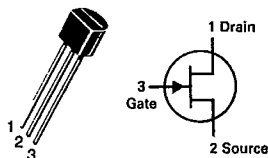


MPF4856, A thru MPF4861, A

CASE 29-04, STYLE 5
TO-92 (TO-226AA)



JFET
SWITCHING

N-CHANNEL — DEPLETION

Refer to 2N4856 for graphs.

MAXIMUM RATINGS

Rating	Symbol	MPF4856, A MPF4857, A MPF4858, A	MPF4859, A MPF4860, A MPF4861, 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 +150		°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

MOTOROLA SMALL-SIGNAL TRANSISTORS, FETs AND DIODES

T-3525

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

Characteristic		Symbol	Min	Max	Unit
SWITCHING CHARACTERISTICS					
Turn-On Delay Time	Conditions for MPF4856,A, MPF4859,A: ($V_{DD} = 10\text{ Vdc}$, $I_{D(on)} = 20\text{ mAdc}$, $V_{GS(on)} = 0$, $V_{GS(off)} = -10\text{ Vdc}$)	MPF4856, MPF4859	—	6.0	ns
		MPF4856A, MPF4859A	—	5.0	
Rise Time	Conditions for MPF4857,A, MPF4860,A: ($V_{DD} = 10\text{ Vdc}$, $I_{D(on)} = 10\text{ mAdc}$, $V_{GS(on)} = 0$, $V_{GS(off)} = -6.0\text{ Vdc}$)	MPF4857, MPF4860	—	6.0	ns
		MPF4857A, MPF4860A	—	6.0	
Turn-Off Time	Conditions for MPF4858,A, MPF4861,A: ($V_{DD} = 10\text{ Vdc}$, $I_{D(on)} = 5.0\text{ mAdc}$, $V_{GS(on)} = 0$, $V_{GS(off)} = -4.0\text{ Vdc}$)	MPF4858, MPF4861	—	10	ns
		MPF4858A, MPF4861A	—	8.0	
Turn-On Delay Time	Conditions for MPF4856,A, MPF4859,A: ($V_{DD} = 10\text{ Vdc}$, $I_{D(on)} = 20\text{ mAdc}$, $V_{GS(on)} = 0$, $V_{GS(off)} = -10\text{ Vdc}$)	MPF4856, MPF4859	—	25	ns
		MPF4856A, MPF4859A	—	20	
Rise Time	Conditions for MPF4857,A, MPF4860,A: ($V_{DD} = 10\text{ Vdc}$, $I_{D(on)} = 10\text{ mAdc}$, $V_{GS(on)} = 0$, $V_{GS(off)} = -6.0\text{ Vdc}$)	MPF4857, MPF4860	—	50	ns
		MPF4857A, MPF4860A	—	40	
Turn-Off Time	Conditions for MPF4858,A, MPF4861,A: ($V_{DD} = 10\text{ Vdc}$, $I_{D(on)} = 5.0\text{ mAdc}$, $V_{GS(on)} = 0$, $V_{GS(off)} = -4.0\text{ Vdc}$)	MPF4858, MPF4861	—	100	ns
		MPF4858A, MPF4861A	—	80	

(1) Pulse Test: Pulse Width = 100 ms, Duty Cycle \leq 10%.
 (2) The $I_{D(on)}$ values are nominal; exact values vary slightly with transistor parameters.