



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)
VP0808L	-80	5 @ $V_{GS} = -10$ V	-2 to -4.5	-0.28
VP1008L	-100	5 @ $V_{GS} = -10$ V	-2 to -4.5	-0.28

FEATURES

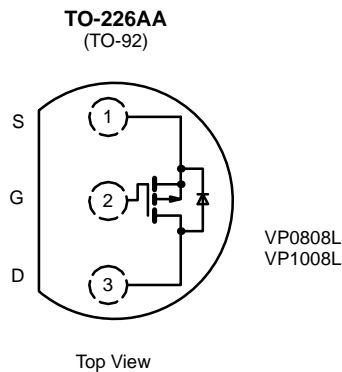
- High-Side Switching
- Low On-Resistance: 2.5 Ω
- Moderate Threshold: -3.4 V
- Fast Switching Speed: 40 ns
- Low Input Capacitance: 75 pF

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	VP0808L	VP1008L	Unit
Drain-Source Voltage	V_{DS}	-80	-100	V
Gate-Source Voltage	V_{GS}	± 30	± 30	
Continuous Drain Current ($T_J = 150^\circ\text{C}$)	I_D	$T_A = 25^\circ\text{C}$	-0.28	A
		$T_A = 100^\circ\text{C}$	-0.17	
Pulsed Drain Current ^a	I_{DM}	-3	-3	
Power Dissipation	P_D	$T_A = 25^\circ\text{C}$	0.8	W
		$T_A = 100^\circ\text{C}$	0.32	
Maximum Junction-to-Ambient	R_{thJA}	156	156	$^\circ\text{C/W}$
Maximum Junction-to-Case	R_{thJC}			
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.



SPECIFICATIONS (T _A = 25 °C UNLESS OTHERWISE NOTED)								
Parameter	Symbol	Test Conditions	Typ ^a	Limits				Unit
				VP0808L		VP1008L		
				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	V
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					
								-500
On-State Drain Current ^b	I _{D(on)}	V _{DS} = -15 V, V _{GS} = -10 V	-2	-1.1		-1.1		A
Drain-Source On-Resistance ^b	r _{DS(on)}	V _{GS} = -10 V, I _D = -1 A	2.5		5		5	Ω
			T _J = 125 °C	4.4		8		
Forward Transconductance ^b	g _{fs}	V _{DS} = -10 V, I _D = -0.5 A	325	200		200		mS
Common Source Output Conductance ^b	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^c								
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

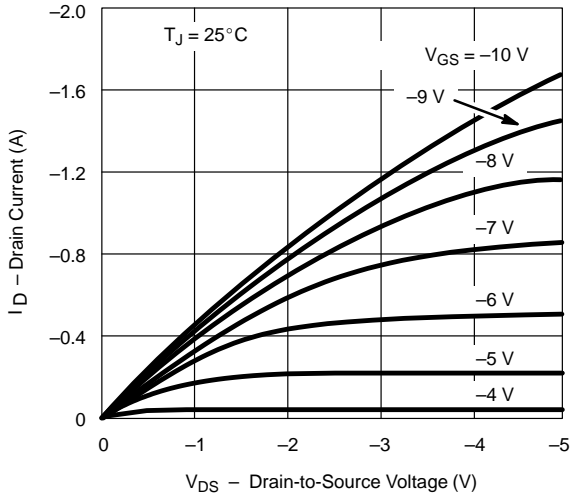
- a. For DESIGN AID ONLY, not subject to production testing..
- b. Pulse test: PW ≤ 300 μs duty cycle ≤ 2%.
- c. Switching time is essentially independent of operating temperature.

