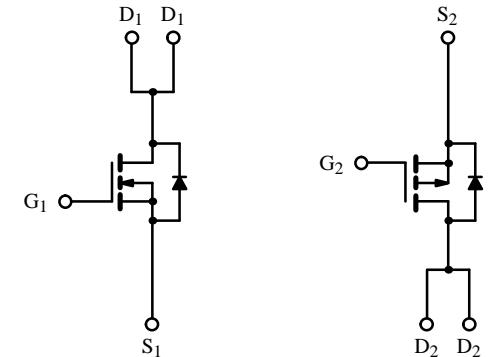
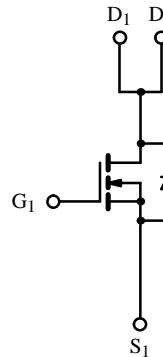
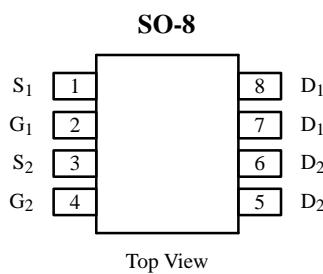


Dual N- and P-Channel 60-V, 175°C Rated MOSFET

Product Summary

	V _{DS} (V)	r _{DS(on)} (Ω)	I _D (A)
N-Channel	60	0.055 @ V _{GS} = 10 V	± 4.5
		0.075 @ V _{GS} = 4.5 V	± 3.9
P-Channel	-60	0.120 @ V _{GS} = -10 V	± 3.1
		0.150 @ V _{GS} = -4.5 V	± 2.8

175°C Rated
Maximum Junction Temperature
TrenchFET™
Power MOSFETs



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

Parameter	Symbol	N-Channel	P-Channel	Unit
Drain-Source Voltage	V _{DS}	60	-60	V
Gate-Source Voltage	V _{GS}	± 20	± 20	
Continuous Drain Current (T _J = 175°C) ^a	I _D	± 4.5	± 3.1	A
		± 3.8	± 2.6	
Pulsed Drain Current	I _{DM}	± 30	± 30	A
Continuous Source Current (Diode Conduction) ^a	I _S	2.0	-2.0	
Maximum Power Dissipation ^a	P _D	2.4	1.7	W
		1.7	—	
Operating Junction and Storage Temperature Range	T _J , T _{stg}	-55 to 175		°C

Thermal Resistance Ratings

Parameter	Symbol	N- or P- Channel	Unit
Maximum Junction-to-Ambient ^a	R _{thJA}	62.5	°C/W

Notes

a. Surface Mounted on FR4 Board, t ≤ 10 sec.

Updates to this data sheet may be obtained via facsimile by calling Siliconix FaxBack, 1-408-970-5600. Please request FaxBack document #70167.

