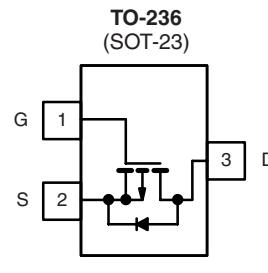


P-Channel 30-V (D-S) MOSFET

PRODUCT SUMMARY		
V _{DS} (V)	R _{DS(on)} (Ω)	I _D (A) ^b
- 30	0.200 at V _{GS} = - 10 V	- 1.64
	0.380 at V _{GS} = - 4.5 V	- 1.0

FEATURES

- Halogen-free Option Available


RoHS*
COMPLIANT


Top View

Si2303BDS (L3)*

* Marking Code

Ordering Information: Si2303BDS-T1
 Si2303BDS-T1-E3 (Lead (Pb)-free)
 Si2303BDS-T1-GE3 (Lead (Pb)-free and Halogen-free)

ABSOLUTE MAXIMUM RATINGS T _A = 25 °C, unless otherwise noted				
Parameter	Symbol	5 s	Steady State	Unit
Drain-Source Voltage	V _{DS}	- 30	- 1.49	V
Gate-Source Voltage	V _{GS}			
Continuous Drain Current (T _J = 150 °C) ^b	T _A = 25 °C	I _D	- 1.64	A
	T _A = 70 °C		- 1.31	
Pulsed Drain Current ^a	I _{DM}	- 10		A
Continuous Source Current (Diode Conduction) ^b	I _S	- 0.75	- 0.6	
Power Dissipation ^b	T _A = 25 °C	P _D	0.9	W
	T _A = 70 °C		0.57	
Operating Junction and Storage Temperature Range	T _J , T _{stg}	- 55 to 150		°C

THERMAL RESISTANCE RATINGS				
Parameter	Symbol	Typical	Maximum	Unit
Maximum Junction-to-Ambient ^b	R _{thJA}	120	145	°C/W
Maximum Junction-to-Ambient ^c		140	175	

Notes:

a. Pulse width limited by maximum junction temperature.

b. Surface Mounted on FR4 board, t ≤ 5 s.

c. Surface Mounted on FR4 board.

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

* Pb containing terminations are not RoHS compliant, exemptions may apply.

