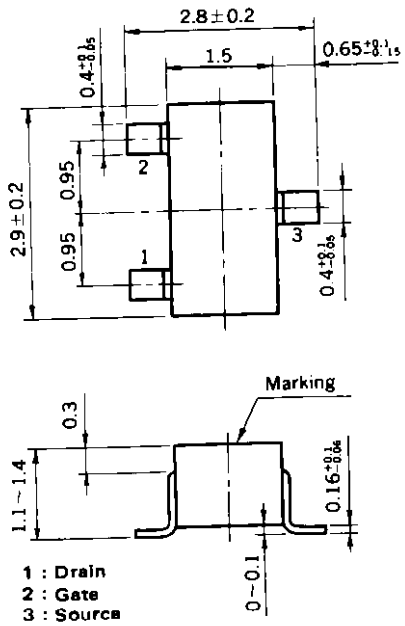
NEC
ELECTRON DEVICE

JUNCTION FIELD EFFECT TRANSISTOR
2SK238

FM TUNER
N-CHANNEL SILICON JUNCTION FIELD EFFECT TRANSISTOR
MINI MOLD

PACKAGE DIMENSIONS
in millimeters



FEATURES

- Low Feedback Capacitance C_{rss} = 0.07 pF TYP.
- High $|y_{fs}|$ / $|y_{fs}|$ = 3.5 ms TYP.

ABSOLUTE MAXIMUM RATINGS

Maximum Voltages and Currents (T_a=25 °C)			
Gate to Drain Voltage	V_{GDO}	−20	V
Drain to Source Voltage (V_{GS} = −2.5 V)	V_{DSX}	20	V
Drain Current (DC)	I_D	10	mA
Gate Current (DC)	I_G	10	mA
Maximum Power Dissipation			
Total Power Dissipation at 25 °C Ambient Temperature	P_T	150	mW
Maximum Temperatures			
Junction Temperature	T_j	125	°C
Storage Temperature Range	T_{stg}	−55 to +125	°C

ELECTRICAL CHARACTERISTICS (T_a = 25 °C)

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Gate Cutoff Current	I_{GSS}			−100	nA	V_{GS} = −0.5 V, V_{DS} = 0
Zero-Gate Voltage Drain Current	I_{DSS}	0.5	2.5	8.0	mA	V_{DS} = 5.0 V, V_{GS} = 0
Gate to Source Cutoff Voltage	$V_{GS(off)}$			−2.5	V	V_{DS} = 5.0 V, I_D = 10 μA
Forward Transfer Admittance	$\|y_{fs}\|_1$	2.3	3.5		mS	V_{DS} = 5.0 V, I_D = 0.5 mA, f = 1.0 kHz
Forward Transfer Admittance	$\|y_{fs}\|_2$	2.3			mS	V_{DS} = 5.0 V, V_{GS} = 0, f = 1.0 kHz
Input Capacitance	C_{iss}		5.0	6.5	pF	V_{DS} = 5.0 V, V_{GS} = 0, f = 1.0 MHz
Feedback Capacitance	C_{rss}		0.07	0.25	pF	V_{DS} = 5.0 V, V_{GS} = 0, f = 1.0 MHz
Output Capacitance	C_{oss}		4.5	6.0	pF	V_{DS} = 5.0 V, V_{GS} = 0, f = 1.0 MHz
Power Gain	G_{PS}		21		dB	V_{DS} = 5.0 V, V_{GS} = 0, Z_{in}, Z_{out} = 50 Ω f = 100 MHz See Test Circuits
Noise Figure	NF		3.0		dB	

I_{DSS} Classification

MARK	K14	K15	K16	K17
I_{DSS}(mA)	0.5 to 1.5	1.0 to 3.0	2.0 to 6.0	4.0 to 8.0

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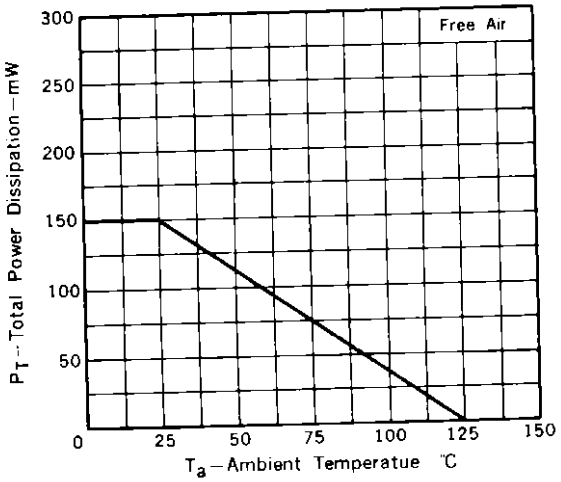
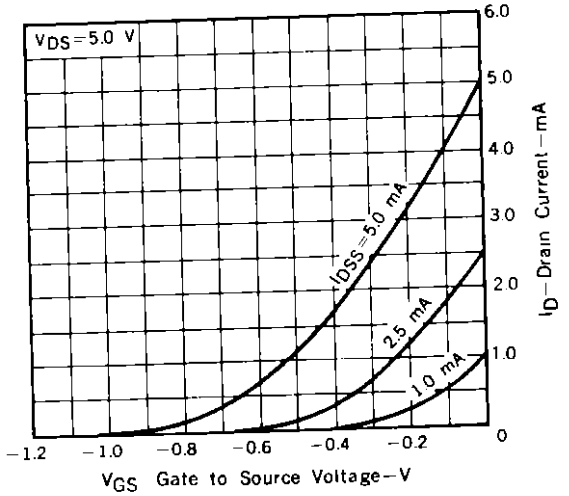
TYPICAL CHARACTERISTICS (T_a = 25 °C)

