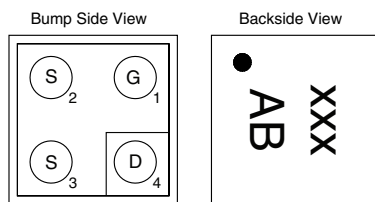




N-Channel 8 V (D-S) MOSFET

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

MICRO FOOT



Device Marking: xxx = Date/Lot Traceability Code
AB

Ordering Information:

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

FEATURES

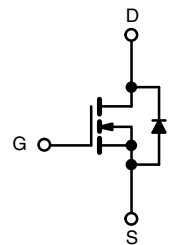
- TrenchFET[®] Power MOSFET
- Small 0.8 mm x 0.8 mm Outline Area
- Low 0.4 mm max. profile
- Low On-Resistance
- Material categorization:
For definitions of compliance please see www.vishay.com/doc?99912



RoHS
COMPLIANT
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 RATINGS T _A = 25 °C, unless otherwise noted				
Parameter	Symbol	Limit	Unit	
Drain-Source Voltage	V _{DS}	8	V	
Gate-Source Voltage	V _{GS}	± 5		
Continuous Drain Current (T _J = 150 °C)	I _D	T _A = 25 °C	3.5 ^a	A
		T _A = 70 °C	2.8 ^a	
		T _A = 25 °C	3 ^b	
		T _A = 70 °C	2.4 ^b	
Pulsed Drain Current (t = 300 μs)	I _{DM}	15		
Continuous Source-Drain Diode Current	I _S	T _A = 25 °C	0.7 ^a	
		T _A = 25 °C	0.4 ^b	
Maximum Power Dissipation	P _D	T _A = 25 °C	0.9 ^a	W
		T _A = 70 °C	0.6 ^a	
		T _A = 25 °C	0.5 ^b	
		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}	R _{thJA}	105	135	°C/W	
Maximum Junction-to-Ambient ^{b, e}		200	260		

Notes:

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

SPECIFICATIONS ($T_J = 25\text{ }^\circ\text{C}$, unless otherwise noted)						
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Static						
Drain-Source Breakdown Voltage	V_{DS}	$V_{GS} = 0\text{ V}$, $I_D = 250\text{ }\mu\text{A}$	8			V
V_{DS} Temperature Coefficient	$\Delta V_{DS}/T_J$	$I_D = 250\text{ }\mu\text{A}$		7		mV/ $^\circ\text{C}$
$V_{GS(th)}$ Temperature Coefficient	$\Delta V_{GS(th)}/T_J$			- 2.1		
Gate-Source Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = 250\text{ }\mu\text{A}$	0.35		0.7	V
Gate-Source Leakage	I_{GSS}	$V_{DS} = 0\text{ V}$, $V_{GS} = \pm 5\text{ V}$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 8\text{ V}$, $V_{GS} = 0\text{ V}$			1	μA
		$V_{DS} = 8\text{ V}$, $V_{GS} = 0\text{ V}$, $T_J = 55\text{ }^\circ\text{C}$			10	
On-State Drain Current ^a	$I_{D(on)}$	$V_{DS} \geq 5\text{ V}$, $V_{GS} = 4.5\text{ V}$	10			A
Drain-Source On-State Resistance ^a	$R_{DS(on)}$	$V_{GS} = 4.5\text{ V}$, $I_D = 1\text{ A}$		0.044	0.054	Ω
		$V_{GS} = 2.5\text{ V}$, $I_D = 1\text{ A}$		0.049	0.060	
		$V_{GS} = 1.8\text{ V}$, $I_D = 0.5\text{ A}$		0.055	0.068	
		$V_{GS} = 1.5\text{ V}$, $I_D = 0.2\text{ A}$		0.060	0.086	
		$V_{GS} = 1.2\text{ V}$, $I_D = 0.1\text{ A}$		0.080	0.135	
Forward Transconductance ^a	g_{fs}	$V_{DS} = 4\text{ V}$, $I_D = 1\text{ A}$		13		S
Dynamic^b						
Total Gate Charge	Q_g	$V_{DS} = 4\text{ V}$, $V_{GS} = 4.5\text{ V}$, $I_D = 1\text{ A}$		4.3	6.5	nC
Gate-Source Charge	Q_{gs}			0.44		
Gate-Drain Charge	Q_{gd}			0.72		
Gate Resistance	R_g	$f = 1\text{ MHz}$		3.5		Ω
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = 4\text{ V}$, $R_L = 4\text{ }\Omega$ $I_D \cong 1\text{ A}$, $V_{GEN} = 4.5\text{ V}$, $R_g = 1\text{ }\Omega$		5	10	ns
Rise Time	t_r			15	30	
Turn-Off Delay Time	$t_{d(off)}$			22	40	
Fall Time	t_f			7	15	
Drain-Source Body Diode Characteristics						
Continuous Source-Drain Diode Current	I_S	$T_A = 25\text{ }^\circ\text{C}$			0.7	A
Pulse Diode Forward Current	I_{SM}				15	
Body Diode Voltage	V_{SD}	$I_S = 1\text{ A}$, $V_{GS} = 0\text{ V}$		0.7	1.2	V
Body Diode Reverse Recovery Time	t_{rr}	$I_F = 1\text{ A}$, $dI/dt = 100\text{ A}/\mu\text{s}$, $T_J = 25\text{ }^\circ\text{C}$		20	40	ns
Body Diode Reverse Recovery Charge	Q_{rr}			5	10	nC
Reverse Recovery Fall Time	t_a			14		ns
Reverse Recovery Rise Time	t_b			60		

