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2N3684 – 2N3687

N-Channel JFET Low Noise Amplifier

2N3684 – 2N3687

FEATURES

- Low Noise
- High Input Impedance
- Low Capacitance

APPLICATIONS

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

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

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.