

# N-CHANNEL JUNCTION FIELD-EFFECT TRANSISTOR

## 2SK104

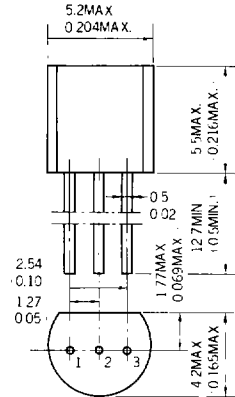
**DESCRIPTION** The 2SK104 is designed for use in analog-switch, variable-resistor, RF amplifier and AF amplifier.

**ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)**

Maximum Temperature	
Storage Temperature	-55 to +125°C
Junction Temperature	+125°C Maximum
Maximum Power Dissipation (Ta = 25°C)	
Total Power Dissipation	250 mW
Maximum Voltages and Currents	
Gate-Drain Voltage	V <sub>GDO</sub> . . . . . -30 V
Gate-Source Voltage	V <sub>GSO</sub> . . . . . -30 V
Drain-Source Voltage	V <sub>DSX</sub> * . . . . . 30 V
Drain Current	I <sub>D</sub> . . . . . 20 mA
Gate Current	I <sub>G</sub> . . . . . 10 mA

\*V<sub>GS</sub> = -5.0V

**PACKAGE DIMENSIONS**  
in millimeters (inches)



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

**ELECTRICAL CHARACTERISTICS (Ta = 25°C)**

SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
I <sub>GSS</sub>	Gate Cutoff Current			-1.0	nA	V <sub>GS</sub> =-30V, V <sub>DS</sub> =0
I <sub>DSS</sub>	Zero-Gate Voltage Drain Current	0.5	2.5	12	mA	V <sub>DS</sub> =5.0V, V <sub>GS</sub> =0
V <sub>GS(off)</sub>	Gate to Source Cutoff Voltage	-0.25	-1.1	-4.5	V	V <sub>DS</sub> =5.0V, I <sub>D</sub> =10μA
Y <sub>f1</sub>	Forward Transfer Admittance	1.5	2.1		mΩ	V <sub>DS</sub> =5.0V, I <sub>D</sub> =0.5mA, f=1.0kHz
Y <sub>f2</sub>	Forward Transfer Admittance	1.5	4.1		mΩ	V <sub>DS</sub> =5.0V, V <sub>GS</sub> =0, f=1.0kHz
C <sub>iss</sub>	Input Capacitance		4.1	6.0	pF	V <sub>DS</sub> =10V, V <sub>GS</sub> =0, f=1.0MHz
C <sub>rss</sub>	Feedback Capacitance		0.9	1.3	pF	V <sub>DS</sub> =10V, V <sub>GS</sub> =0, f=1.0MHz

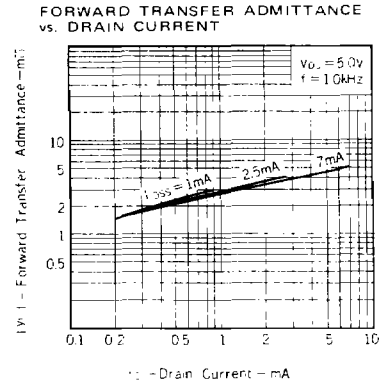
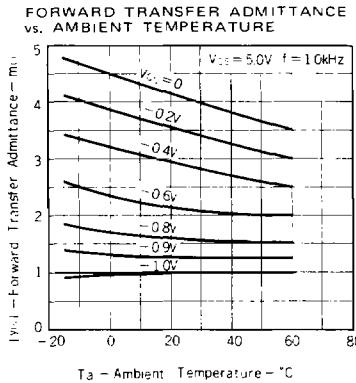
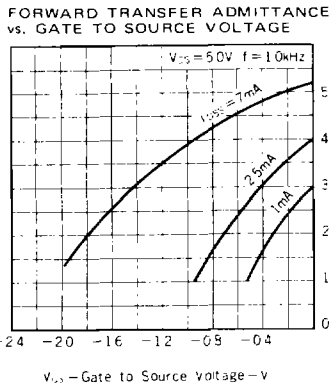
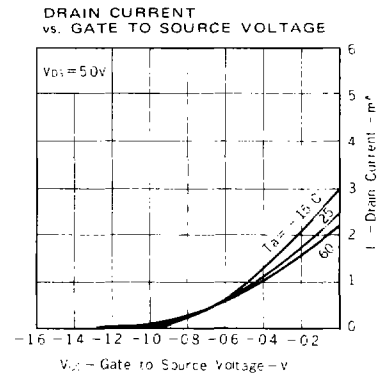
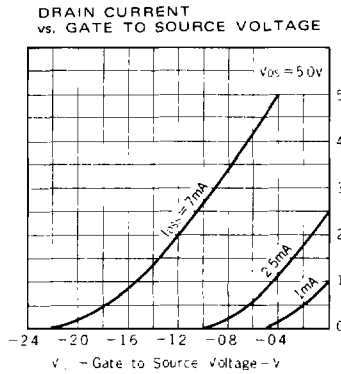
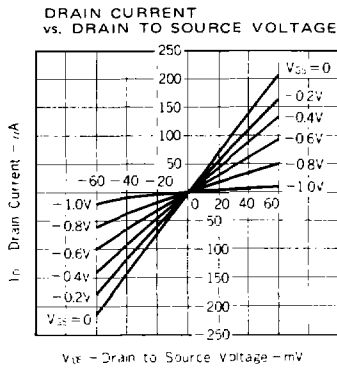
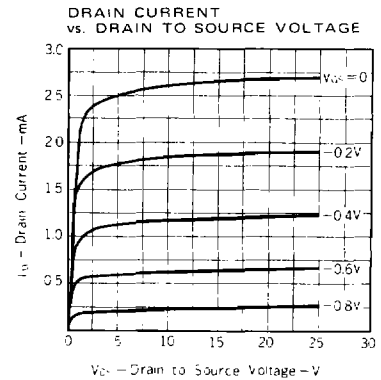
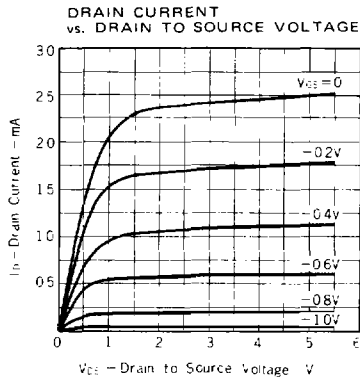
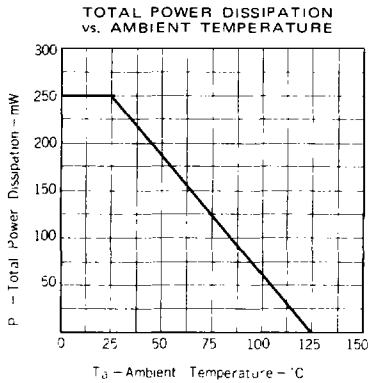
**Classification of I<sub>DSS</sub>**

