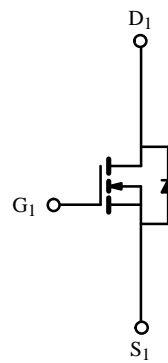
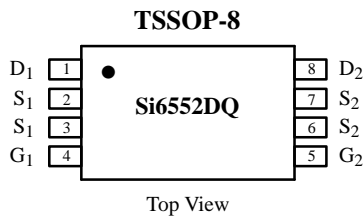


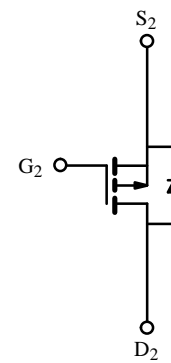
## Dual Enhancement-Mode MOSFET (N- and P-Channel)

### Product Summary

	V <sub>DS</sub> (V)	r <sub>DS(on)</sub> (Ω)	I <sub>D</sub> (A)
N-Channel	20	0.08 @ V <sub>GS</sub> = 4.5 V	± 2.8
		0.11 @ V <sub>GS</sub> = 2.5 V	± 2.1
P-Channel	-12	0.1 @ V <sub>GS</sub> = -4.5 V	± 2.5
		0.18 @ V <sub>GS</sub> = -2.5 V	± 1.9



N-Channel MOSFET



P-Channel MOSFET

### 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	-12	V
Gate-Source Voltage	V <sub>GS</sub>	± 8		
Continuous Drain Current (T <sub>J</sub> = 150° C) <sup>a</sup>	I <sub>D</sub>	T <sub>A</sub> = 25° C	± 2.8	± 2.5
		T <sub>A</sub> = 70° C	± 2.3	± 2.0
Pulsed Drain Current	I <sub>DM</sub>	± 20		A
Continuous Source Current (Diode Conduction) <sup>a</sup>	I <sub>S</sub>	1.0	-1.0	
Maximum Power Dissipation <sup>a</sup>	P <sub>D</sub>	T <sub>A</sub> = 25° C	1.0	
		T <sub>A</sub> = 70° C	0.64	
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 <sup>a</sup>	R <sub>thJA</sub>	125	°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 #1808.

