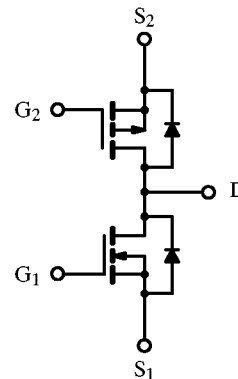
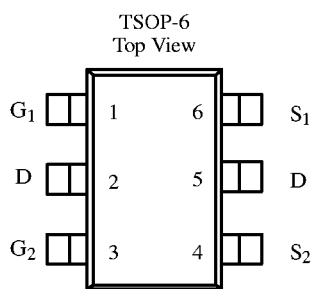


Complementary MOSFET Half-Bridge (N- and P-Channel)

Product Summary

	V <sub>DS</sub> (V)	r <sub>DS(on)</sub> (Ω)	I <sub>D</sub> (A)
N-Channel	20	0.500 @ V <sub>GS</sub> = 4.5 V	± 1.2
		0.750 @ V <sub>GS</sub> = 3.0 V	± 1.0
P-Channel	-20	1.00 @ V <sub>GS</sub> = -4.5 V	± 0.85
		1.30 @ V <sub>GS</sub> = -3.0 V	± 0.75



Absolute Maximum Ratings (T<sub>A</sub> = 25° C Unless Otherwise Noted)

Parameter	Symbol	N-Channel	P-Channel	Unit	
Drain-Source Voltage	V <sub>DS</sub>	20	-20	V	
Gate-Source Voltage	V <sub>GS</sub>	± 12	± 12		
Continuous Drain Current (T <sub>J</sub> = 150° C)	I <sub>D</sub>	T <sub>A</sub> = 25° C	± 1.2	A	
		T <sub>A</sub> = 70° C	± 0.95		
Pulsed Drain Current	I <sub>DM</sub>	± 3.5	± 2.5	A	
Continuous Source Current (Diode Conduction)	I <sub>S</sub>	1	-1		
Maximum Power Dissipation (Surface Mounted on FR4 Board)	P <sub>D</sub>	T <sub>A</sub> = 25° C	1.25		W
		T <sub>A</sub> = 70° C	0.8		
Operating Junction and Storage Temperature Range	T <sub>J</sub> , T <sub>stg</sub>	-55 to 150		°C	

Thermal Resistance Ratings

Parameter	Symbol	N- or P- Channel	Unit
Maximum Junction-to-Ambient (Surface Mounted on FR4 Board, ± ≤ 10 sec)	R <sub>thJA</sub>	100	°C/W

Updates to this data sheet may be obtained via facsimile by calling Siliconix FaxBack, 1-408-970-5600. Please request FaxBack document #70778.

