



N-Channel 200-V (D-S) MOSFET

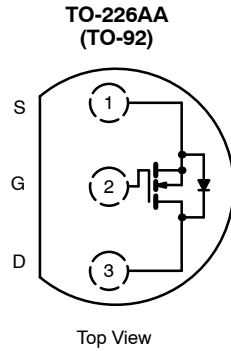
PRODUCT SUMMARY			
$V_{(BR)DSS}$ Min (V)	$r_{DS(on)}$ Max (Ω)	$V_{GS(th)}$ (V)	I_D (A)
200	1.2 @ $V_{GS} = 10$ V	2 to 4	0.56
	1.3 @ $V_{GS} = 6$ V		0.54

FEATURES

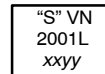
- TrenchFET® Power MOSFET

APPLICATIONS

- CRT Monitor HD Drive Circuit
- H-Drive Trans Switching



Device Marking
Front View



"S" = Siliconix Logo
xxyy = Date Code

Ordering Information: VN2001L-TR1

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)				
Parameter	Symbol	Limits	Unit	
Drain-Source Voltage	V_{DS}	200	V	
Gate-Source Voltage	V_{GS}	± 20		
Continuous Drain Current ($T_J = 150^\circ\text{C}$)	I_D	$T_A = 25^\circ\text{C}$	0.56	A
		$T_A = 70^\circ\text{C}$	0.45	
Pulsed Drain Current ^a	I_{DM}	2		
Avalanche Current	I_{AS}	1.5		
Single Pulse Avalanche Energy	E_{AS}	0.11	mJ	
Power Dissipation	P_D	$T_A = 25^\circ\text{C}$	0.8	W
		$T_A = 70^\circ\text{C}$	0.51	
Thermal Resistance, Junction-to-Ambient	R_{thJA}	156	$^\circ\text{C}/\text{W}$	
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.

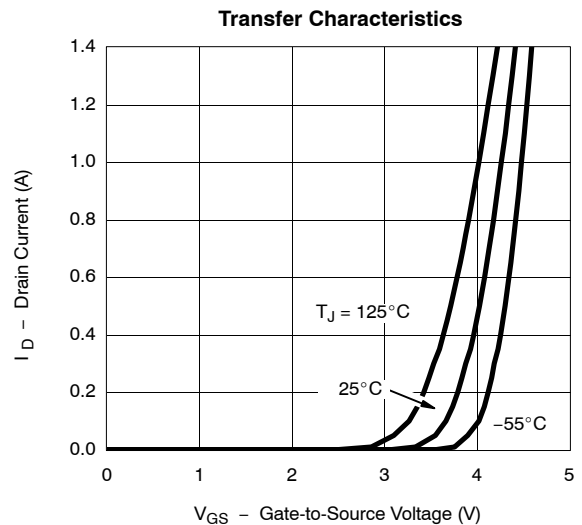
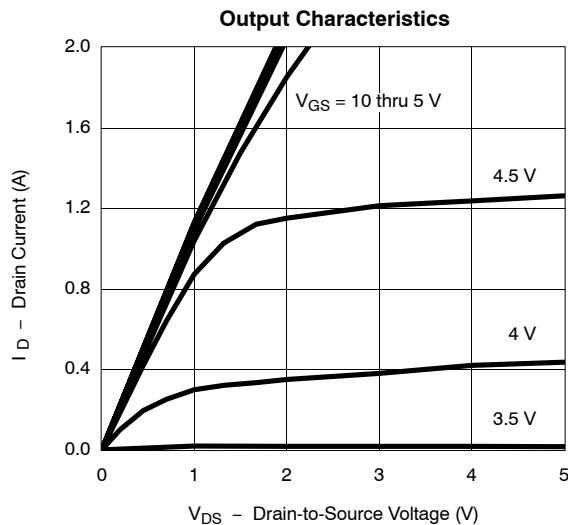
SPECIFICATIONS (T_A = 25 °C UNLESS OTHERWISE NOTED)