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

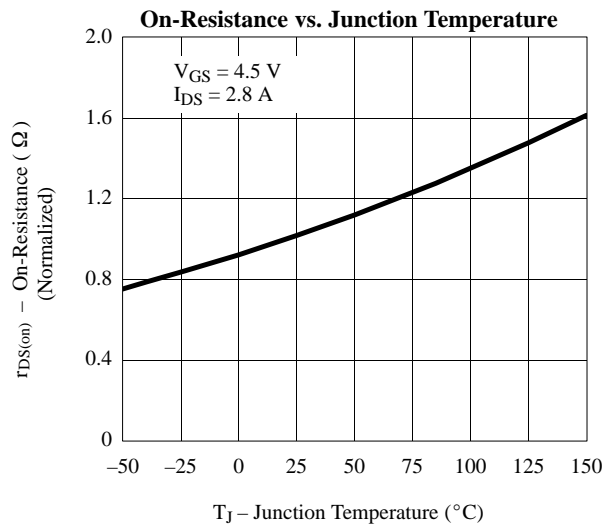
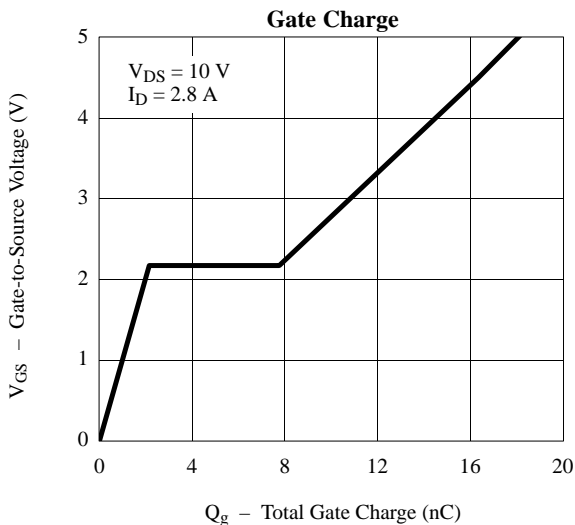
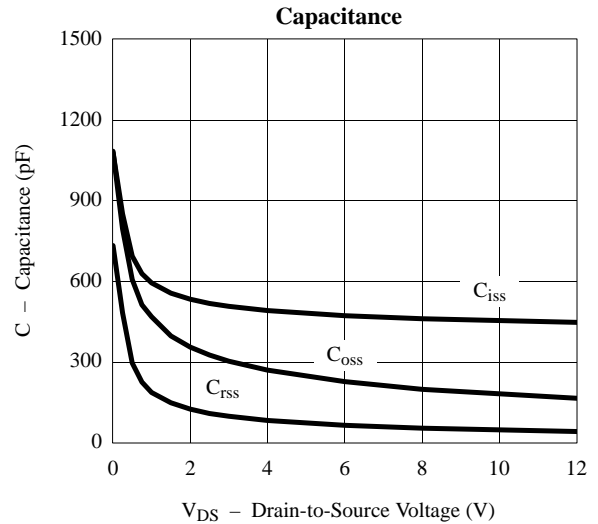
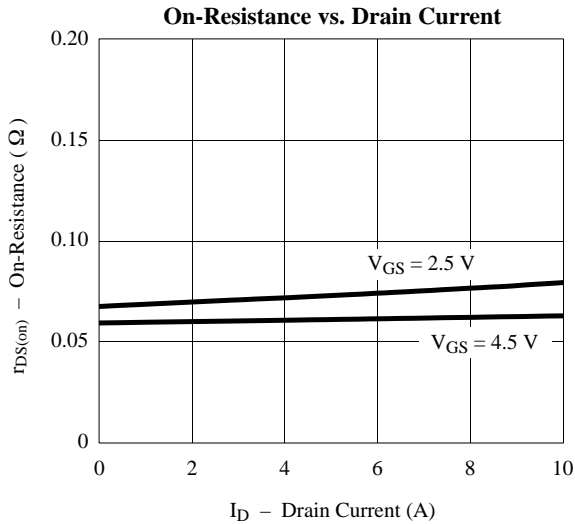
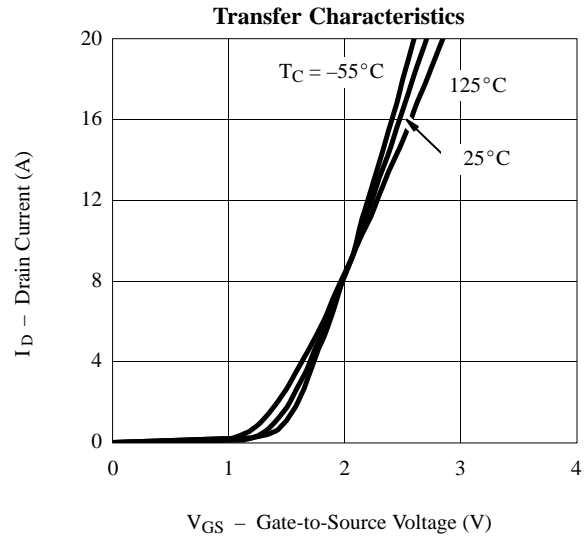
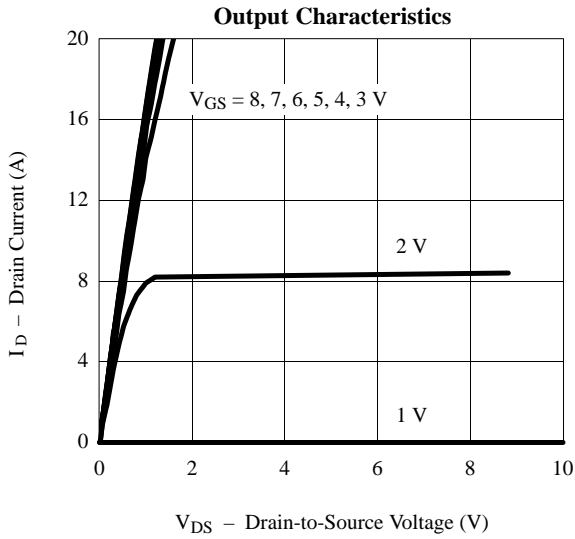
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit	
<b>Static</b>							
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250 \mu\text{A}$	N-Ch	0.6		V	
		$V_{DS} = V_{GS}, I_D = -250 \mu\text{A}$	P-Ch	-0.6			
Gate-Body Leakage	$I_{GSS}$	$V_{DS} = 0 \text{ V}, V_{GS} = \pm 8 \text{ V}$			$\pm 100$	nA	
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 20 \text{ V}, V_{GS} = 0 \text{ V}$	N-Ch		1	$\mu\text{A}$	
		$V_{DS} = -12 \text{ V}, V_{GS} = 0 \text{ V}$	P-Ch		-1		
		$V_{DS} = 20 \text{ V}, V_{GS} = 0 \text{ V}, T_J = 70^\circ\text{C}$	N-Ch		5		
		$V_{DS} = -12 \text{ V}, V_{GS} = 0 \text{ V}, T_J = 70^\circ\text{C}$	P-Ch		-5		
On-State Drain Current <sup>a</sup>	$I_{D(on)}$	$V_{DS} = 5 \text{ V}, V_{GS} = 4.5 \text{ V}$	N-Ch	10		A	
		$V_{DS} = -5 \text{ V}, V_{GS} = -4.5 \text{ V}$	P-Ch	-10			
		$V_{DS} = 5 \text{ V}, V_{GS} = 2.5 \text{ V}$	N-Ch	4			
		$V_{DS} = -5 \text{ V}, V_{GS} = -2.5 \text{ V}$	P-Ch	-4			
Drain-Source On-State Resistance <sup>a</sup>	$r_{DS(on)}$	$V_{GS} = 4.5 \text{ V}, I_D = 2.8 \text{ A}$	N-Ch		0.08	$\Omega$	