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

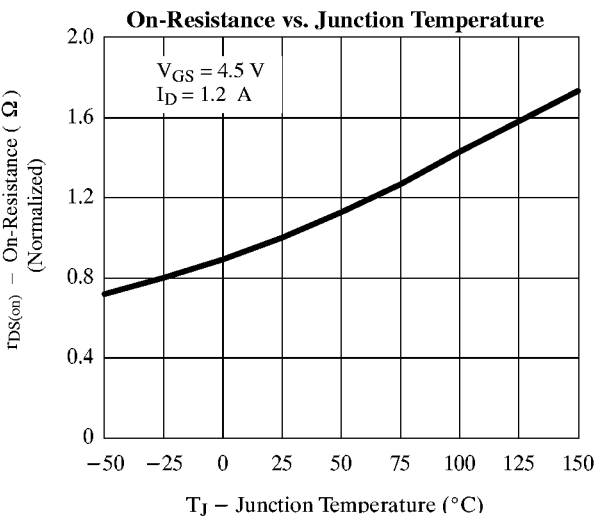
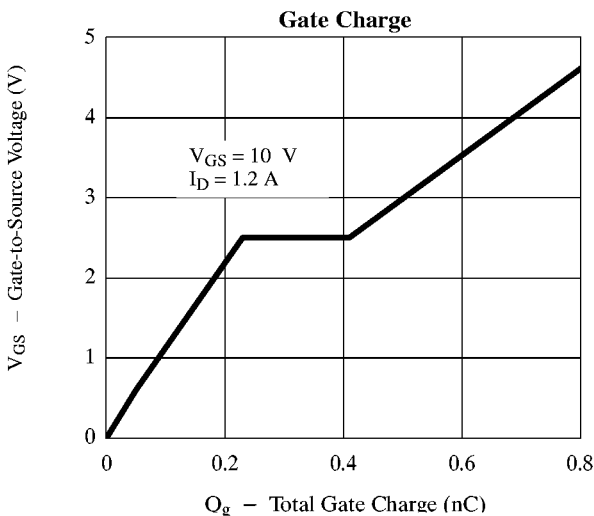
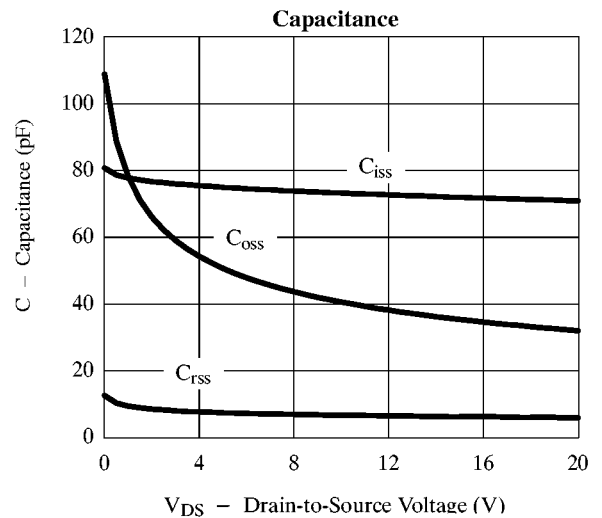
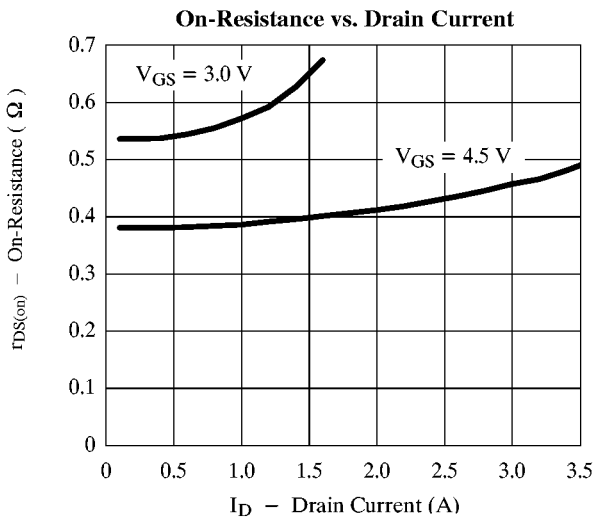
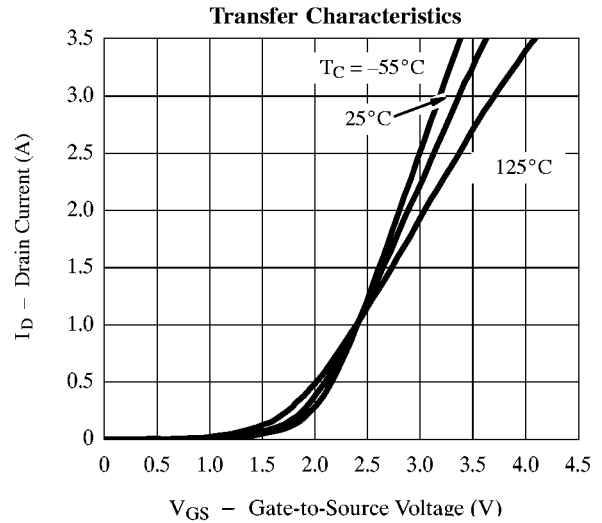
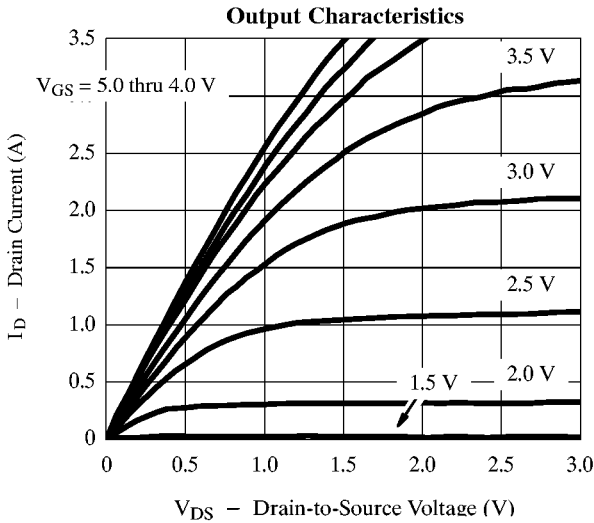
Parameter	Symbol	Test Condition	Min	Typ <sup>a</sup>	Max	Unit
<b>Static</b>						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250 \mu\text{A}$	N-Ch	0.6		V
		$V_{DS} = V_{GS}, I_D = -250 \mu\text{A}$	P-Ch	-0.6		
Gate-Body Leakage	$I_{GSS}$	$V_{DS} = 0 \text{ V}, V_{GS} = \pm 12 \text{ V}$			$\pm 100$	nA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 20 \text{ V}, V_{GS} = 0 \text{ V}$	N-Ch		1	$\mu\text{A}$
		$V_{DS} = -20 \text{ V}, V_{GS} = 0 \text{ V}$	P-Ch		-1	
		$V_{DS} = 20 \text{ V}, V_{GS} = 0 \text{ V}, T_J = 70^\circ\text{C}$	N-Ch		10	
		$V_{DS} = -20 \text{ V}, V_{GS} = 0 \text{ V}, T_J = 70^\circ\text{C}$	P-Ch		-10	
On-State Drain Current <sup>b</sup>	$I_{D(on)}$	$V_{DS} = 5 \text{ V}, V_{GS} = 4.5 \text{ V}$	N-Ch	3.0		A
		$V_{DS} = -5 \text{ V}, V_{GS} = -4.5 \text{ V}$	P-Ch	-2.0		
Drain-Source On-State Resistance <sup>b</sup>	$r_{DS(on)}$	$V_{GS} = 4.5 \text{ V}, I_D = 0.5 \text{ A}$	N-Ch		0.38	$\Omega$
		$V_{GS} = -4.5 \text{ V}, I_D = -0.5 \text{ A}$	P-Ch		0.70	
		$V_{GS} = 3.0 \text{ V}, I_D = 0.5 \text{ A}$	N-Ch		0.55	