Rank	E	F	H	J
I <sub>DSS</sub> (mA)	0.5 - 1.5	1.0 - 3.0	2.0 - 6.0	4.0 - 12

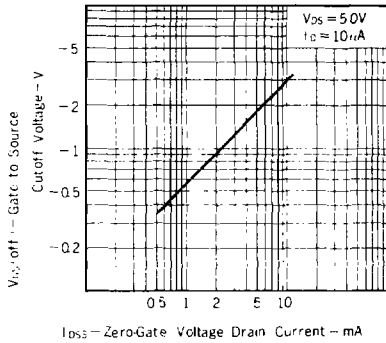
I<sub>DSS</sub> Test Conditions: V<sub>DS</sub> = 5.0V, V<sub>GS</sub> = 0

TYPICAL CHARACTERISTICS (Ta = 25°C unless otherwise noted)

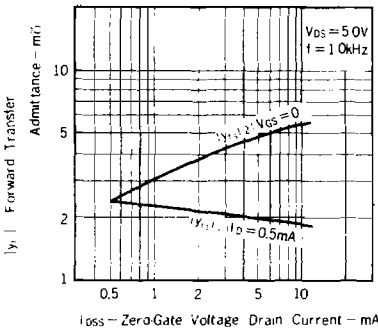
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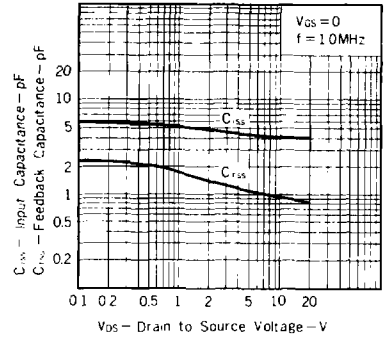
GATE TO SOURCE CUTOFF VOLTAGE vs. ZERO-GATE VOLTAGE DRAIN CURRENT



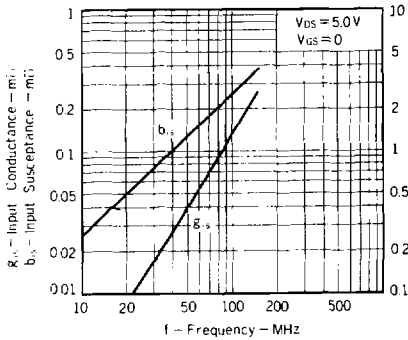
FORWARD TRANSFER ADMITTANCE vs. ZERO-GATE VOLTAGE DRAIN CURRENT



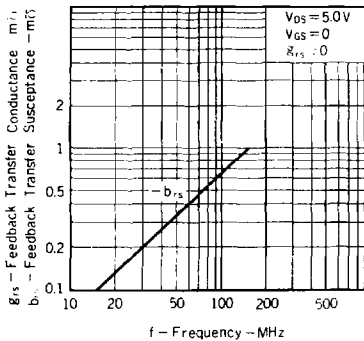
INPUT AND FEEDBACK CAPACITANCE vs. DRAIN TO SOURCE VOLTAGE



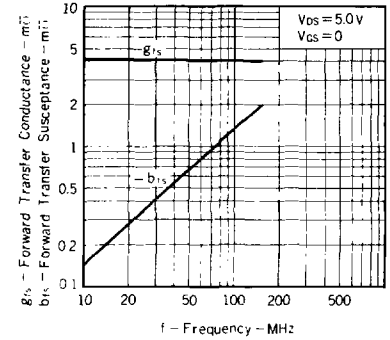
INPUT ADMITTANCE vs. FREQUENCY



FEEDBACK TRANSFER ADMITTANCE vs. FREQUENCY



FORWARD TRANSFER ADMITTANCE vs. FREQUENCY



OUTPUT ADMITTANCE vs. FREQUENCY