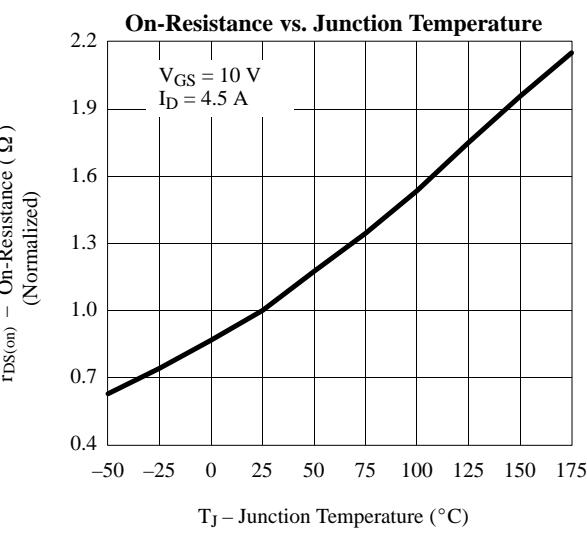
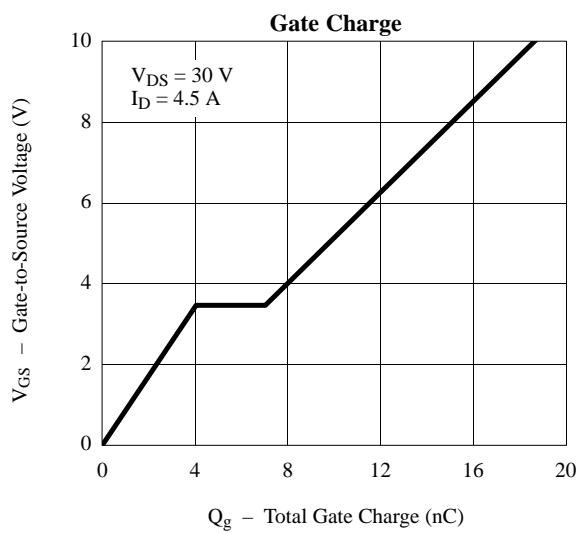
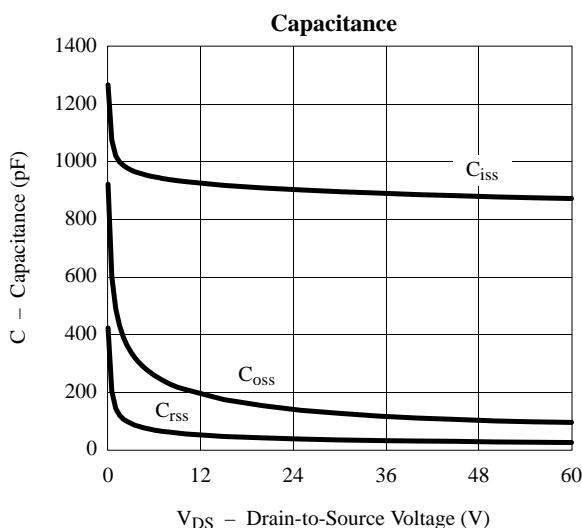
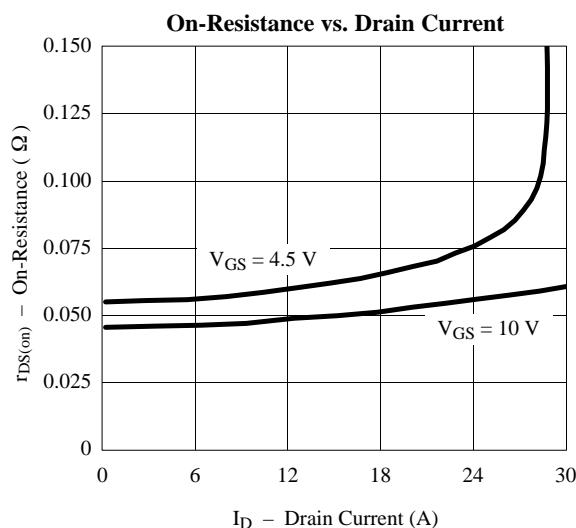
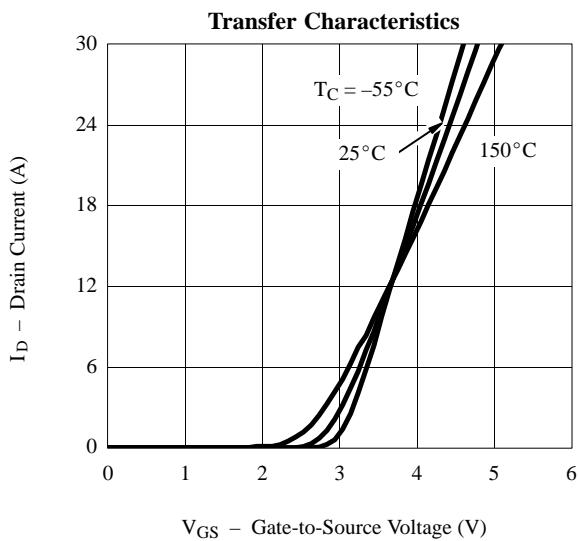
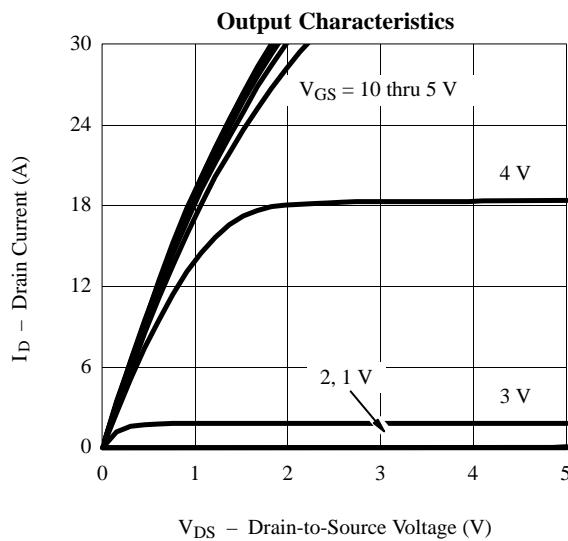
Specifications ($T_J = 25^\circ\text{C}$ Unless Otherwise Noted)

