



P-Channel 80- and 100-V (D-S) MOSFETs

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

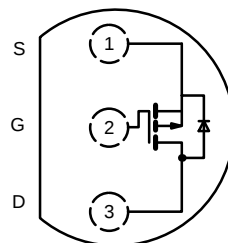
- High-Side Switching
- Low On-Resistance: 2.5 Ω
- Moderate Threshold: -3.4 V
- Fast Switching Speed: 40 ns
- Low Input Capacitance: 75 pF

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

TO-226AA
(TO-92)

Top View

VP0808L
Device Marking
Front View

"S" = Siliconix Logo
xxyy = Date Code

VP1008L
Device Marking
Front View

"S" = Siliconix Logo
xxyy = Date Code

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 ($T_J = 150^\circ\text{C}$)	$T_A = 25^\circ\text{C}$	I_D	-0.28	-0.28	A
	$T_A = 100^\circ\text{C}$		-0.17	-0.17	
Pulsed Drain Current ^a		I_{DM}	-3	-3	
Power Dissipation	$T_A = 25^\circ\text{C}$	P_D	0.8	0.8	W
	$T_A = 100^\circ\text{C}$		0.32	0.32	
Thermal Resistance, Junction-to-Ambient		R_{thJA}	156	156	$^\circ\text{C/W}$
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55 to 150		$^\circ\text{C}$

Notes

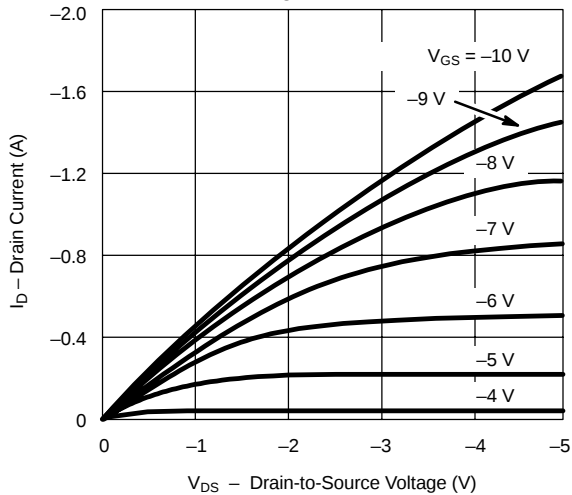
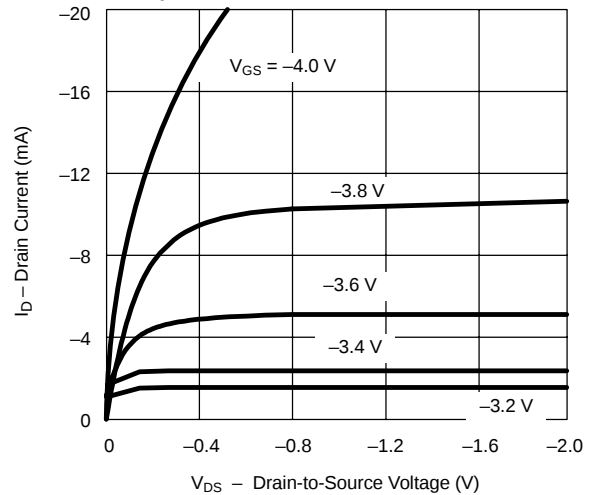
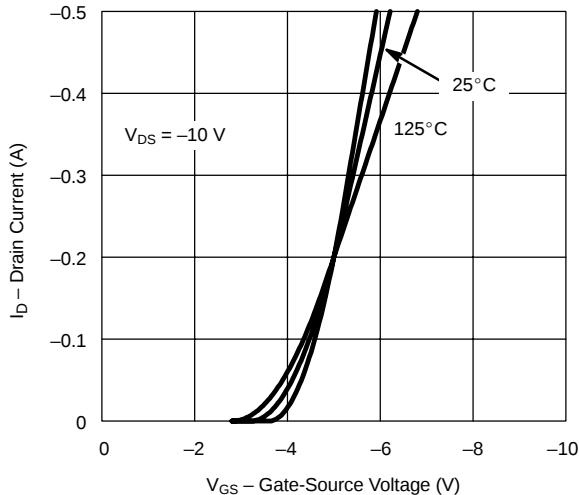
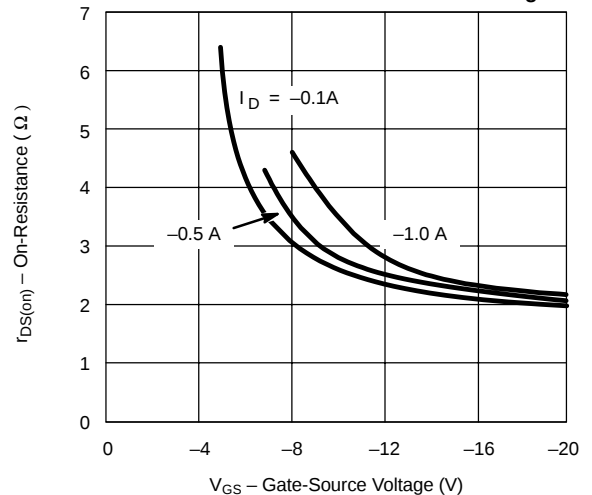
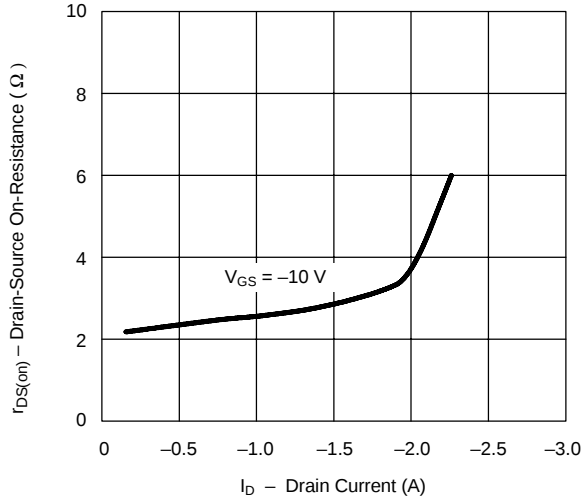
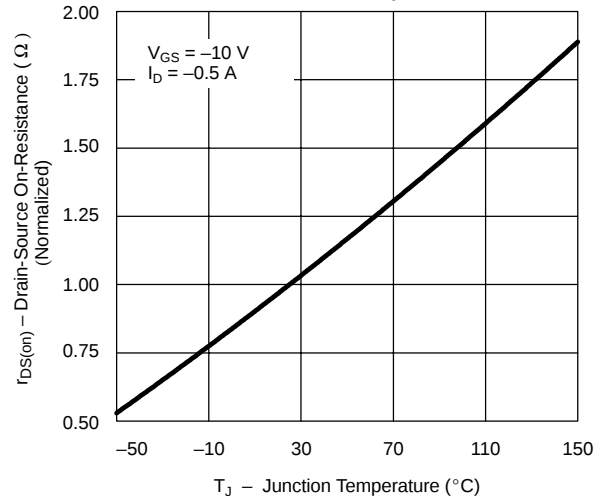
a. Pulse width limited by maximum junction temperature.

