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VP0808B/L/M, VP1008B/L/M

P-Channel Enhancement-Mode MOSFET Transistors

Product Summary

Part Number	$V_{(BR)DSS}$ Min (V)	$r_{DS(on)}$ Max (Ω)	$V_{GS(th)}$ (V)	I_D (A)
VP0808B	–80	5 @ V_{GS} = –10 V	–2 to –4.5	–0.88
VP0808L		5 @ V_{GS} = –10 V	–2 to –4.5	–0.28
VP0808M		5 @ V_{GS} = –10 V	–2 to –4.5	–0.31
VP1008B	–100	5 @ V_{GS} = –10 V	–2 to –4.5	–0.79
VP1008L		5 @ V_{GS} = –10 V	–2 to –4.5	–0.28
VP1008M		5 @ V_{GS} = –10 V	–2 to –4.5	–0.31

Features

- High-Side Switching
- Low On-Resistance: 2.5 Ω
- Moderate Threshold: –3.4 V
- Fast Switching Speed: 40 ns
- Low Input Capacitance: 75 pF

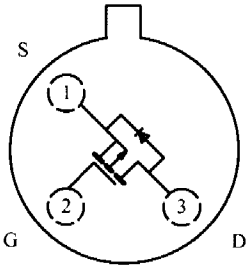
Benefits

- Ease in Driving Switches
- Low Offset (Error) Voltage
- Low-Voltage Operation
- High-Speed Switching
- Easily Driven Without Buffer

Applications

- Drivers: Relays, Solenoids, Lamps, Hammers, Displays, Memories, Transistors, etc.
- Battery Operated Systems
- Power Supply, Converter Circuits
- Motor Control

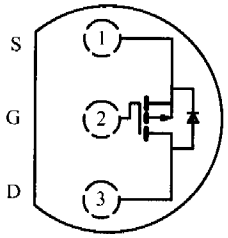
TO-205AD (TO-39)
(Case Drain)



VP0808B
VP1008B

Top View

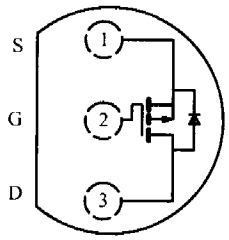
TO-226AA
(TO-92)



VP0808L
VP1008L

Top View

TO-237
(Tab Drain)



VP0808M
VP1008M

Top View

Absolute Maximum Ratings (T_A = 25°C Unless Otherwise Noted)

Parameter		Symbol	VP0808B[b]	VP0808L	VP0808M	VP1008B[b]	VP1008L	VP1008M	Unit
Drain-Source Voltage		V_{DS}	–80	–80	–80	–100	–100	–100	V
Gate-Source Voltage		V_{GS}	±20	±30	±30	±20	±30	±30	
Continuous Drain Current (T_J = 150°C)	T_A= 25°C	I_D	–0.88	–0.28	–0.31	–0.79	–0.28	–0.31	A
	T_A= 100°C		–0.53	–0.17	–0.20	–0.53	–0.17	–0.20	
Pulsed Drain Current[a]		I_{DM}	–3	–3	–3	–3	–3	–3	
Power Dissipation	T_A= 25°C	P_D	6.25	0.8	1	6.25	0.8	1	W
	T_A= 100°C		2.5	0.32	0.4	2.5	0.32	0.4	
Maximum Junction-to-Ambient		R_{thJA}		156	125		156	125	°C/W
Maximum Junction-to-Case		R_{thJC}	20			20			
Operating Junction and Storage Temperature Range		T_J, T_{stg}	–55 to 150						°C

Notes
a. Pulse width limited by maximum junction temperature.
b. Reference case for all temperature testing.

VP0808B/L/M, VP1008B/L/M

Specifications[a]

Parameter	Symbol	Test Conditions	Typ[b]	Limits				Unit
				VP0808B/L/M		VP1008B/L/M		
				Min	Max	Min	Max	
Static								
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0 V, I_D = –10 µA	–110	–80		–100		V
Gate-Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = –1 mA	–3.4	–2	–4.5	–2	–4.5	
Gate-Body Leakage	I_{GSS}	V_{DS} = 0 V, V_{GS} = ± 20 V			± 100		± 100	nA
		T_J = 125°C			± 500		± 500	
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = –80 V, V_{GS} = 0 V			–10			µA
		T_J = 125°C			–500			
		V_{DS} = –100 V, V_{GS} = 0 V					–10	
		T_J = 125°C					–500	
On-State Drain Current[c]	$I_{D(on)}$	V_{DS} = –15 V, V_{GS} = –10 V	–2	–1.1		–1.1		A
Drain-Source On-Resistance[c]	$r_{DS(on)}$	V_{GS} = –10 V, I_D = –1 A	2.5		5		5	Ω
		T_J = 125°C	4.4		8		8	
Forward Transconductance[c]	g_{fs}	V_{DS} = –10 V, I_D = –0.5 A	325	200		200		mS
Common Source Output Conductance[c]	g_{os}	V_{DS} = –7.5 V, I_D = –0.1 A	0.45					
Dynamic								
Input Capacitance	C_{iss}	V_{DS} = –25 V, V_{GS} = 0 V f = 1 MHz	75		150		150	pF
Output Capacitance	C_{oss}		40		60		60	
Reverse Transfer Capacitance	C_{rss}		18		25		25	
Switching[d]								
Turn-On Time	$t_{d(on)}$	V_{DD} = –25 V, R_L = 47 Ω I_D ≅ –0.5 A, V_{GEN} = –10 V R_G = 25 Ω	11		15		15	ns
	t_r		30		40		40	
Turn-Off Time	$t_{d(off)}$		20		30		30	
	t_f		20		30		30	

Notes
a. T_A = 25°C unless otherwise noted.
b. For DESIGN AID ONLY, not subject to production testing.
c. Pulse test: PW ≤ 300 µs duty cycle ≤ 2%.
d. Switching time is essentially independent of operating temperature.