		$V_{GS} = -3.0 \text{ V}, I_D = -0.5 \text{ A}$	P-Ch		1.10	
Forward Transconductance <sup>b</sup>	$g_{fs}$	$V_{DS} = 10 \text{ V}, I_D = 1.2 \text{ A}$	N-Ch		2.7	S
		$V_{DS} = -10 \text{ V}, I_D = -0.85 \text{ A}$	P-Ch		1.2	
Diode Forward Voltage <sup>b</sup>	$V_{SD}$	$I_S = 1 \text{ A}, V_{GS} = 0 \text{ V}$	N-Ch		1.2	V
		$I_S = -1 \text{ A}, V_{GS} = 0 \text{ V}$	P-Ch		-1.2	
<b>Dynamic<sup>a</sup></b>						
Total Gate Charge	$Q_g$	N-Channel $V_{DS} = 10 \text{ V}, V_{GS} = 4.5 \text{ V}, I_D = 1.2 \text{ A}$  P-Channel $V_{DS} = -10 \text{ V}, V_{GS} = -4.5 \text{ V}$ $I_D = -0.85 \text{ A}$	N-Ch		0.8	nC
Gate-Source Charge	$Q_{gs}$		P-Ch		1.10	
			N-Ch		0.25	
Gate-Drain Charge	$Q_{gd}$		P-Ch		0.50	
			N-Ch		0.2	
			P-Ch		0.2	
Turn-On Delay Time	$t_{d(on)}$	N-Channel $V_{DD} = 10 \text{ V}, R_L = 10 \Omega$ $I_D \cong 1 \text{ A}, V_{GEN} = 4.5 \text{ V}, R_G = 6 \Omega$  P-Channel $V_{DD} = -10 \text{ V}, R_L = 10 \Omega$ $I_D \cong -1 \text{ A}, V_{GEN} = -4.5 \text{ V}, R_G = 6 \Omega$	N-Ch		10	ns
Rise Time	$t_r$		P-Ch		8	
			N-Ch		20	
Turn-Off Delay Time	$t_{d(off)}$		P-Ch		20	
			N-Ch		20	
Fall Time	$t_f$		P-Ch		10	
			N-Ch		16	
Source-Drain Reverse Recovery Time	$t_{rr}$		P-Ch		8	
			N-Ch		15	
			$I_F = 1 \text{ A}, di/dt = 100 \text{ A}/\mu\text{s}$	N-Ch		
		$I_F = -1 \text{ A}, di/dt = 100 \text{ A}/\mu\text{s}$	P-Ch		40	

