



P-Channel 12 V (D-S) MOSFET

PRODUCT SUMMARY							
V _{DS} (V)	$R_{DS(on)}\left(\Omega\right)$ (Max.)	I _D (A) ^e	Q _g (Typ.)				
- 12	0.026 at V _{GS} = - 4.5 V	- 16					
	0.035 at V _{GS} = - 2.5 V	- 16	21 nC				
	0.055 at V _{GS} = - 1.8 V	- 13	21110				
	0.092 at V _{GS} = - 1.5 V	- 2.5					

MICRO FOOT

Bump Side View

s





Device Marking: 8483 xxx = Date/Lot Traceability Code

Ordering Information: Si8483DB-T2-E1 (Lead (Pb)-free and Halogen-free)

FEATURES

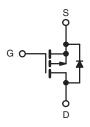
- TrenchFET® Power MOSFET
- Ultra-small 1.5 mm x 1 mm Maximum Outline
- Ultra-thin 0.59 Maximum Height
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912



HALOGEN FREE

APPLICATIONS

- Load Switch for Smart Phones, Tablet PCs, and Mobile Computing
 - Low Voltage Drop
 - Low Power Consumption
 - Increased Battery Life



P-Channel MOSFET

ABSOLUTE MAXIMUM RATINGS	(T _A = 25 °C, unle	ss otherwise n	oted)	
Parameter	Symbol	Limit	Unit	
Drain-Source Voltage	V _{DS}	- 12	V	
Gate-Source Voltage		V _{GS}	± 10	V
	T _C = 25 °C		- 16	
Continuous Drain Current /T 150 °C	T _C = 70 °C	. [- 15]
Continuous Drain Current (T _J = 150 °C)	T _A = 25 °C	I _D	- 8.7 ^{a, b}]
	T _A = 70 °C		- 7 ^{a, b}	Α
Pulsed Drain Current (t = 300 μs)		I _{DM}	- 25	1
Continuous Courses Dunin Diada Coursest	T _C = 25 °C	1	- 10.8]
Continuous Source-Drain Diode Current	T _A = 25 °C	I _S	- 2.3 ^{a, b}]
	T _C = 25 °C		13	
Manhaum Barran Birahadian	T _C = 70 °C		8.4	1 ,,,
Maximum Power Dissipation	T _A = 25 °C	P _D	2.77 ^{a, b}	W
	T _A = 70 °C		1.77 ^{a, b}	
Operating Junction and Storage Temperature Ran	T _J , T _{stg}	- 55 to 150	°C	
Package Reflow Conditions ^c	IR/Convection		260	

Notes:

- a. Surface mounted on 1" x 1" FR4 board.
- b. t = 10 s.
- c. Refer to IPC/JEDEC (J-STD-020), no manual or hand soldering.
- d. Case is defined as the top surface of the package.
- e. Based on T_C = 25 °C.



THERMAL RESISTANCE RATINGS							
Parameter		Symbol	Typical	Maximum	Unit		
Maximum Junction-to-Ambient ^{a, b}	R_{thJA}	37	45	°C/W			
Maximum Junction-to-Case (Drain)	Steady State	R _{thJC}	7	9.5			

Notes:

- a. Surface mounted on 1" x 1" FR4 board.
- b. Maximum under steady state conditions is 85 $^{\circ}\text{C/W}.$
- c. Case is defined as top surface of the package.

