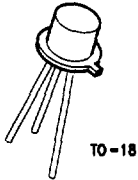
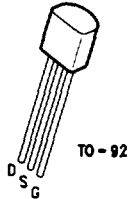
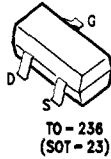


**U309  
U310**


TL/G/10100-9

**J309  
J310**


TL/G/10100-2

**MMBFJ309  
MMBFJ310**


TL/G/10100-8

## N-Channel JFET Transistor for RF Amplifiers

### Electrical Characteristics $T_A = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Min	Typ	Max	Units
<b>OFF CHARACTERISTICS</b>					
$V_{(BR)GSS}$	Gate-Source Breakdown Voltage ( $I_G = -1.0 \mu\text{Adc}$ , $V_{DS} = 0$ )	-25			Vdc
$I_{GSS}$	Gate Reverse Current ( $V_{GS} = -15 \text{ Vdc}$ , $V_{DS} = 0$ , $T_A = 25^\circ\text{C}$ ) ( $V_{GS} = -15 \text{ Vdc}$ , $V_{DS} = 0$ , $T_A = 125^\circ\text{C}$ )			-1.0 -1.0	nA $\mu\text{A}$
$V_{GS(off)}$	Gate Source Cutoff Voltage ( $V_{DS} = 10 \text{ Vdc}$ , $I_D = 1.0 \text{ nAdc}$ )	J309 -1.0 J310 -2.0		-4.0 -6.5	Vdc
<b>ON CHARACTERISTICS</b>					
$I_{DSS}$	Zero-Gate-Voltage Drain Current, (Note 1) ( $V_{DS} = 10 \text{ Vdc}$ , $V_{GS} = 0$ )	J309 12 J310 24		30 60	mA
$V_{GS(f)}$	Gate-Source Forward Voltage ( $V_{DS} = 0$ , $I_G = 1.0 \text{ mAdc}$ )			1.0	Vdc
<b>SMALL-SIGNAL CHARACTERISTICS</b>					
$Re y_{is} $	Common-Source Input Conductance ( $V_{DS} = 10 \text{ Vdc}$ , $I_D = 10 \text{ mAdc}$ , $f = 100 \text{ MHz}$ )	J309 0.7 J310 0.5			mmhos
$Re y_{os} $	Common-Source Output Conductance ( $V_{DS} = 10 \text{ Vdc}$ , $I_D = 10 \text{ mAdc}$ , $f = 100 \text{ MHz}$ )		0.25		mmhos
$G_{pg}$	Common-Gate Power Gain ( $V_{DS} = 10 \text{ Vdc}$ , $I_D = 10 \text{ mAdc}$ , $f = 100 \text{ MHz}$ )		16		dB
$Re y_{fs} $	Common-Source Forward Transconductance ( $V_{DS} = 10 \text{ Vdc}$ , $I_D = 10 \text{ mAdc}$ , $f = 100 \text{ MHz}$ )		12		mmhos

## N-Channel JFET Transistor for RF Amplifiers (Continued)

### Electrical Characteristics $T_A = 25^\circ\text{C}$ unless otherwise noted (Continued)

Symbol	Parameter	Min	Typ	Max	Units
<b>SMALL-SIGNAL CHARACTERISTICS (Continued)</b>					
$ g_{iy} $	Common-Gate Input Conductance ( $V_{DS} = 10\text{ Vdc}$ , $I_D = 10\text{ mAdc}$ , $f = 100\text{ MHz}$ )		12		mmhos
$g_{fs}$	Common-Gate Forward Transconductance ( $V_{DS} = 10\text{ Vdc}$ , $I_D = 10\text{ mAdc}$ , $f = 1.0\text{ kHz}$ )	J309 J310	10,000 8,000	20,000 18,000	$\mu\text{mhos}$
$g_{os}$	Common-Gate Output Conductance ( $V_{DS} = 10\text{ Vdc}$ , $I_D = 10\text{ mAdc}$ , $f = 1.0\text{ kHz}$ )	J309 J310		150 200	$\mu\text{mhos}$
$g_{fg}$	Common-Gate Forward Transconductance, (Note 1) ( $V_{DS} = 10\text{ Vdc}$ , $I_D = 10\text{ mAdc}$ , $f = 1.0\text{ kHz}$ )	J309 J310	13,000 12,000		$\mu\text{mhos}$
$g_{og}$	Common-Gate Output Conductance ( $V_{DS} = 10\text{ Vdc}$ , $I_D = 10\text{ mAdc}$ , $f = 1.0\text{ kHz}$ )	J309 J310	100 150		$\mu\text{mhos}$
$C_{gd}$	Gate-Drain Capacitance ( $V_{DS} = 0$ , $V_{GS} = -10\text{ Vdc}$ , $f = 1.0\text{ MHz}$ )		1.8	2.5	pF
$C_{gs}$	Gate-Source Capacitance ( $V_{DS} = 0$ , $V_{GS} = -10\text{ Vdc}$ , $f = 1.0\text{ MHz}$ )		4.3	5.0	pF
<b>FUNCTIONAL CHARACTERISTICS</b>					
NF	Noise Figure ( $V_{DS} = 10\text{ Vdc}$ , $I_D = 10\text{ mAdc}$ , $f = 450\text{ MHz}$ )		1.5		dB
$\bar{e}_n$	Equivalent Short-Circuit Input Noise Voltage ( $V_{DS} = 10\text{ Vdc}$ , $I_D = 10\text{ mAdc}$ , $f = 100\text{ Hz}$ )		10		$\text{nV}/\sqrt{\text{Hz}}$

**Note 1:** Pulse Test: Pulse Width  $\leq 300\ \mu\text{s}$ , Duty Cycle  $\leq 3.0\%$ .

**Note 2:** For characteristics curves, see Process 92.