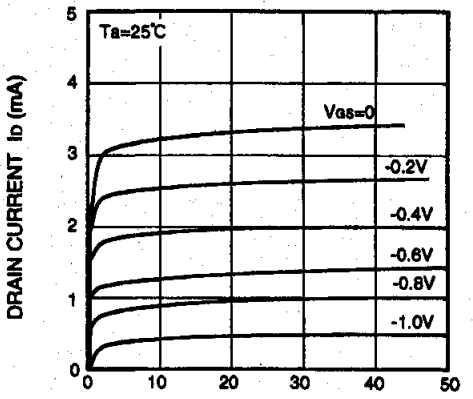
TYPICAL CHARACTERISTICS

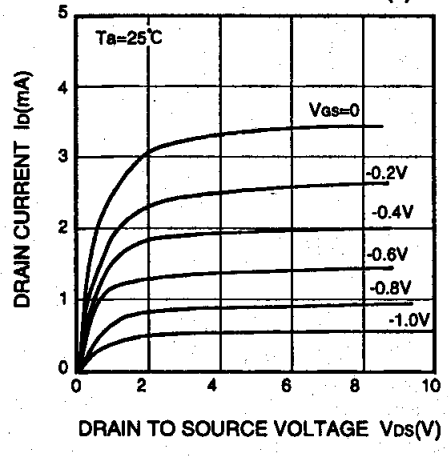
TOTAL ALLOWABLE DISSIPATION VS. AMBIENT TEMPERATURE



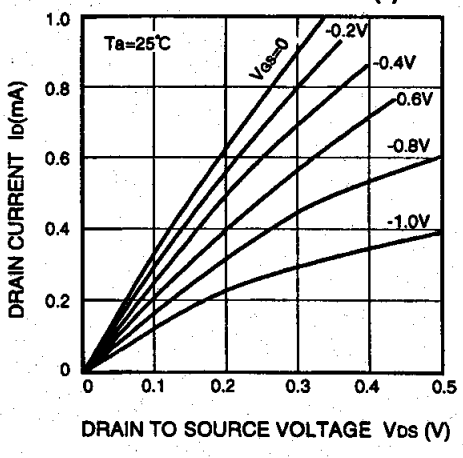
COMMON SOURCE OUTPUT(1)



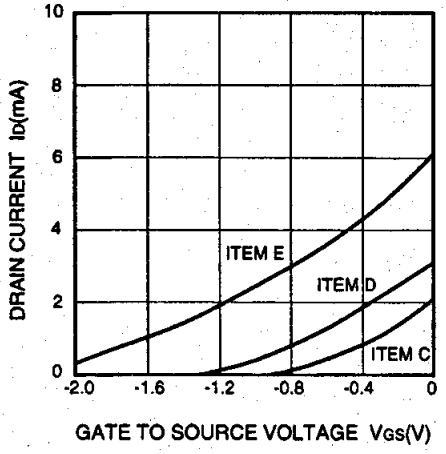
COMMON SOURCE OUTPUT(2)



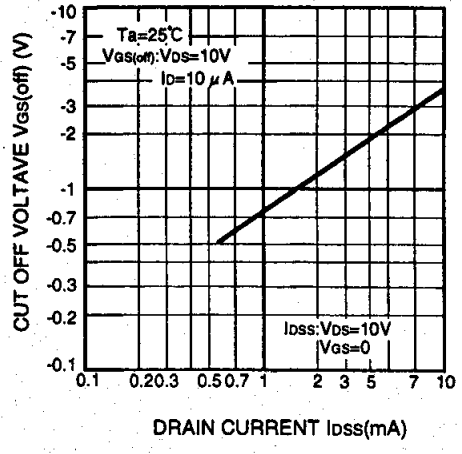
COMMON SOURCE OUTPUT(3)



COMMON SOURCE TRANSFER



CUT OFF VOLTAGE VS. DRAIN CURRENT



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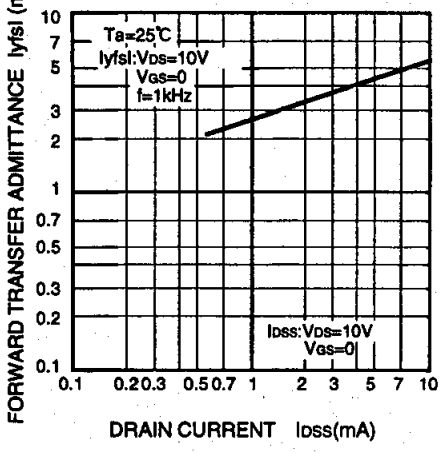
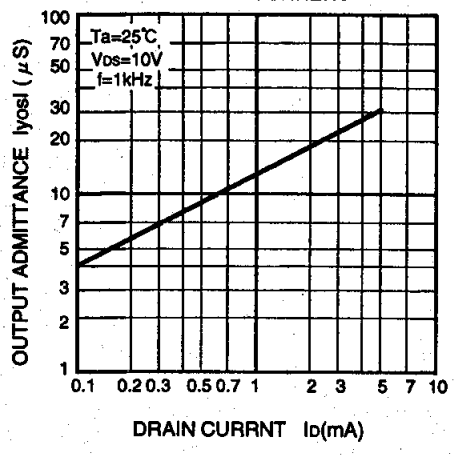
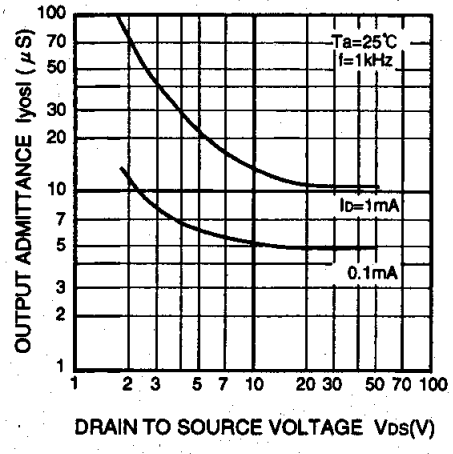
OUTPUT ADMITTANCE VS. DRAIN CURRENT



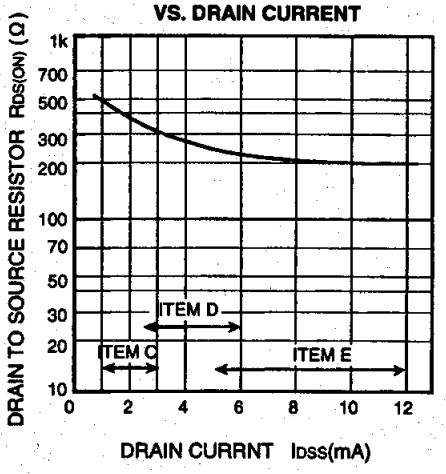
FORWARD TRANSFER ADMITTANCE VS. DRAIN CURRENT



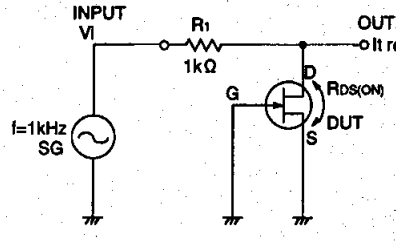
OUTPUT ADMITTANCE VS. DRAIN TO SOURCE VOLTAGE



DRAIN TO SOURCE RESISTOR VS. DRAIN CURRENT



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=1kΩ, V_O=10mVrms