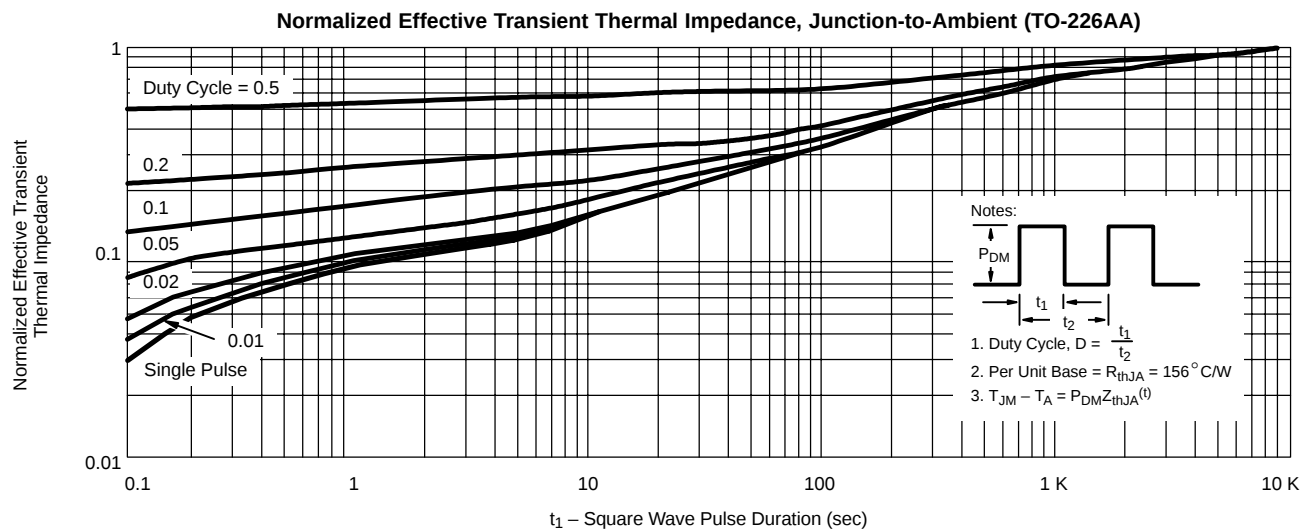
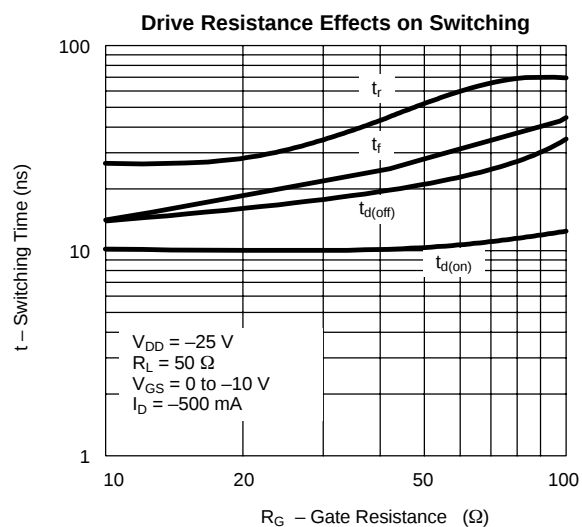
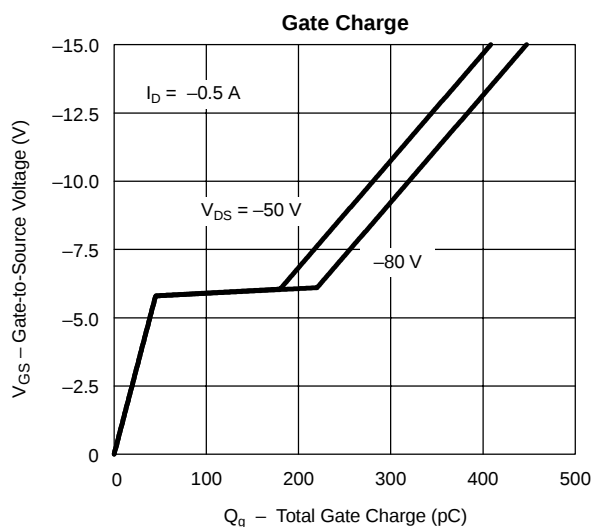
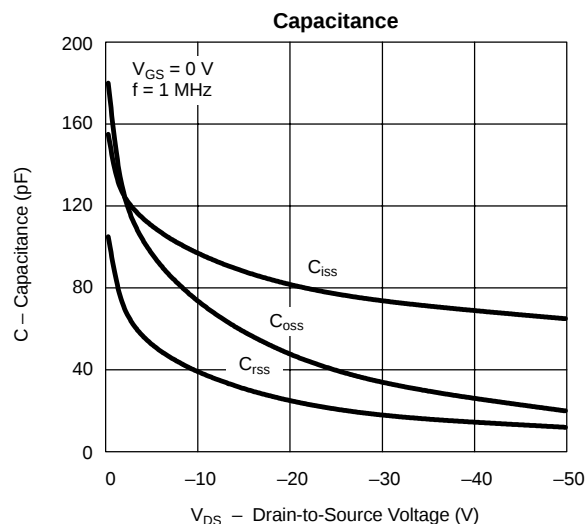
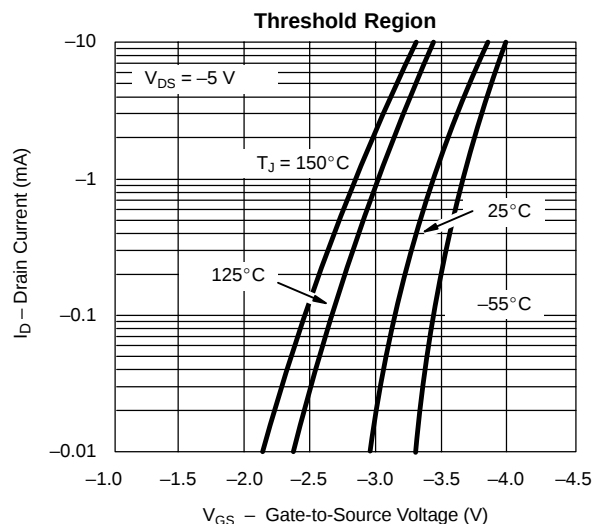
SPECIFICATIONS (T _A = 25 °C UNLESS OTHERWISE NOTED)								
Parameter	Symbol	Test Conditions	Typ ^a	Limits				Unit
				VP0808L		VP1008L		
				Min	Max	Min	Max	
Static								
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0 V, I _D = −10 μA	−110	−80		−100		V
Gate-Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = −1 mA	−3.4	−2	−4.5	−2	−4.5	
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 ^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		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: $PW \leq 300\text{ }\mu\text{s}$ duty cycle $\leq 2\%$.
c. Switching time is essentially independent of operating temperature.

VPDV10

**TYPICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE 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 ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)




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