N-Channel JFET Low Noise Amplifier

calogic CORPORATION

T-27-25

2N3684 – 2N3687

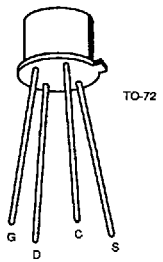
FEATURES

- Low Noise
- High Input Impedance
- Low Capacitance

APPLICATIONS

- Low Level Choppers
- Data Switches
- Multiplexers
- Low Noise Amplifiers

PIN CONFIGURATION



5010

ABSOLUTE MAXIMUM RATINGS

(T_A = 25°C unless otherwise noted)

Gate-Source or Gate-Drain Voltage ..... -50V
Gate Current 50mA
Storage Temperature Range .....-65°C to +200°C
Operating Temperature Range .....-55°C to +175°C
Lead Temperature (Soldering, 10sec) .....+300°C
Power Dissipation 300mW
Derate above 25°C .....2.0mW/°C

NOTE: Stresses above those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions above those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

ORDERING INFORMATION

Part	Package	Temperature Range
2N3684	Hermetic TO-72	-55°C to +175°C
X2N3684	Sorted Chips in Carriers	-55°C to +175°C
2N3685	Hermetic TO-72	-55°C to +175°C
X2N3685	Sorted Chips in Carriers	-55°C to +175°C
2N3686	Hermetic TO-72	-55°C to +175°C
X2N3686	Sorted Chips in Carriers	-55°C to +175°C
2N3687	Hermetic TO-72	-55°C to +175°C
X2N3687	Sorted Chips in Carriers	-55°C to +175°C

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise specified)

SYMBOL	PARAMETER	2N3684		2N3685		2N3686		2N3687		UNITS	TEST CONDITIONS
		MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX		
BV_{GSS}	Gate to Source Breakdown Voltage	-50		-50		-50		-50		V	V_{DS} = 0, I_G = 1 0µA
V_P	Pinch-Off Voltage	-2.0	-5.0	-1 0	-3 5	-0 6	-2 0	-0.3	-1.2		V_{DS} = 20V, I_D = 0.001µA
I_{GSS}	Gate Leakage Current		-0.1		-0 1		-0.1		-0 1	nA	V_{GS} = -30V, V_{DS} = 0
			-0.5		-0 5		-0.5		-0 5	µA	T_A = 150°C
I_{DSS}	Saturation Current, Drain-to-Source	2.5	7 5	1.0	3.0	-0.4	1 2	0 1	0.5	mA	V_{GS} = 0, V_{DS} = 20V
$\lvert Y_{fs} \rvert$	Forward Transadmittance	2000	3000	1500	2500	1000	2000	500	1500	µs	V_{DS} = 20V, V_{GS} = 0 f = 1kHz
G_{os}	Common Source Output Conductance		50		25		10		5	µs	
C_{iss}	Common Source Input Conductance		4 0		4 0		4.0		4 0	pF	V_{DS} = 20V, V_{GS} = 0 f = 1MHz (Note 1)
C_{rss}	Common Source Short Circuit Reverse Transfer Capacitance		1.2		1 2		1 2		1 2	pF	
$r_{DS(on)}$	On Resistance		600		800		1200		2400	ohms	V_{DS} = 0, V_{GS} = 0
NF	Noise Figure (Note 1)		0 5		0 5		0.5		0 5	dB	f = 100Hz, R_G = 10MΩ, NBW = 6Hz, V_{DS} = 10V, V_{GS} = 0V

NOTE 1: For design reference only, not 100% tested