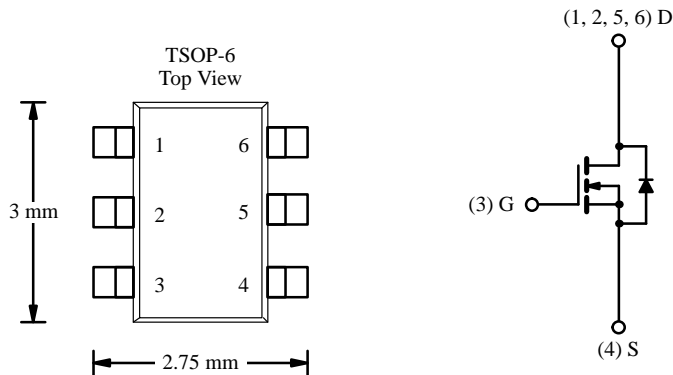


## N-Channel Enhancement-Mode MOSFET

### Product Summary

V <sub>DS</sub> (V)	r <sub>DS(on)</sub> (Ω)	I <sub>D</sub> (A)
20	0.07 @ V <sub>GS</sub> = 4.5 V	±4.0
	0.095 @ V <sub>GS</sub> = 2.5 V	±3.4

**2.5-V Rated**



N-Channel MOSFET

**Power Dissipation**  
**Si3442DV—2.0 W**

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

Parameter	Symbol	Limit	Unit	
Drain-Source Voltage	V <sub>DS</sub>	±20	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	±4.0	A
		T <sub>A</sub> = 70°C	±3.1	
Pulsed Drain Current	I <sub>DM</sub>	±20		
Continuous Source Current (Diode Conduction) <sup>a</sup>	I <sub>S</sub>	±1.6		
Maximum Power Dissipation <sup>a</sup>	P <sub>D</sub>	T <sub>A</sub> = 25°C	2.0	W
		T <sub>A</sub> = 70°C	1.28	
Operating Junction and Storage Temperature Range	T <sub>J</sub> , T <sub>stg</sub>	-55 to 150	°C	

### Thermal Resistance Ratings

Parameter	Symbol	Limit	Unit
Maximum Junction-to-Ambient <sup>a</sup>	R <sub>thJA</sub>	62.5	°C/W

Notes

a. Surface Mounted on FR4 Board, t ≤ 5 sec.

Updates to this data sheet may be obtained via facsimile by calling Siliconix FaxBack, 1-408-970-5600. Please request FaxBack document #1253.

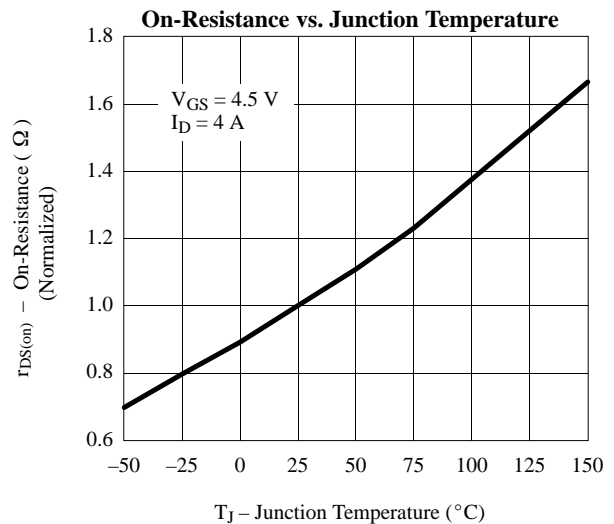
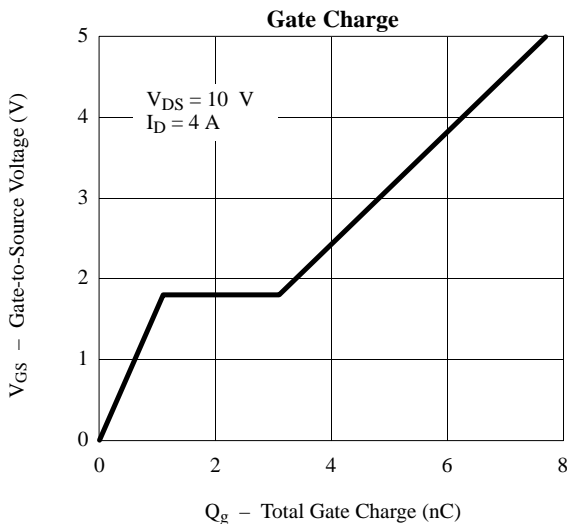
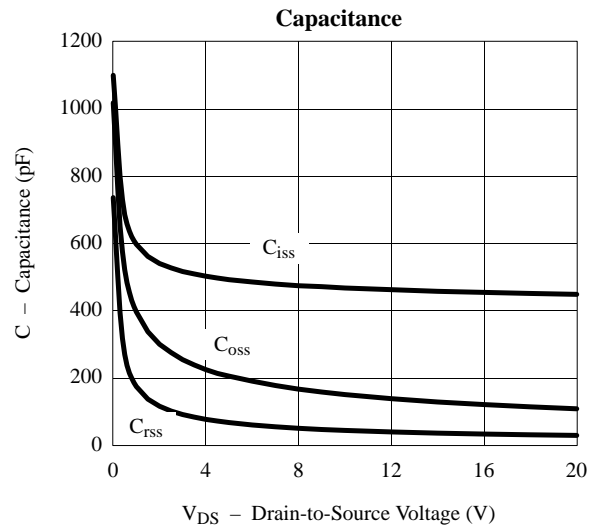
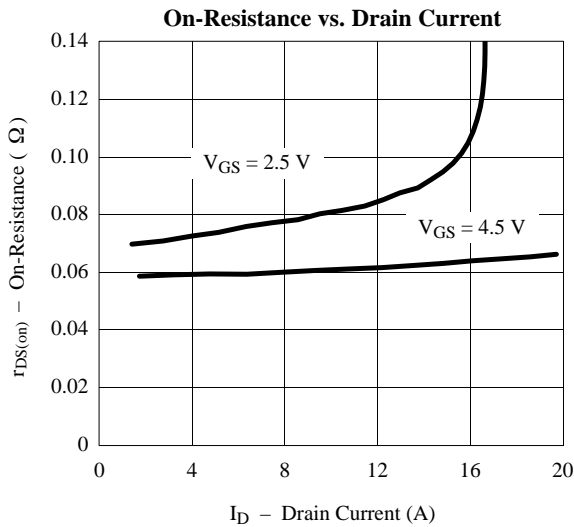
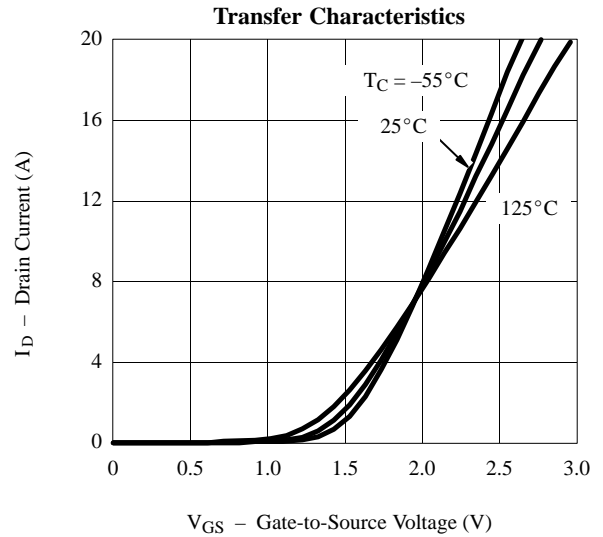
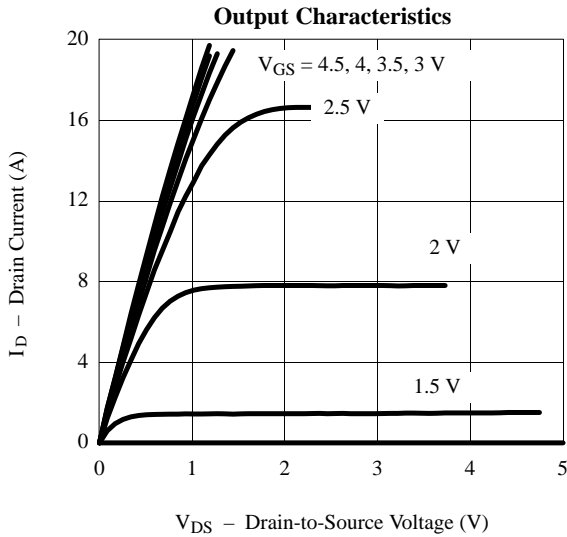
**Specifications ( $T_J = 25^\circ\text{C}$  Unless Otherwise Noted)**

