

Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Drain-Source Voltage	V _{DSS}	60	V
Gate-Source Voltage	V _{GSS}	±20	V
Continuous Drain Current (Note 5) V _{GS} = 4.0V	I _D	T _A = +25°C	310
		T _A = +70°C	260
Pulsed Drain Current (Note 6) (10μs Pulse, Duty Cycle = 1%)	I _{DM}	1.0	A

Thermal Characteristics

Characteristic	Symbol	Max	Unit
Power Dissipation (Note 5)	P _D	0.48	W
Thermal Resistance, Junction to Ambient @T _A = +25°C (Note 5)	R _{θJA}	265	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 7)						
Drain-Source Breakdown Voltage	BV _{DSS}	60	—	—	V	V _{GS} = 0V, I _D = 250μA
Zero Gate Voltage Drain Current T _J = +25°C	I _{DSS}	—	—	1.0	μA	V _{DS} = 60V, V _{GS} = 0V
Gate-Source Leakage	I _{GSS}	—	—	±100	nA	V _{GS} = ±5V, V _{DS} = 0V
		—	—	±500	nA	V _{GS} = ±10V, V _{DS} = 0V
		—	—	±2.0	μA	V _{GS} = ±15V, V _{DS} = 0V
ON CHARACTERISTICS (Note 7)						
Gate Threshold Voltage	V _{GS(TH)}	0.6	—	1.0	V	V _{DS} = V _{GS} , I _D = 250μA
Static Drain-Source On-Resistance	R _{DS(ON)}	—	1.3	2	Ω	V _{GS} = 4V, I _D = 100mA
		—	1.4	2.5		V _{GS} = 2.5V, I _D = 50mA
		—	1.8	3		V _{GS} = 1.8V, I _D = 50mA
		—	2.4	—		V _{GS} = 1.5V, I _D = 10mA
		—	—	—		—
Forward Transfer Admittance	Y _{fs}	—	1.8	—	S	V _{DS} = 10V, I _D = 200mA
Diode Forward Voltage	V _{SD}	—	0.8	1.3	V	V _{GS} = 0V, I _S = 115mA
DYNAMIC CHARACTERISTICS (Note 8)						
Input Capacitance	C _{iss}	—	31	—	pF	V _{DS} = 25V, V _{GS} = 0V, f = 1.0MHz
Output Capacitance	C _{oss}	—	4.3	—		
Reverse Transfer Capacitance	C _{rss}	—	3.0	—		
Gate Resistance	R _g	—	99	—	Ω	V _{DS} = 0V, V _{GS} = 0V, f = 1MHz
Total Gate Charge	Q _g	—	0.5	—	nC	V _{GS} = 4.5V, V _{DS} = 10V, I _D = 250mA
Gate-Source Charge	Q _{gs}	—	0.09	—		
Gate-Drain Charge	Q _{gd}	—	0.07	—		
Turn-On Delay Time	t _{D(ON)}	—	2.6	—	ns	V _{GS} = 10V, V _{DS} = 30V, R _L = 150Ω, R _G = 25Ω, I _D = 200mA
Turn-On Rise Time	t _r	—	2.1	—		
Turn-Off Delay Time	t _{D(OFF)}	—	18	—		
Turn-Off Fall Time	t _f	—	8.7	—		

- Notes:
- Device mounted on FR-4 PCB with minimum recommended pad layout, single sided.
 - 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.