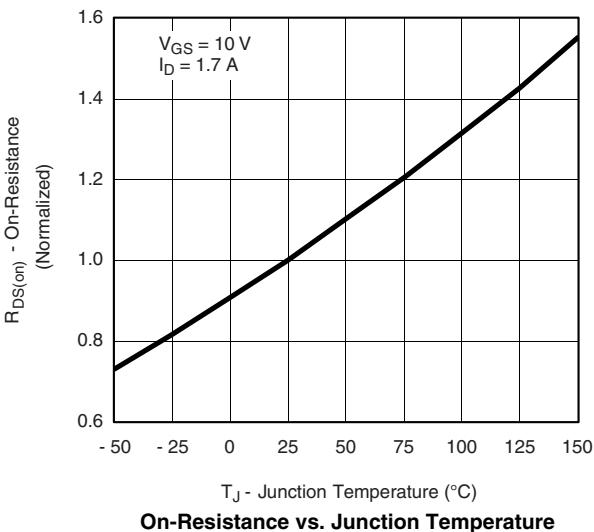
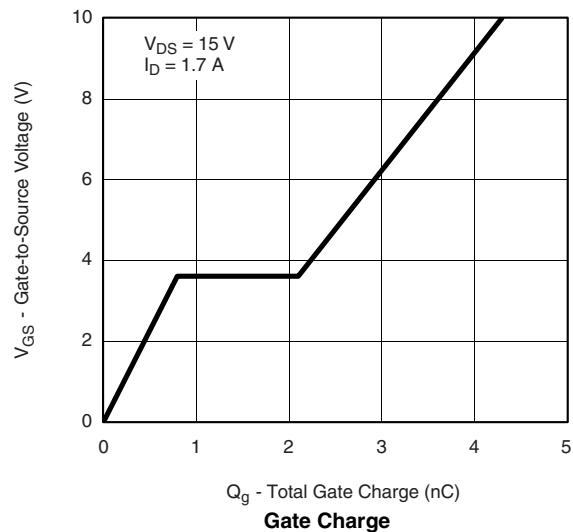
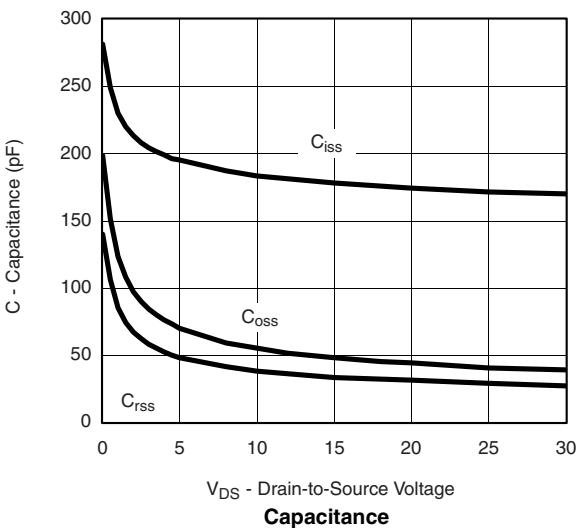
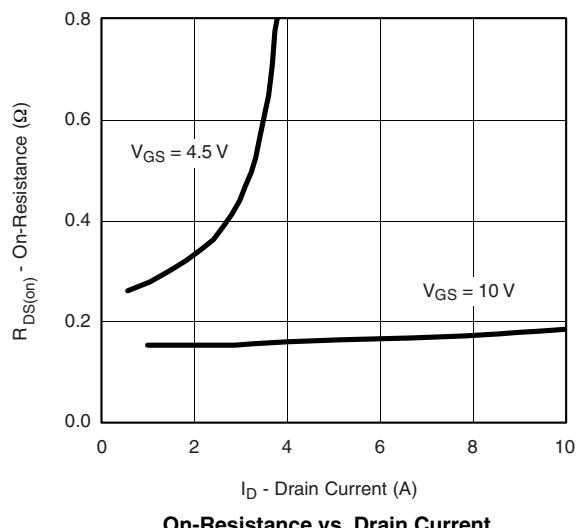
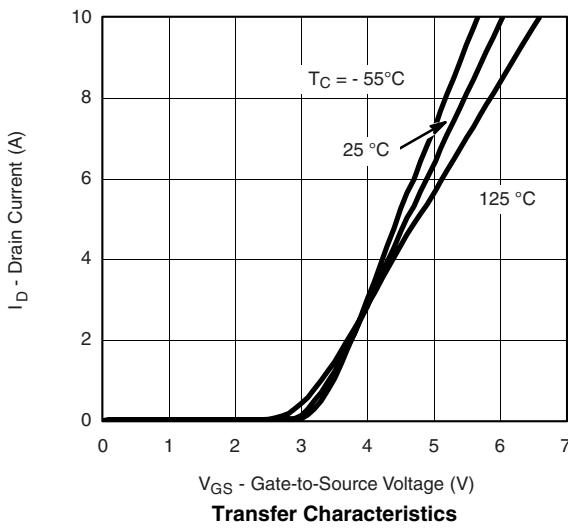
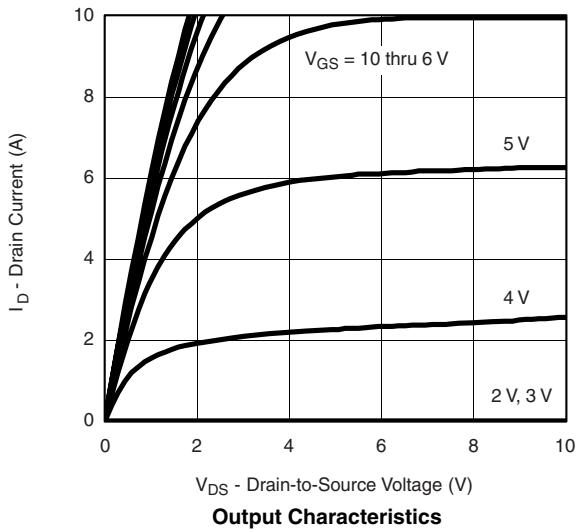
SPECIFICATIONS $T_J = 25^\circ\text{C}$, unless otherwise noted