Parameter	Symbol	Test Condition		Min	Typ ^a	Max	Unit
Static							
Gate Threshold Voltage	$V_{GS(\text{th})}$	$V_{DS} = V_{GS}, I_D = 250 \mu\text{A}$	N-Ch	1			V
		$V_{DS} = V_{GS}, I_D = -250 \mu\text{A}$	P-Ch	-1			
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0 \text{ V}, V_{GS} = \pm 20 \text{ V}$	N-Ch			± 100	nA
			P-Ch			± 100	
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 60 \text{ V}, V_{GS} = 0 \text{ V}$	N-Ch			2	μA
		$V_{DS} = -60 \text{ V}, V_{GS} = 0 \text{ V}$	P-Ch			-2	
		$V_{DS} = 60 \text{ V}, V_{GS} = 0 \text{ V}, T_J = 55^\circ\text{C}$	N-Ch			25	
		$V_{DS} = -60 \text{ V}, V_{GS} = 0 \text{ V}, T_J = 55^\circ\text{C}$	P-Ch			-25	
On-State Drain Current ^b	$I_{D(\text{on})}$	$V_{DS} \geq 5 \text{ V}, V_{GS} = 10 \text{ V}$	N-Ch	20			A
		$V_{DS} \leq -5 \text{ V}, V_{GS} = -10 \text{ V}$	P-Ch	-20			
Drain-Source On-State Resistance ^b	$r_{DS(\text{on})}$	$V_{GS} = 10 \text{ V}, I_D = 4.5 \text{ A}$	N-Ch		0.045	0.055	Ω
		$V_{GS} = -10 \text{ V}, I_D = -3.1 \text{ A}$	P-Ch		0.100	0.120	
		$V_{GS} = 4.5 \text{ V}, I_D = 3.9 \text{ A}$	N-Ch		0.055	0.075	
		$V_{GS} = -4.5 \text{ V}, I_D = -2.8 \text{ A}$	P-Ch		0.125	0.150	
Forward Transconductance ^b	g_{fs}	$V_{DS} = 15 \text{ V}, I_D = 4.5 \text{ A}$	N-Ch		13		S
		$V_{DS} = -15 \text{ V}, I_D = -3.1 \text{ A}$	P-Ch		7.5		
Diode Forward Voltage ^b	V_{SD}	$I_S = 2.0 \text{ A}, V_{GS} = 0 \text{ V}$	N-Ch		0.9	1.2	V
		$I_S = -2.0 \text{ A}, V_{GS} = 0 \text{ V}$	P-Ch		-0.8	-1.2	
Dynamic^a							
Total Gate Charge	Q_g	N-Channel $V_{DS} = 30 \text{ V}, V_{GS} = 10 \text{ V}, I_D = 4.5 \text{ A}$ P-Channel $V_{DS} = -30 \text{ V}, V_{GS} = -10 \text{ V}$ $I_D = -3.1 \text{ A}$	N-Ch		19	30	nC
Gate-Source Charge	Q_{gs}		P-Ch		16	25	
Gate-Drain Charge	Q_{gd}		N-Ch		4		
Turn-On Delay Time	$t_{d(\text{on})}$		P-Ch		4		
Rise Time	t_r	N-Channel $V_{DD} = 30 \text{ V}, R_L = 30 \Omega$ $I_D \cong 1 \text{ A}, V_{GEN} = 10 \text{ V}, R_G = 6 \Omega$ P-Channel $V_{DD} = -30 \text{ V}, R_L = 30 \Omega$ $I_D \cong -1 \text{ A}, V_{GEN} = -10 \text{ V}, R_G = 6 \Omega$	N-Ch		3		ns
Turn-Off Delay Time	$t_{d(\text{off})}$		P-Ch		1.6		
Fall Time	t_f		N-Ch		13	20	
Source-Drain Reverse Recovery Time	t_{rr}		P-Ch		8	15	
		$I_F = 2 \text{ A}, di/dt = 100 \text{ A}/\mu\text{s}$	N-Ch		11	20	
		$I_F = -2 \text{ A}, di/dt = 100 \text{ A}/\mu\text{s}$	P-Ch		10	20	
			N-Ch		36	60	
			P-Ch		12	25	
			N-Ch		11	20	
			P-Ch		35	50	
			N-Ch		35	60	
			P-Ch		60	90	