Parameter	Symbol	Test Conditions	Limits			Unit
			Min	Typ	Max	
Static						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0 V, I _D = 100 μA	200			V
Gate-Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250 μA	2.0	3.0	4.0	V
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ±20 V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 200 V, V _{GS} = 0 V			1	μA
			T _J = 55 °C			
On-State Drain Current ^a	I _{D(on)}	V _{DS} = 10 V, V _{GS} = 10 V	1			A
Drain-Source On-Resistance ^a	r _{DS(on)}	V _{GS} = 10 V, I _D = 0.56 A		0.95	1.2	Ω
		V _{GS} = 6 V, I _D = 0.54 A		1.0	1.3	
Forward Transconductance ^a	g _{fs}	V _{DS} = 10 V, I _D = 0.56A		1.8		S
Diode Forward Voltage ^a	V _{SD}	I _S = 0.5 A, V _{GS} = 0 V		0.8	1.2	V
Dynamic^b						
Total Gate Charge	Q _g	V _{DS} = 90 V, V _{GS} = 10 V, I _D = 0.5 A		3.6	6	nC
Gate-Source Charge	Q _{gs}			0.8		
Gate-Drain Charge	Q _{gd}			1.2		
Gate Resistance	R _g			4		Ω
Turn-On Delay Time	t _{d(on)}	V _{DD} = 100 V, R _L = 200 Ω I _D ≅ 0.5 A, V _{GEN} = 10 V R _G = 25 Ω		5.5	10	ns
Rise Time	t _r			10	16	
Turn-Off Delay Time	t _{d(off)}			22	40	
Fall Time	t _f			18	30	
Source-Drain Reverse Recovery Time	t _{rr}		I _F = 0.5 A, di/dt = 100 A/μs		28	

Notes

- a. Pulse test: PW ≤ 300 μs duty cycle ≤ 2%.
- b. Guaranteed by design, not subject to production testing.

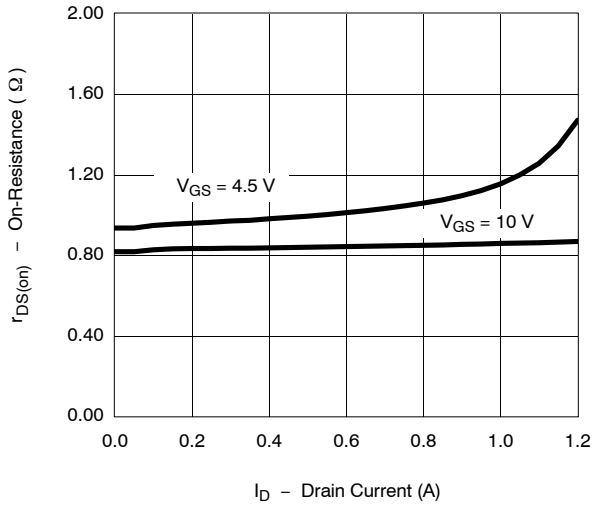
TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)



