

2N4856,A
thru
2N4861,A

TO-18



JFET
SWITCHING

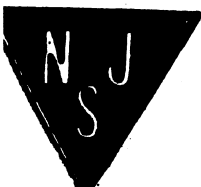
N-CHANNEL — DEPLETION

MAXIMUM RATINGS

Rating	Symbol	2N4856,A 2N4857,A 2N4858,A	2N4859,A 2N4860,A 2N4861,A	Unit
Drain-Source Voltage	V _{DS}	+40	+30	Vdc
Drain-Gate Voltage	V _{DG}	+40	+30	Vdc
Reverse Gate-Source Voltage	V _{GSR}	-40	-30	Vdc
Forward Gate Current	I _{GF}	50		mAdc
Total Device Dissipation @ T _A = 25°C Derate above 25°C	P _D	360 2.4		mW mW/°C
Storage Temperature Range	T _{stg}	-65 to +175		°C

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted.)

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Gate-Source Breakdown Voltage (I _G = 1.0 μAdc, V _{DS} = 0)	V _{(BR)GSS}	40 30	— —	Vdc
Gate Reverse Current (V _{GS} = -20 Vdc, V _{DS} = 0) (V _{GS} = -15 Vdc, V _{DS} = 0) (V _{GS} = -20 Vdc, V _{DS} = 0, T _A = 150°C) (V _{GS} = -15 Vdc, V _{DS} = 0, T _A = 150°C)	I _{GSS}	— — — —	0.25 0.25 0.5 0.5	nAdc μAdc
Gate Source Cutoff Voltage (V _{DS} = 15 Vdc, I _D = 0.5 nAdc)	V _{GS(off)}	-4.0 -2.0 -0.8	10 -6.0 4.0	Vdc
Drain Cutoff Current (V _{DS} = 15 Vdc, V _{GS} = -10 Vdc) (V _{DS} = 15 Vdc, V _{GS} = -10 Vdc, T _A = 150°C)	I _{D(off)}	— —	0.25 0.5	nAdc μAdc
ON CHARACTERISTICS				
Zero-Gate-Voltage Drain Current(1) (V _{DS} = 15 Vdc, V _{GS} = 0)	I _{DSS}	50 20 8.0	— 100 80	mAdc
Drain-Source On-Voltage (I _D = 20 mAdc, V _{GS} = 0) (I _D = 10 mAdc, V _{GS} = 0) (I _D = 5.0 mAdc, V _{GS} = 0)	V _{DS(on)}	— — —	0.75 0.5 0.5	Vdc
SMALL-SIGNAL CHARACTERISTICS				
Drain-Source "ON" Resistance (V _{GS} = 0, I _D = 0, f = 1.0 kHz)	r _{ds(on)}	— — —	25 40 60	Ohms
Input Capacitance (V _{DS} = 0, V _{GS} = -10 Vdc, f = 1.0 MHz)	C _{iss}	— —	18 10	pF
Reverse Transfer Capacitance (V _{DS} = 0, V _{GS} = -10 Vdc, f = 1.0 MHz)	C _{rss}	— — —	8.0 4.0 3.5	pF



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

Characteristic		Symbol	Min	Max	Unit
Forward Transconductance ($V_{DS} = 15\text{ V}$, $V_{GS} = 0$, $f = 400\text{ MHz}$)	2N5245 2N5246 2N5247	$Re(Y_{fs})$	4000 2500 4000	— — —	μmhos
Input Capacitance ($V_{DS} = 15\text{ V}$, $V_{GS} = 0$, $f = 1.0\text{ MHz}$)		C_{iss}	—	4.5	pF
Reverse Transfer Capacitance ($V_{DS} = 15\text{ V}$, $V_{GS} = 0$, $f = 1.0\text{ MHz}$)		C_{rss}	—	1.0	pF
Input Susceptance ($V_{DS} = 15\text{ V}$, $V_{GS} = 0$)	(100 MHz) (400 MHz)	$Im(Y_{is})$	— —	3.0 12.0	mmho

FUNCTIONAL CHARACTERISTICS

Noise Figure ($V_{DS} = 15\text{ V}$, $I_D = 5.0\text{ mA}$, $R'_G = 1.0\text{ k}\Omega$)		NF	— —	2.0 4.0	dB
Common Source Power Gain ($V_{DS} = 15\text{ V}$, $I_D = 5.0\text{ mA}$, $R'_G = 1.0\text{ k}\Omega$)	2N5245 (100 MHz) 2N5246 (400 MHz)	G_{ps}	18 10	— —	dB
Output Susceptance ($V_{DS} = 15\text{ V}$, $V_{GS} = 0$)	(100 MHz) (400 MHz)	$Im(Y_{os})$	— —	1000 4000	μmho