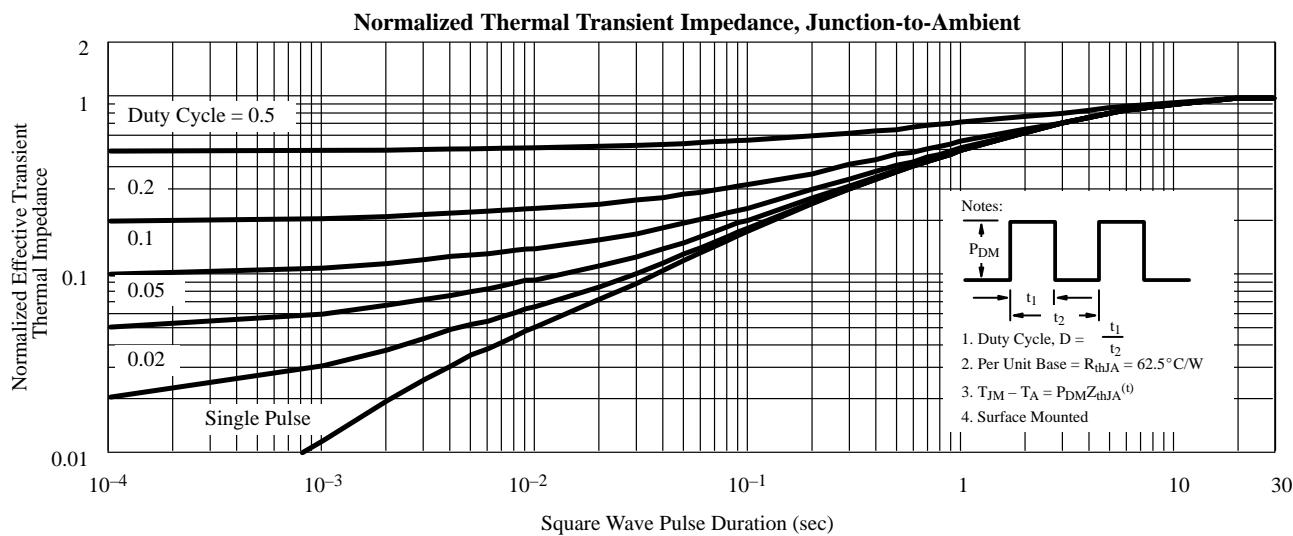
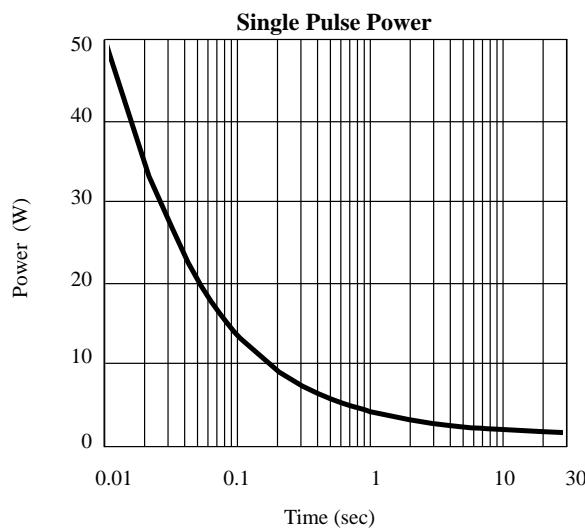
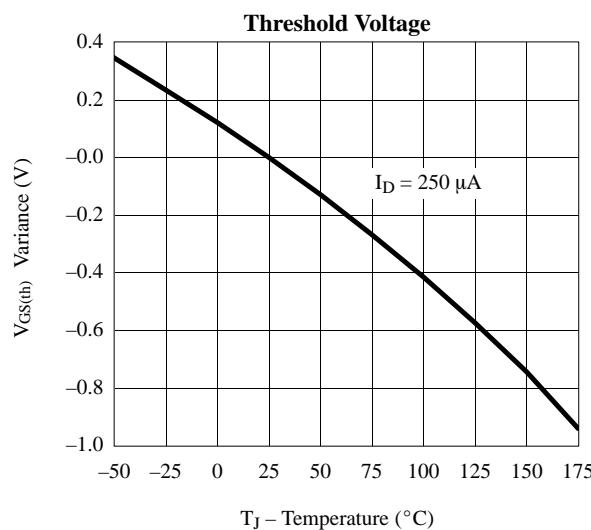
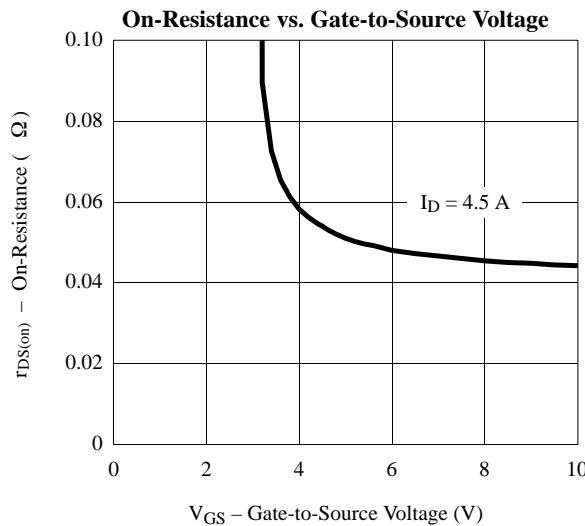
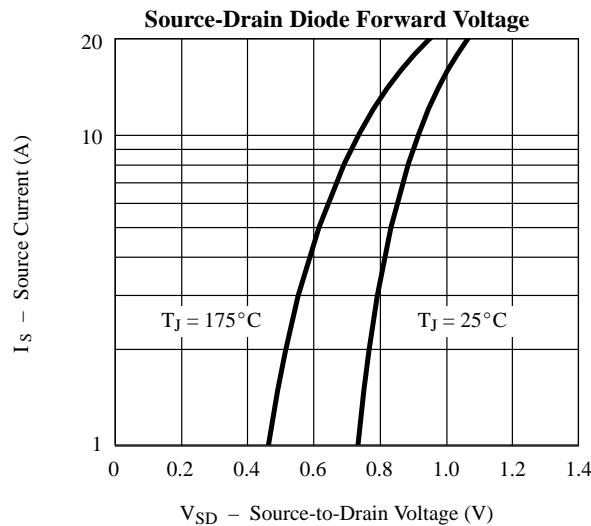
Notes