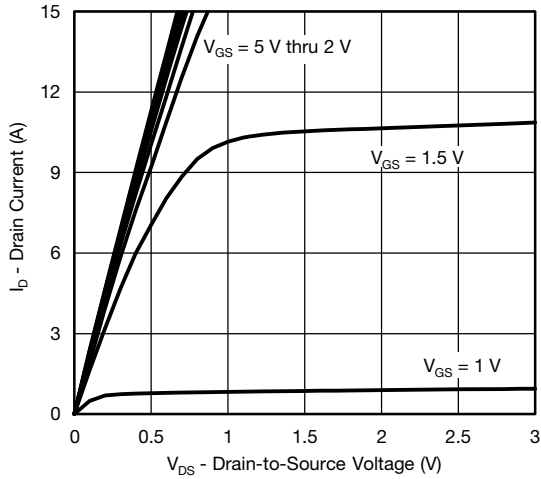
Notes:

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

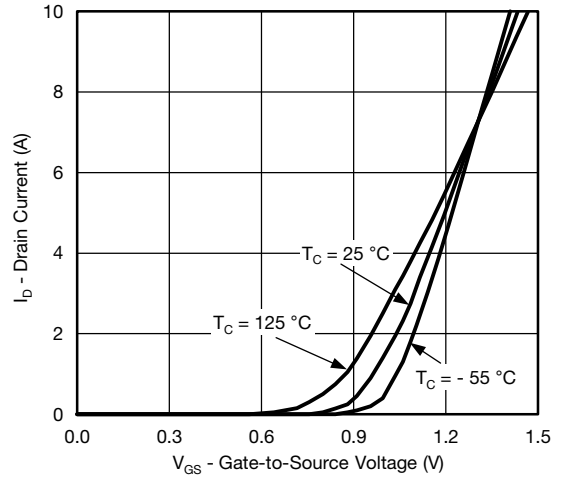
Stresses beyond those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure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



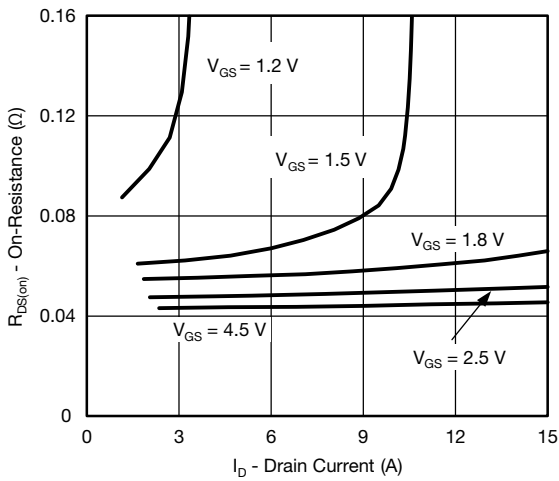
TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)