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
<b>Static</b>						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\ \mu\text{A}$	0.6			V
Gate-Body Leakage	$I_{GSS}$	$V_{DS} = 0\ \text{V}, V_{GS} = \pm 8\ \text{V}$			$\pm 100$	nA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 20\ \text{V}, V_{GS} = 0\ \text{V}$			1	$\mu\text{A}$
		$V_{DS} = 20\ \text{V}, V_{GS} = 0\ \text{V}, T_J = 70^\circ\text{C}$			5	
On-State Drain Current <sup>a</sup>	$I_{D(on)}$	$V_{DS} = 5\ \text{V}, V_{GS} = 4.5\ \text{V}$	10			A
On-State Drain Current <sup>a</sup>		$V_{DS} = 5\ \text{V}, V_{GS} = 2.5\ \text{V}$	4			
Drain-Source On-State Resistance <sup>a</sup>	$r_{DS(on)}$	$V_{GS} = 4.5\ \text{V}, I_D = 4.0\ \text{A}$		0.058	0.07	$\Omega$
		$V_{GS} = 2.5\ \text{V}, I_D = 3.4\ \text{A}$		0.072	0.095	
Forward Transconductance <sup>a</sup>	$g_{fs}$	$V_{DS} = 10\ \text{V}, I_D = 4.0\ \text{A}$		11.3		S
Diode Forward Voltage <sup>a</sup>	$V_{SD}$	$I_S = 1.6\ \text{A}, V_{GS} = 0\ \text{V}$		0.75	1.2	V
<b>Dynamic<sup>b</sup></b>						
Total Gate Charge	$Q_g$	$V_{DS} = 10\ \text{V}, V_{GS} = 4.5\ \text{V}, I_D = 4.0\ \text{A}$		7.0	10	nC
Gate-Source Charge	$Q_{gs}$			1.1		
Gate-Drain Charge	$Q_{gd}$			2.0		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = 10\ \text{V}, R_L = 10\ \Omega$ $I_D \cong 1\ \text{A}, V_{GEN} = 4.5\ \text{V}, R_G = 6\ \Omega$		8	20	ns
Rise Time	$t_r$			24	40	
Turn-Off Delay Time	$t_{d(off)}$			35	60	
Fall Time	$t_f$			10	20	
Source-Drain Reverse Recovery Time	$t_{rr}$		$I_F = 1.6\ \text{A}, di/dt = 100\ \text{A}/\mu\text{s}$		40	

## 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 Otherwise Noted)**



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

