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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

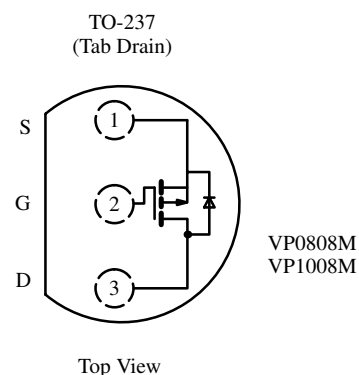
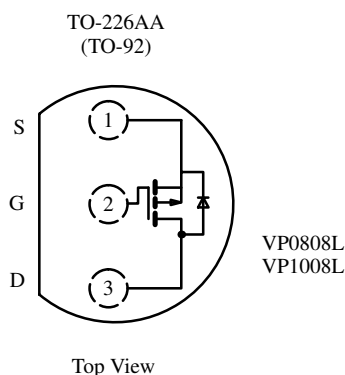
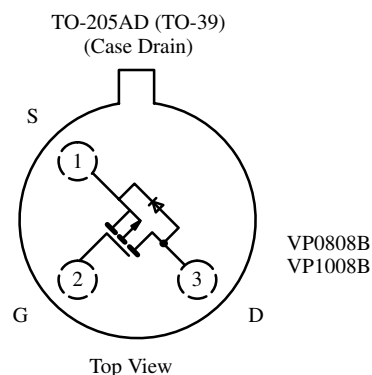
- High-Side Switching
- Low On-Resistance: 2.5 Ω
- Moderate Threshold: -3.4 V
- Fast Switching Speed: 40 ns
- Low Input Capacitance: 75 pF

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



Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$ 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 ($T_J = 150^\circ\text{C}$)	I_D	-0.88	-0.28	-0.31	-0.79	-0.28	-0.31	A
		-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	P_D	6.25	0.8	1	6.25	0.8	1	W
		2.5	0.32	0.4	2.5	0.32	0.4	
Maximum Junction-to-Ambient	R_{thJA}		156	125		156	125	$^\circ\text{C/W}$
Maximum Junction-to-Case	R_{thJC}	20			20			
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55 to 150						$^\circ\text{C}$

Notes

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

Updates to this data sheet may be obtained via facsimile by calling Siliconix FaxBack, 1-408-970-5600. Please request FaxBack document #70218.

