



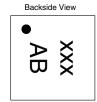
N-Channel 8 V (D-S) MOSFET

PRODUCT SUMMARY							
V _{DS} (V)	$R_{DS(on)}(\Omega)$	I _D (A) ^a	Q _g (Typ.)				
8	0.054 at $V_{GS} = 4.5 \text{ V}$	3.5					
	0.060 at $V_{GS} = 2.5 \text{ V}$	3.3					
	0.068 at V _{GS} = 1.8 V	3.1	4.3 nC				
	0.086 at $V_{GS} = 1.5 \text{ V}$	2.3					
	0.135 at V _{GS} = 1.2 V	1					

MICRO FOOT







Device Marking: xxx = Date/Lot Traceability Code

Ordering Information:

Si8802DB-T2-E1 (Lead (Pb)-free and Halogen-free)

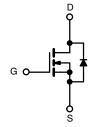
FEATURES

- TrenchFET® Power MOSFET
- Small 0.8 mm x 0.8 mm Outline Area
- Low 0.4 mm max. profile
- Low On-Resistance
 - Material categorization: For definitions of compliance please see www.vishay.com/doc?99912

HALOGEN FREE

APPLICATIONS

- · Load Switch with Low Voltage Drop
- Load Switch for 1.2 V, 1.5 V, 1.8 V **Power Lines**
- Smart Phones, Tablet PCs, Portable Media Players



N-Channel MOSFET

ABSOLUTE MAXIMUM RATIN	$IGS T_A = 25 °C,$	unless other	wise noted	
Parameter		Symbol	Limit	Unit
Drain-Source Voltage		V _{DS}	8	V
Gate-Source Voltage		V_{GS}	± 5	v
	T _A = 25 °C		3.5 ^a	
Continuous Prain Current (T = 150 °C)	T _A = 70 °C	1	2.8 ^a	
Continuous Drain Current (T _J = 150 °C)	T _A = 25 °C	I _D	3 _p	
	T _A = 70 °C		2.4 ^b	A
Pulsed Drain Current (t = 300 μs)		I _{DM}	15	
Continuous Source-Drain Diode Current	T _A = 25 °C		0.7 ^a	
	T _A = 25 °C	I _S	0.4 ^b	
	T _A = 25 °C		0.9 ^a	
Maximum Power Dissipation	T _A = 70 °C		0.6 ^a	w
	T _A = 25 °C	P _D	0.5 ^b	VV
	T _A = 70 °C		0.3 ^b	
Operating Junction and Storage Temperature Range		T _J , T _{stg}	- 55 to 150	°C
Soldering Recommendations (Peak Temperature) ^c			260	

THERMAL RESISTANCE RATINGS							
Parameter		Symbol	Typical	Maximum	Unit		
Maximum Junction-to-Ambient ^{a, d}	t ≤ 5 s	D	105	135	°C/W		
Maximum Junction-to-Ambient ^{b, e}	1538	R _{thJA}	200	260] 5/**		

- a. Surface mounted on 1" x 1" FR4 board with full copper, t=5 s. b. Surface mounted on 1" x 1" FR4 board with minimum copper, t=5 s.
- c. Refer to IPC/JEDEC (J-STD-020), no manual or hand soldering.
- d. Maximum under steady state conditions is 185 °C/W.
- e. Maximum under steady state conditions is 330 °C/W.