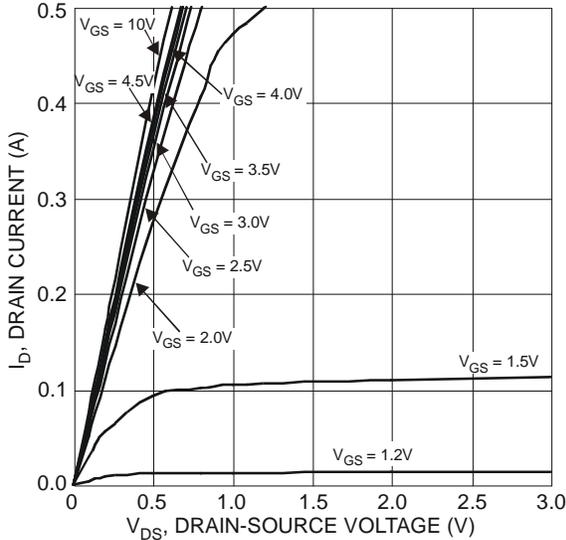


Figure 1 Typical Output Characteristics

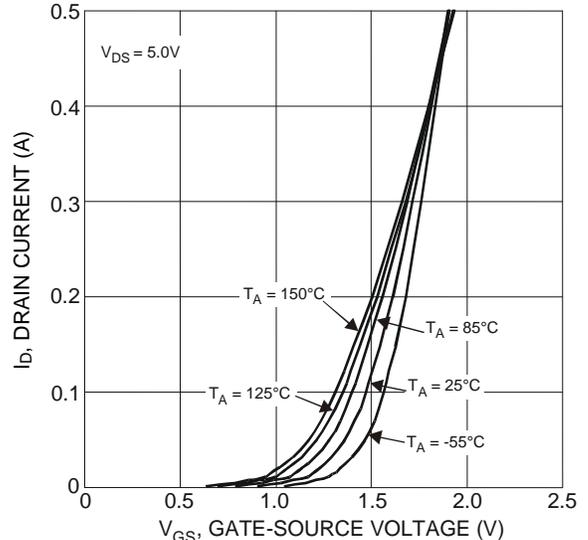


Figure 2 Typical Transfer Characteristics

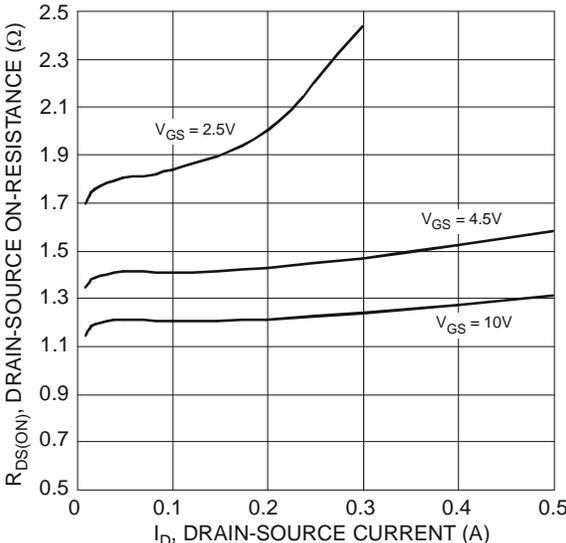


Figure 3 Typical On-Resistance vs. Drain Current and Gate Voltage

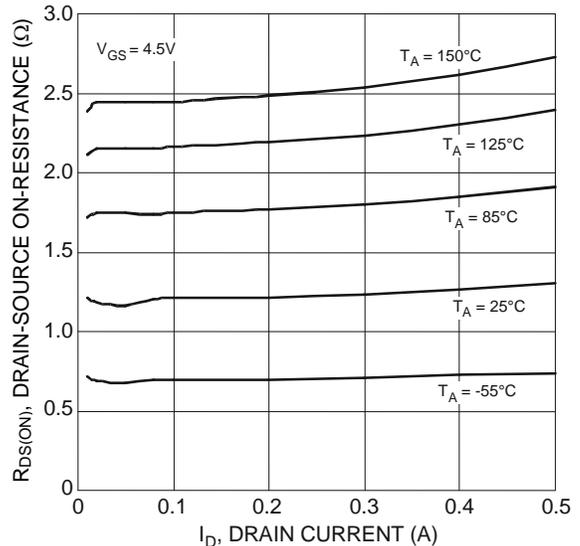


Figure 4 Typical On-Resistance vs. Drain Current and Temperature

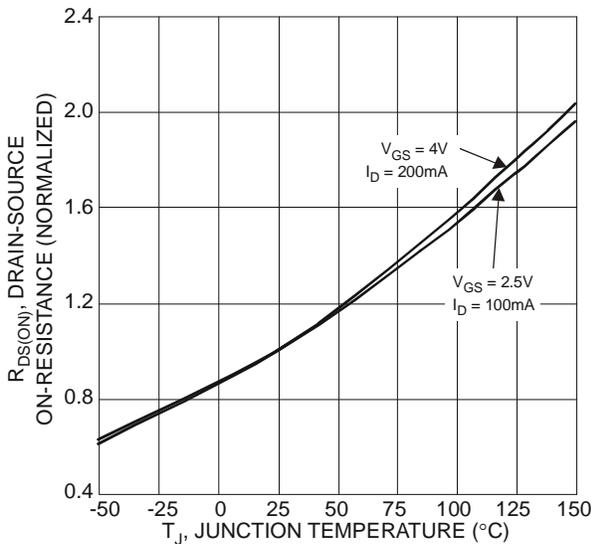


Figure 5 On-Resistance Variation with Temperature

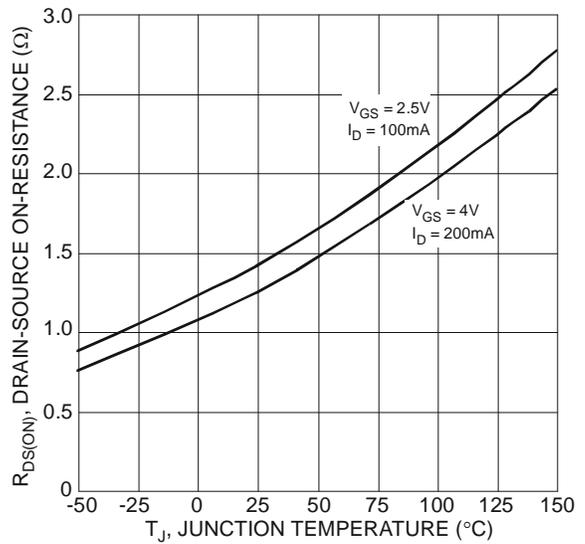


Figure 6 On-Resistance Variation with Temperature

