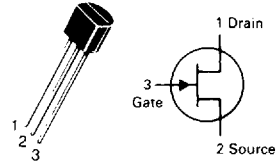


MPF4856 thru MPF4861★

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 ($I_G = 1.0 \mu\text{Adc}$, $V_{DS} = 0$)	$V_{(BR)GSS}$	-40 -30	— —	Vdc
Gate Reverse Current ($V_{GS} = -20 \text{ Vdc}$, $V_{DS} = 0$)	I_{GSS}	—	0.25	nAdc
($V_{GS} = -15 \text{ Vdc}$, $V_{DS} = 0$)		—	0.25	nAdc
($V_{GS} = -20 \text{ Vdc}$, $V_{DS} = 0$, $T_A = 150^\circ\text{C}$)		—	0.5	μAdc
($V_{GS} = -15 \text{ Vdc}$, $V_{DS} = 0$, $T_A = 150^\circ\text{C}$)		—	0.5	μAdc
Gate Source Cutoff Voltage ($V_{DS} = 15 \text{ Vdc}$, $I_D = 0.5 \text{ nAdc}$)	$V_{GS(off)}$	-4.0 -2.0 -0.8	-10 -6.0 -4.0	Vdc
Drain Cutoff Current ($V_{DS} = 15 \text{ Vdc}$, $V_{GS} = -10 \text{ Vdc}$)	$I_{D(off)}$	—	0.25	nAdc
($V_{DS} = 15 \text{ Vdc}$, $V_{GS} = -10 \text{ Vdc}$, $T_A = 150^\circ\text{C}$)		—	0.5	μAdc
ON CHARACTERISTICS				
Zero-Gate-Voltage Drain Current(1) ($V_{DS} = 15 \text{ Vdc}$, $V_{GS} = 0$)	I_{DSS}	50 20 8.0	— 100 80	mAdc
Drain-Source On-Voltage ($I_D = 20 \text{ mAdc}$, $V_{GS} = 0$)	$V_{DS(on)}$	—	0.75	Vdc
($I_D = 10 \text{ mAdc}$, $V_{GS} = 0$)		—	0.5	Vdc
($I_D = 5.0 \text{ mAdc}$, $V_{GS} = 0$)		—	0.5	Vdc
SMALL-SIGNAL CHARACTERISTICS				
Drain-Source "ON" Resistance ($V_{GS} = 0$, $I_D = 0$, $f = 1.0 \text{ kHz}$)	$r_{ds(on)}$	—	25 40 60	Ohms
Input Capacitance ($V_{DS} = 0$, $V_{GS} = -10 \text{ Vdc}$, $f = 1.0 \text{ MHz}$)	C_{iss}	—	18	pF
Reverse Transfer Capacitance ($V_{DS} = 0$, $V_{GS} = -10 \text{ Vdc}$, $f = 1.0 \text{ MHz}$)	C_{rss}	—	8.0	pF

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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	—	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	—	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	—	25	ns
		MPF4857, MPF4860	—	50	
		MPF4858, MPF4861	—	100	