## Notes

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

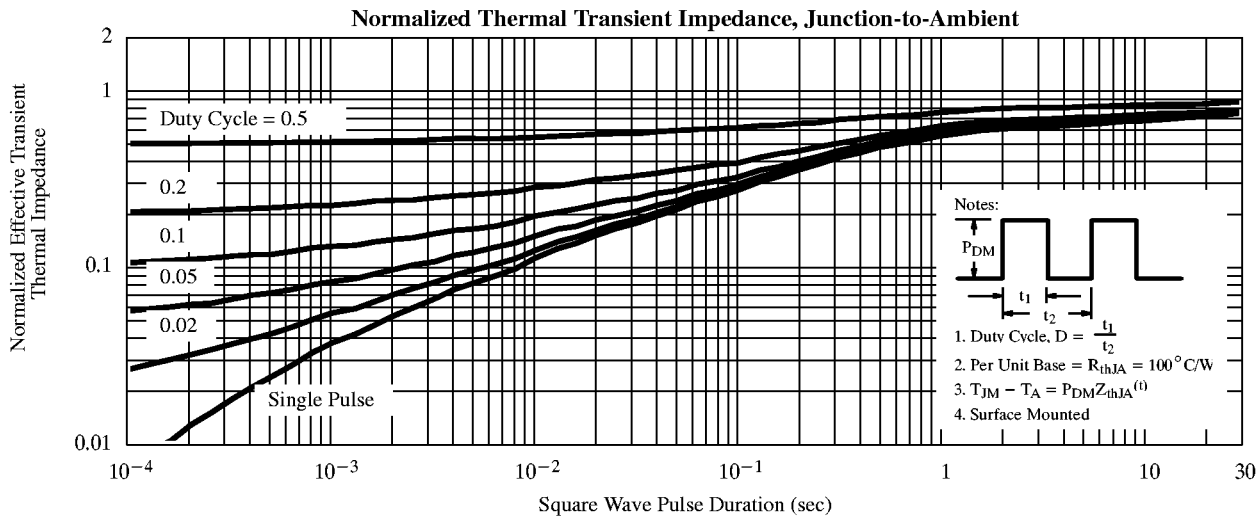
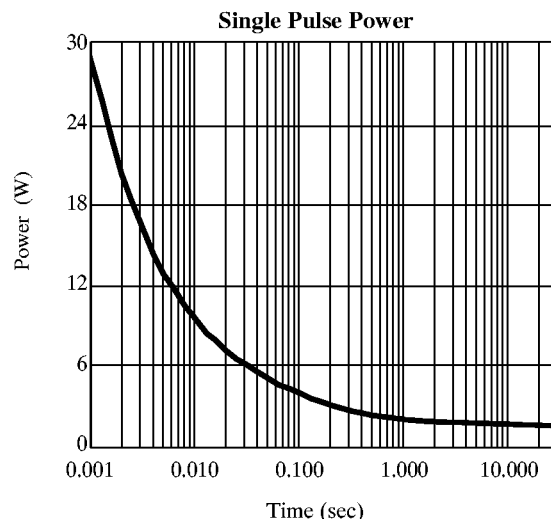
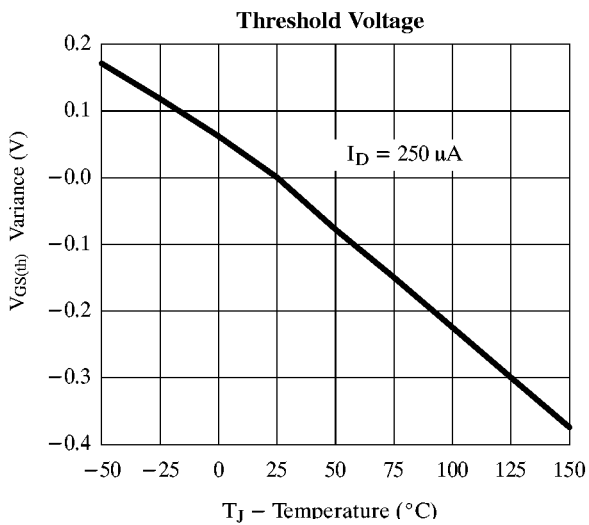
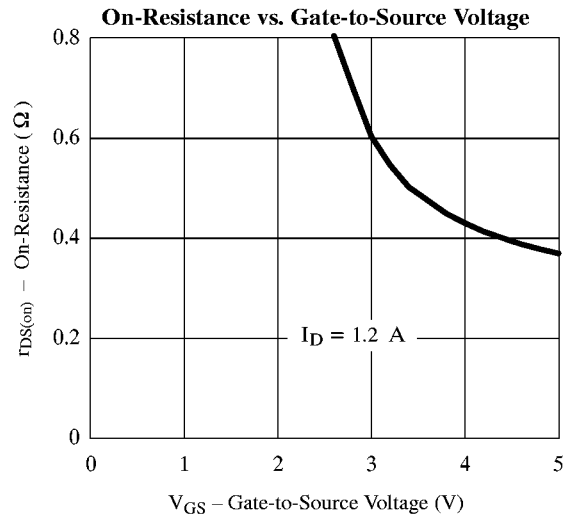
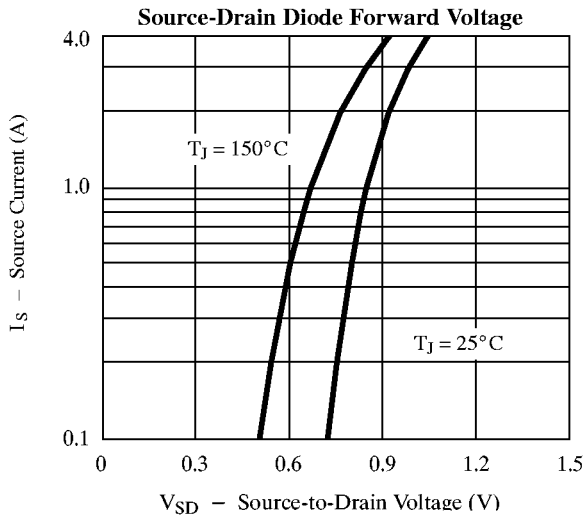
Typical Characteristics  
(25°C Unless Otherwise Noted)