Si8802DB

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SPECIFICATIONS (T _J = 25 °C, unless otherwise noted)								
Parameter	Symbol	Test Conditions	Min.	Тур.	Max.	Unit		
Static	-		•	'	I.			
Drain-Source Breakdown Voltage	V _{DS}	$V_{GS} = 0 \text{ V}, I_D = 250 \mu\text{A}$	8			V		
V _{DS} Temperature Coefficient	$\Delta V_{DS}/T_{J}$	I _D = 250 μA		7		mV/°C		
V _{GS(th)} Temperature Coefficient	$\Delta V_{GS(th)}/T_J$	10 – 230 μΛ		- 2.1				
Gate-Source Threshold Voltage	V _{GS(th)}	$V_{DS} = V_{GS}, I_{D} = 250 \mu A$	0.35		0.7	V		
Gate-Source Leakage	I _{GSS}	$V_{DS} = 0 \text{ V}, V_{GS} = \pm 5 \text{ V}$			± 100	nA		
Zoro Cata Valtaga Prain Current	lasa	$V_{DS} = 8 \text{ V}, V_{GS} = 0 \text{ V}$			1	μΑ		
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 8 V, V _{GS} = 0 V, T _J = 55 °C			10			
On-State Drain Current ^a	I _{D(on)}	$V_{DS} \ge 5 \text{ V}, V_{GS} = 4.5 \text{ V}$	10			Α		
		$V_{GS} = 4.5 \text{ V}, I_D = 1 \text{ A}$		0.044	0.054			
		$V_{GS} = 2.5 \text{ V}, I_D = 1 \text{ A}$		0.049	0.060			
Drain-Source On-State Resistance ^a	R _{DS(on)}	$V_{GS} = 1.8 \text{ V}, I_D = 0.5 \text{ A}$		0.055	0.068	Ω		
	-(- /	$V_{GS} = 1.5 \text{ V}, I_D = 0.2 \text{ A}$		0.060	0.086			
		$V_{GS} = 1.2 \text{ V}, I_D = 0.1 \text{ A}$		0.080	0.135			
Forward Transconductancea	9 _{fs}	V _{DS} = 4 V, I _D = 1 A		13		S		
Dynamic ^b				L	I.	L		
Total Gate Charge	Qg			4.3	6.5			
Gate-Source Charge	Q_{gs}	$V_{DS} = 4 \text{ V}, V_{GS} = 4.5 \text{ V}, I_{D} = 1 \text{ A}$		0.44		nC		
Gate-Drain Charge	Q _{gd}			0.72				
Gate Resistance	R_{g}	f = 1 MHz		3.5		Ω		
Turn-On Delay Time	t _{d(on)}			5	10			
Rise Time	t _r	$V_{DD} = 4 \text{ V}, R_L = 4 \Omega$		15	30	- ns		
Turn-Off Delay Time	t _{d(off)}	$I_D \cong 1 \text{ A}, V_{GEN} = 4.5 \text{ V}, R_g = 1 \Omega$		22	40			
Fall Time	t _f			7	15			
Drain-Source Body Diode Characteristic	s		I	L	L	L		
Continuous Source-Drain Diode Current	I _S	T _A = 25 °C			0.7	Δ.		
Pulse Diode Forward Current	I _{SM}				15	A		
Body Diode Voltage	V_{SD}	I _S = 1 A, V _{GS} = 0 V		0.7	1.2	V		
Body Diode Reverse Recovery Time	t _{rr}			20	40	ns		
Body Diode Reverse Recovery Charge	Q _{rr}	L = 1 A dl/dt = 100 A/up T = 25 °C		5	10	nC		
Reverse Recovery Fall Time	t _a	$I_F = 1 \text{ A, dI/dt} = 100 \text{ A/}\mu\text{s, T}_J = 25 ^{\circ}\text{C}$		14		ns		
Reverse Recovery Rise Time	t _b			60				

Notes:

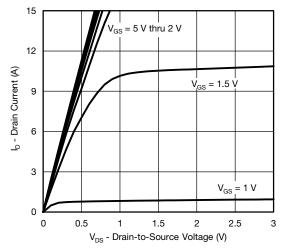
Stresses beyond those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure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

a. Pulse test; pulse width \leq 300 μ s, duty cycle \leq 2 %

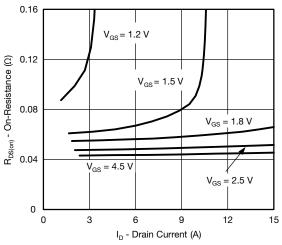
b. Guaranteed by design, not subject to production testing.



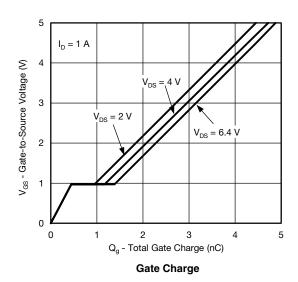
TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)



Output Characteristics

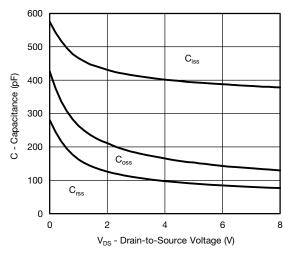


On-Resistance vs. Drain Current

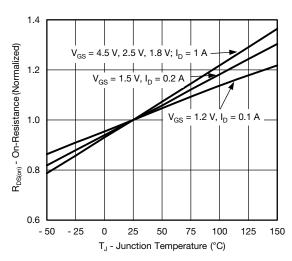


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Transfer Characteristics



Capacitance

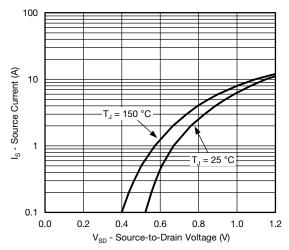


On-Resistance vs. Junction Temperature

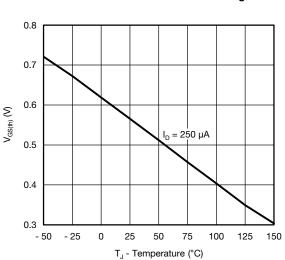
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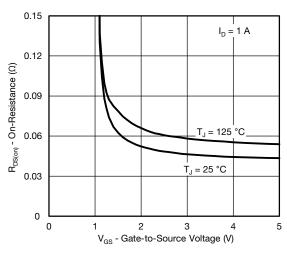
TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)