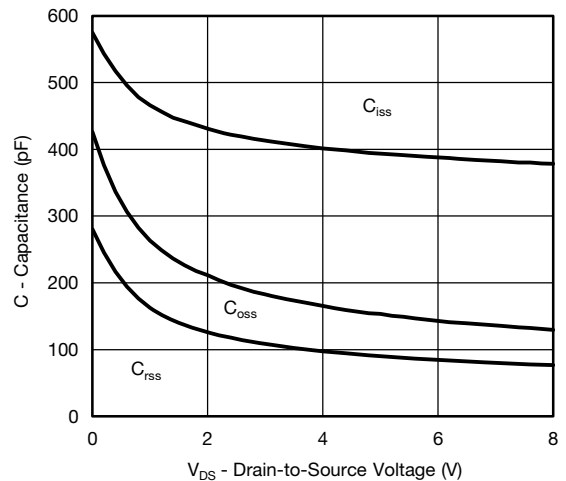
Output Characteristics



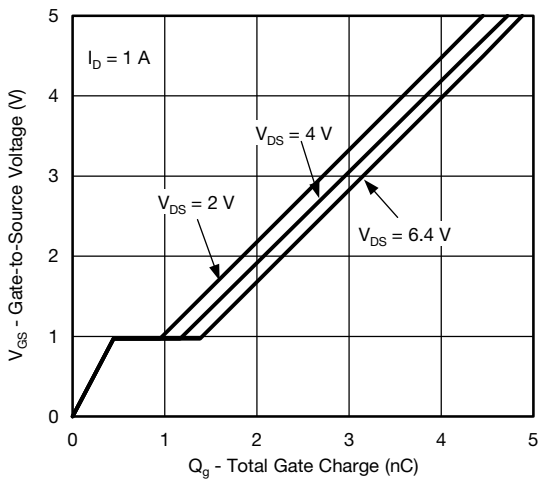
Transfer Characteristics



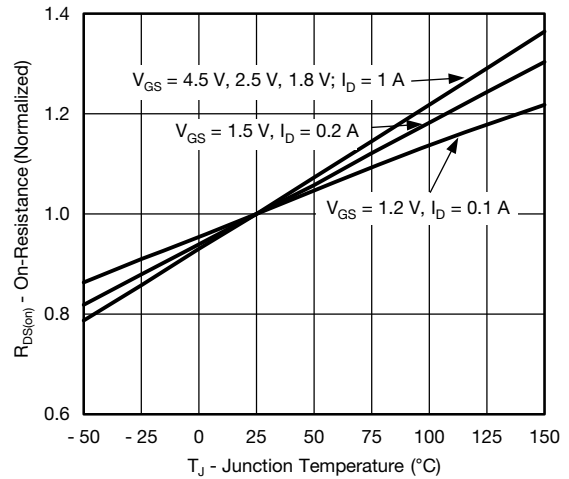
On-Resistance vs. Drain Current



Capacitance

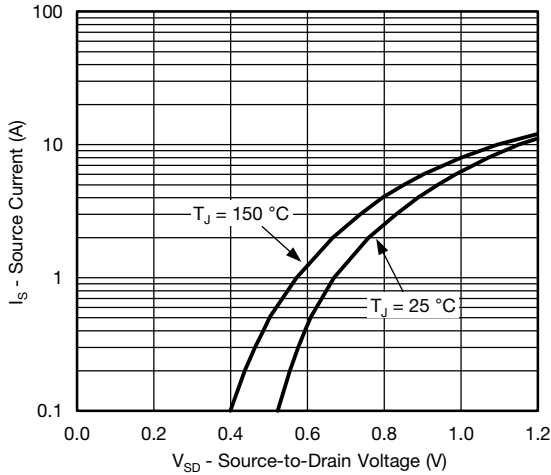


Gate Charge

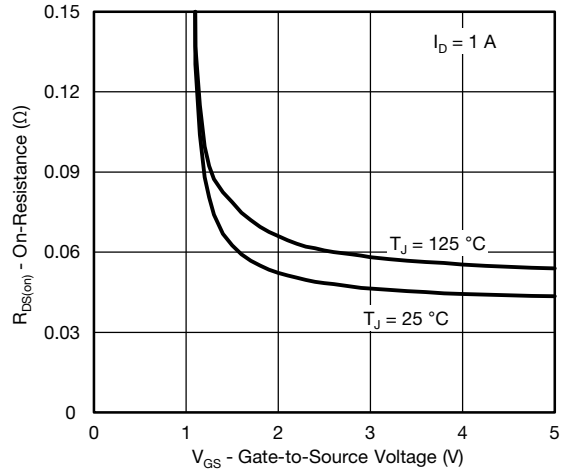


