

Maximum Ratings

Characteristic			Symbol	Value	Unit
Source-Source Voltage			V_{SSS}	24	V
Gate-Source Voltage			V_{GSS}	± 12	V
Continuous Source Current @ $T_A = +25^\circ\text{C}$ (Note 5)	Steady State	$T_A = +25^\circ\text{C}$	I_S	1.6	A
		$T_A = +70^\circ\text{C}$		1.3	
Pulsed Source Current @ $T_A = +25^\circ\text{C}$ (Notes 5 & 6)			I_{SM}	30	A

Thermal Characteristics

Characteristic			Symbol	Value	Unit
Power Dissipation, @ $T_A = +25^\circ\text{C}$ (Note 5)			P_D	1.45	W
Thermal Resistance, Junction to Ambient @ $T_A = +25^\circ\text{C}$ (Note 5)			$R_{\theta JA}$	86.68	$^\circ\text{C/W}$
Operating and Storage Temperature Range			T_J, T_{STG}	-55 to +150	$^\circ\text{C}$

Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 7)						
Source to Source Breakdown Voltage $T_J = +25^\circ\text{C}$	$V_{(BR)SS}$	24	—	—	V	$I_S = 1\text{mA}, V_{GS} = 0\text{V}$
Zero Gate Voltage Source Current $T_J = +25^\circ\text{C}$	I_{SSS}	—	—	1.0	μA	$V_{SS} = 20\text{V}, V_{GS} = 0\text{V}$
Gate-Body Leakage	I_{GSS}	—	—	± 10	μA	$V_{GS} = \pm 8\text{V}, V_{SS} = 0\text{V}$
ON CHARACTERISTICS (Note 7)						
Gate Threshold Voltage	$V_{GS(TH)}$	0.5	—	1.3	V	$V_{SS} = 10\text{V}, I_S = 1.0\text{mA}$
Static Source-Source On-Resistance	$R_{SS(ON)}$	20	29	45	m Ω	$V_{GS} = 4.5\text{V}, I_S = 3.0\text{A}$
		20.5	30	48		$V_{GS} = 4.0\text{V}, I_S = 3.0\text{A}$
		21	31	50		$V_{GS} = 3.7\text{V}, I_S = 3.0\text{A}$
		22	33	57		$V_{GS} = 3.1\text{V}, I_S = 3.0\text{A}$
		23	36	72		$V_{GS} = 2.5\text{V}, I_S = 3.0\text{A}$
Forward Transfer Admittance	$ Y_{fs} $	—	9.4	—	S	$V_{SS} = 10\text{V}, I_S = 3.0\text{A}$
Body Diode Forward Voltage	$V_{F(S-S)}$	—	0.8	1.2	V	$I_F = 3.0\text{A}, V_{GS} = 0\text{V}$
DYNAMIC CHARACTERISTICS (Note 8)						
Total Gate Charge	Q_g	—	12.6	—	nC	$V_{GS} = 4.5\text{V}, V_{SS} = 10\text{V}, I_S = 6\text{A}$
Turn-On Delay Time	$t_{D(ON)}$	—	183	—	ns	$V_{DD} = 10\text{V},$ $R_L = 3.33\Omega, I_S = 3.0\text{A}$
Turn-On Rise Time	t_R	—	278	—	ns	
Turn-Off Delay Time	$t_{D(OFF)}$	—	738	—	ns	
Turn-Off Fall Time	t_F	—	572	—	ns	

- Notes:
- Device mounted on FR-4 material with 1-inch² (6.45-cm²), 2-oz. (0.071-mm thick) Cu.
 - Repetitive rating, pulse width limited by junction temperature.
 - Short duration pulse test used to minimize self-heating effect.
 - Guaranteed by design. Not subject to production testing.

