

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

Characteristic			Symbol	Value	Unit
Drain-Source Voltage			V _{DSS}	20	V
Gate-Source Voltage			V _{GSS}	±12	V
Continuous Drain Current (Note 6) V _{GS} = 4.5V	Steady State	T _A = +25°C T _A = +70°C	I _D	0.9 0.7	A
Continuous Drain Current (Note 6) V _{GS} = 2.5V	Steady State	T _A = +25°C T _A = +70°C	I _D	0.7 0.5	A
Pulsed Drain Current (10μs Pulse, Duty Cycle = 1%)			I _{DM}	3.0	A
Maximum Body Diode Forward Current (Note 6)			I _S	0.8	A

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

Characteristic		Symbol	Value	Unit
Total Power Dissipation (Note 5)		P _D	0.4	W
Thermal Resistance, Junction to Ambient (Note 5)	Steady State	R _{θJA}	280	°C/W
Total Power Dissipation (Note 6)		P _D	0.8	W
Thermal Resistance, Junction to Ambient (Note 6)	Steady State	R _{θJA}	140	°C/W
Thermal Resistance, Junction to Case (Note 6)		R _{θJC}	112	°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}	20	-	-	V	V _{GS} = 0V, I _D = 250μA
Zero Gate Voltage Drain Current T _J = +25°C	I _{DSS}	-	-	80 100	nA	V _{DS} = 4.5V, V _{GS} = 0V V _{DS} = 20V, V _{GS} = 0V
Gate-Source Leakage	I _{GSS}	-	-	±1.0	μA	V _{GS} = ±4.5V, V _{DS} = 0V
ON CHARACTERISTICS (Note 7)						
Gate Threshold Voltage	V _{GS(TH)}	0.45	-	1.0	V	V _{DS} = V _{GS} , I _D = 250μA
Static Drain-Source On-Resistance	R _{DS(ON)}	-	0.35	0.6	Ω	V _{GS} = 4.5V, I _D = 200mA
		-	0.45	0.8		V _{GS} = 2.5V, I _D = 200mA
		-	0.6	1.0		V _{GS} = 1.8V, I _D = 100mA
		-	0.7	1.6		V _{GS} = 1.5V, I _D = 50mA
		-	0.7	1.2		V _{GS} = 0V, I _S = 500mA
Forward Transfer Admittance	Y _{fs}	-	1.4	-	s	V _{DS} = 3V, I _D = 200mA
Diode Forward Voltage	V _{SD}	-	0.7	1.2	V	V _{GS} = 0V, I _S = 500mA
DYNAMIC CHARACTERISTICS (Note 8)						
Input Capacitance	C _{iss}	-	37.0	-	pF	V _{DS} = 16V, V _{GS} = 0V, f = 1.0MHz
Output Capacitance	C _{oss}	-	5.7	-	pF	
Reverse Transfer Capacitance	C _{rss}	-	4.2	-	pF	
Gate Resistance	R _g	-	68	-	Ω	V _{DS} = 0V, V _{GS} = 0V
Total Gate Charge	Q _g	-	0.5	-	nC	V _{GS} = 4.5V, V _{DS} = 10V, I _D = 250mA
Gate-Source Charge	Q _{gs}	-	0.07	-	nC	
Gate-Drain Charge	Q _{gd}	-	0.1	-	nC	
Turn-On Delay Time	t _{D(ON)}	-	4.06	-	ns	V _{DD} = 10V, V _{GS} = 4.5V, R _L = 47Ω, R _g = 10Ω, I _D = 200mA
Turn-On Rise Time	t _R	-	7.28	-	ns	
Turn-Off Delay Time	t _{D(OFF)}	-	13.74	-	ns	
Turn-Off Fall Time	t _F	-	10.54	-	ns	

- Notes:
- Device mounted on FR-4 PC board, with minimum recommended pad layout, single sided.
 - Device mounted on FR-4 substrate PC board, 2oz copper, with thermal vias to bottom layer 1-inch square copper plate.
 - Short duration pulse test used to minimize self-heating effect.
 - Guaranteed by design. Not subject to production testing.