On-Resistance vs. Junction Temperature

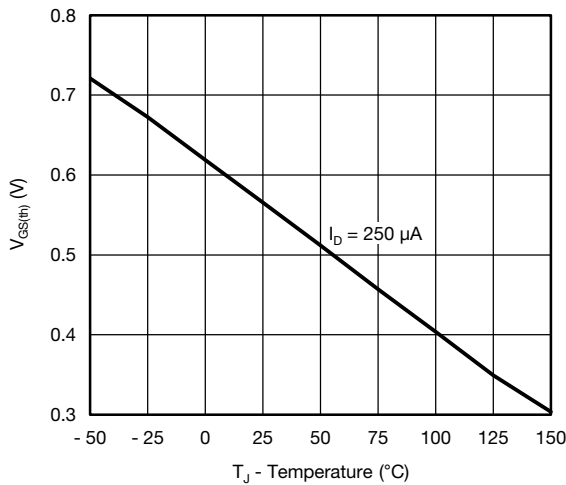
TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)



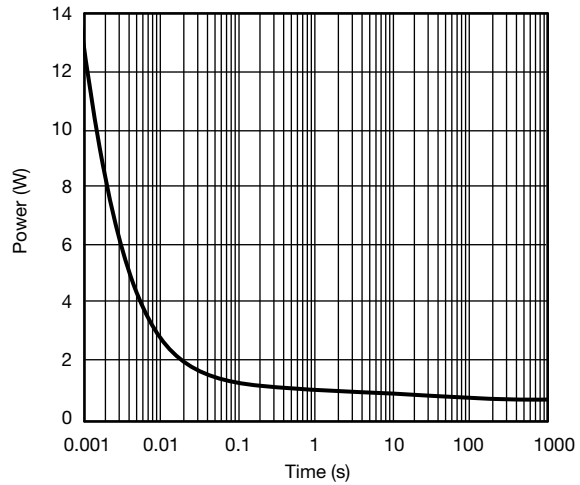
Source-Drain Diode Forward Voltage



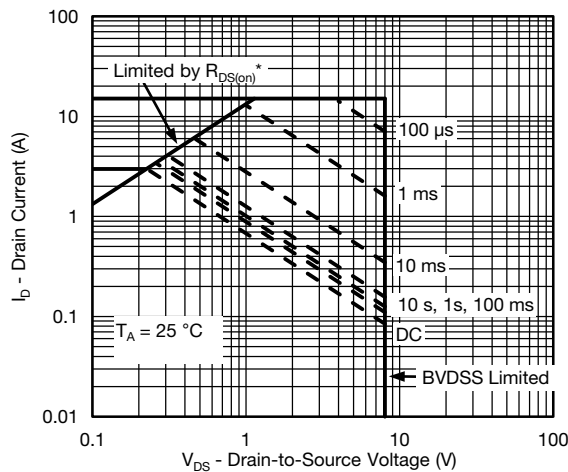
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage