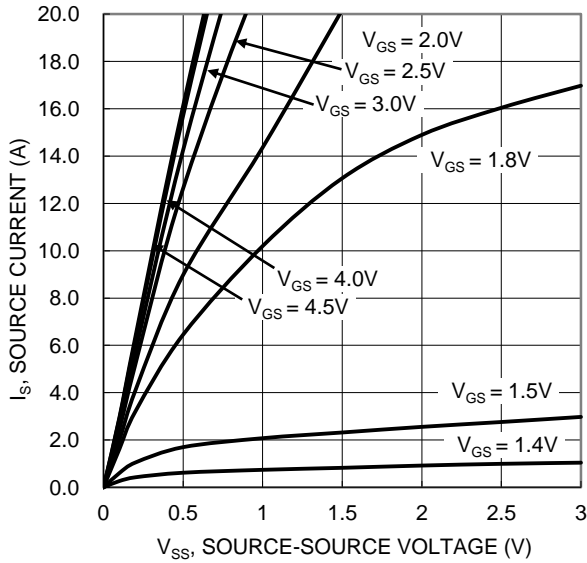


Figure 1. Typical Output Characteristic

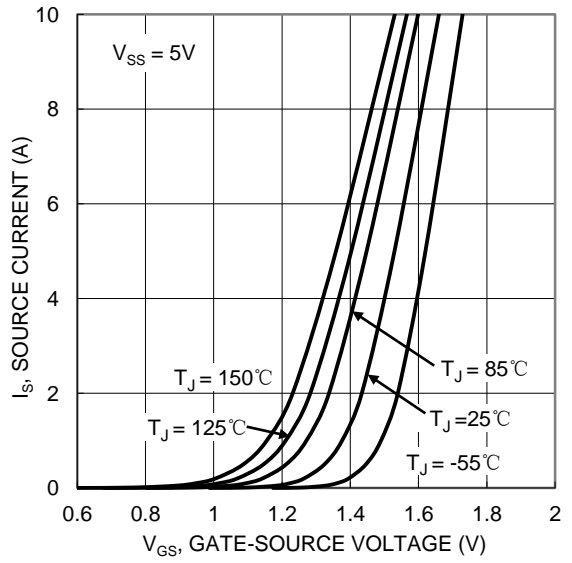


Figure 2. Typical Transfer Characteristic

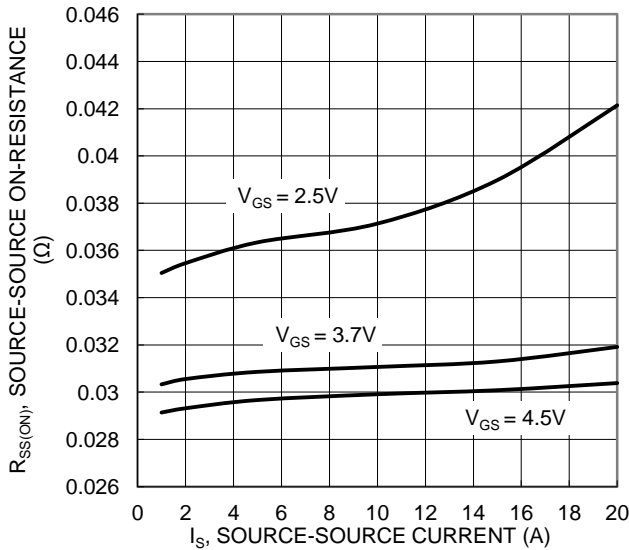


Figure 3. Typical On-Resistance vs. Source Current and Gate Voltage

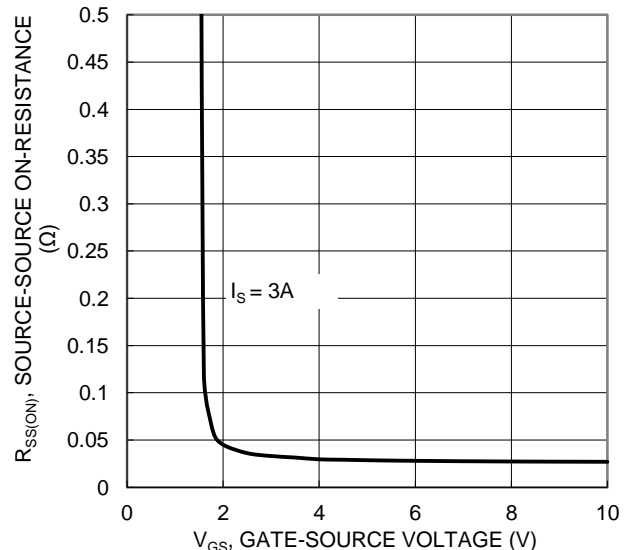


Figure 4. Typical Transfer Characteristic