N-Channel



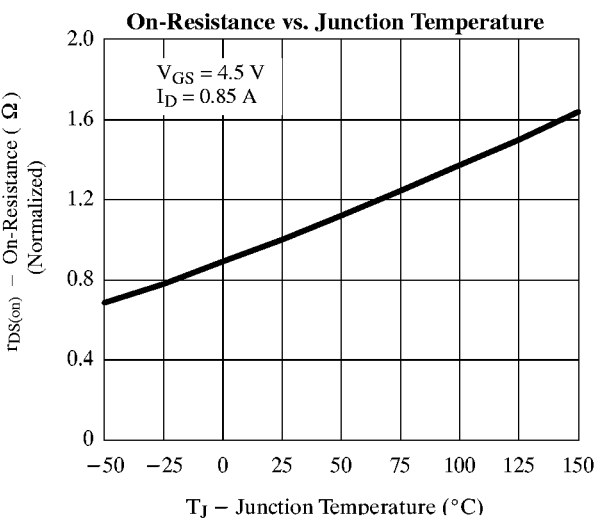
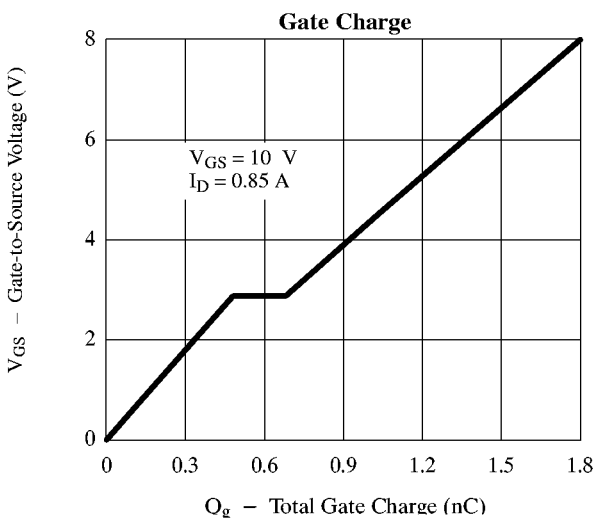
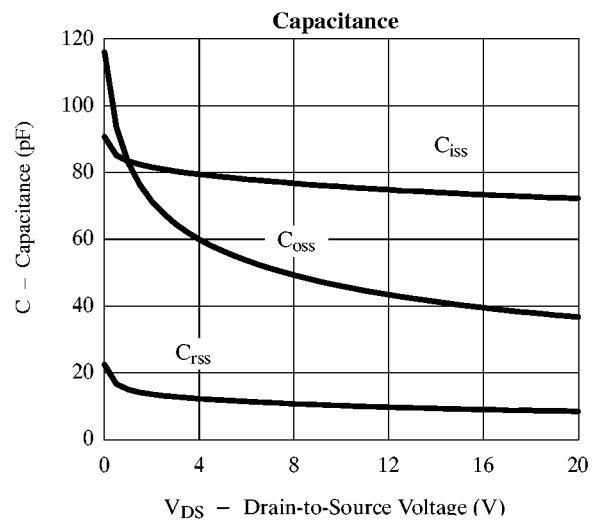
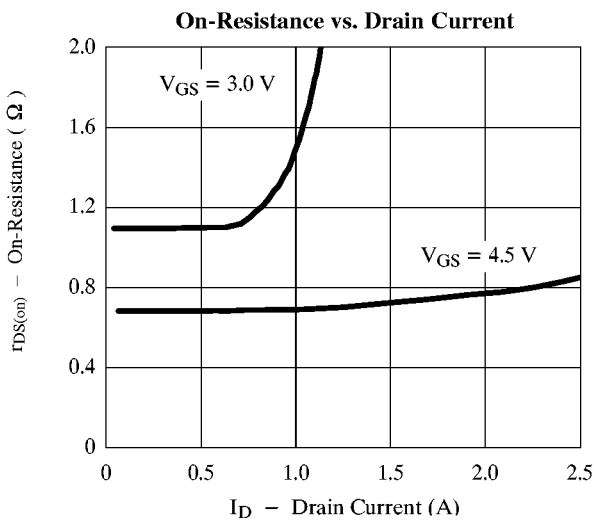
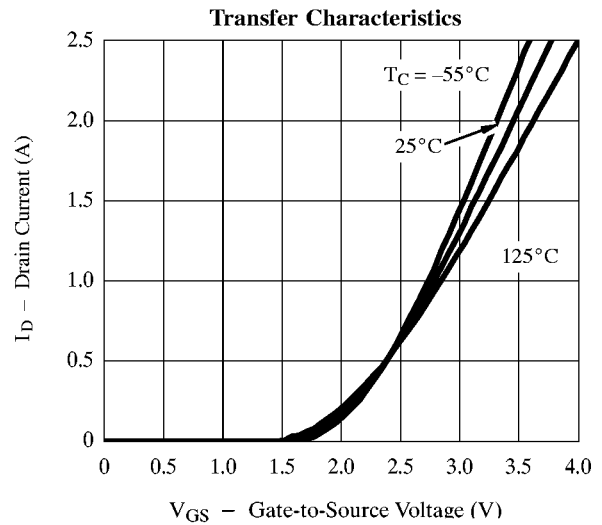
