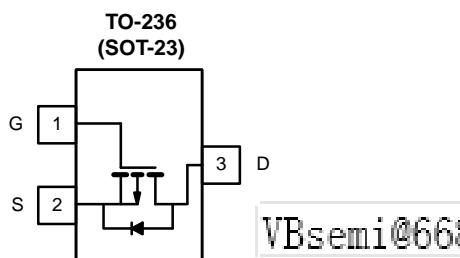


P-Channel 60 V (D-S) MOSFET

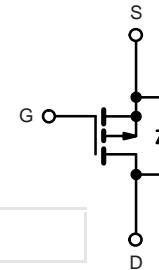
PRODUCT SUMMARY			
V _{DS} (V)	R _{DS(on)} (Ω)	V _{GS(th)} (V)	I _D (mA)
- 60	3 at V _{GS} = - 10 V	- 1 to - 3	-500

FEATURES

- Halogen-free According to IEC 61249-2-21 Definition
- TrenchFET® Power MOSFET
- High-Side Switching
- Low On-Resistance: 3 Ω
- Low Threshold: - 2 V (typ.)
- Fast Switching Speed: 20 ns (typ.)
- Low Input Capacitance: 20 pF (typ.)
- Compliant to RoHS Directive 2002/95/EC



VBsemi@6688



P-Channel MOSFET

ABSOLUTE MAXIMUM RATINGS T _A = 25 °C, unless otherwise noted			
Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V _{DS}	- 60	V
Gate-Source Voltage	V _{GS}	± 20	
Continuous Drain Current ^a	T _A = 25 °C	I _D	mA
	T _A = 100 °C	- 350	
Pulsed Drain Current ^b	I _{DM}	-1500	
Power Dissipation ^a	T _A = 25 °C	P _D	mW
	T _A = 100 °C	240	
Maximum Junction-to-Ambient ^a	R _{thJA}	350	°C/W
Operating Junction and Storage Temperature Range	T _J , T _{stg}	- 55 to 150	°C

Notes:

a. Surface mounted on FR4 board.

b. Pulse width limited by maximum junction temperature.

