

U430, U431

N-Channel Dual Silicon Junction Field-Effect Transistor

- Balanced Mixers
- Differential Amplifiers

Absolute maximum ratings at $T_A = 25^{\circ}\text{C}$.

Total Device Dissipation (Derate 4 mW/ $^{\circ}\text{C}$ to 150°C)500 mW

Storage Temperature Range- 65 $^{\circ}\text{C}$ to + 150 $^{\circ}\text{C}$

Lead Temperature300 $^{\circ}\text{C}$

At 25 $^{\circ}\text{C}$ free air temperature: Static Electrical Characteristics		U430			U431			Process NJ72L	
		Min	Typ	Max	Min	Typ	Max	Unit	Test Conditions
Gate Source Breakdown Voltage	$V_{(\text{BR})\text{GSS}}$	- 25			- 25			V	$I_G = - 1\mu\text{A}$, $V_{\text{DS}} = \varnothing\text{V}$
Gate Reverse Current	I_{GSS}			- 150			- 150	pA	$V_{\text{GS}} = - 15\text{V}$, $V_{\text{DS}} = \varnothing\text{V}$
				- 150			- 150	nA	$V_{\text{GS}} = - 15\text{V}$, $V_{\text{DS}} = \varnothing\text{V}$ $T_A = 150^{\circ}\text{C}$
Gate Source Cutoff Voltage	$V_{\text{GS}(\text{OFF})}$	- 1		- 4	- 2		- 6	V	$V_{\text{DS}} = 10\text{V}$, $I_D = 1\text{ nA}$
Gate Source Forward Voltage	$V_{\text{GS}(\text{F})}$			1			1	V	$V_{\text{DS}} = \varnothing\text{V}$, $I_G = 10\text{ mA}$
Drain Saturation Current (Pulsed)	I_{DSS}	12		30	24		60	mA	$V_{\text{DS}} = 10\text{V}$, $V_{\text{GS}} = \varnothing\text{V}$

Dynamic Electrical Characteristics		U430			U431			Process NJ72L	
		Min	Typ	Max	Min	Typ	Max	Unit	Test Conditions
Common Source Forward Transconductance	G_{fs}	10	17		10	17		mS	$V_{\text{DS}} = 10\text{V}$, $I_D = 10\text{ mA}$ $f = 1\text{ kHz}$
			12			12		mS	$V_{\text{DS}} = 10\text{V}$, $I_D = 10\text{ mA}$ $f = 100\text{ MHz}$
Common Source Output Conductance	G_{os}			250			250	μS	$V_{\text{DS}} = 10\text{V}$, $I_D = 10\text{ mA}$ $f = 1\text{ kHz}$
			0.15			0.15		μS	$V_{\text{DS}} = 10\text{V}$, $I_D = 10\text{ mA}$ $f = 100\text{ MHz}$
Drain Gate Capacitance	C_{dg}			5			5	pF	$V_{\text{DS}} = \varnothing\text{V}$, $V_{\text{GS}} = - 10\text{V}$ $f = 1\text{ MHz}$
Source Gate Capacitance	C_{gs}			2.5			2.5	pF	$V_{\text{DS}} = \varnothing\text{V}$, $V_{\text{GS}} = - 10\text{V}$ $f = 1\text{ MHz}$
Equivalent Short Circuit Input Noise Voltage	$\bar{e}_N$		10			10		nV/ $\sqrt{\text{Hz}}$	$V_{\text{DS}} = 10\text{V}$, $I_D = 10\text{ mA}$ $f = 100\text{ kHz}$
Power Match Source Admittance	g_{ig}		12			12			$V_{\text{DS}} = 10\text{V}$, $I_D = 10\text{ mA}$ $f = 100\text{ MHz}$
Conversion Gain	G_c		3			3		dB	$V_{\text{DS}} = 20\text{V}$, $R_L = 2\text{ k}\Omega$ $V_{\text{GS}} = 1/2 V_{\text{GS}(\text{OFF})}$ $f = 100\text{ MHz}$
Saturation Drain Current Ratio	$I_{\text{DSS1}}/I_{\text{DSS2}}$	0.9		1	0.9		1		$V_{\text{DS}} = 10\text{V}$, $V_G = \varnothing\text{V}$
Gate Source Cutoff Voltage Ratio	$\frac{V_{\text{GS}(\text{OFF})1}}{V_{\text{GS}(\text{OFF})2}}$	0.9		1	0.9		1		$V_{\text{DS}} = 10\text{V}$, $I_D = 1\text{ nA}$
Transconductance Ratio	$g_{\text{fs1}}/g_{\text{fs2}}$	0.9		1	0.9		1		$V_{\text{DS}} = 10\text{V}$, $I_D = 10\text{ mA}$

TO-78 Package

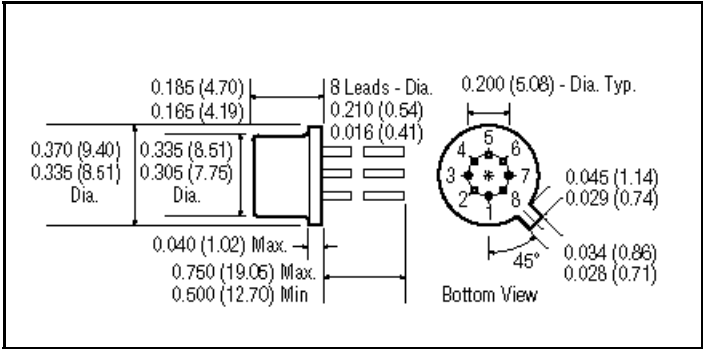
Dimensions in Inches (mm)

Pin Configuration

1 Source 1, 2 Gate 1, Drain 1,

4 Case, 5 Drain 2, 6 Gate 2,

7 Source 2, 8 Omitted



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