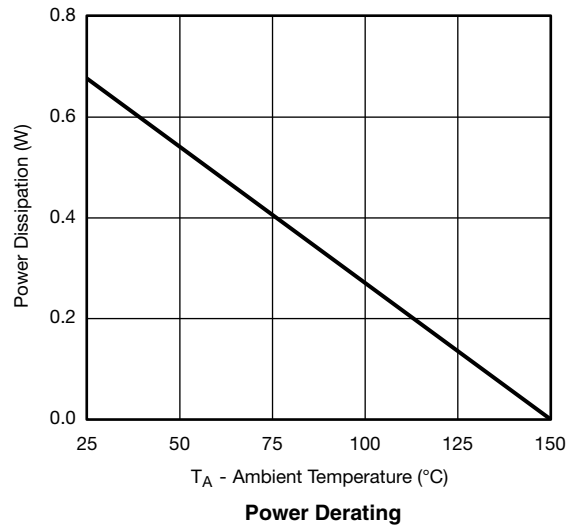
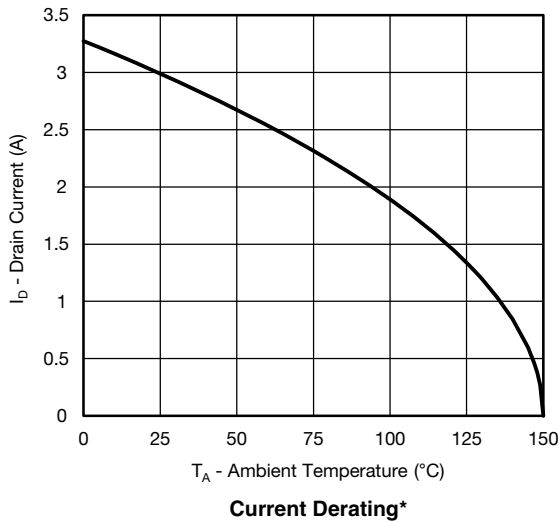
Single Pulse Power (Junction-to-Ambient)



Safe Operating Area, Junction-to-Ambient



TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)



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

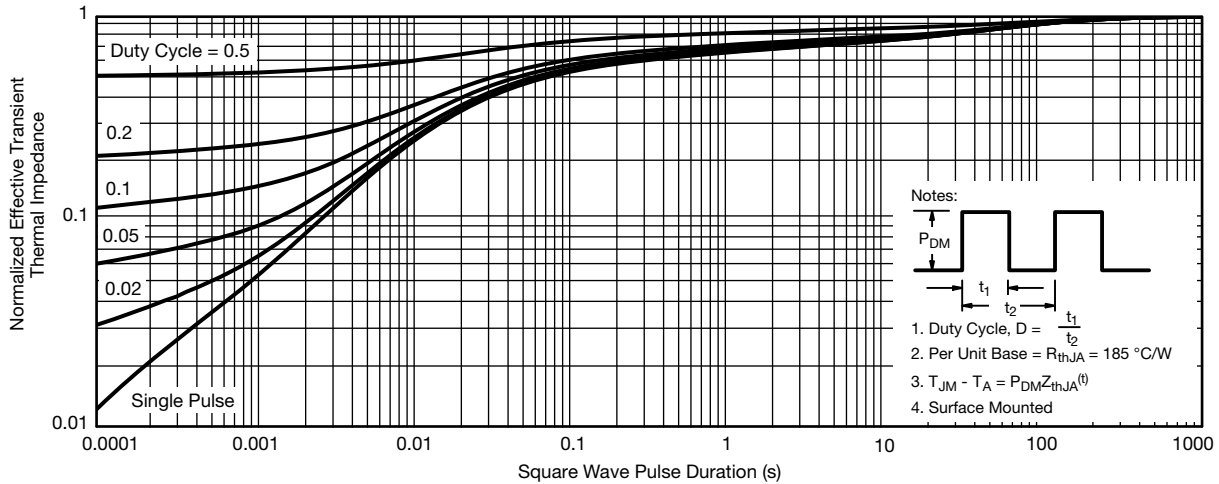
* The power dissipation P_D is based on $T_{J(max)} = 150$ °C, using junction-to-ambient thermal resistance, and is more useful in settling the upper dissipation limit for cases where additional heatsinking is used. It is used to determine the current rating, when this rating falls below the package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

