

2N4856,A
thru
2N4861,A

TO-18



JFET
SWITCHING

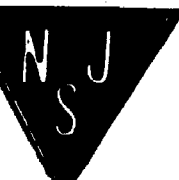
N-CHANNEL — DEPLETION

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}	60		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 0.26 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}	— — —	9.0 4.0 3.6	pF



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

Characteristic	Symbol	Min	Max	Unit
Forward Transconductance ($V_{DS} = 15\text{ V}, V_{GS} = 0, f = 400\text{ MHz}$)	$Re(Y_{fs})$	4000	—	μmhos
2N5245		2500	—	
2N5246		4000	—	
2N5247				
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 ($V_{DS} = 15\text{ V}, V_{GS} = 0$)	$Im(Y_{is})$	—	3.0	mmho
(100 MHz)		—	12.0	
(400 MHz)				

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