SPECIFICATIONS $T_A = 25^\circ\text{C}$, unless otherwise noted

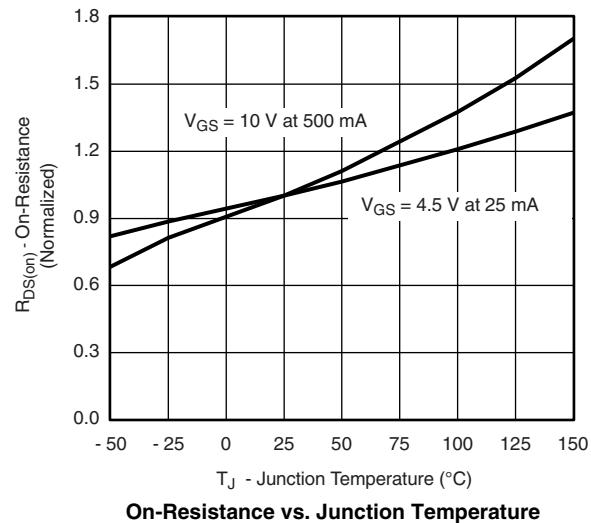
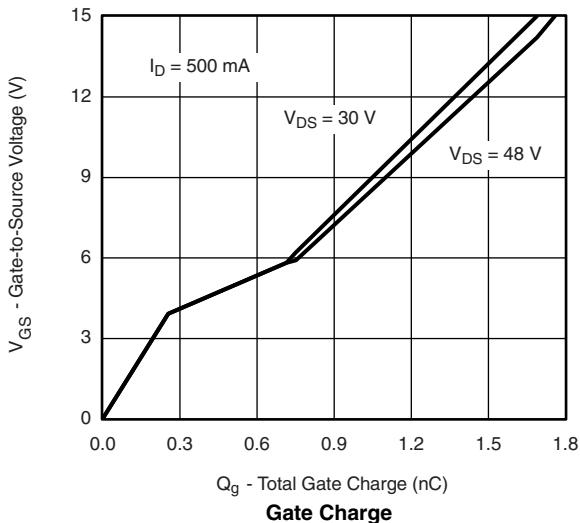
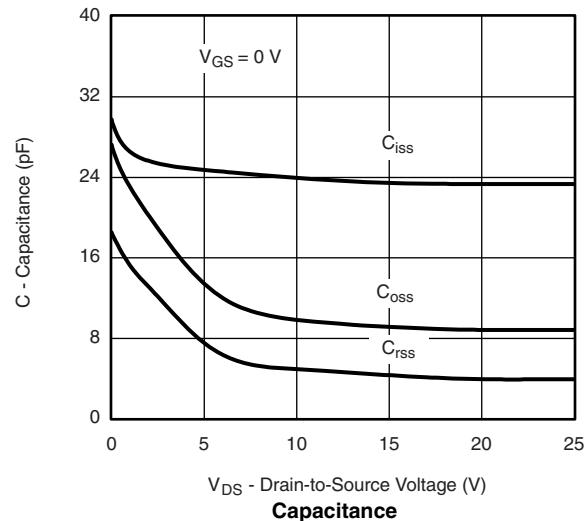
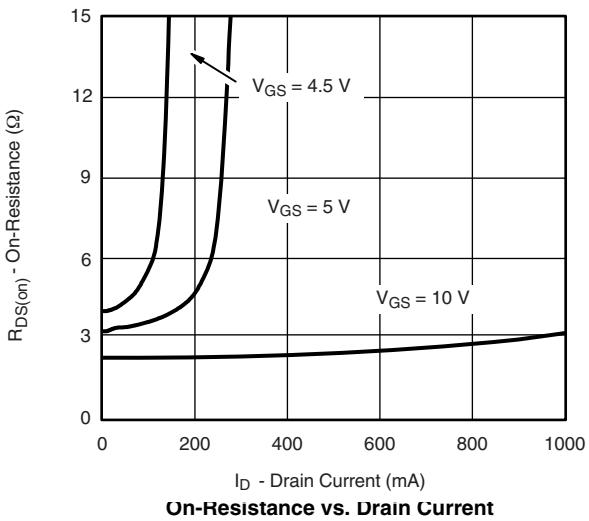
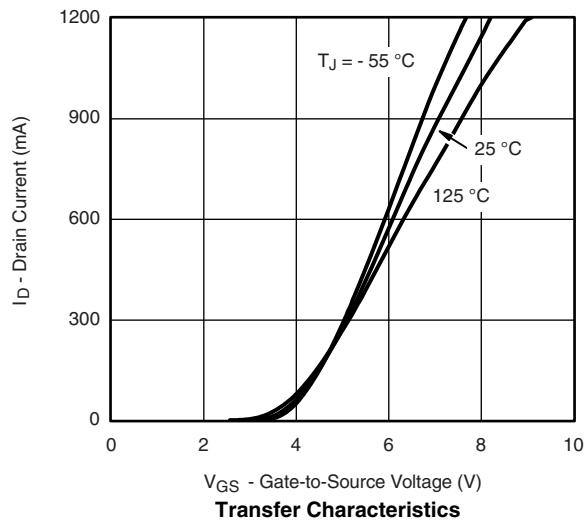
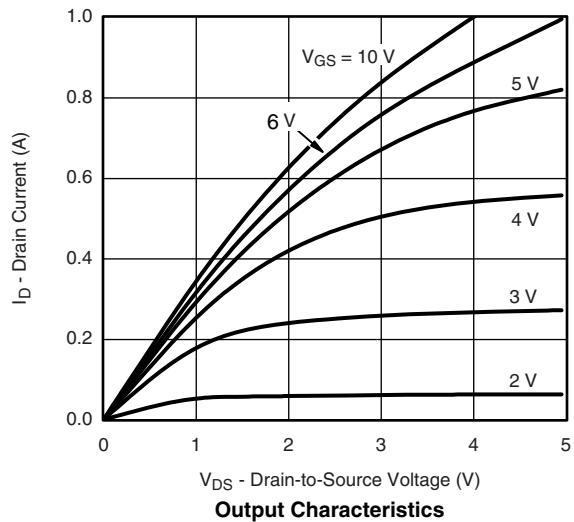
Parameter	Symbol	Test Conditions	Limits			Unit
			Min.	Typ. ^a	Max.	
Static						
Drain-Source Breakdown Voltage	V_{DS}	$V_{GS} = 0 \text{ V}, I_D = -10 \mu\text{A}$	-60			V
Gate-Threshold Voltage	$V_{GS(\text{th})}$	$V_{DS} = V_{GS}, I_D = -250 \mu\text{A}$	-1		-3	
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0 \text{ V}, V_{GS} = \pm 20 \text{ V}$			± 10	μA
		$V_{DS} = 0 \text{ V}, V_{GS} = \pm 10 \text{ V}$			± 200	
		$V_{DS} = 0 \text{ V}, V_{GS} = \pm 10 \text{ V}, T_J = 85^\circ\text{C}$			± 500	
		$V_{DS} = 0 \text{ V}, V_{GS} = \pm 5 \text{ V}$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -60 \text{ V}, V_{GS} = 0 \text{ V}$			-25	
		$V_{DS} = -60 \text{ V}, V_{GS} = 0 \text{ V}, T_J = 85^\circ\text{C}$			-250	
On-State Drain Current ^a	$I_{D(\text{on})}$	$V_{GS} = -10 \text{ V}, V_{DS} = -4.5 \text{ V}$	-50			