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	

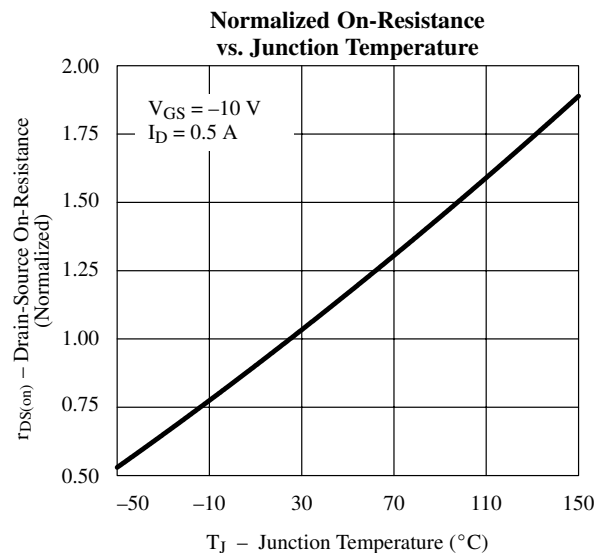
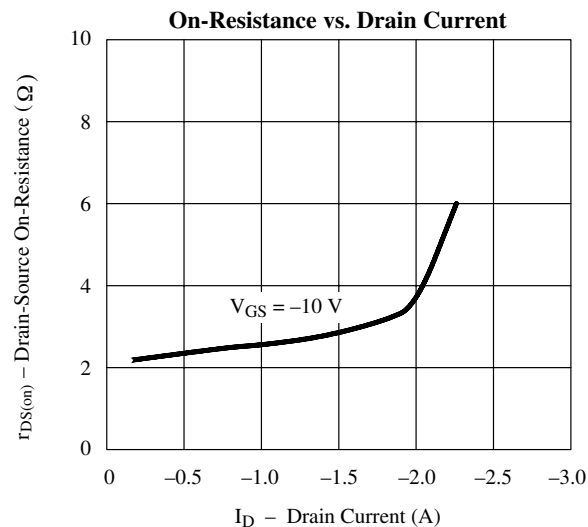
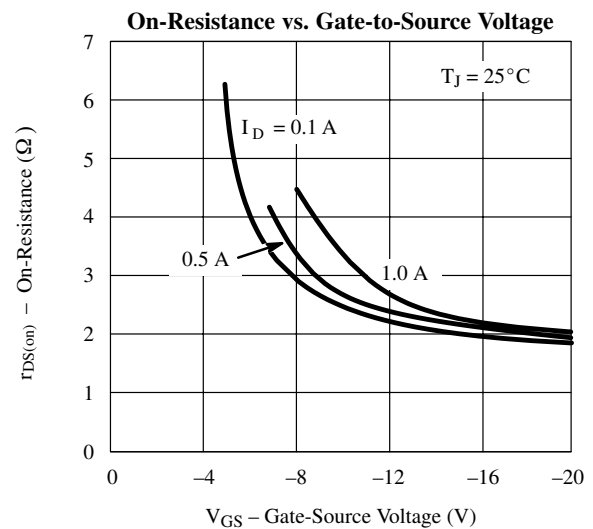
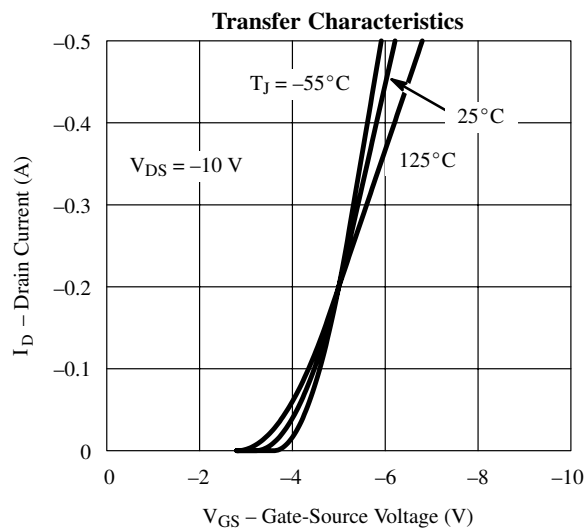
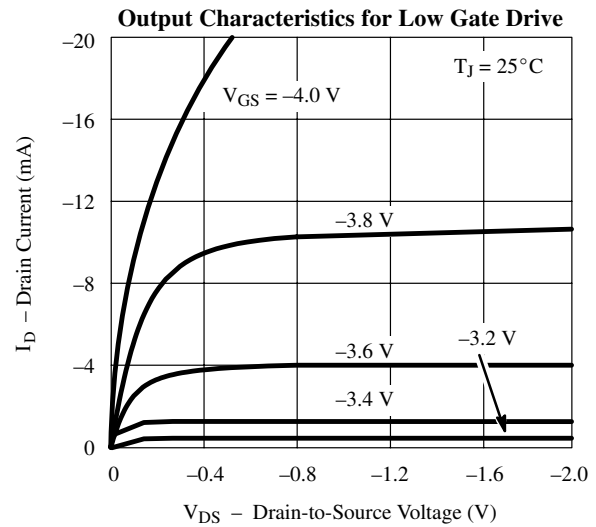
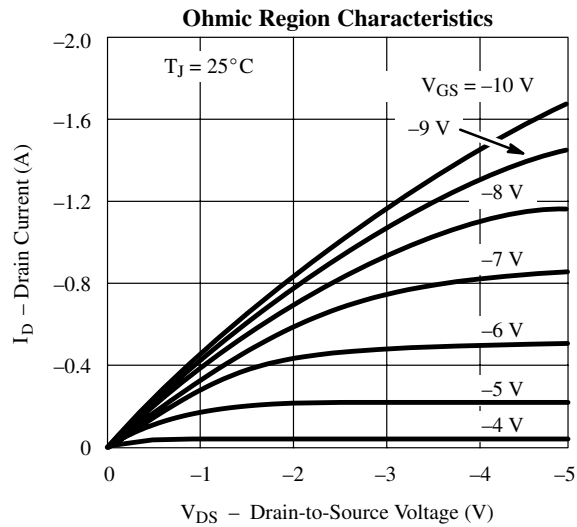
Notes

- $T_A = 25^\circ\text{C}$ unless otherwise noted.
- For DESIGN AID ONLY, not subject to production testing.
- Pulse test: $PW \leq 300\text{ }\mu\text{s}$ duty cycle $\leq 2\%$.
- Switching time is essentially independent of operating temperature.

VPDV10

VP0808B/L/M, VP1008B/L/M

Typical Characteristics (25°C Unless Otherwise Noted)



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