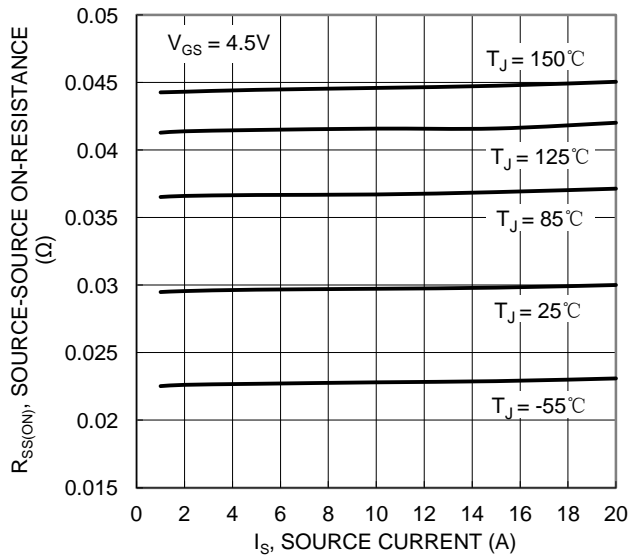


Figure 5. Typical On-Resistance vs. Source Current and Junction Temperature

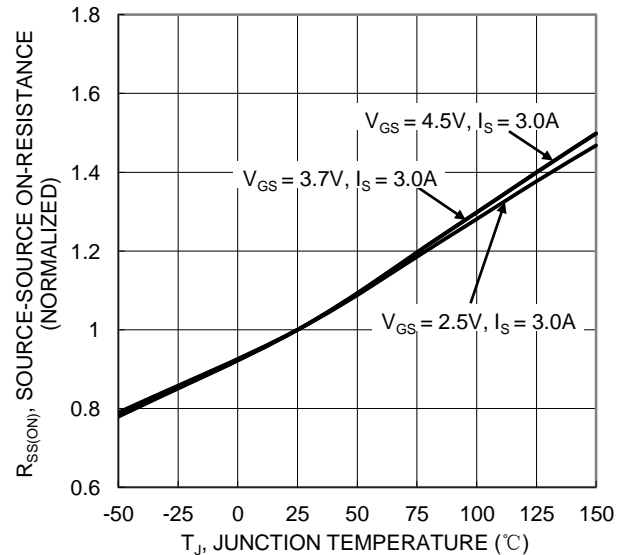


Figure 6. On-Resistance Variation with Junction Temperature

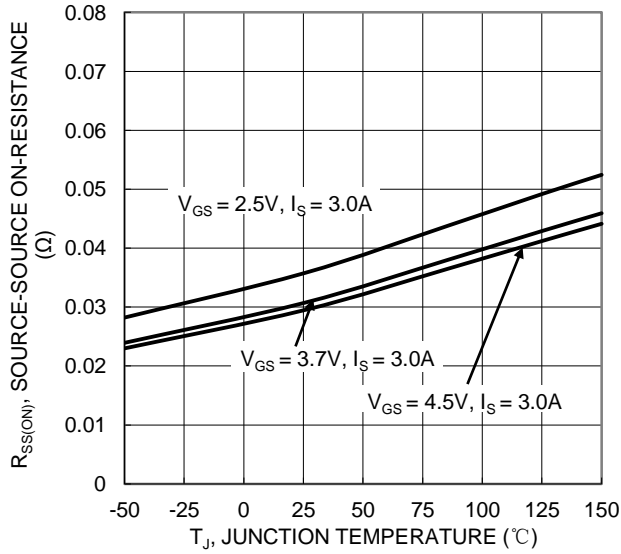


Figure 7. On-Resistance Variation with Junction Temperature