		$V_{GS} = -4.5 \text{ V}, I_D = 2.5 \text{ A}$	P-Ch		0.1		
		$V_{GS} = 2.5 \text{ V}, I_D = 2.1 \text{ A}$	N-Ch		0.11		
		$V_{GS} = -2.5 \text{ V}, I_D = 1.9 \text{ A}$	P-Ch		0.18		
Forward Transconductance <sup>a</sup>	$g_{fs}$	$V_{DS} = 15 \text{ V}, I_D = 2.8 \text{ A}$	N-Ch			S	
		$V_{DS} = -9 \text{ V}, I_D = -2.5 \text{ A}$	P-Ch				
Diode Forward Voltage <sup>a</sup>	$V_{SD}$	$I_S = 1.0 \text{ A}, V_{GS} = 0 \text{ V}$	N-Ch		1.2	V	
		$I_S = -1.0 \text{ A}, V_{GS} = 0 \text{ V}$	P-Ch		-1.2		
<b>Dynamic<sup>b</sup></b>							
Total Gate Charge	$Q_g$	N-Channel $V_{DS} = 10 \text{ V}, V_{GS} = 4.5 \text{ V}, I_D = 2.8 \text{ A}$ P-Channel $V_{DS} = -6 \text{ V}, V_{GS} = -4.5 \text{ V}, I_D = -2.5 \text{ A}$	N-Ch		16	40	nC
Gate-Source Charge	$Q_{gs}$		N-Ch		3		
			P-Ch		2		
Gate-Drain Charge	$Q_{gd}$	N-Ch		6		ns	
		P-Ch		3			
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 $V_{DD} = -6 \text{ V}, R_L = 6 \Omega$ $I_D \cong -1 \text{ A}, V_{GEN} = -4.5 \text{ V}, R_G = 6 \Omega$	N-Ch		37	60	ns
Rise Time	$t_r$		N-Ch		66	100	
			P-Ch		35	70	
Turn-Off Delay Time	$t_{d(off)}$		N-Ch		56	100	
			P-Ch		43	80	
Fall Time	$t_f$		N-Ch		57	100	
			P-Ch		22	40	
Source-Drain Reverse Recovery Time	$t_{rr}$		N-Channel— $I_F = 1.0 \text{ A}, di/dt = 100 \text{ A}/\mu\text{s}$	N-Ch		26	
		P-Channel— $I_F = -1.0 \text{ A}, di/dt = 100 \text{ A}/\mu\text{s}$	P-Ch		35	70	