Parameter	Symbol	Test Conditions	Min.	Тур.	Max.	Unit	
Static							
Drain-Source Breakdown Voltage	V _{DS}	$V_{GS} = 0$, $I_D = -250 \mu A$	- 12			V	
V _{DS} Temperature Coefficient	$\Delta V_{DS}/T_{J}$	I _D = - 250 μA		- 7		mV/°C	
V _{GS(th)} Temperature Coefficient	$\Delta V_{GS(th)}/T_J$	1 _D = 230 μΑ		2.8			
Gate-Source Threshold Voltage	V _{GS(th)}	$V_{DS} = V_{GS}, I_{D} = -250 \mu A$	- 0.4		- 0.8	V	
Gate-Source Leakage	I _{GSS}	$V_{DS} = 0 \text{ V}, V_{GS} = \pm 10 \text{ V}$			± 100	nA	
Zero Gate Voltage Drain Current	l	$V_{DS} = -12 \text{ V}, V_{GS} = 0 \text{ V}$			- 1	μΑ	
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = - 12 V, V _{GS} = 0 V, T _J = 70 °C			- 10		
On-State Drain Current ^a	I _{D(on)}	$V_{DS} \le -5 \text{ V}, V_{GS} = -4.5 \text{ V}$	- 5			Α	
		V _{GS} = - 4.5 V, I _D = - 1.5 A		0.022	0.026		
D : 0	В	V _{GS} = - 2.5 V, I _D = - 1.5 A		0.028	0.035	Ω	
Drain-Source On-State Resistance ^a	R _{DS(on)}	V _{GS} = - 1.8 V, I _D = - 1 A		0.040	0.055		
		V _{GS} = - 1.5 V, I _D = - 0.5 A		0.056	0.092		
Forward Transconductance ^a	9 _{fs}	V _{DS} = -6 V, I _D = -1.5 A		10		S	
Dynamic ^b							
Input Capacitance	C _{iss}			1840			
Output Capacitance	C _{oss}	V _{DS} = - 6 V, V _{GS} = 0 V, f = 1 MHz		410		pF	
Reverse Transfer Capacitance	C _{rss}			380			
Total Gate Charge	Qg	$V_{DS} = -6 \text{ V}, V_{GS} = -10 \text{ V}, I_{D} = -1.5 \text{ A}$		43	65	nC	
Total date offarge				21	32		
Gate-Source Charge	Q_{gs}	$V_{DS} = -6 \text{ V}, V_{GS} = -4.5 \text{ V}, I_D = -1.5 \text{ A}$		2.1			
Gate-Drain Charge	Q_{gd}			4.8		1	
Gate Resistance	R_g	V _{GS} = - 0.1 V, f = 1 MHz		2.2		Ω	
Turn-On Delay Time	t _{d(on)}			20	40		
Rise Time	t _r	$V_{DD} = -6 \text{ V}, R_L = 4 \Omega$ $I_D \cong -1.5 \text{ A}, V_{GEN} = -4.5 \text{ V}, R_g = 1 \Omega$		25	50	ne	
Turn-Off Delay Time	t _{d(off)}			40	80		
Fall Time	t _f			10	20		
Turn-On Delay Time	t _{d(on)}			10	20	ns	
tise Time t _r		$V_{DD} = -6 \text{ V}, R_L = 4 \Omega$		10	20]	
Turn-Off Delay Time	t _{d(off)}	$I_D \cong$ - 1.5 A, V_{GEN} = - 10 V, R_g = 1 Ω		40	80]	
Fall Time	t _f			10	20		





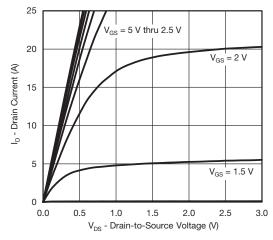
SPECIFICATIONS (T _J = 25 °C, unless otherwise noted)							
Parameter	Symbol	Min.	Тур.	Max.	Unit		
Drain-Source Body Diode Characteris	tics						
Continuous Source-Drain Diode Current	I _S	T _C = 25 °C			- 10.8	А	
Pulse Diode Forward Current	I _{SM}				- 25		
Body Diode Voltage	V _{SD}	I _S = - 1.5 A, V _{GS} = 0		- 0.8	- 1.2	V	
Body Diode Reverse Recovery Time	t _{rr}			30	60	ns	
Body Diode Reverse Recovery Charge	Q _{rr}	I _F = - 1.5 A, dl/dt = 100 A/μs, T _{.I} = 25 °C		12	25	nC	
Reverse Recovery Fall Time	t _a	11F = -1.3 Λ, αι/αι = 100 Α/μs, 1 _J = 23 °C ·		11.5		ns	
Reverse Recovery Rise Time	t _b			18.5		115	

Notes:

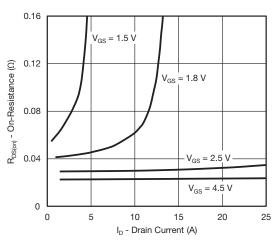
- a. Pulse test; pulse width $\leq 300~\mu s,$ duty cycle $\leq 2~\%.$
- b. Guaranteed by design, not subject to production testing.

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.

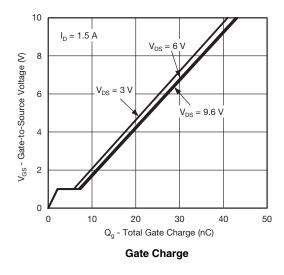
TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)

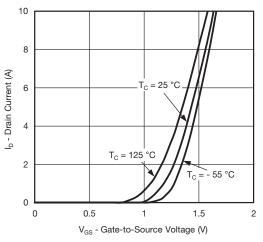


Output Characteristics

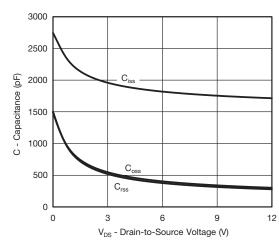


On-Resistance vs. Drain Current and Gate Voltage

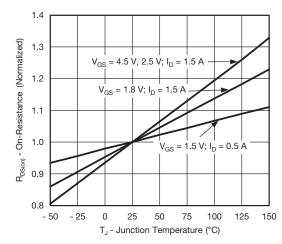




Transfer Characteristics



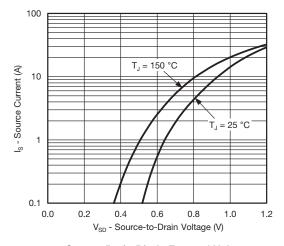
Capacitance



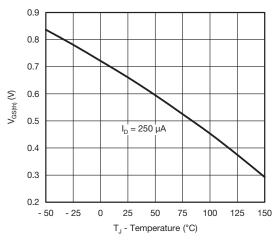
On-Resistance vs. Junction Temperature



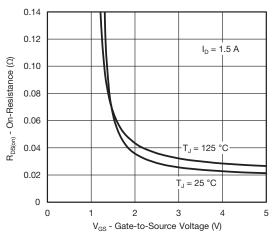
TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)



