〈FIELD-EFFECT TRANSISTOR〉

2SK930

FOR LOW FREQUENCY AMPLIFY APPLICATION
N CHANNEL JUNCTION TYPE

DESCRIPTION

2SK930 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

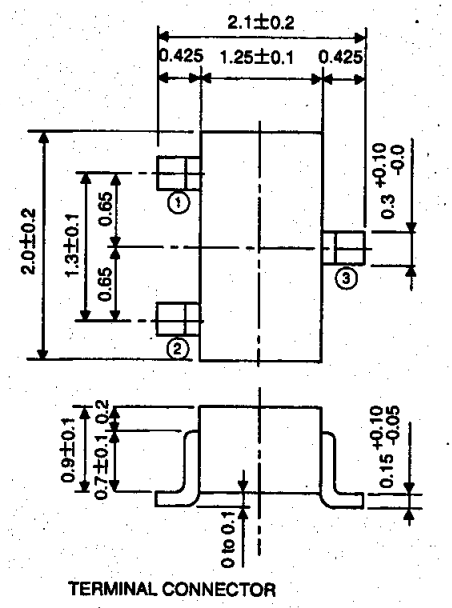
- Small type for mounting
- High $|y_{fs}|$ $|y_{fs}|$ =4mS(typ)
- Low $R_{DS(ON)}$ $R_{DS(ON)}$=250Ω typ

APPLICATION

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

OUTLINE DRAWING

Unit:mm



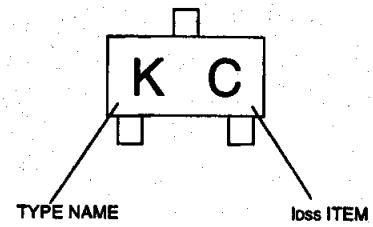
TERMINAL CONNECTOR

① : SOURCE
② : DRAIN
③ : GATE

EIAJ : SC-70

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	1.0		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	C	D	E
Idss	1.0 to 3.0	2.5 to 6.0	5.0 to 12

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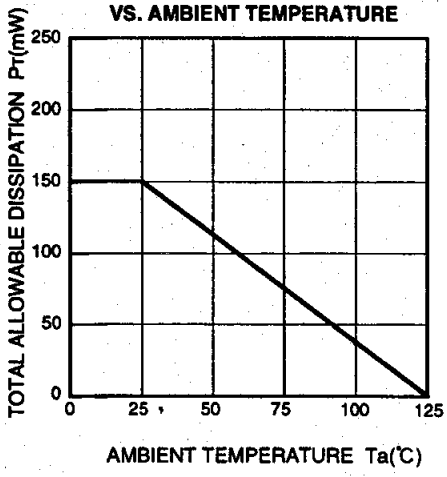
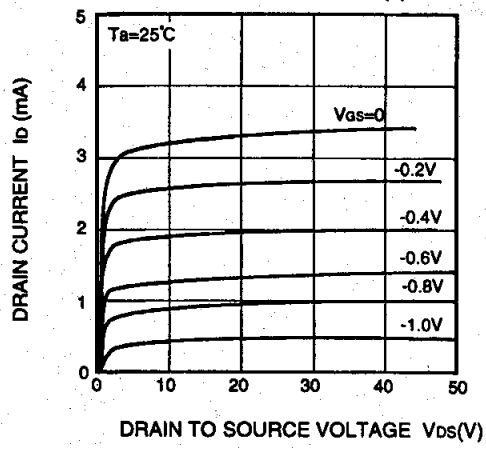
TYPICAL CHARACTERISTICS

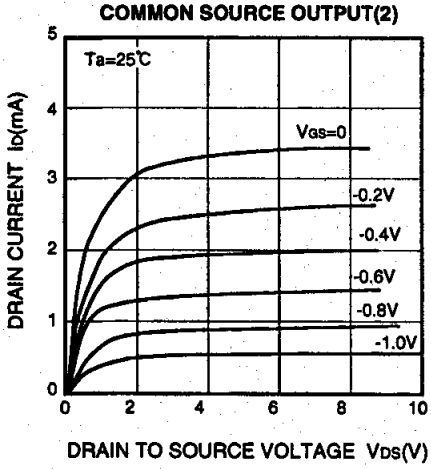
TOTAL ALLOWABLE DISSIPATION VS. AMBIENT TEMPERATURE



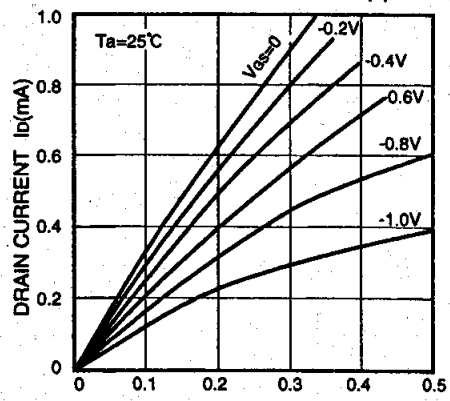
COMMON SOURCE OUTPUT(1)



