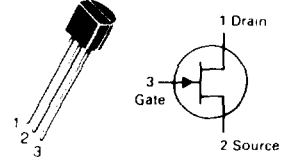


MPF4856 thru MPF4861★

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°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
OFF CHARACTERISTICS				
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 μAdc
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 μAdc
ON CHARACTERISTICS				
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
SMALL-SIGNAL CHARACTERISTICS				
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 μF
Reverse Transfer Capacitance ($V_{DS} = 0$, $V_{GS} = 10 \text{ Vdc}$, $f = 1.0 \text{ MHz}$)	MPF4856 thru MPF4861	C_{rss}	—	8.0 μF

MPF4856 thru MPF4861

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, 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	