		$V_{GS} = -10 \text{ V}, V_{DS} = -10 \text{ V}$	-600			mA
Drain-Source On-Resistance ^a	$R_{DS(\text{on})}$	$V_{GS} = -4.5 \text{ V}, I_D = -25 \text{ mA}$		4		
		$V_{GS} = -10 \text{ V}, I_D = -100 \text{ mA}$		3		
		$V_{GS} = -10 \text{ V}, I_D = -100 \text{ mA}, T_J = 125^\circ\text{C}$		9		Ω
Forward Transconductance ^a	g_{fs}	$V_{DS} = -10 \text{ V}, I_D = -100 \text{ mA}$	80			mS
Diode Forward Voltage	V_{SD}	$I_S = -100 \text{ mA}, V_{GS} = 0 \text{ V}$			-1.4	V
Dynamic						
Total Gate Charge	Q_g	$V_{DS} = -30 \text{ V}, V_{GS} = -15 \text{ V}$ $I_D \approx -100 \text{ mA}$		2.0		
Gate-Source Charge	Q_{gs}			1.2		
Gate-Drain Charge	Q_{gd}			0.8		nC
Input Capacitance	C_{iss}	$V_{DS} = -25 \text{ V}, V_{GS} = 0 \text{ V}$ $f = 1 \text{ MHz}$		23		
Output Capacitance	C_{oss}			10		
Reverse Transfer Capacitance	C_{rss}			5		pF
Switching^b						
Turn-On Time	$t_{d(\text{on})}$	$V_{DD} = -25 \text{ V}, R_L = 150 \Omega$ $I_D \approx -200 \text{ mA}, V_{GEN} = -10 \text{ V}, R_g = 10 \Omega$		20		
Turn-Off Time	$t_{d(\text{off})}$			35		ns

