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2N3823

SILICON N-CHANNEL JUNCTION FIELD-EFFECT TRANSISTOR

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	30	Vdc
Drain-Gate Voltage	V_{DG}	30	Vdc
Gate-Source Voltage	V_{GS}	-30	Vdc
Gate Current	I_G	10	mAdc
Total Device Dissipation @ $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	300 2.0	mW mW/°C
Operating Junction Temperature	T_J	175	°C
Storage Temperature Range	T_{stg}	-65 to +200	°C

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

Characteristic	Symbol	Min	Max	Unit
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OFF CHARACTERISTICS

Gate-Source Breakdown Voltage ($I_G = -1.0 \mu\text{Adc}$, $V_{DS} = 0$)	$V_{(BR)GSS}$	-30	-	Vdc
Gate Reverse Current ($V_{GS} = -20 \text{Vdc}$, $V_{DS} = 0$) ($V_{GS} = -20 \text{Vdc}$, $V_{DS} = 0$, $T_A = 150^\circ\text{C}$)	I_{GSS}	-	-0.5 -500	nAdc
Gate-Source Cutoff Voltage ($I_D = 0.5 \text{mAdc}$, $V_{DS} = 15 \text{Vdc}$)	$V_{GS(off)}$	-	-8.0	Vdc
Gate-Source Voltage ($I_D = 0.4 \text{mAdc}$, $V_{DS} = 15 \text{Vdc}$)	V_{GS}	-1.0	-7.5	Vdc

ON CHARACTERISTICS

Zero-Gate-Voltage Drain Current(1) ($V_{DS} = 15 \text{Vdc}$, $V_{GS} = 0$)	I_{DSS}	4.0	20	mAdc
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DYNAMIC CHARACTERISTICS

Forward Transfer Admittance ($V_{DS} = 15 \text{Vdc}$, $V_{GS} = 0$, $f = 1.0 \text{kHz}$)(1) ($V_{DS} = 15 \text{Vdc}$, $V_{GS} = 0$, $f = 200 \text{MHz}$)	$ y_{fs} $	3500 3200	6500 -	μmhos
Input Conductance ($V_{DS} = 15 \text{Vdc}$, $V_{GS} = 0$, $f = 200 \text{MHz}$)	$\text{Re}y_{is}$	-	800	μmhos
Output Conductance ($V_{DS} = 15 \text{Vdc}$, $V_{GS} = 0$, $f = 1.0 \text{kHz}$)(1) ($V_{DS} = 15 \text{Vdc}$, $V_{GS} = 0$, $f = 200 \text{MHz}$)	$ y_{os} $ $\text{Re}y_{os}$	- -	35 200	μmhos
Input Capacitance ($V_{DS} = 15 \text{Vdc}$, $V_{GS} = 0$, $f = 1.0 \text{MHz}$)	C_{iss}	-	6.0	pF
Reverse Transfer Capacitance ($V_{DS} = 15 \text{Vdc}$, $V_{GS} = 0$, $f = 1.0 \text{MHz}$)	C_{rss}	-	2.0	pF
Common-Source Spot Noise Figure ($V_{DS} = 15 \text{Vdc}$, $V_{GS} = 0$, $R_S = 1000 \text{ohms}$, $f = 100 \text{MHz}$)	NF	-	2.5	dB

*Indicates JEDEC Registered Data.

(1) Pulse Test: Pulse Width = 100 ms, Duty Cycle $\leq 10\%$.