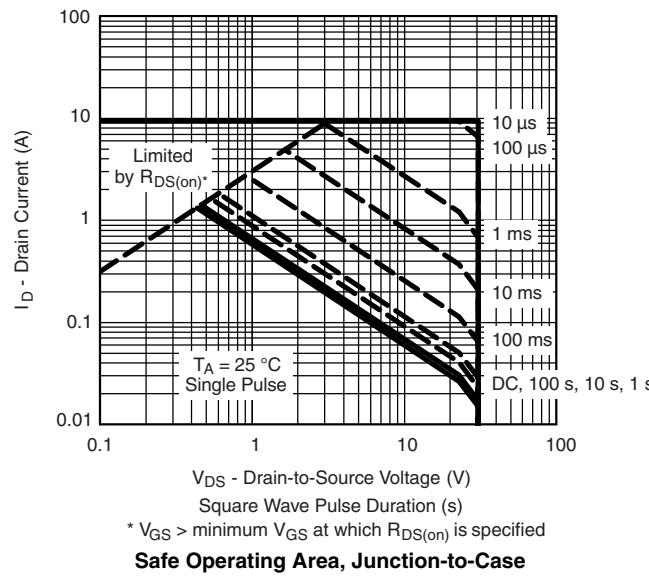
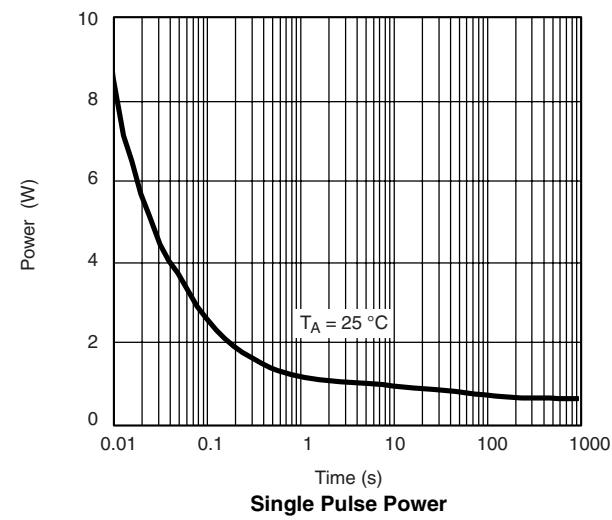
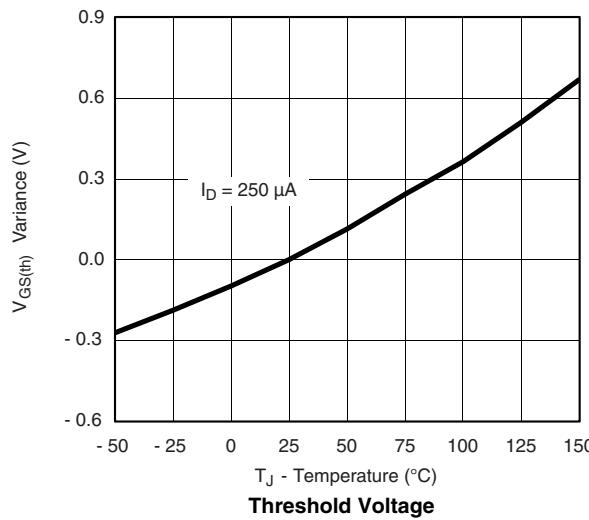
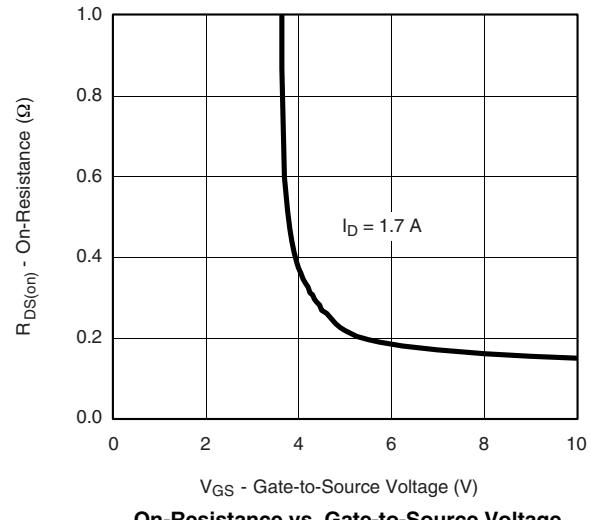
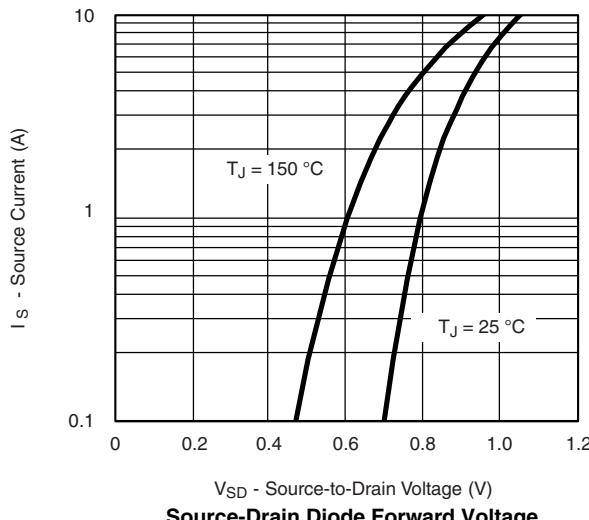
Parameter	Symbol	Test Conditions	Limits			Unit
			Min.	Typ.	Max.	
Static						
Drain-Source Breakdown Voltage	$V_{(\text{BR})\text{DSS}}$	$V_{\text{GS}} = 0 \text{ V}, I_D = -10 \mu\text{A}$	- 30			V
Gate-Threshold Voltage	$V_{\text{GS}(\text{th})}$	$V_{\text{DS}} = V_{\text{GS}}, I_D = -250 \mu\text{A}$	- 1.0		- 3.0	
Gate-Body Leakage	I_{GSS}	$V_{\text{DS}} = 0 \text{ V}, V_{\text{GS}} = \pm 20 \text{ V}$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{\text{DS}} = -30 \text{ V}, V_{\text{GS}} = 0 \text{ V}$			- 1	μA
		$V_{\text{DS}} = -30 \text{ V}, V_{\text{GS}} = 0 \text{ V}, T_J = 55^\circ\text{C}$			- 10	
On-State Drain Current ^a	$I_{\text{D}(\text{on})}$	$V_{\text{DS}} \leq -5 \text{ V}, V_{\text{GS}} = -10 \text{ V}$	- 6			A