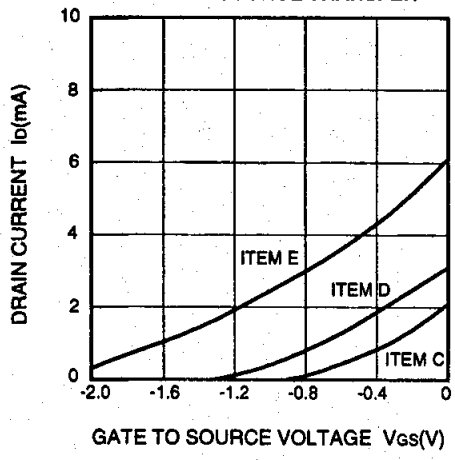
COMMON SOURCE OUTPUT(2)



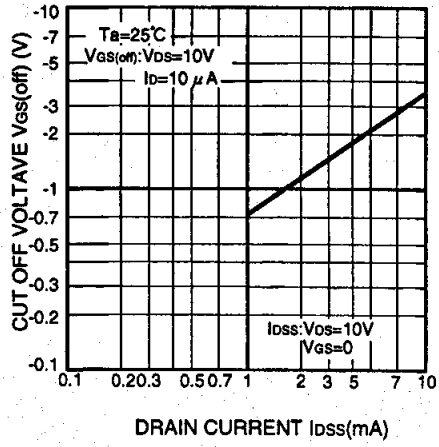
COMMON SOURCE OUTPUT(3)



COMMON SOURCE TRANSFER



TCUT OFF VOLTAGE VS. DRAIN CURRENT



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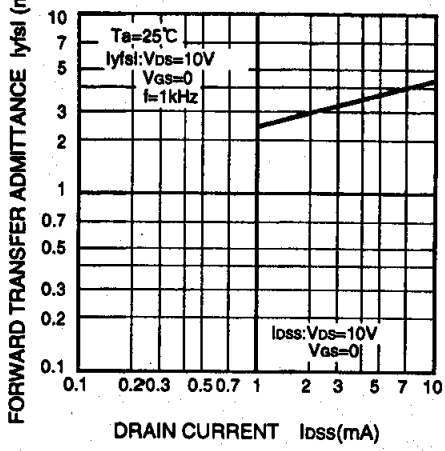
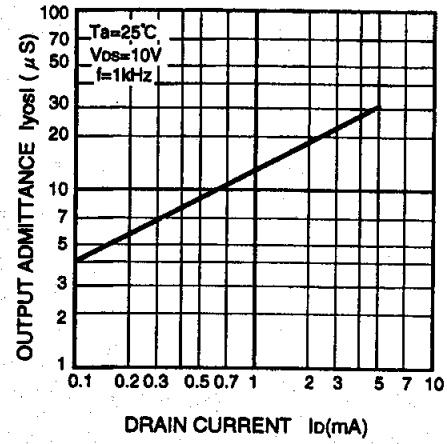
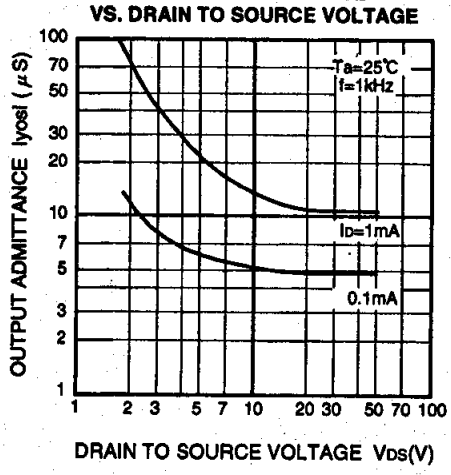
FORWARD TRANSFER ADMITTANCE VS. DRAIN CURRENT



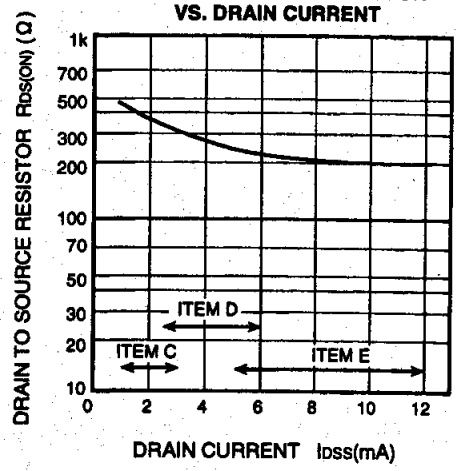
OUTPUT ADMITTANCE VS. DRAIN CURRENT



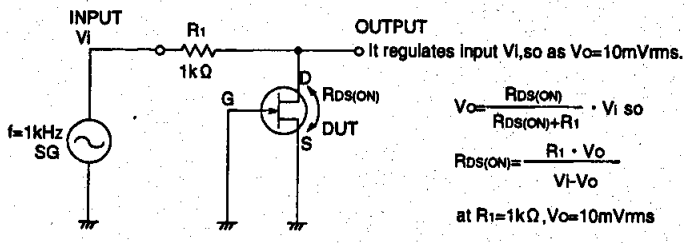
OUTPUT ADMITTANCE VS. DRAIN TO SOURCE VOLTAGE



DRAIN TO SOURCE RESISTOR VS. DRAIN CURRENT



DRAIN TO SOURCE RESISTOR RDS(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

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