

**2N3821 JAN, JTX, JTXV**  
**2N3822 JAN, JTX, JTXV**  
**2N3823 JAN, JTX, JTXV**

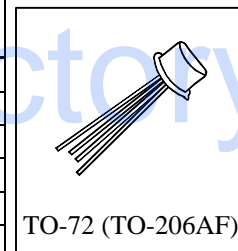


**POWER MOSFET N CHANNEL**  
**DEPLETION MODE**

Processed per MIL-PRF-19500/375

**MAXIMUM RATINGS**

Parameters / Test Conditions		Symbol	2N3821 2N3822	2N3823	Unit
Gate-Source Voltage		$V_{GSR}$	50	30	V
Drain-Source Voltage		$V_{DS}$	50	30	V
Drain-Gate Voltage		$V_{DG}$	50	30	V
Gate Current		$I_G$	10		mA
Power Dissipation	$T_A = 25^{\circ}\text{C}$ (1)	$P_T$	300		mW
Operating Junction & Storage Temperature Range		$T_j, T_{stg}$	-55 to +200		$^{\circ}\text{C}$



(1) Derate linearly 1.7 mW/ $^{\circ}\text{C}$  for  $T_A > 25^{\circ}\text{C}$ .

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

Parameters / Test Conditions		Symbol	Min.	Max.	Units
Gate-Source Breakdown Voltage	$V_{DS} = 0, I_G = 1.0 \mu\text{Adc}$ 2N3821, 2N3822 2N3823	$V_{(BR)GSSR}$	50		Vdc
			30		
Gate Reverse Current	2N3821, 2N3822 2N3823	$I_{GSSR}$		0.1	$\eta\text{A}$
$V_{DS} = 0, V_{GS} = 30 \text{ Vdc}$ $V_{DS} = 0, V_{GS} = 20 \text{ Vdc}$				0.5	
Zero-Gate-Voltage Drain Current	2N3821 2N3822 2N3823	$I_{DSS}$	0.5	2.5	mA
$V_{GS} = 0, V_{DS} = 15 \text{ Vdc}$			2.0	10	
			4.0	20	
Gate-Source Voltage	2N3821 2N3822 2N3823	$V_{GS}$	0.5	2.0	Vdc
$V_{DS} = 15 \text{ Vdc}, I_D = 50 \mu\text{Adc}$ $V_{DS} = 15 \text{ Vdc}, I_D = 200 \mu\text{Adc}$			1.0	4.0	
$V_{DS} = 15 \text{ Vdc}, I_D = 400 \mu\text{Adc}$			1.0	7.5	
Gate-Source Cutoff Voltage	2N3821 2N3822 2N3823	$V_{GS(off)}$		4.0	Vdc
$V_{DS} = 15 \text{ Vdc}, I_D = 0.5 \eta\text{Adc}$			6.0		
			8.0		

**2N3821, 2N3822, 2N3823 JAN SERIES**

**ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25<sup>0</sup>C unless otherwise noted) (con't)**

<b>Parameters / Test Conditions</b>	<b>Symbol</b>	<b>Min.</b>	<b>Max.</b>	<b>Units</b>
Small-Signal Common Source, Short-Circuit Forward Transadmittance V <sub>GS</sub> = 0, V <sub>DS</sub> = 15 Vdc, f = 1.0 kHz 2N3821 2N3822 2N3823	y <sub>fs</sub>   <sup>1</sup>	1500 3000 3500	4500 6500 6500	μS
Small-Signal Common Source, Short-Circuit Output Admittance V <sub>GS</sub> = 0, V <sub>DS</sub> = 15 Vdc, f = 1.0 kHz 2N3821 2N3822 2N3823	y <sub>os</sub>		10 20 35	μS
Small-Signal, Common-Source Short-Circuit Input Capacitance V <sub>GS</sub> = 0, V <sub>DS</sub> = 15 Vdc, 100 kHz ≤ f ≤ 1.0 MHz	C <sub>iss</sub>		6.0	pF
Small-Signal, Common-Source Reverse Transfer Capacitance V <sub>DS</sub> = 15 Vdc, V <sub>GS</sub> = 0, 100 kHz ≤ f ≤ 1.0 MHz 2N3821, 2N3822 2N3823	C <sub>rss</sub>		3.0 2.0	pF
Small-Signal Common Source, Short-Circuit Forward Transadmittance V <sub>GS</sub> = 0, V <sub>DS</sub> = 15 Vdc, f = 100 MHz f = 100 MHz f = 200 MHz 2N3821 2N3822 2N3823	y <sub>fs</sub>   <sup>2</sup>	1500 3000 3500	4500 6500 6500	μS
Small-Signal, Common-Source Short-Circuit Input Conductance V <sub>GS</sub> = 0, V <sub>DS</sub> = 15 Vdc, f = 200 MHz 2N3823 (only)	g <sub>is</sub>		800	μS
Small-Signal, Common-Source Short-Circuit Output Conductance V <sub>GS</sub> = 0, V <sub>DS</sub> = 15 Vdc, f = 200 MHz 2N3823 (only)	g <sub>os</sub>		200	μS
Common Source Spot Noise Figure V <sub>GS</sub> = 0, V <sub>DS</sub> = 15 Vdc, R <sub>G</sub> = 1MΩ f = 10 Hz f = 1.0 kHz 2N3821, 2N3822 2N3821, 2N3822, 2N3823	NF <sup>1</sup>	5.0 2.0		dB
Common Source Spot Noise Figure V <sub>GS</sub> = 0, V <sub>DS</sub> = 15 Vdc, R <sub>G</sub> = 1kΩ f = 105 MHz 2N3823 (only)	NF <sup>2</sup>	2.5		dB