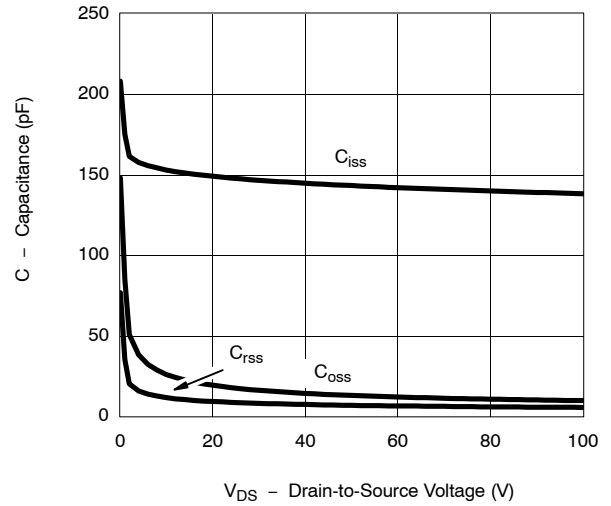


TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

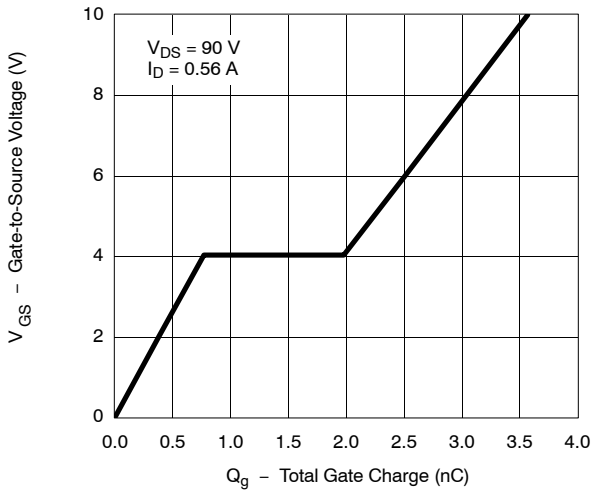
On-Resistance vs. Drain Current



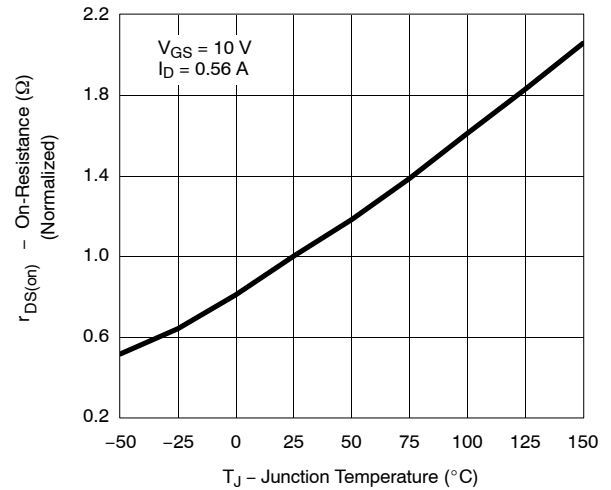
Capacitance



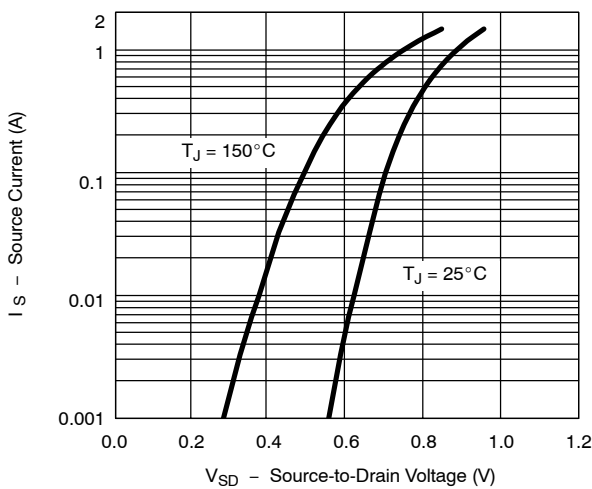
Gate Charge



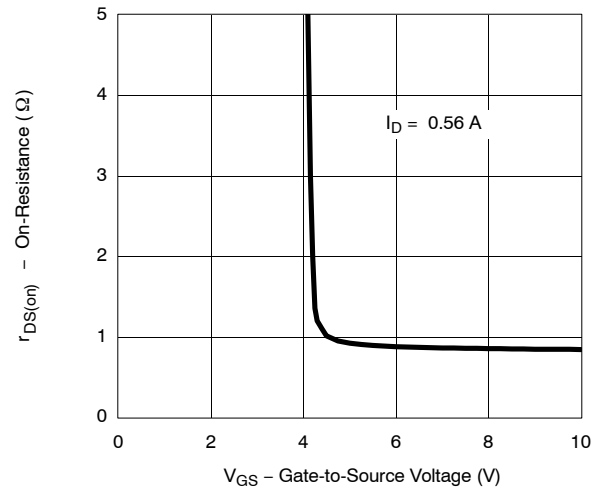
On-Resistance vs. Junction Temperature



Source-Drain Diode Forward Voltage

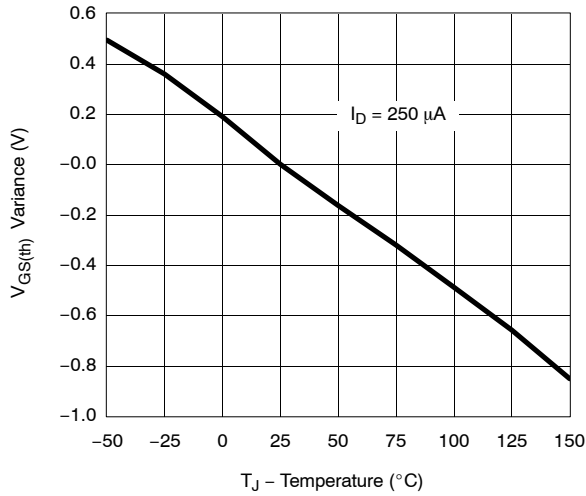


On-Resistance vs. Gate-to-Source Voltage

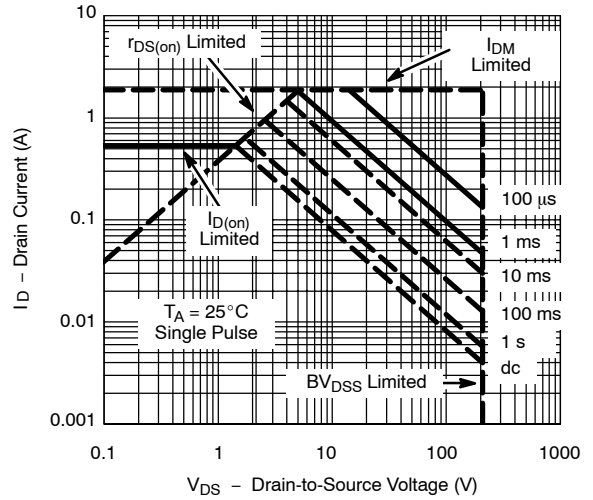


TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

Threshold Voltage



Safe Operating Area



Normalized Effective Transient Thermal Impedance, Junction-to-Ambient (TO-226AA)

