

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

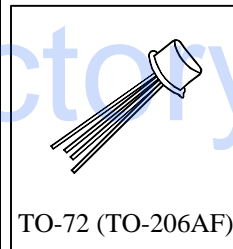
**POWER MOSFET N CHANNEL**  
**DEPLETION MODE**



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 ( $T_A = 25^{\circ}\text{C}$  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 $V_{GS} = 0, V_{DS} = 15 \text{ Vdc}, f = 1.0 \text{ kHz}$	$ y_{fs} ^1$	2N3821 1500	4500	$\mu\text{S}$
2N3822 3000		6500		
2N3823 3500		6500		
Small-Signal Common Source, Short-Circuit Output Admittance $V_{GS} = 0, V_{DS} = 15 \text{ Vdc}, f = 1.0 \text{ kHz}$	$ y_{os} $	2N3821	10	$\mu\text{S}$
2N3822		20		
2N3823		35		
Small-Signal, Common-Source Short-Circuit Input Capacitance $V_{GS} = 0, V_{DS} = 15 \text{ Vdc}, 100 \text{ kHz} \leq f \leq 1.0 \text{ MHz}$	$C_{iss}$		6.0	$\text{pF}$
Small-Signal, Common-Source Reverse Transfer Capacitance $V_{DS} = 15 \text{ Vdc}, V_{GS} = 0, 100 \text{ kHz} \leq f \leq 1.0 \text{ MHz}$	$C_{rss}$	2N3821, 2N3822	3.0	$\text{pF}$
2N3823		2.0		
Small-Signal Common Source, Short-Circuit Forward Transadmittance $V_{GS} = 0, V_{DS} = 15 \text{ Vdc}, f = 100 \text{ MHz}$	$ y_{fs} ^2$	2N3821 1500	4500	$\mu\text{S}$
$f = 100 \text{ MHz}$		2N3822 3000	6500	
$f = 200 \text{ MHz}$		2N3823 3500	6500	
Small-Signal, Common-Source Short-Circuit Input Conductance $V_{GS} = 0, V_{DS} = 15 \text{ Vdc}, f = 200 \text{ MHz}$	$g_{is}$	2N3823 (only)	800	$\mu\text{S}$
Small-Signal, Common-Source Short-Circuit Output Conductance $V_{GS} = 0, V_{DS} = 15 \text{ Vdc}, f = 200 \text{ MHz}$	$g_{os}$	2N3823 (only)	200	$\mu\text{S}$
Common Source Spot Noise Figure $V_{GS} = 0, V_{DS} = 15 \text{ Vdc}, R_G = 1\text{M}\Omega$	$NF^1$	$f = 10 \text{ Hz}$	2N3821, 2N3822 5.0	$\text{dB}$
		$f = 1.0 \text{ kHz}$	2N3821, 2N3822, 2N3823 2.0	
Common Source Spot Noise Figure $V_{GS} = 0, V_{DS} = 15 \text{ Vdc}, R_G = 1\text{k}\Omega$	$NF^2$	2N3823 (only)	2.5	$\text{dB}$