

N-CHANNEL J-FET DEPLETION MODE

Qualified per MIL-PRF-19500/375

Devices

2N3821 2N3822 2N3823

Qualified Level

JANTX
JANTXV

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_{GF}	10		mA
Power Dissipation	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 $T_A + 25^{\circ}\text{C}$.



TO-72*
(TO-206AF)

*See appendix A for package outline

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

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

2N3821, 2N3822, 2N3823 JAN SERIES

Parameters / Test Conditions	Symbol	Min.	Max.	Units
Small-Signal Common Source, Short-Circuit Forward Transfer Admittance $V_{GS} = 0, V_{DS} = 15 \text{ Vdc}, f = 1.0 \text{ kHz}$ 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 Transfer Admittance $V_{GS} = 0, V_{DS} = 15 \text{ Vdc}, f = 100 \text{ MHz}$ $f = 100 \text{ MHz}$ $f = 200 \text{ MHz}$ 2N3821 2N3822 2N3823	$ y_{fs} ^2$	1500 3000 3200		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 $V_{GS} = 0, V_{DS} = 15 \text{ Vdc}, R_G = 1\text{M}\Omega$ $f = 10 \text{ Hz}$ $f = 1.0 \text{ kHz}$ 2N3821, 2N3822 2N3821, 2N3822, 2N3823	NF^1		5.0 2.0	dB
Common Source Spot Noise Figure $V_{GS} = 0, V_{DS} = 15 \text{ Vdc}, R_G = 1\text{k}\Omega$ $f = 105 \text{ MHz}$ 2N3823 (only)	NF^2		2.5	dB