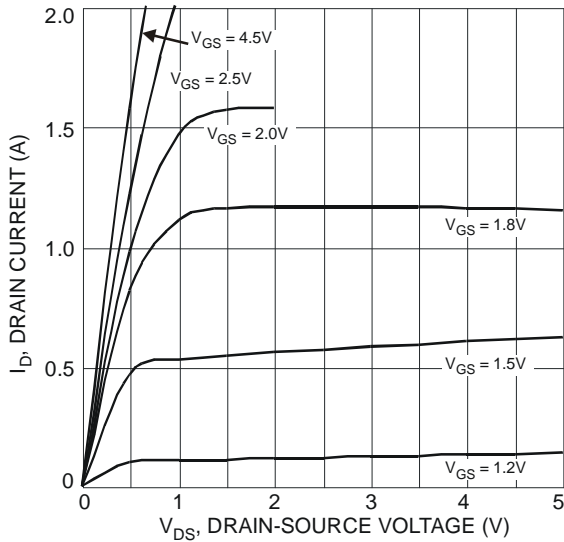


Fig. 1 Typical Output Characteristics

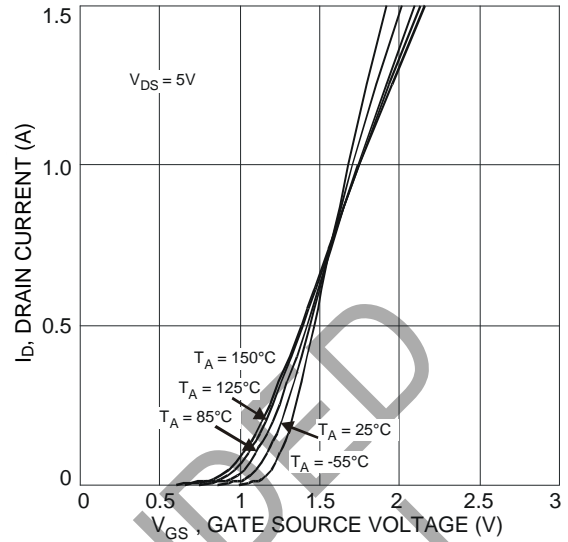


Fig. 2 Typical Transfer Characteristics

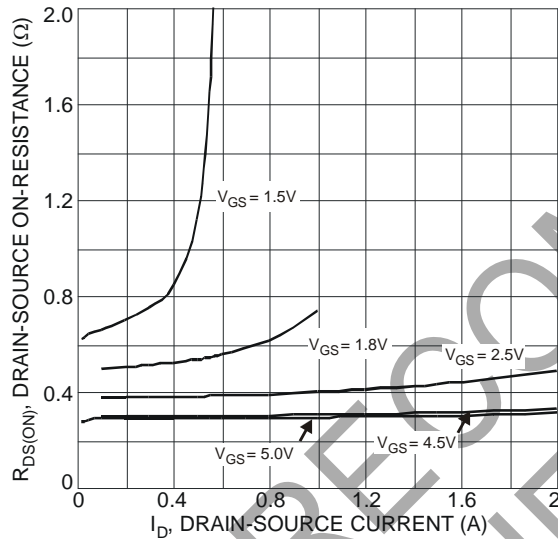


Fig. 3 Typical On-Resistance vs. Drain Current and Gate Voltage

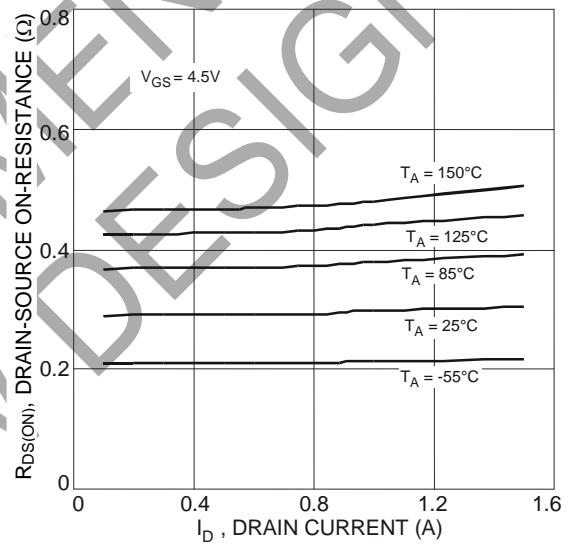