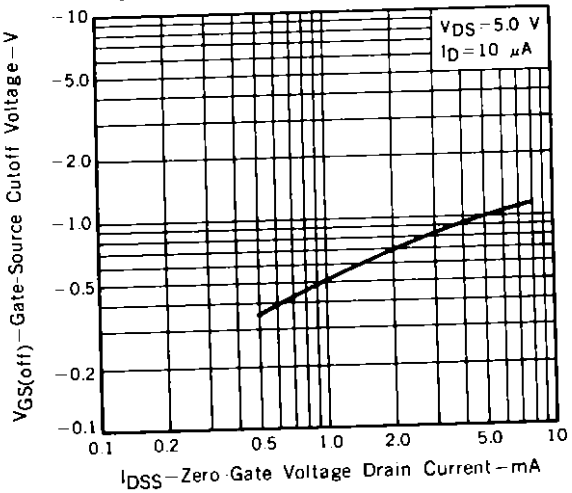
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



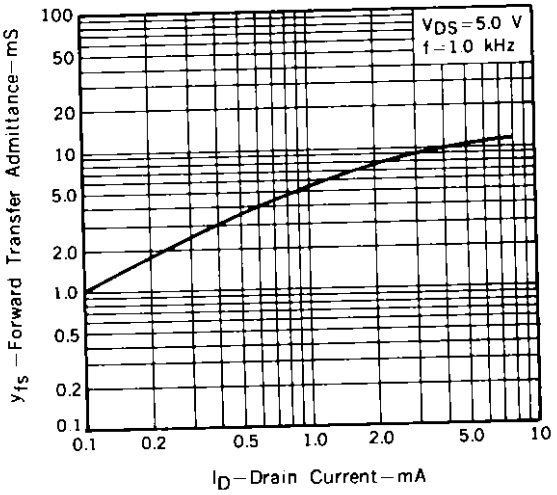
DRAIN CURRENT vs. GATE TO SOURCE VOLTAGE



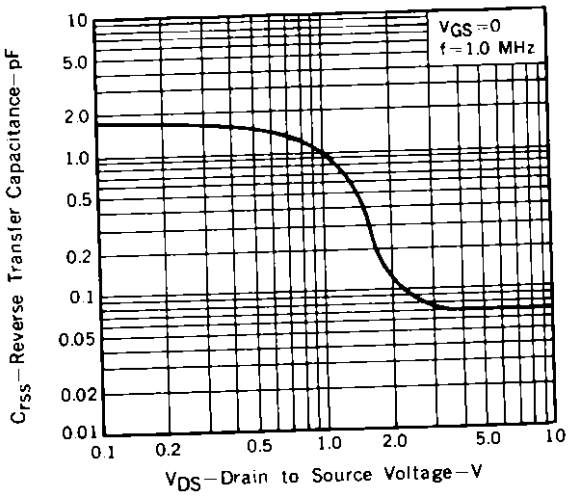
GATE-SOURCE OUTPUT VOLTAGES vs. ZERO-GATE VOLTAGE DRAIN CURRENT CORELATION



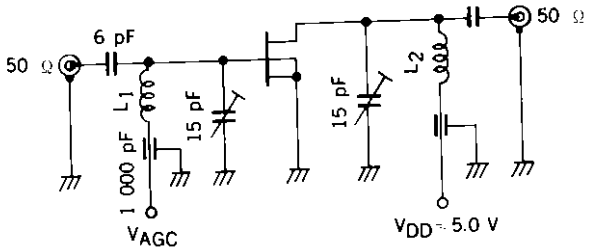
FORWARD TRANSFER ADMITTANCE (y_{fs}) vs. DRAIN CURRENT



REVERSE TRANSFER CAPACITANCE vs. DRAIN TO SOURCE VOLTAGE



NOISE FIGURE AND POWER GAIN TEST CIRCUIT (f=100 MHz)



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