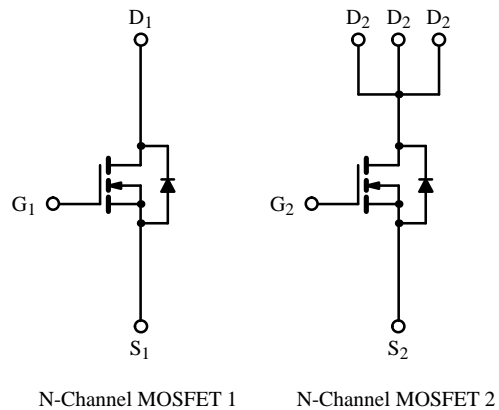
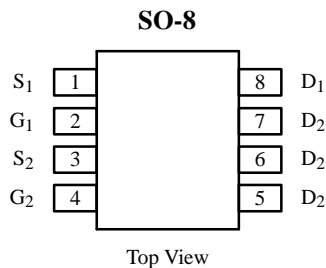


Asymmetrical Dual N-Channel Enhancement-Mode MOSFET

Product Summary

	V _{DS} (V)	r _{DS(on)} (Ω)	I _D (A)
N-Channel 1	20	0.07 @ V _{GS} = 4.5 V	± 3.0
		0.09 @ V _{GS} = 2.5 V	± 2.1
N-Channel 2		0.03 @ V _{GS} = 4.5 V	± 6.9
		0.035 @ V _{GS} = 2.5 V	± 4.9



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

Parameter	Symbol	N-Channel 1	N-Channel 2	Unit
Drain-Source Voltage	V _{DS}	20	20	V
Gate-Source Voltage	V _{GS}	± 8	± 8	
Continuous Drain Current (T _J = 150°C) ^a	I _D	T _A = 25°C	± 3.0	A
		T _A = 70°C	± 2.4	
Pulsed Drain Current	I _{DM}	± 20	± 30	A
Continuous Source Current (Diode Conduction) ^a	I _S	1.0	1.25	
Maximum Power Dissipation ^a	P _D	T _A = 25°C	1.0	W
		T _A = 70°C	0.6	
Operating Junction and Storage Temperature Range	T _J , T _{stg}	-55 to 150	-55 to 150	°C

Thermal Resistance Ratings

Parameter	Symbol	N-Channel 1	N-Channel 2	Unit
Maximum Junction-to-Ambient ^a	R _{thJA}	125	55	°C/W

Notes

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

Subsequent updates to this data sheet may be obtained via facsimile by calling Siliconix FaxBack, 1-408-970-5600. Please request FaxBack document #1242.