- a. Guaranteed by design, not subject to production testing.
 b. Pulse test; pulse width $\leq 300 \mu\text{s}$, duty cycle $\leq 2\%$.

Typical Characteristics (25°C Unless Otherwise Noted) N-Channel

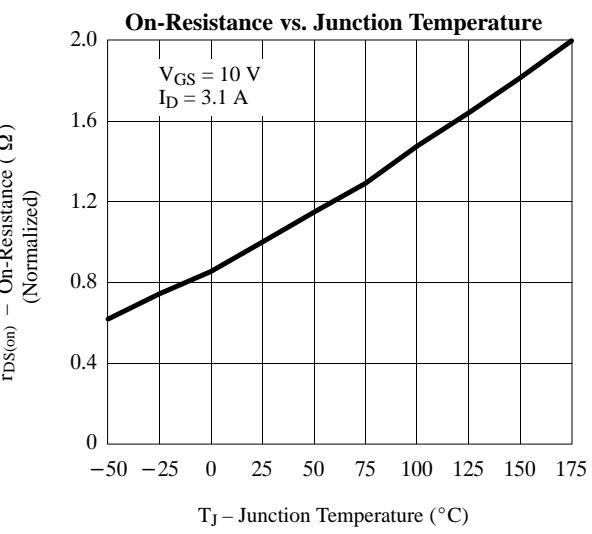
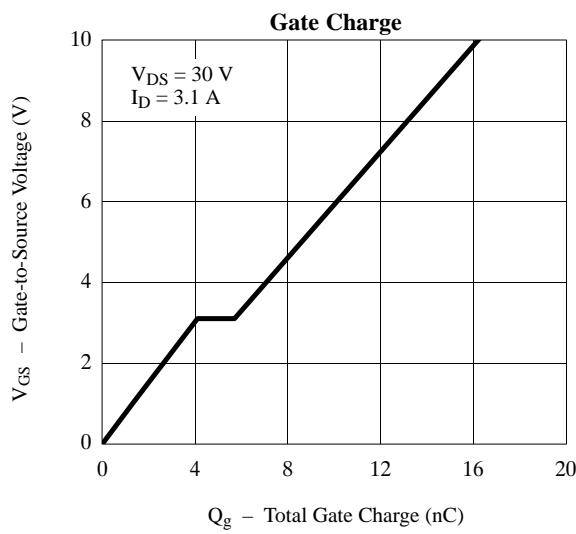
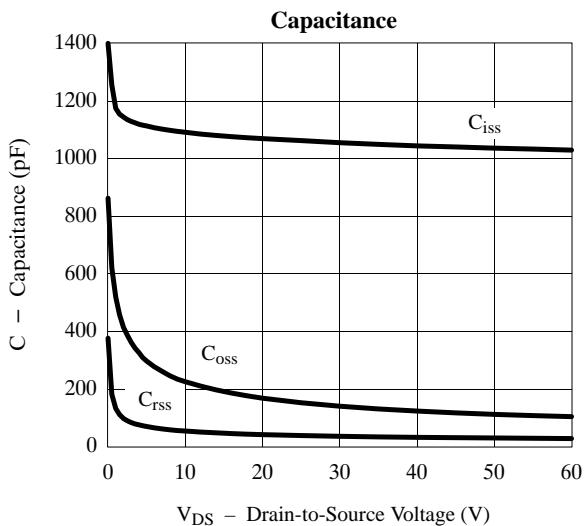