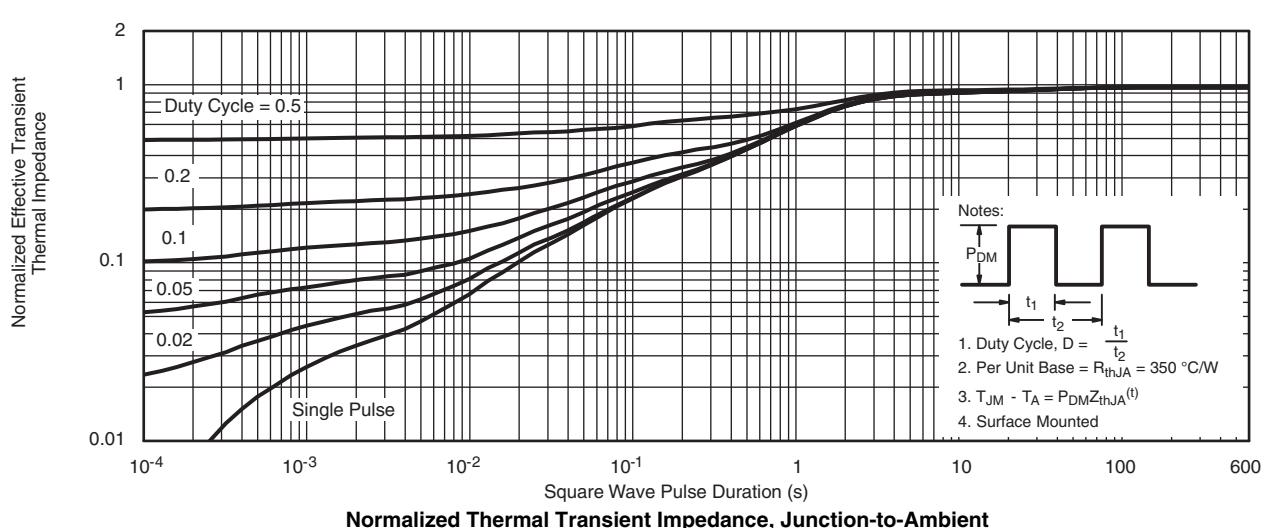
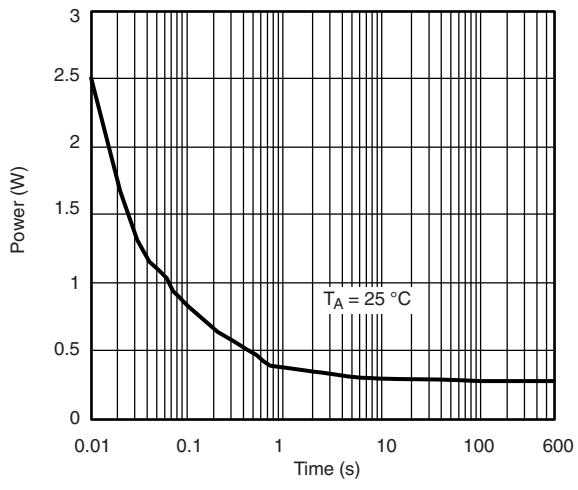
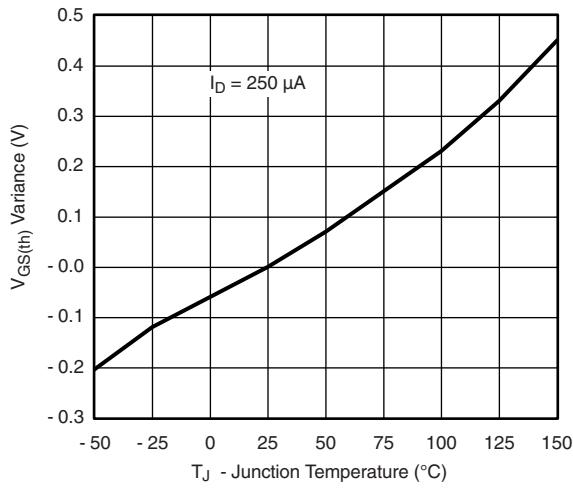
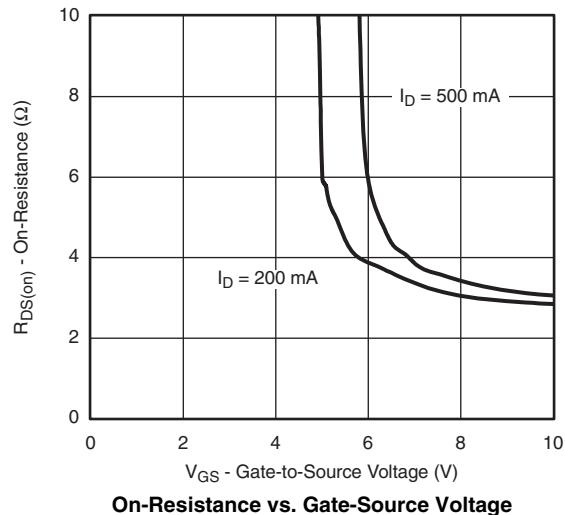
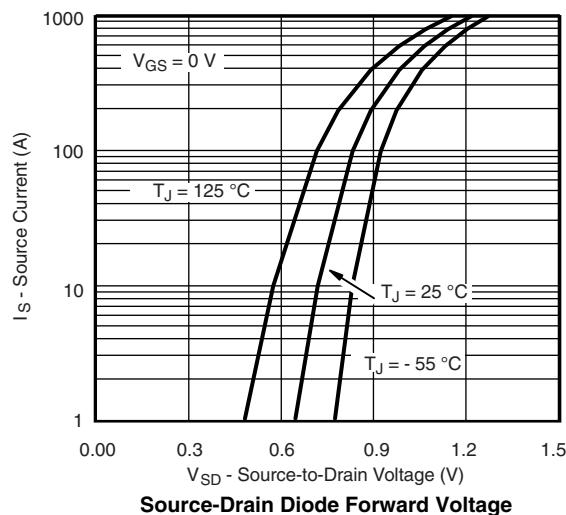
Notes:

a. Pulse test: $PW \leq 300 \mu\text{s}$ duty cycle $\leq 2\%$.

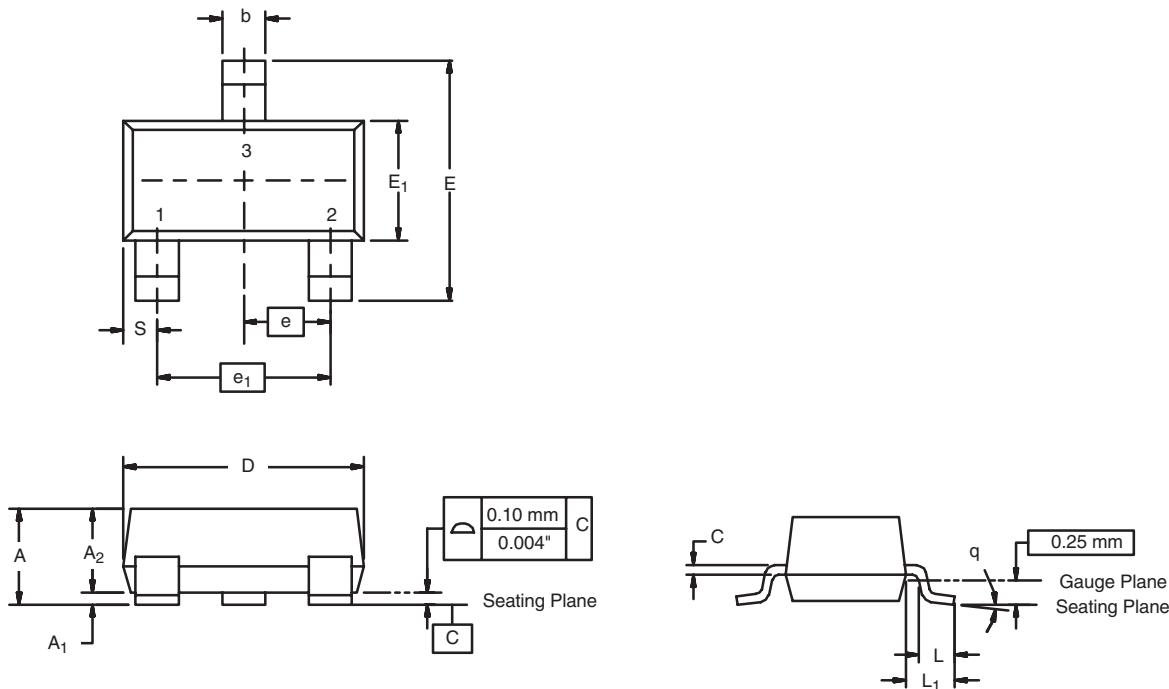
b. Switching time is essentially independent of operating temperature.

Stresses beyond those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted


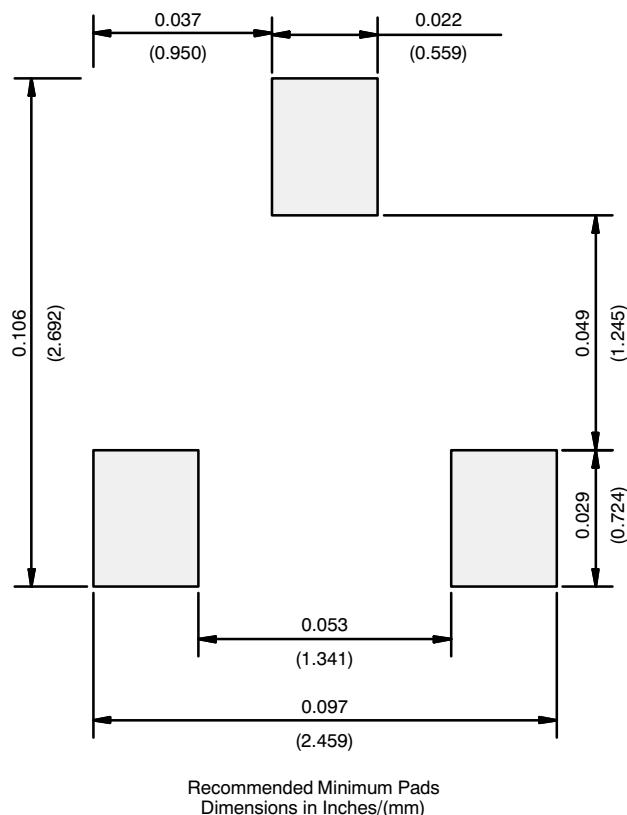
TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted


SOT-23 (TO-236): 3-LEAD



Dim	MILLIMETERS		INCHES	
	Min	Max	Min	Max
A	0.89	1.12	0.035	0.044
A ₁	0.01	0.10	0.0004	0.004
A ₂	0.88	1.02	0.0346	0.040
b	0.35	0.50	0.014	0.020
c	0.085	0.18	0.003	0.007
D	2.80	3.04	0.110	0.120
E	2.10	2.64	0.083	0.104
E ₁	1.20	1.40	0.047	0.055
e	0.95 BSC		0.0374 Ref	
e ₁	1.90 BSC		0.0748 Ref	
L	0.40	0.60	0.016	0.024
L ₁	0.64 Ref		0.025 Ref	
S	0.50 Ref		0.020 Ref	
q	3°	8°	3°	8°

ECN: S-03946-Rev. K, 09-Jul-01
 DWG: 5479

RECOMMENDED MINIMUM PADS FOR SOT-23

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