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

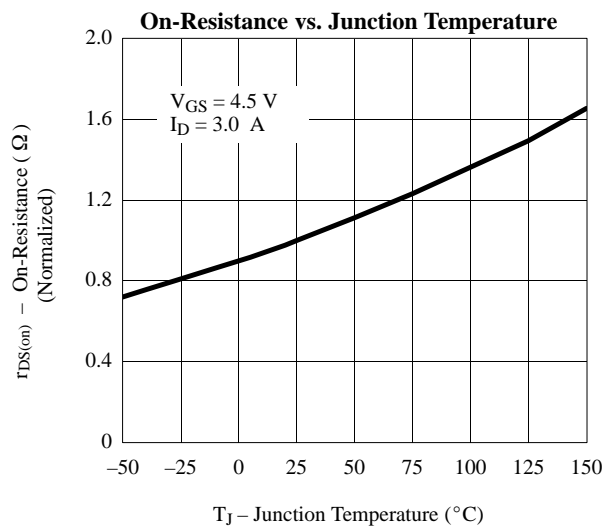
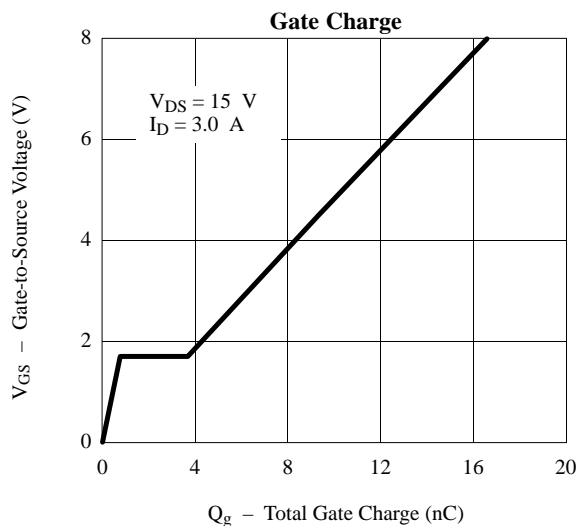
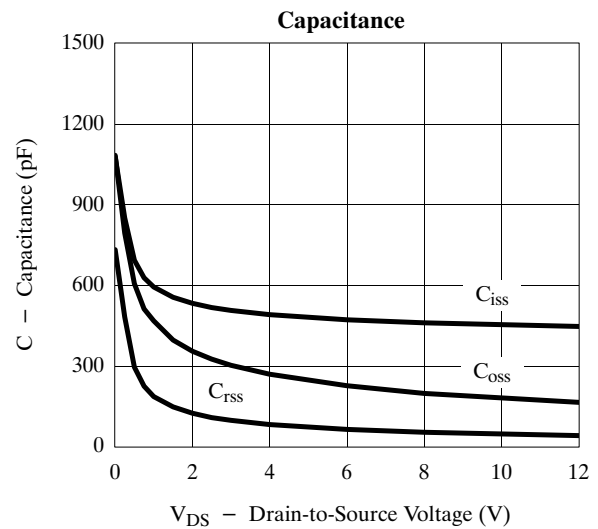
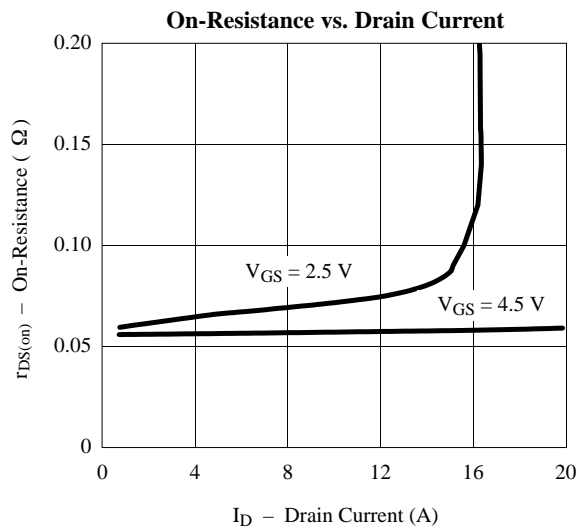
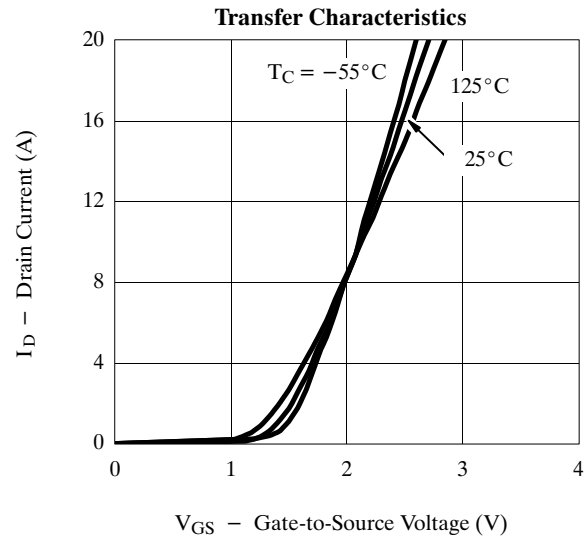
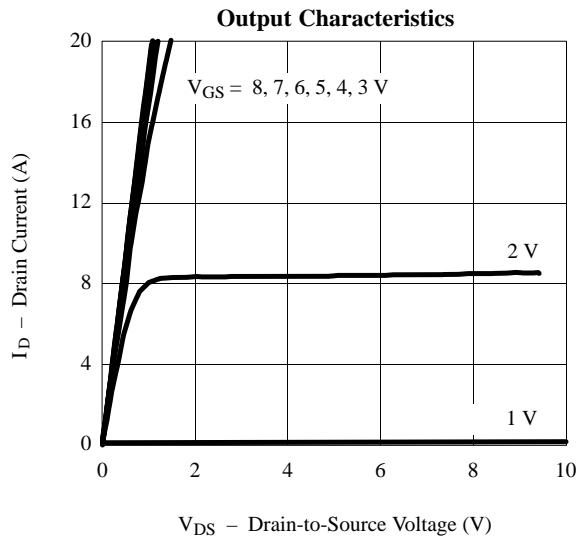
Parameter	Symbol	Test Condition	Min	Typ ^a	Max	Unit		
Static								
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250 \mu\text{A}$	N-Ch 1	0.6		V		
			N-Ch 2	0.6				
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0 \text{ V}, V_{GS} = \pm 8 \text{ V}$	N-Ch 1		± 100	nA		
			N-Ch 2		± 100			
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 20 \text{ V}, V_{GS} = 0 \text{ V}$	N-Ch 1		1	μA		
			N-Ch 2		1			
		$V_{DS} = 20 \text{ V}, V_{GS} = 0 \text{ V}, T_J = 70^\circ\text{C}$	N-Ch 1		5			
			N-Ch 2		5			
On-State Drain Current ^b	$I_{D(on)}$	$V_{DS} = 5 \text{ V}, V_{GS} = 4.5 \text{ V}$	N-Ch 1	10		A		
			N-Ch 2	10				
Drain-Source On-State Resistance ^b	$r_{DS(on)}$	$V_{GS} = 4.5 \text{ V}, I_D = 3.0 \text{ A}$	N-Ch 1		0.050	0.07	Ω	
		$V_{GS} = 4.5 \text{ V}, I_D = 6.9 \text{ A}$	N-Ch 2		0.020	0.03		
		$V_{GS} = 2.5 \text{ V}, I_D = 2.1 \text{ A}$	N-Ch 1		0.060	0.09		
		$V_{GS} = 2.5 \text{ V}, I_D = 4.9 \text{ A}$	N-Ch 2		0.025	0.035		