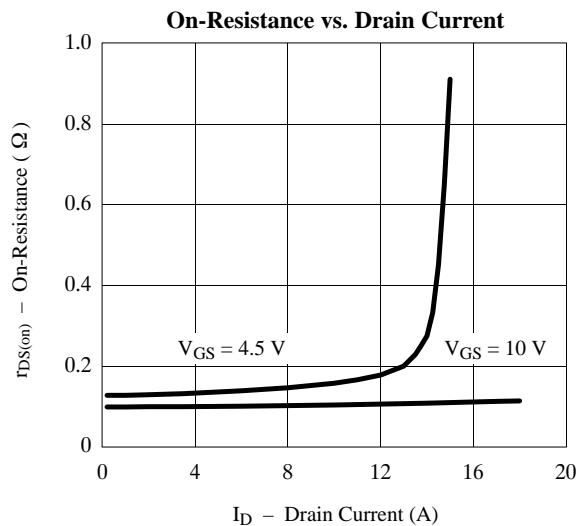
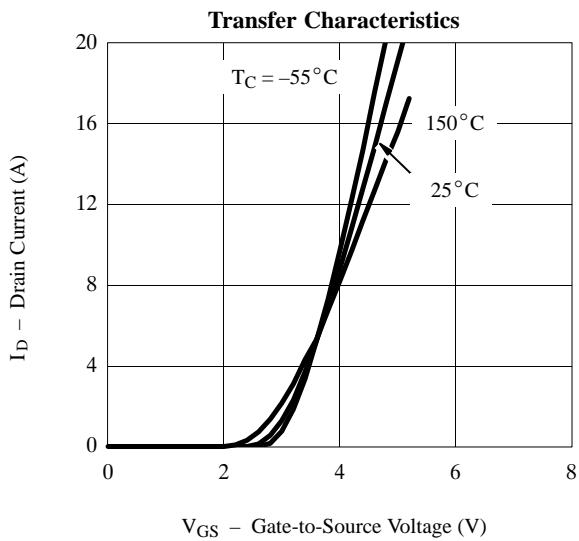
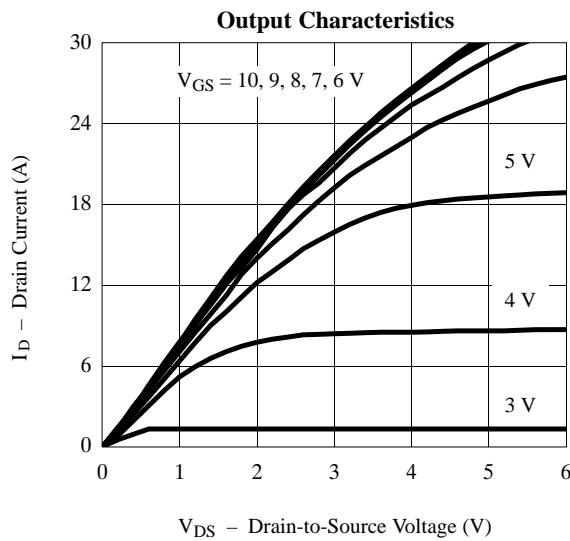


Typical Characteristics (25°C Unless Otherwise Noted) N-Channel



Typical Characteristics (25°C Unless Noted)

P-Channel



Typical Characteristics (25°C Unless Noted)

P-Channel