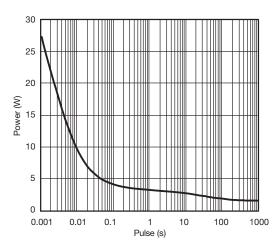
Source-Drain Diode Forward Voltage



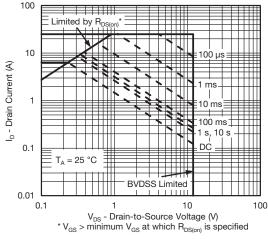
Threshold Voltage



On-Resistance vs. Gate-to-Source Voltage



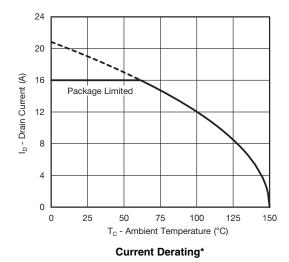
Single Pulse Power, Junction-to-Ambient

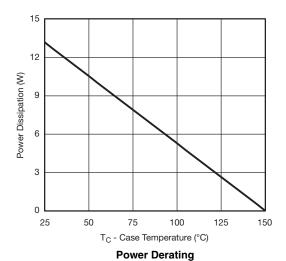


Safe Operating Area, Junction-to-Ambient



TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)

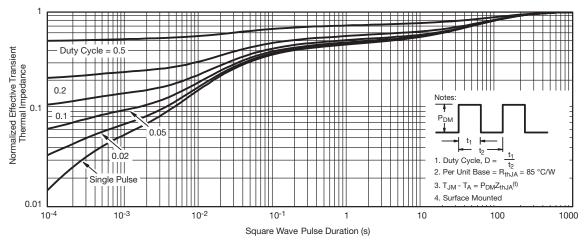




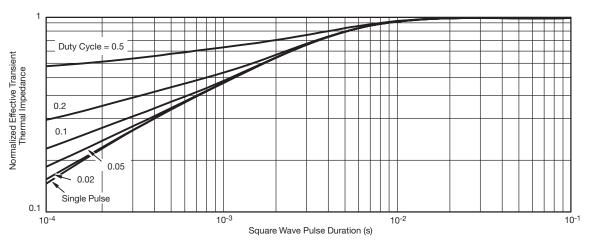
^{*} The power dissipation P_D is based on $T_{J(max.)}$ = 150 °C, using junction-to-case thermal resistance, and is more useful in settling the upper dissipation limit for cases where additional heatsinking is used. It is used to determine the current rating, when this rating falls below the package limit.



TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)



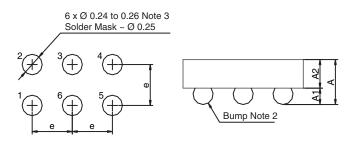
Normalized Thermal Transient Impedance, Junction-to-Ambient



Normalized Thermal Transient Impedance, Junction-to-Case

PACKAGE OUTLINE

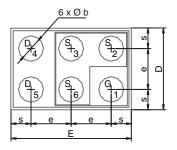
MICRO FOOT: 6-BUMP (2 x 3, 0.5 mm PITCH)



Recommended Land



Mark on Backside of Die



Notes (unless otherwise specified):

- 1. All dimensions are in millimeters.
- 2. Six (6) solder bumps are lead (Pb)-free 95.5Sn, 3.8Ag, 0.7Cu with diameter \varnothing 0.30 mm to \varnothing 0.32 mm.
- 3. Backside surface is coated with a Ti/Ni/Ag layer.
- 4. Non-solder mask defined copper landing pad.
- 5. is location of pin 1.

Dim.		Millimeters ^a		Inches			
	Min.	Nom.	Max.	Min.	Nom.	Max.	
Α	0.510	0.575	0.590	0.0201	0.0224	0.0232	
A ₁	0.220	0.250	0.280	0.0087	0.0098	0.0110	
A ₂	0.290	0.300	0.310	0.0114	0.0118	0.0122	
b	0.300	0.310	0.320	0.0118	0.0122	0.0126	
е	0.500			0.0197			
s	0.230	0.250	0.270	0.0090	0.0098	0.0106	
D	0.920	0.960	1.000	0.0362	0.0378	0.0394	
E	1.420	1.460	1.500	0.0559	0.0575	0.0591	

Note:

a. Use millimeters as the primary measurement.

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Revision: 02-Oct-12 Document Number: 91000

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многоканальный

Общество с ограниченной ответственностью «МосЧип» ИНН 7719860671 / КПП 771901001 Адрес: 105318, г.Москва, ул.Щербаковская д.3, офис 1107

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