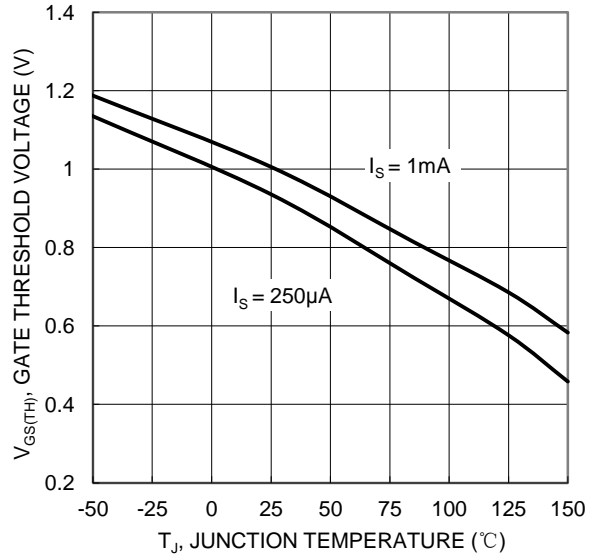


Figure 8. Gate Threshold Variation vs. Junction Temperature

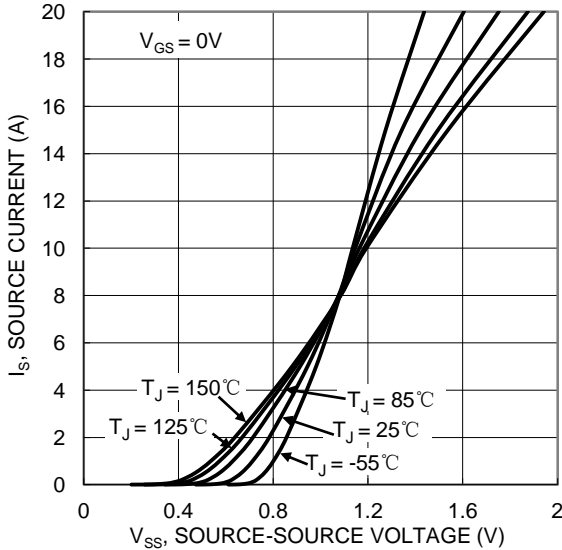


Figure 9. Diode Forward Voltage vs. Current

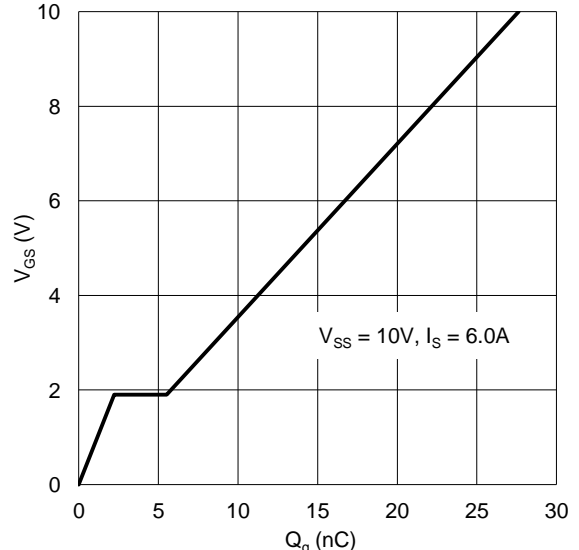


Figure 10. Gate Charge

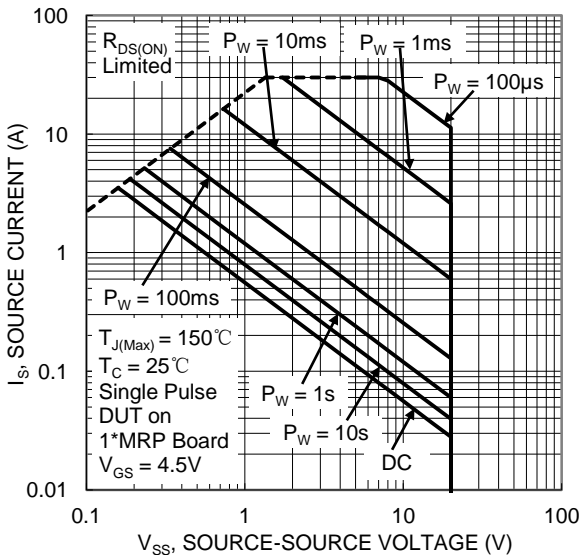


Figure 11. SOA, Safe Operation Area