VPDV10

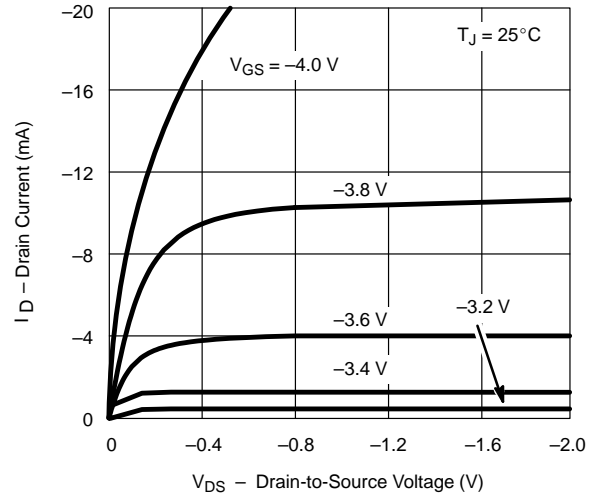


TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

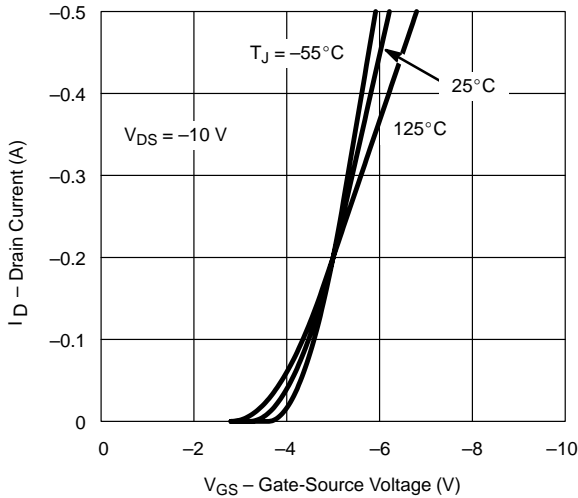
Ohmic Region Characteristics



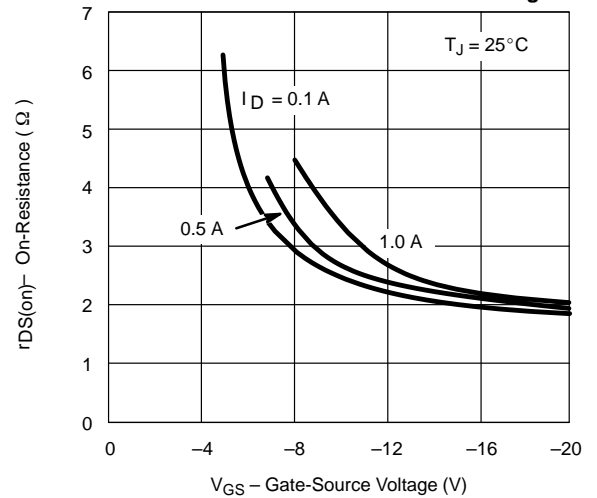
Output Characteristics for Low Gate Drive



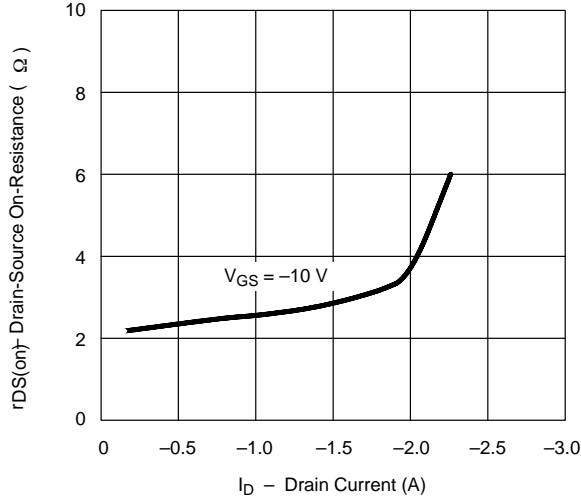
Transfer Characteristics



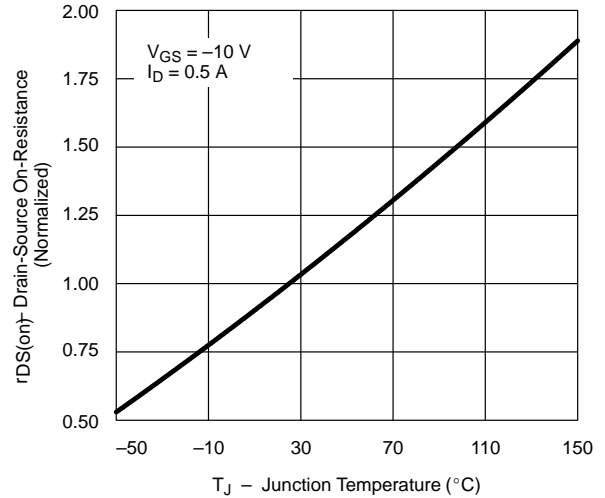
On-Resistance vs. Gate-to-Source Voltage



On-Resistance vs. Drain Current



Normalized On-Resistance vs. Junction Temperature





TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