Drain-Source On-Resistance ^a	$R_{\text{DS}(\text{on})}$	$V_{\text{GS}} = -10 \text{ V}, I_D = -1.7 \text{ A}$		0.150	0.200	Ω
		$V_{\text{GS}} = -4.5 \text{ V}, I_D = -1.3 \text{ A}$		0.285	0.380	
Forward Transconductance ^a	g_{fs}	$V_{\text{DS}} = -5 \text{ V}, I_D = -1.7 \text{ A}$		2.0		S
Diode Forward Voltage	V_{SD}	$I_S = -0.75 \text{ A}, V_{\text{GS}} = 0 \text{ V}$		- 0.85	- 1.2	V
Dynamic^b						
Total Gate Charge	Q_g	$V_{\text{DS}} = -15 \text{ V}, V_{\text{GS}} = -10 \text{ V}, I_D \approx -1.7 \text{ A}$		4.3	10	nC
Gate-Source Charge	Q_{gs}			0.8		
Gate-Drain Charge	Q_{gd}			1.3		
Input Capacitance	C_{iss}	$V_{\text{DS}} = -15 \text{ V}, V_{\text{GS}} = 0 \text{ V}, f = 1 \text{ MHz}$		180		pF
Output Capacitance	C_{oss}			50		
Reverse Transfer Capacitance	C_{rss}			35		
Switching^c						
Turn-On Time	$t_{\text{d}(\text{on})}$	$V_{\text{DD}} = -15 \text{ V}, R_L = 15 \Omega$ $I_D \approx -1.0 \text{ A}, V_{\text{GEN}} = -4.5 \text{ V}$ $R_G = 6 \Omega$		55	80	ns
	t_r			40	60	
Turn-Off Time	$t_{\text{d}(\text{off})}$			10	20	
	t_f			10	20	

