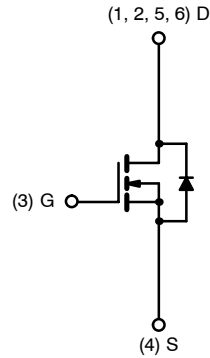
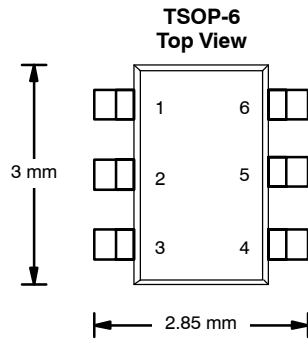


## N-Channel 2.5-V (G-S) MOSFET

PRODUCT SUMMARY		
$V_{DS}$ (V)	$r_{DS(on)}$ ( $\Omega$ )	$I_D$ (A)
20	0.057 @ $V_{GS} = 4.5$ V	4.2
	0.090 @ $V_{GS} = 2.5$ V	3.4



Ordering Information: Si3442BDV-T1—E3  
Marking Code: 2Bxxx

N-Channel MOSFET

ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)					
Parameter	Symbol	5 secs	Steady State	Unit	
Drain-Source Voltage	$V_{DS}$	20		V	
Gate-Source Voltage	$V_{GS}$	$\pm 12$			
Continuous Drain Current ( $T_J = 150^\circ\text{C}$ ) <sup>a</sup>	$I_D$	$T_A = 25^\circ\text{C}$	4.2	3.0	A
		$T_A = 70^\circ\text{C}$	3.4	2.4	
Pulsed Drain Current	$I_{DM}$	20			
Continuous Source Current (Diode Conduction) <sup>a</sup>	$I_S$	1.4	0.72	W	
Maximum Power Dissipation <sup>a</sup>	$P_D$	$T_A = 25^\circ\text{C}$	1.67		0.86
		$T_A = 70^\circ\text{C}$	1.07		0.55
Operating Junction and Storage Temperature Range	$T_J, T_{stg}$	-55 to 150		$^\circ\text{C}$	

THERMAL RESISTANCE RATINGS					
Parameter	Symbol	Typical	Maximum	Unit	
Maximum Junction-to-Ambient <sup>a</sup>	$R_{thJA}$	$t \leq 5$ sec	75	100	$^\circ\text{C}/\text{W}$
		Steady State	120	145	
Maximum Junction-to-Foot (Drain)	$R_{thJF}$	70	85		

Notes

a. Surface Mounted on FR4 Board,  $t \leq 5$  sec.

For SPICE model information via the Worldwide Web: <http://www.vishay.com/www/product/spice.htm>

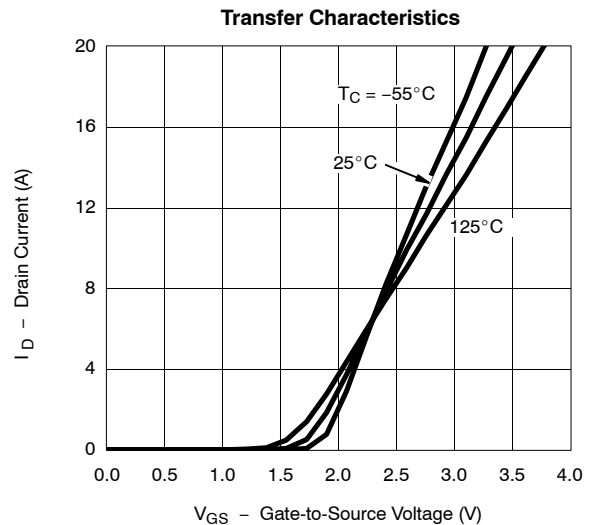
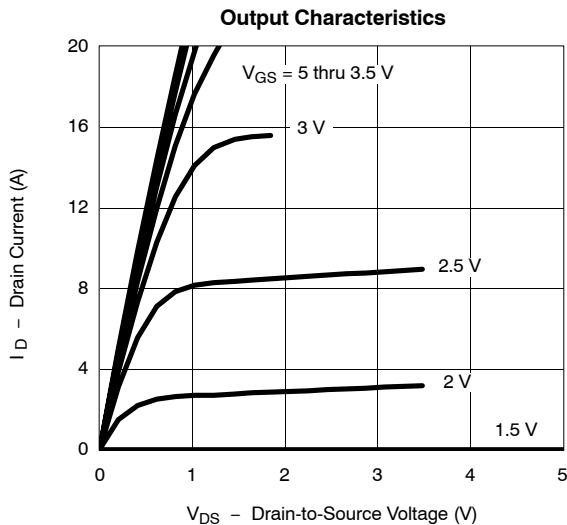


