

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

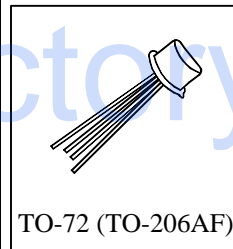
POWER MOSFET N CHANNEL
DEPLETION MODE



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	ηA
$V_{DS} = 0, V_{GS} = 30 \text{ Vdc}$ $V_{DS} = 0, V_{GS} = 20 \text{ Vdc}$				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)

Parameters / Test Conditions	Symbol	Min.	Max.	Units
Small-Signal Common Source, Short-Circuit Forward Transadmittance $V_{GS} = 0, V_{DS} = 15 \text{ Vdc}, f = 1.0 \text{ kHz}$ 2N3821 2N3822 2N3823	$ y_{fs} ^1$	1500 3000 3500	4500 6500 6500	μS
Small-Signal Common Source, Short-Circuit Output Admittance $V_{GS} = 0, V_{DS} = 15 \text{ Vdc}, f = 1.0 \text{ kHz}$ 2N3821 2N3822 2N3823	$ y_{os} $		10 20 35	μS
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	pF
Small-Signal, Common-Source Reverse Transfer Capacitance $V_{DS} = 15 \text{ Vdc}, V_{GS} = 0, 100 \text{ kHz} \leq f \leq 1.0 \text{ MHz}$ 2N3821, 2N3822 2N3823	C_{rss}		3.0 2.0	pF
Small-Signal Common Source, Short-Circuit Forward Transadmittance $V_{GS} = 0, V_{DS} = 15 \text{ Vdc}, f = 100 \text{ MHz}$ f = 100 MHz f = 200 MHz 2N3821 2N3822 2N3823	$ y_{fs} ^2$	1500 3000 3500	4500 6500 6500	μS
Small-Signal, Common-Source Short-Circuit Input Conductance $V_{GS} = 0, V_{DS} = 15 \text{ Vdc}, f = 200 \text{ MHz}$ 2N3823 (only)	g_{is}		800	μS
Small-Signal, Common-Source Short-Circuit Output Conductance $V_{GS} = 0, V_{DS} = 15 \text{ Vdc}, f = 200 \text{ MHz}$ 2N3823 (only)	g_{os}		200	μS
Common Source Spot Noise Figure $V_{GS} = 0, V_{DS} = 15 \text{ Vdc}, R_G = 1\text{M}\Omega$ f = 10 Hz f = 1.0 kHz 2N3821, 2N3822 2N3821, 2N3822, 2N3823	NF^1	5.0 2.0		dB
Common Source Spot Noise Figure $V_{GS} = 0, V_{DS} = 15 \text{ Vdc}, R_G = 1\text{k}\Omega$ f = 105 MHz 2N3823 (only)	NF^2	2.5		dB