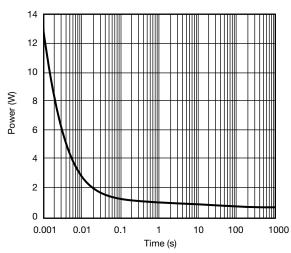




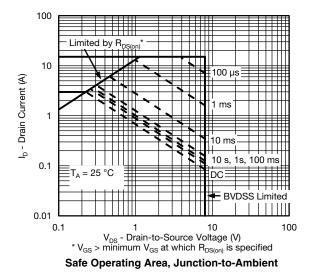
Threshold Voltage



On-Resistance vs. Gate-to-Source Voltage

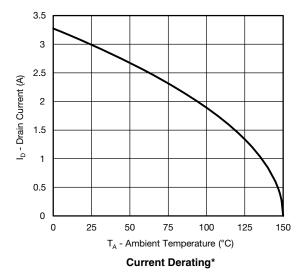


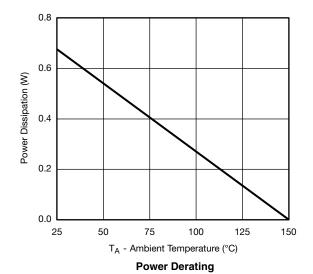
Single Pulse Power (Junction-to-Ambient)





TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)





Note:

When mounted on 1" x 1" FR4 with full copper.

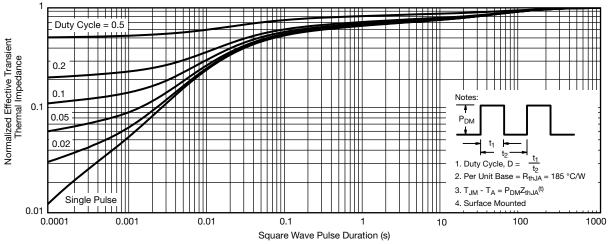
 $^{^*}$ The power dissipation P_D is based on $T_{J(max)}$ = 150 $^{\circ}$ C, using junction-to-ambient thermal resistance, and is more useful in settling the upper dissipation limit for cases where additional heatsinking is used. It is used to determine the current rating, when this rating falls below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

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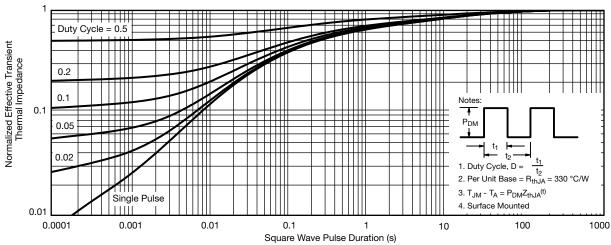
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TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)



Normalized Thermal Transient Impedance, Junction-to-Ambient (On 1" x 1" FR4 board with maximum copper)



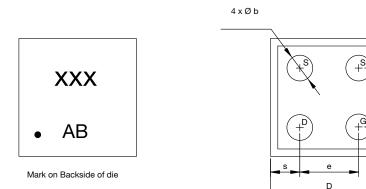
Normalized Thermal Transient Impedance, Junction-to-Ambient (On 1" x 1" FR4 board with minimum copper)



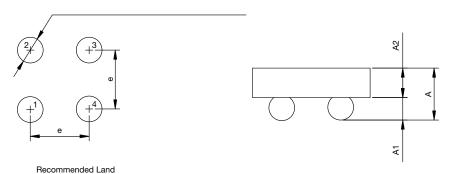
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PACKAGE OUTLINE

MICRO FOOT 0.8 mm x 0.8 mm: 4-BUMP (2 x 2, 0.4 mm PITCH)



4 x Ø 0.205 to 0.225 Note 4 Solder Mask ~ Ø 0.215



Notes (Unless otherwise specified):

- 1. All dimensions are in millimeters.
- 2. Four (4) solder bumps are lead (Pb)-free 95.5Sn/3.5Ag/0.7Cu with diameter Ø 0.165 mm to Ø 0.185 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	0.314	0.357	0.400	0.0124	0.0141	0.0157	
A ₁	0.127	0.157	0.187	0.0050	0.0062	0.0074	
A ₂	0.187	0.200	0.213	0.0074	0.0079	0.0084	
b	0.165	0.175	0.185	0.0064	0.0068	0.0072	
е	0.400			0.0157			
s	0.180	0.200	0.220	0.0070	0.0078	0.0086	
D	0.760	0.800	0.840	0.0299	0.0314	0.0330	

Notes

a. Use millimeters as the primary measurement.

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Revision: 02-Oct-12 Document Number: 91000

ПОСТАВКА ЭЛЕКТРОННЫХ КОМПОНЕНТОВ

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

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