

2N4342

CASE 29-02, STYLE 7
TO-92 (TO-226AA)

JFET
HIGH FREQUENCY, LOW NOISE

P-CHANNEL — DEPLETION

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	- 25	Vdc
Drain-Gate Voltage	V_{DG}	- 25	Vdc
Reverse Gate-Source Voltage	V_{GSR}	25	Vdc
Forward Gate Current	I_{GF}	50	mAdc
Total Device Dissipation @ $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	310 2.82	mW mW/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	T_J, T_{stg}	- 55 to + 125	$^\circ\text{C}$

Refer to 2N5460 for graphs.

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted.)

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Gate-Source Breakdown Voltage ($I_G = 10 \mu\text{Adc}$, $V_{DS} = 0$)	$V_{(BR)GSS}$	25	—	Vdc
Gate Reverse Current ($V_{GS} = 15 \text{ Vdc}$, $V_{DS} = 0$) ($V_{GS} = 15 \text{ Vdc}$, $V_{DS} = 0$, $T_A = 65^\circ\text{C}$)	I_{GSS}	— —	10 0.5	nAdc μAdc
Gate Source Cutoff Voltage ($V_{DS} = -10 \text{ Vdc}$, $I_D = 1.0 \mu\text{Adc}$)	$V_{GS(off)}$	1.0	5.5	Vdc
Gate Source Voltage ($V_{DS} = -10 \text{ Vdc}$, $I_D = 0.4 \text{ mAdc}$) ($V_{DS} = -10 \text{ Vdc}$, $I_D = 1.0 \text{ mAdc}$)	V_{GS}	0.7	5.0	Vdc
ON CHARACTERISTICS				
Zero-Gate-Voltage Drain Current ($V_{DS} = -10 \text{ Vdc}$, $V_{GS} = 0$)	I_{DSS}	4.0	12	mAdc
SMALL-SIGNAL CHARACTERISTICS				
Drain-Source "ON" Resistance ($V_{GS} = 0$, $I_D = 0$, $f = 1.0 \text{ kHz}$)	$r_{ds(on)}$	—	700	Ohms
Forward Transfer Admittance ($V_{DS} = -10 \text{ Vdc}$, $V_{GS} = 0$, $f = 1.0 \text{ kHz}$)	$ y_{fs} $	2000	6000	μmhos
Output Admittance ($V_{DS} = -10 \text{ Vdc}$, $V_{GS} = 0$, $f = 1.0 \text{ kHz}$)	$ y_{os} $	—	75	μmhos
Common Source Forward Transconductance ($V_{DS} = -10 \text{ Vdc}$, $V_{GS} = 0$, $f = 1.0 \text{ MHz}$)	$Re(y_{fs})$	1500	—	μmhos
Input Capacitance ($V_{DS} = -10 \text{ Vdc}$, $V_{GS} = 0$, $f = 1.0 \text{ MHz}$)	C_{iss}	—	20	pF
Reverse Transfer Capacitance ($V_{DS} = -10 \text{ Vdc}$, $V_{GS} = 0$, $f = 1.0 \text{ MHz}$)	C_{rss}	—	5.0	pF
FUNCTIONAL CHARACTERISTICS				
Noise Figure ($V_{DS} = -10 \text{ Vdc}$, $V_{GS} = 0$, $R_G = 1.0 \text{ Megohm}$, $f = 100 \text{ Hz}$, $BW = 15 \text{ Hz}$)	NF	—	1.5	dB
Equivalent Short-Circuit Input Noise Voltage ($V_{DS} = -10 \text{ Vdc}$, $V_{GS} = 0$, $f = 100 \text{ Hz}$, $BW = 15 \text{ Hz}$)	E_n	—	0.08	$\mu\text{V}/\sqrt{\text{Hz}}$