Forward Transconductance ^b	g_{fs}	$V_{DS} = 15 \text{ V}, I_D = 3.0 \text{ A}$	N-Ch 1		12	S		
		$V_{DS} = 15 \text{ V}, I_D = 6.9 \text{ A}$	N-Ch 2		34			
Diode Forward Voltage ^b	V_{SD}	$I_S = 1.0 \text{ A}, V_{GS} = 0 \text{ V}$	N-Ch 1		0.8	1.2	V	
		$I_S = 1.25 \text{ A}, V_{GS} = 0 \text{ V}$	N-Ch 2		0.7	1.2		
Dynamic^a								
Total Gate Charge	Q_g	N-Channel 1 $V_{DS} = 10 \text{ V}, V_{GS} = 4.5 \text{ V}, I_D = 3.0 \text{ A}$ N-Channel 2 $V_{DS} = 10 \text{ V}, V_{GS} = 4.5 \text{ V}, I_D = 6.9 \text{ A}$	N-Ch 1		16	40	nC	
			N-Ch 2		18	40		
Gate-Source Charge	Q_{gs}		N-Ch 1		3			
			N-Ch 2		2.5			
Gate-Drain Charge	Q_{gd}		N-Ch 1		6			
			N-Ch 2		4			
Turn-On Delay Time	$t_{d(on)}$	N-Channel 1 $V_{DD} = 10 \text{ V}, R_L = 10 \Omega$ $I_D \cong 1 \text{ A}, V_{GEN} = 4.5 \text{ V}, R_G = 6 \Omega$ N-Channel 2 $V_{DD} = 10 \text{ V}, R_L = 10 \Omega$ $I_D \cong 1 \text{ A}, V_{GEN} = 4.5 \text{ V}, R_G = 6 \Omega$	N-Ch 1		37	60	ns	
			N-Ch 2		35	60		
Rise Time	t_r		N-Ch 1		66	100		
			N-Ch 2		65	100		
Turn-Off Delay Time	$t_{d(off)}$		N-Ch 1		56	100		
			N-Ch 2		100	150		
Fall Time	t_f		N-Ch 1		57	100		
			N-Ch 2		33	60		
Source-Drain Reverse Recovery Time	t_{rr}		$I_F = 1.0 \text{ A}, di/dt = 100 \text{ A}/\mu\text{s}$	N-Ch 1		26		70
			$I_F = 1.25 \text{ A}, di/dt = 100 \text{ A}/\mu\text{s}$	N-Ch 2		50		100

