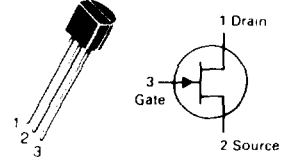


# MPF4856 thru MPF4861★

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



## JFET SWITCHING

N-CHANNEL — DEPLETION

★These are Motorola  
preferred devices.

Refer to MPF4391 for graphs.

### MAXIMUM RATINGS

Rating	Symbol	MPF4856 MPF4857 MPF4858	MPF4859 MPF4860 MPF4861	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 (at $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$ )	$P_D$	360 2.4		mW mW/°C
Storage Temperature Range	$T_{stg}$	65 to +150		°C

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

Characteristic	Symbol	Min	Max	Unit
<b>OFF CHARACTERISTICS</b>				
Gate-Source Breakdown Voltage ( $I_G = 1.0 \mu\text{Adc}$ , $V_{DS} = 0$ )	MPF4856, MPF4857, MPF4858 MPF4859, MPF4860, MPF4861	$V_{(BR)GSS}$	40 30	— — Vdc
Gate Reverse Current ( $V_{GS} = -20 \text{ Vdc}$ , $V_{DS} = 0$ ) ( $V_{GS} = -15 \text{ Vdc}$ , $V_{DS} = 0$ ) ( $V_{GS} = -20 \text{ Vdc}$ , $V_{DS} = 0$ , $T_A = 150^\circ\text{C}$ ) ( $V_{GS} = -15 \text{ Vdc}$ , $V_{DS} = 0$ , $T_A = 150^\circ\text{C}$ )	MPF4856, MPF4857, MPF4858 MPF4859, MPF4860, MPF4861 MPF4856, MPF4857, MPF4858 MPF4859, MPF4860, MPF4861	$I_{GSS}$	— — — —	0.25 0.25 0.5 0.5 nAdc $\mu\text{Adc}$
Gate Source Cutoff Voltage ( $V_{DS} = 15 \text{ Vdc}$ , $I_D = 0.5 \text{ nAdc}$ )	MPF4856, MPF4859 MPF4857, MPF4860 MPF4858, MPF4861	$V_{GS(off)}$	4.0 2.0 0.8	10 6.0 -4.0 Vdc
Drain Cutoff Current ( $V_{DS} = 15 \text{ Vdc}$ , $V_{GS} = 10 \text{ Vdc}$ ) ( $V_{DS} = 15 \text{ Vdc}$ , $V_{GS} = 10 \text{ Vdc}$ , $T_A = 150^\circ\text{C}$ )		$I_{D(off)}$	— —	0.25 0.5 nAdc $\mu\text{Adc}$
<b>ON CHARACTERISTICS</b>				
Zero-Gate-Voltage Drain Current(1) ( $V_{DS} = 15 \text{ Vdc}$ , $V_{GS} = 0$ )	MPF4856, MPF4859 MPF4857, MPF4860 MPF4858, MPF4861	$I_{DSS}$	50 20 8.0	— 100 80 mAdc
Drain-Source On-Voltage ( $I_D = 20 \text{ mAdc}$ , $V_{GS} = 0$ ) ( $I_D = 10 \text{ mAdc}$ , $V_{GS} = 0$ ) ( $I_D = 5.0 \text{ mAdc}$ , $V_{GS} = 0$ )	MPF4856, MPF4859 MPF4857, MPF4860 MPF4858, MPF4861	$V_{DS(on)}$	— — —	0.75 0.5 0.5 Vdc
<b>SMALL-SIGNAL CHARACTERISTICS</b>				
Drain-Source "ON" Resistance ( $V_{GS} = 0$ , $I_D = 0$ , $f = 1.0 \text{ kHz}$ )	MPF4856, MPF4859 MPF4857, MPF4860 MPF4858, MPF4861	$r_{ds(on)}$	— — —	25 40 60 Ohms
Input Capacitance ( $V_{DS} = 0$ , $V_{GS} = 10 \text{ Vdc}$ , $f = 1.0 \text{ MHz}$ )	MPF4856 thru MPF4861	$C_{iss}$	—	18 $\mu\text{F}$
Reverse Transfer Capacitance ( $V_{DS} = 0$ , $V_{GS} = 10 \text{ Vdc}$ , $f = 1.0 \text{ MHz}$ )	MPF4856 thru MPF4861	$C_{rss}$	—	8.0 $\mu\text{F}$

**MPF4856 thru MPF4861**

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

Characteristic		Symbol	Min	Max	Unit	
<b>SWITCHING CHARACTERISTICS</b>						
Turn-On Delay Time	Conditions for MPF4856, MPF4859: ( $V_{DD} = 10\text{ Vdc}$ , $I_{D(on)} = 20\text{ mAdc}$ , $V_{GS(on)} = 0$ , $V_{GS(off)} = -10\text{ Vdc}$ )	MPF4856, MPF4859	$t_{d(on)}$	—	6.0	ns
		MPF4857, MPF4860		—	6.0	
		MPF4858, MPF4861		—	10	
Rise Time	Conditions for MPF4857, MPF4860: ( $V_{DD} = 10\text{ Vdc}$ , $I_{D(on)} = 10\text{ mAdc}$ , $V_{GS(on)} = 0$ , $V_{GS(off)} = -6.0\text{ Vdc}$ )	MPF4856, MPF4859	$t_r$	—	3.0	ns
		MPF4857, MPF4860		—	4.0	
		MPF4858, MPF4861		—	10	
Turn-Off Time	Conditions for MPF4858, MPF4861: ( $V_{DD} = 10\text{ Vdc}$ , $I_{D(on)} = 5.0\text{ mAdc}$ , $V_{GS(on)} = 0$ , $V_{GS(off)} = -4.0\text{ Vdc}$ )	MPF4856, MPF4859	$t_{off}$	—	25	ns
		MPF4857, MPF4860		—	50	
		MPF4858, MPF4861		—	100	