Notes

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

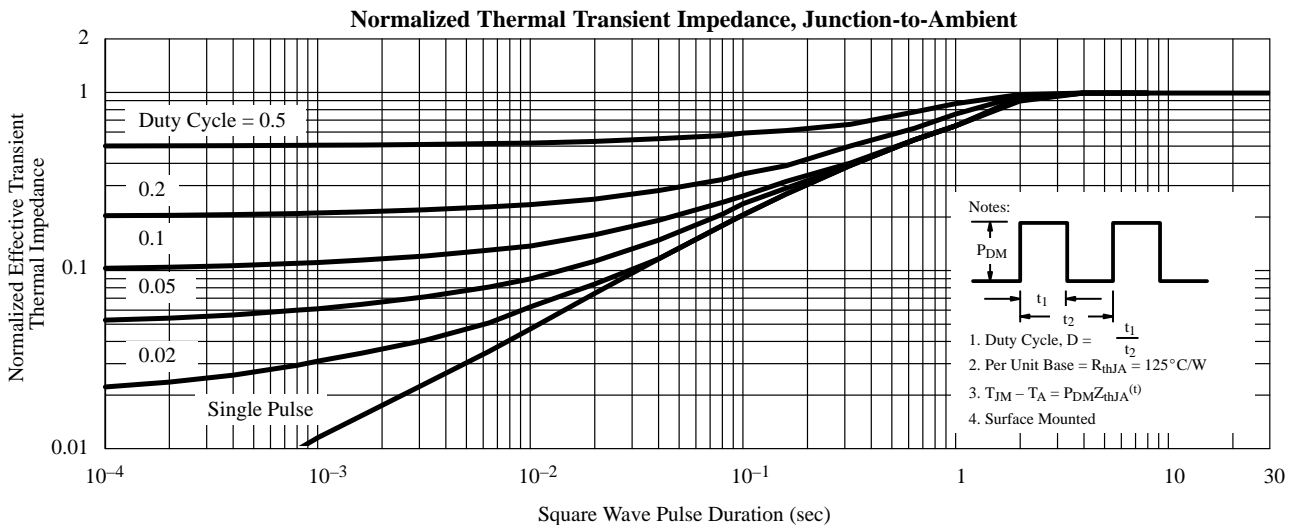
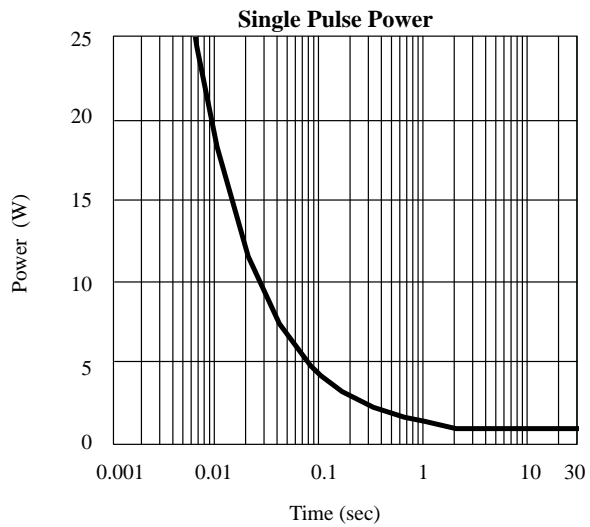
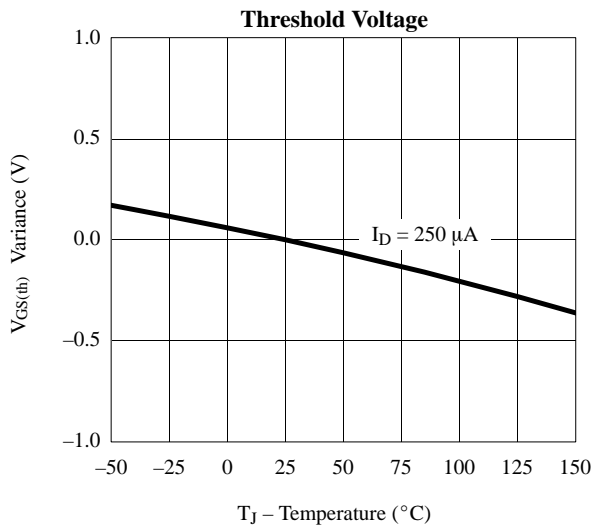
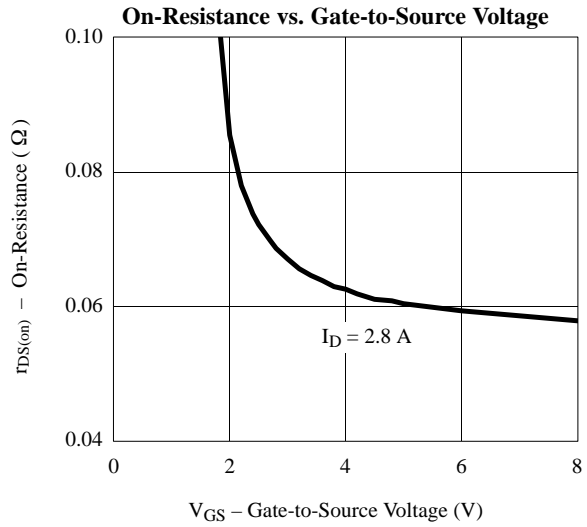
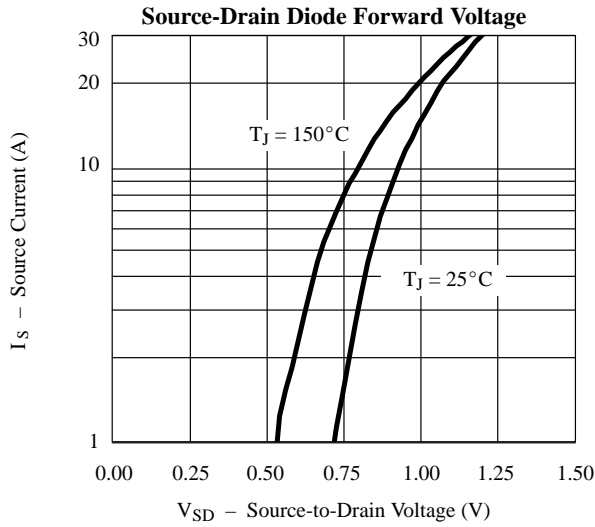
**Typical Characteristics (25°C Unless Noted)**