Notes

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

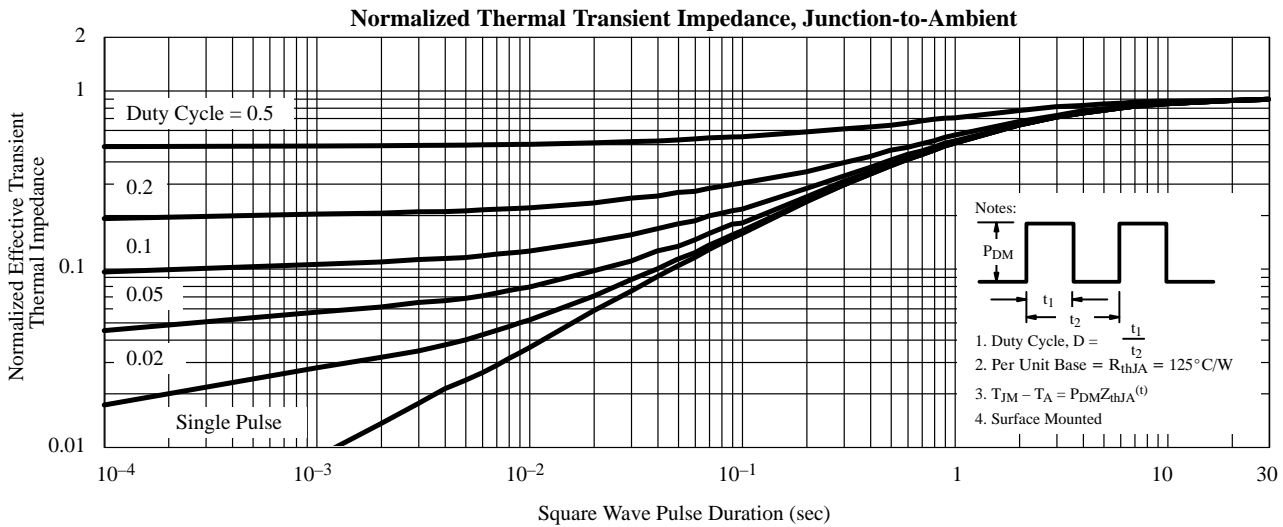
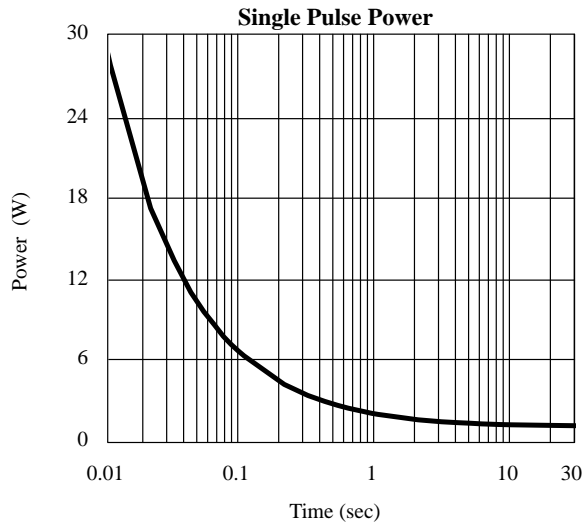
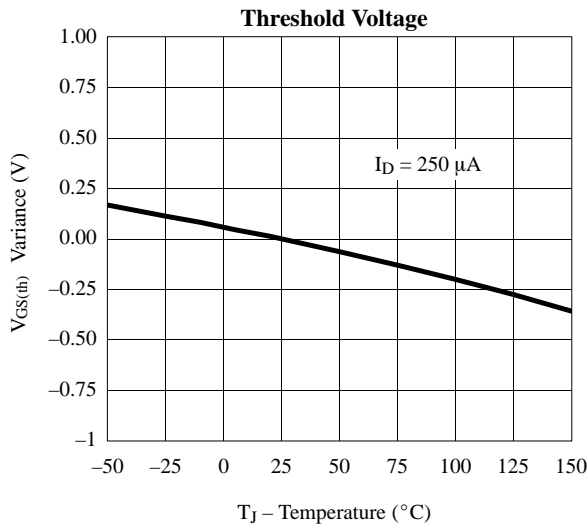
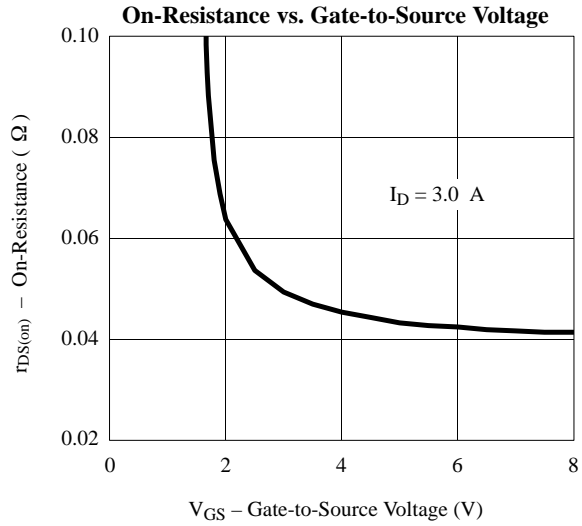
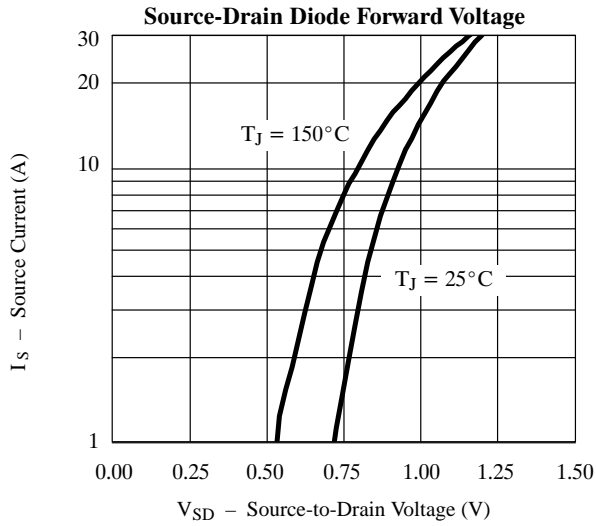
Typical Characteristics (25°C Unless Noted)