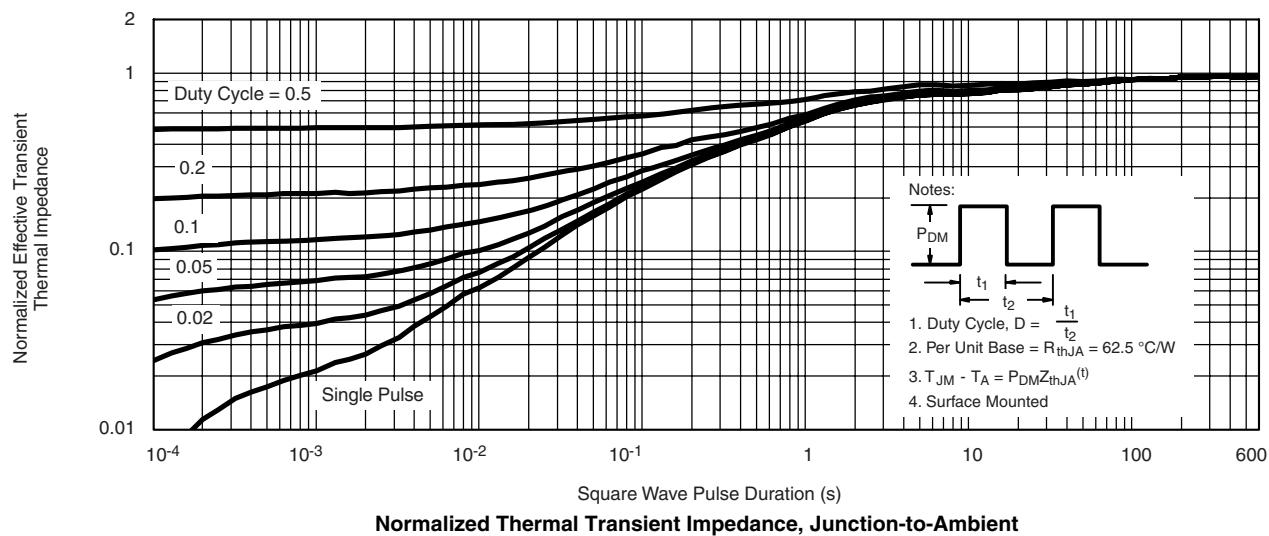
Notes:

- a. Pulse test: $PW \leq 300 \mu\text{s}$, duty cycle $\leq 2\%$.
- b. For DESIGN AID ONLY, not subject to production testing.
- c. 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


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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 <http://www.vishay.com/ppg?72065>.

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Please note that some Vishay documentation may still make reference to RoHS Directive 2002/95/EC. We confirm that all the products identified as being compliant to Directive 2002/95/EC conform to Directive 2011/65/EU.

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