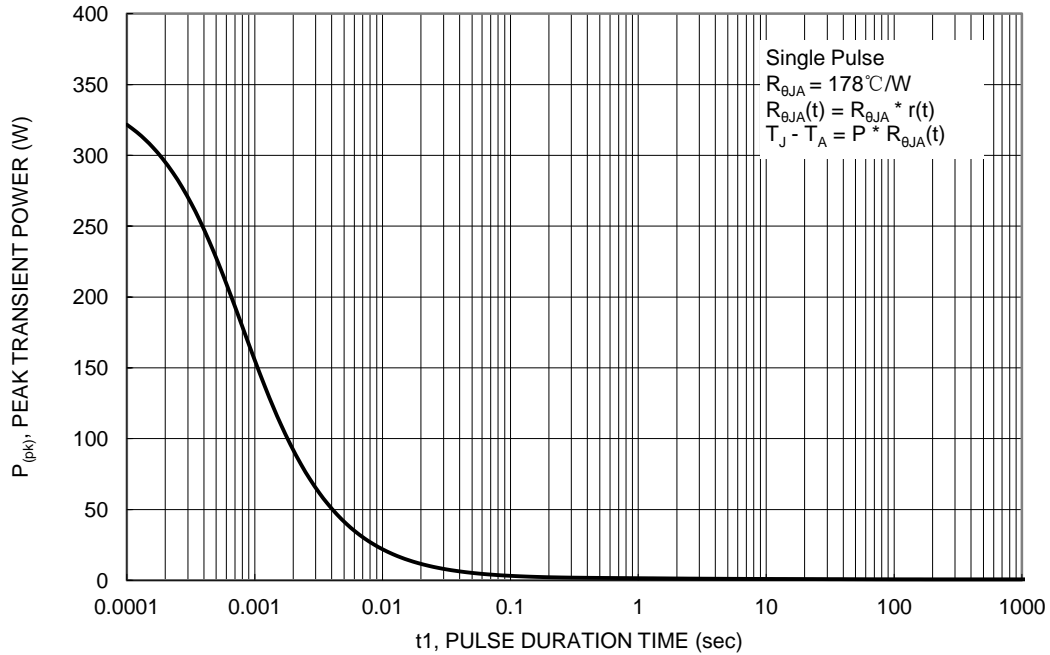


Figure 12. Single Pulse Maximum Power Dissipation

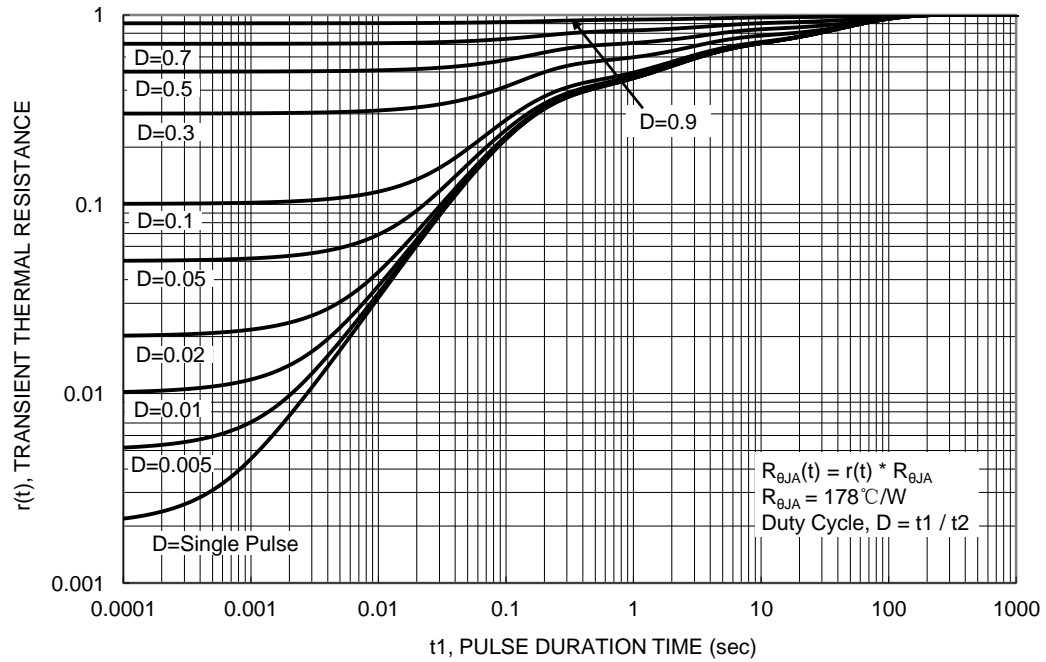
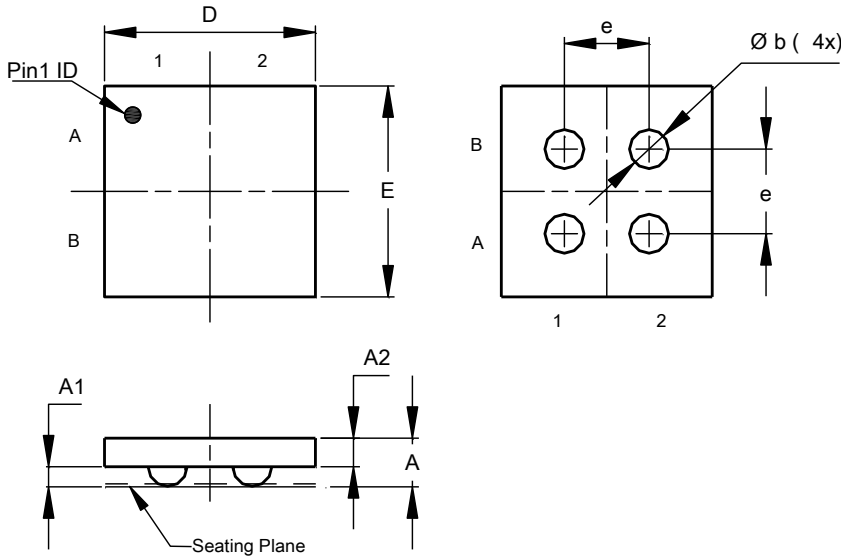


Figure 13. Transient Thermal Resistance

Package Outline Dimensions

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

X2-WLB1616-4

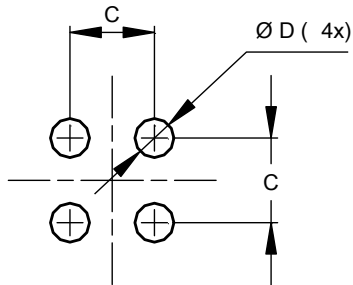


X2-WLB1616-4			
Dim	Min	Max	Typ
A	--	0.40	0.37
A1	--	--	0.15
A2	--	--	0.22
b	0.25	0.35	0.30
D	1.58	1.66	1.62
E	1.58	1.66	1.62
e	-	-	0.65
All Dimensions in mm			

Suggested Pad Layout

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

X2-WLB1616-4



Dimensions	Value (in mm)
C	0.65
D	0.30

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