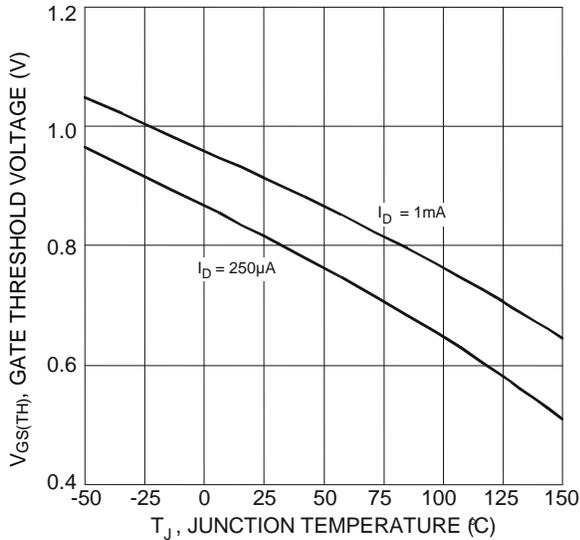


Figure 7 Gate Threshold Variation vs. Junction Temperature

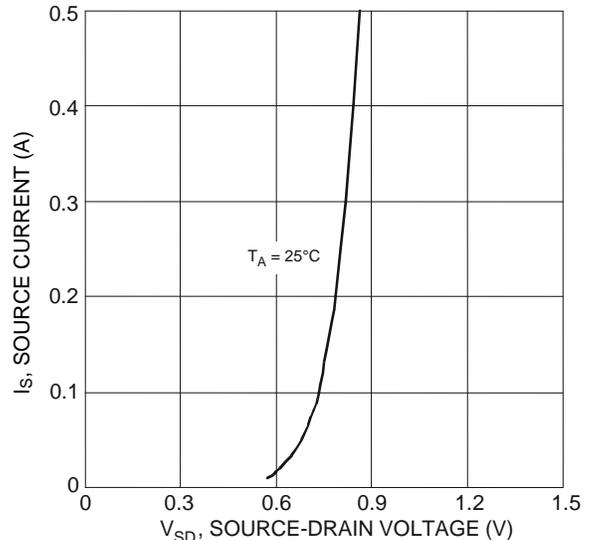


Figure 8 Diode Forward Voltage vs. Current

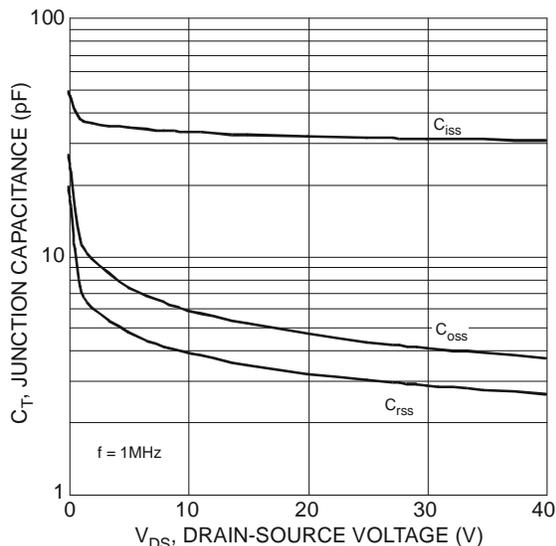


Figure 9 Typical Junction Capacitance

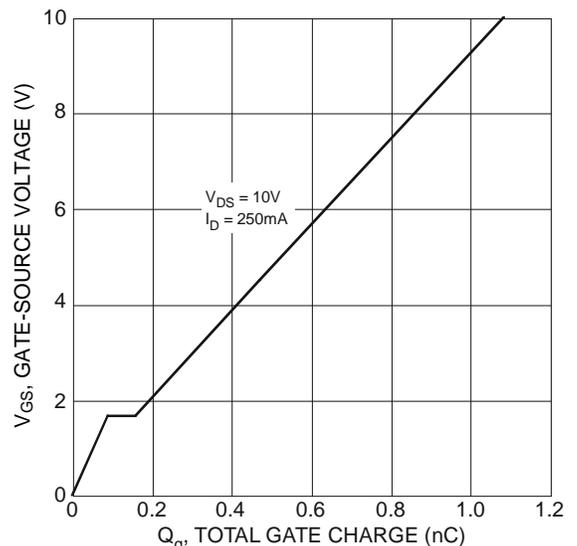


Figure 10 Gate Charge

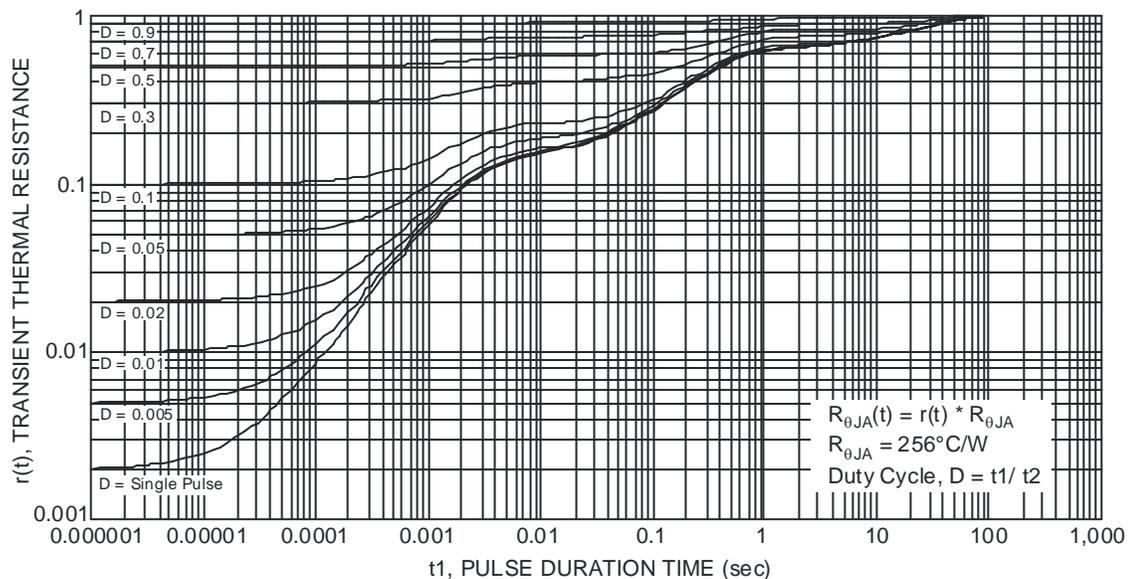


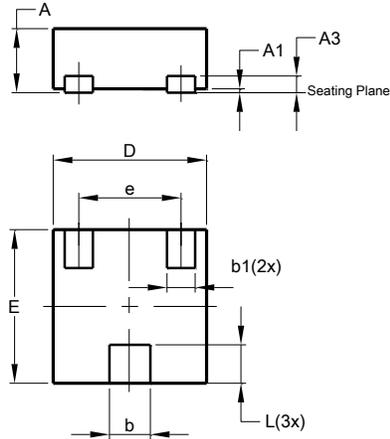
Figure 11 Transient Thermal Resistance

$R_{\theta JA}(t) = r(t) * R_{\theta JA}$
 $R_{\theta JA} = 256^{\circ}\text{C/W}$
 Duty Cycle, $D = t1 / t2$

Package Outline Dimensions

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

X1-DFN1212-3

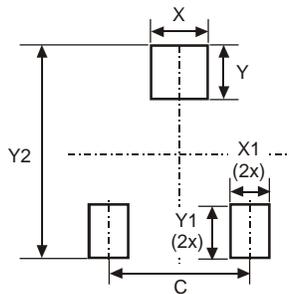


X1-DFN1212-3			
Dim	Min	Max	Typ
A	0.47	0.53	0.50
A1	0	0.05	0.02
A3	-	-	0.13
b	0.27	0.37	0.32
b1	0.17	0.27	0.22
D	1.15	1.25	1.20
E	1.15	1.25	1.20
e	-	-	0.80
L	0.25	0.35	0.30
All Dimensions in mm			

Suggested Pad Layout

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

X1-DFN1212-3



Dimensions	Value (in mm)
C	0.80
X	0.42
X1	0.32
Y	0.50
Y1	0.50
Y2	1.50

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