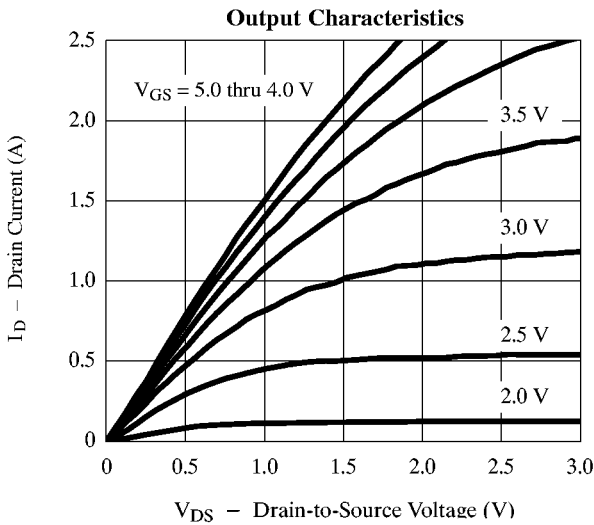
## Typical Characteristics (25°C Unless Otherwise Noted)

## N-Channel



Typical Characteristics  
(25°C Unless Otherwise Noted)

P-Channel



## Typical Characteristics (25°C Unless Otherwise Noted)

P-Channel