<b>SPECIFICATIONS (T<sub>J</sub> = 25 °C UNLESS OTHERWISE NOTED)</b>						
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
<b>Static</b>						
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250 μA	0.6		1.8	V
Gate-Body Leakage	I <sub>GSS</sub>	V <sub>DS</sub> = 0 V, V <sub>GS</sub> = ±12 V			±100	nA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = 20 V, V <sub>GS</sub> = 0 V			1	μA
		V <sub>DS</sub> = 20 V, V <sub>GS</sub> = 0 V, T <sub>J</sub> = 70 °C			5	
On-State Drain Current <sup>a</sup>	I <sub>D(on)</sub>	V <sub>DS</sub> = 5 V, V <sub>GS</sub> = 4.5 V	10			A
On-State Drain Current <sup>a</sup>		V <sub>DS</sub> = 5 V, V <sub>GS</sub> = 2.5 V	4			
Drain-Source On-State Resistance <sup>a</sup>	r <sub>DS(on)</sub>	V <sub>GS</sub> = 4.5 V, I <sub>D</sub> = 4 A		0.045	0.057	Ω
		V <sub>GS</sub> = 2.5 V, I <sub>D</sub> = 3.4 A		0.070	0.090	
Forward Transconductance <sup>a</sup>	g <sub>fs</sub>	V <sub>DS</sub> = 10 V, I <sub>D</sub> = 4.0 A		11.3		S
Diode Forward Voltage <sup>a</sup>	V <sub>SD</sub>	I <sub>S</sub> = 1.6 A, V <sub>GS</sub> = 0 V		0.75	1.2	V
<b>Dynamic<sup>b</sup></b>						
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> = 10 V, V <sub>GS</sub> = 4.5 V, I <sub>D</sub> = 4.0 A		3	5	nC
Gate-Source Charge	Q <sub>gs</sub>		0.65			
Gate-Drain Charge	Q <sub>gd</sub>		0.95			
Gate Resistance	R <sub>g</sub>	f = 1 MHz		2.7		Ω
Turn-On Delay Time	t <sub>d(on)</sub>	V <sub>DD</sub> = 10 V, R <sub>L</sub> = 10 Ω I <sub>D</sub> ≅ 1 A, V <sub>GEN</sub> = 4.5 V, R <sub>g</sub> = 6 Ω		35	55	ns
Rise Time	t <sub>r</sub>		50	75		
Turn-Off Delay Time	t <sub>d(off)</sub>		20	30		
Fall Time	t <sub>f</sub>		15	25		
Source-Drain Reverse Recovery Time	t <sub>rr</sub>		I <sub>F</sub> = 1.6 A, di/dt = 100 A/μs		30	

**Notes**

- a. Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2%.
- b. Guaranteed by design, not subject to production testing.

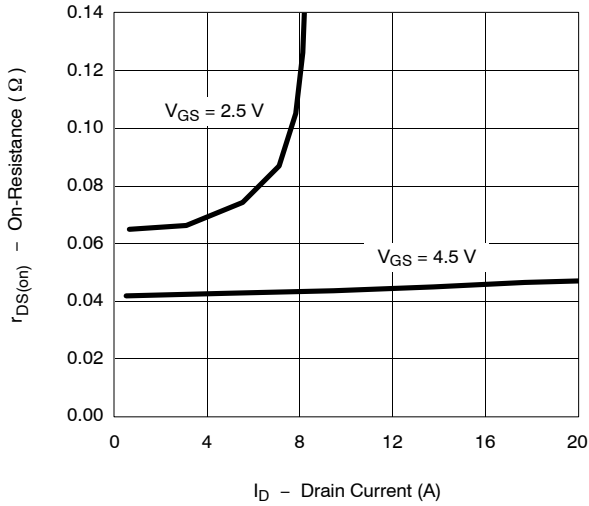
**TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)**