Si8802DB

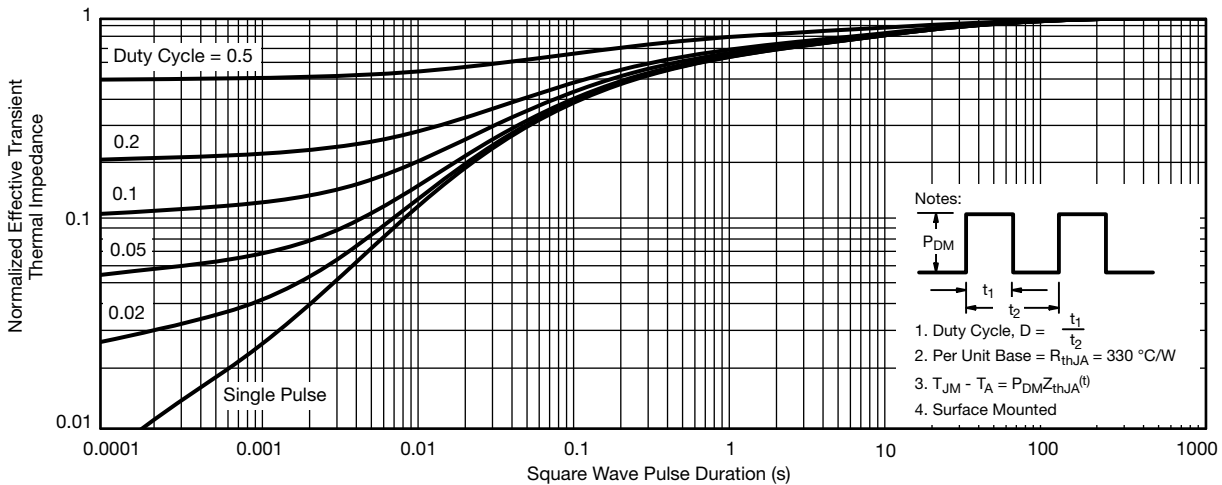
Vishay Siliconix



TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)



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

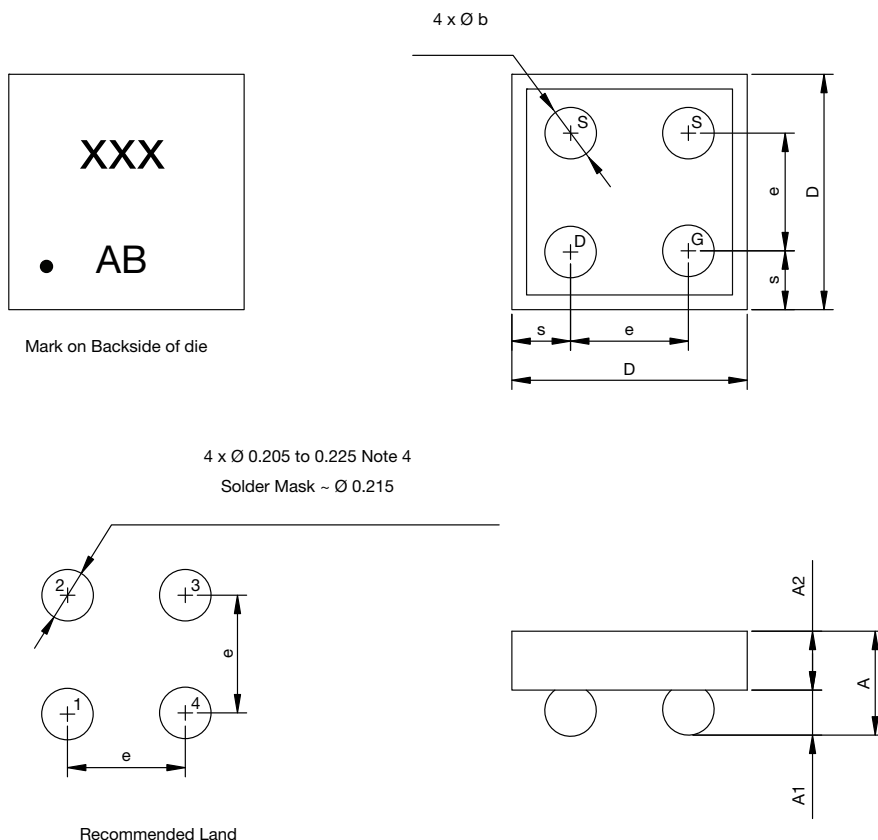


Normalized Thermal Transient Impedance, Junction-to-Ambient (On 1" x 1" FR4 board with minimum copper)



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.
A	0.314	0.357	0.400	0.0124	0.0141	0.0157
A₁	0.127	0.157	0.187	0.0050	0.0062	0.0074
A₂	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
e		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.

Vishay Siliconix maintains worldwide manufacturing capability. Products may be manufactured at one of several qualified locations. Reliability data for Silicon Technology and Package Reliability represent a composite of all qualified locations. For related documents such as package/tape drawings, part marking, and reliability data, see www.vishay.com/ppg?67999.



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- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

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- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

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