N-Channel 1



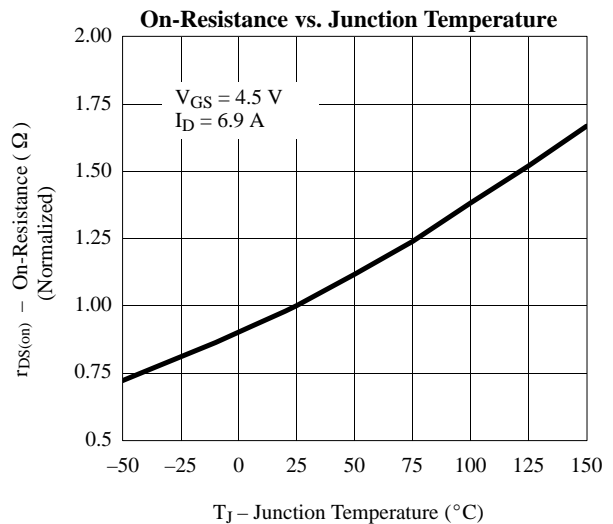
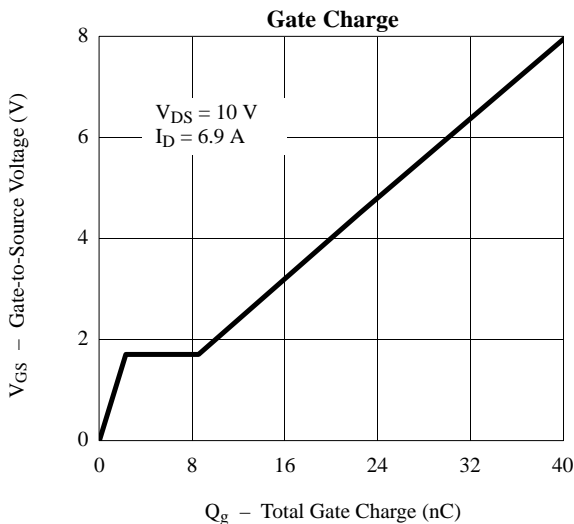
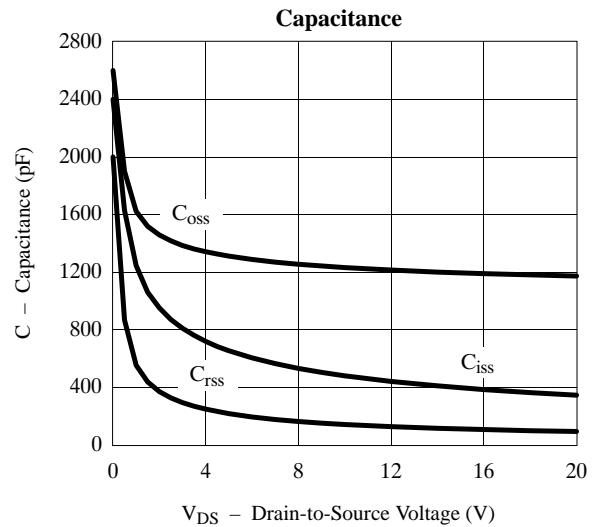
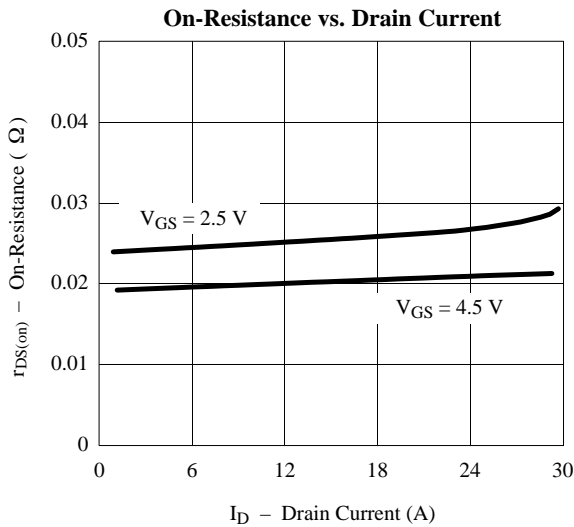
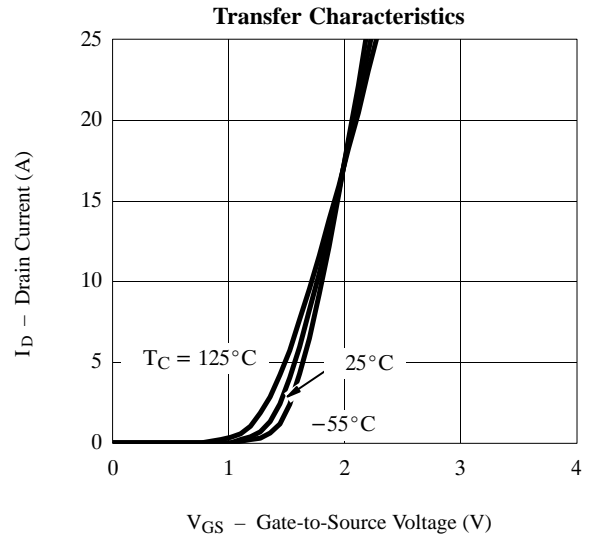
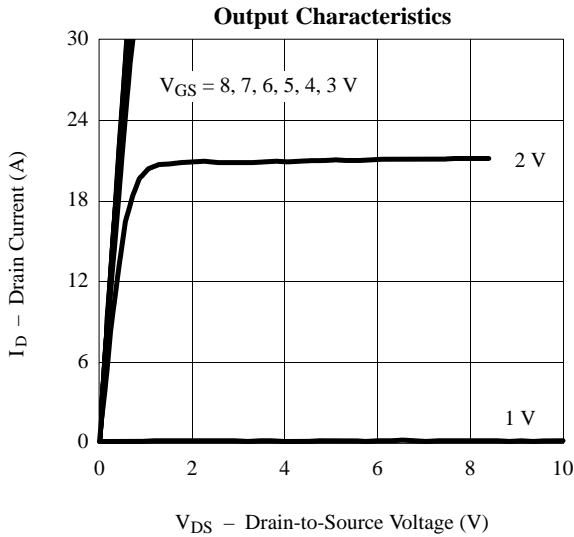
Typical Characteristics (25°C Unless Noted)

N-Channel 1



Typical Characteristics (25°C Unless Noted)

N-Channel 2



Typical Characteristics (25°C Unless Noted)

N-Channel 2