Fig. 4 Typical Drain-Source On-Resistance vs. Drain Current and Temperature

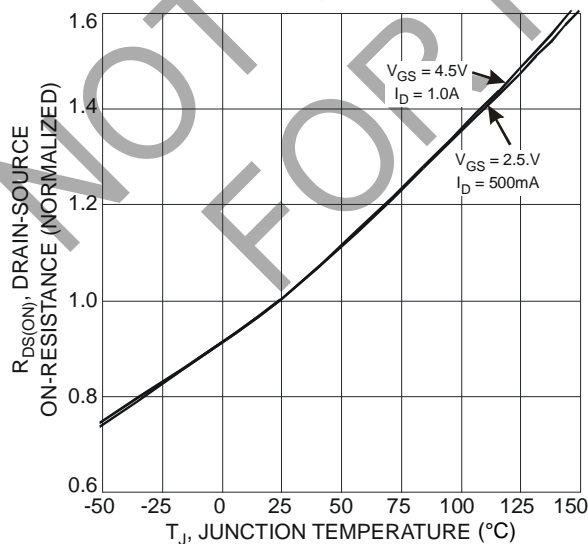


Fig. 5 On-Resistance Variation with Temperature

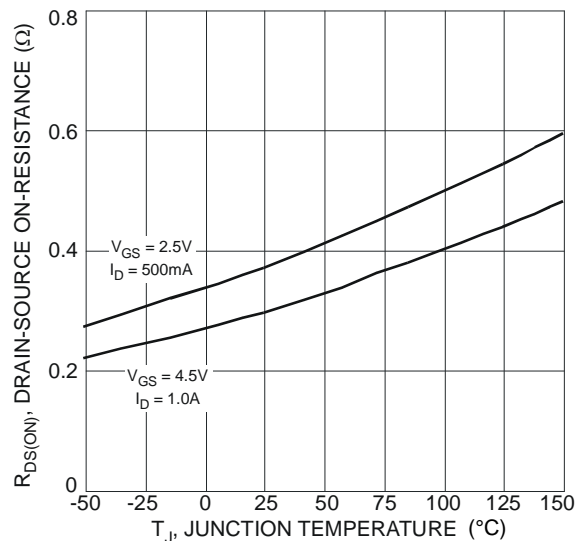


Fig. 6 On-Resistance Variation with Temperature

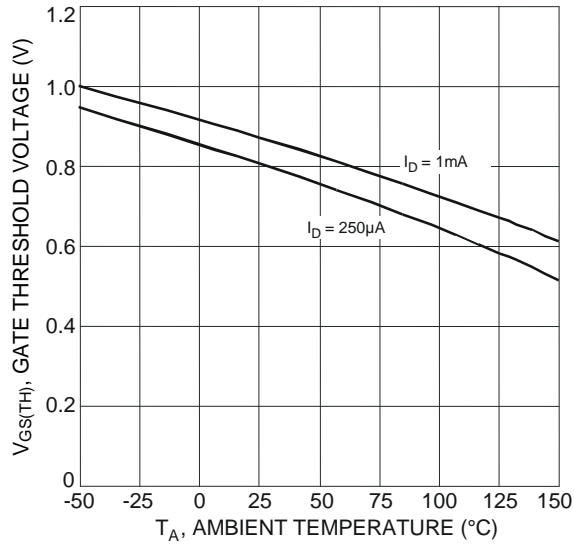


Fig. 7 Gate Threshold Variation vs. Ambient Temperature