**N-Channel**



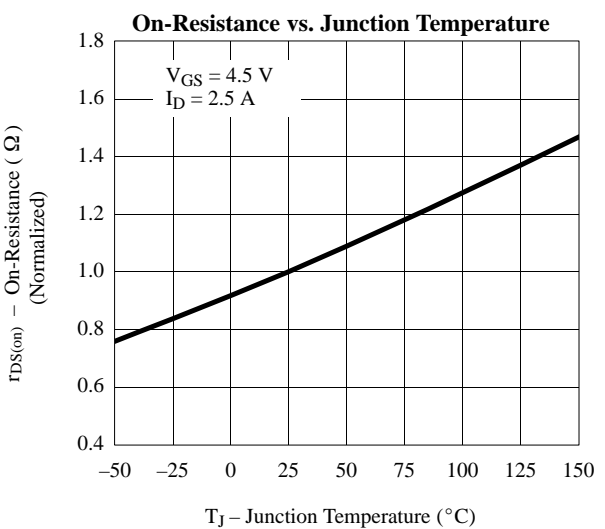
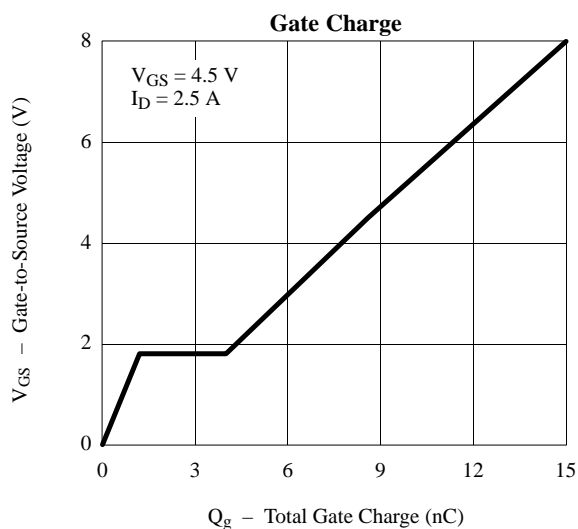
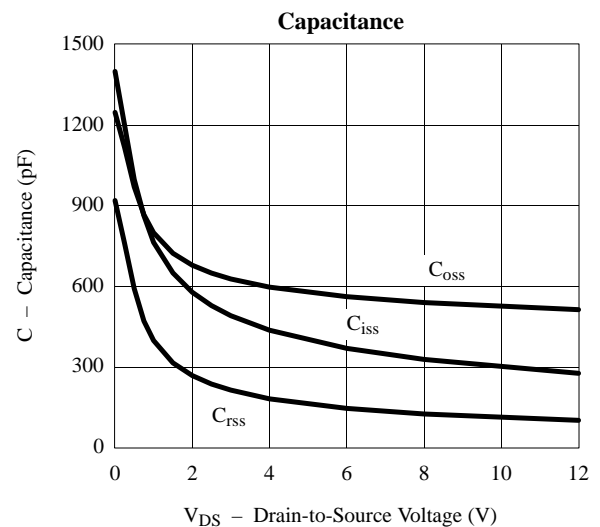
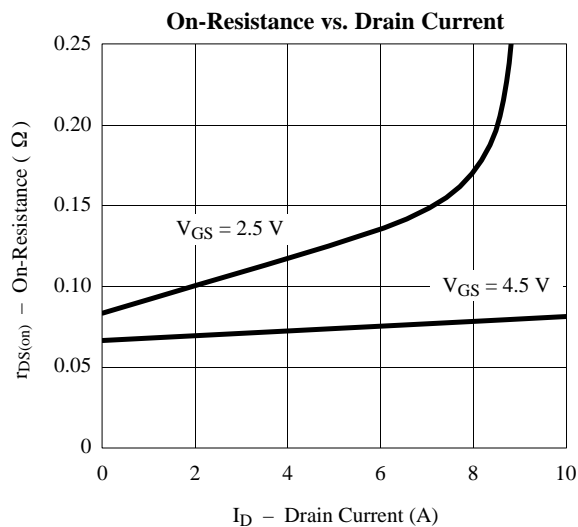
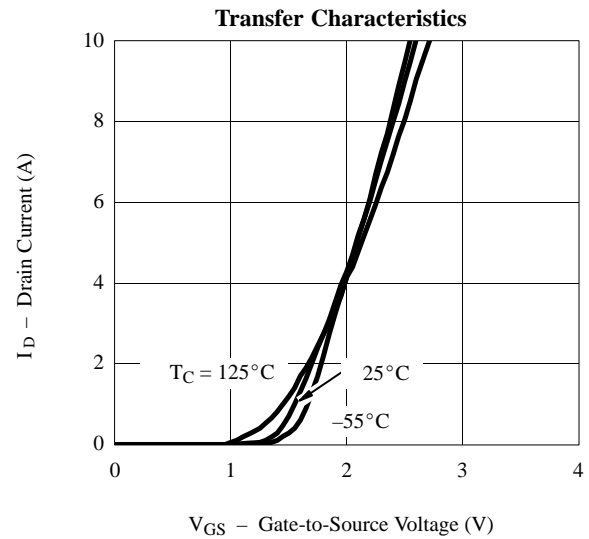
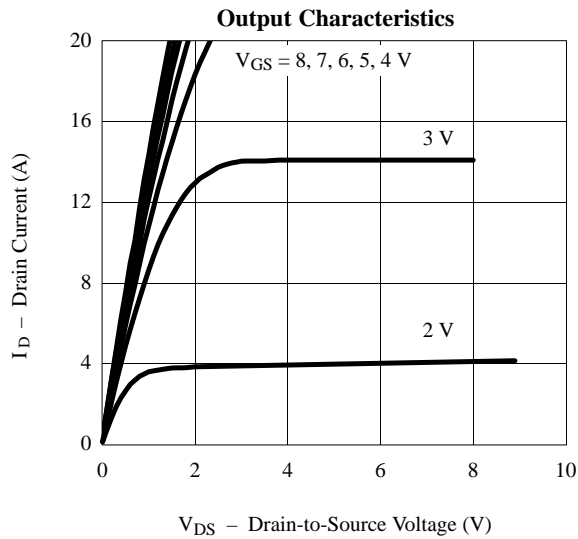
## Typical Characteristics (25°C Unless Noted)

## N-Channel



## Typical Characteristics (25°C Unless Noted)

## P-Channel



## Typical Characteristics (25°C Unless Noted)

## P-Channel