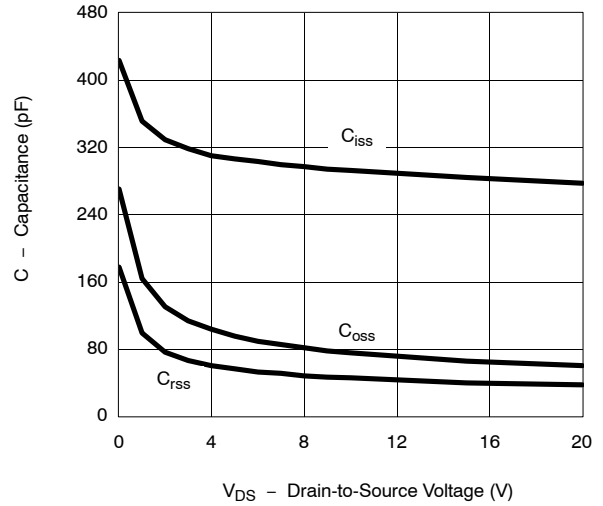


**TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)**

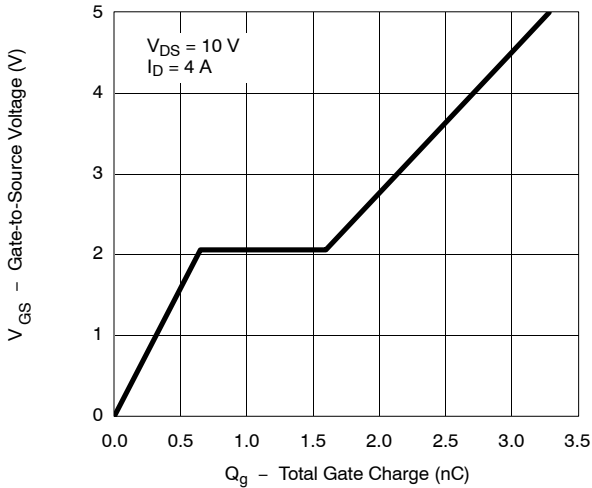
**On-Resistance vs. Drain Current**



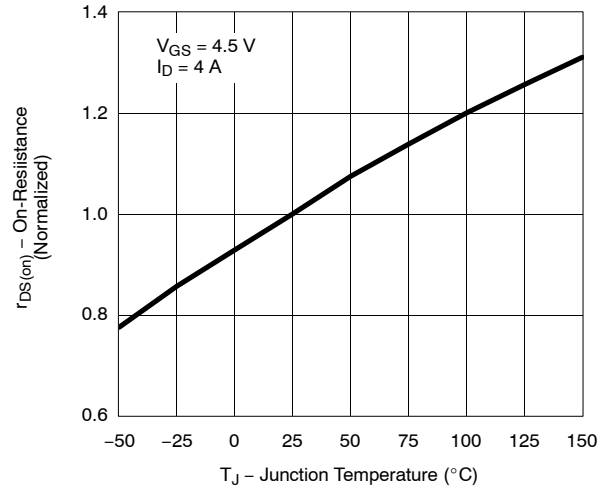
**Capacitance**



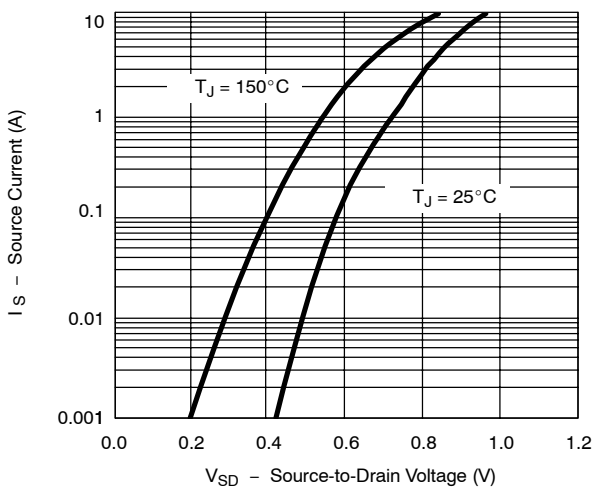
**Gate Charge**



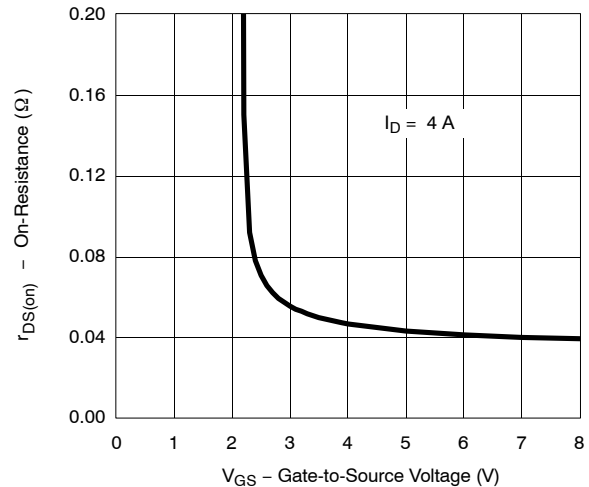
**On-Resistance vs. Junction Temperature**



**Source-Drain Diode Forward Voltage**



**On-Resistance vs. Gate-to-Source Voltage**



**TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)**