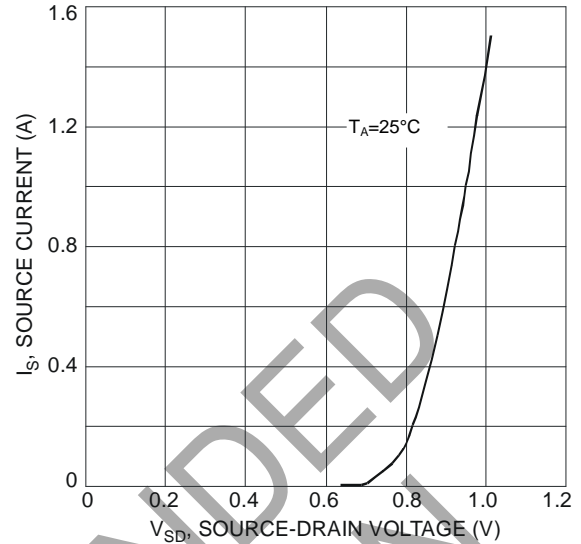


Fig. 8 Diode Forward Voltage vs. Current

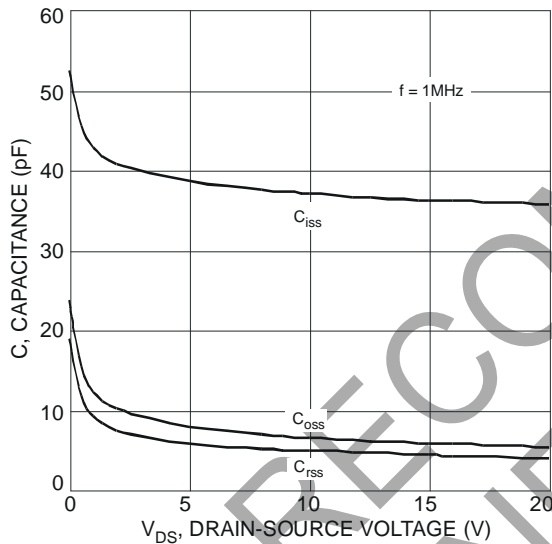


Fig. 9 Typical Capacitance

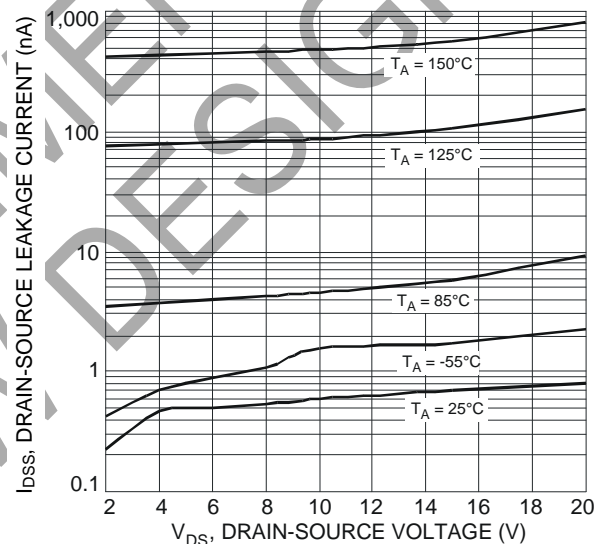


Fig. 10 Typical Drain-Source Leakage Current vs. Drain-Source Voltage

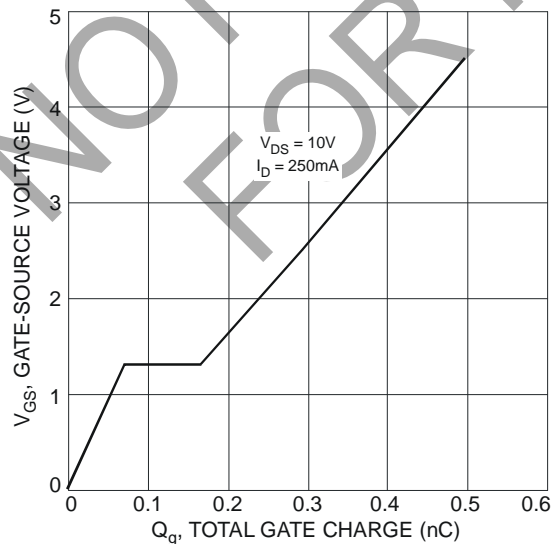


Fig. 11 Gate-Charge Characteristics

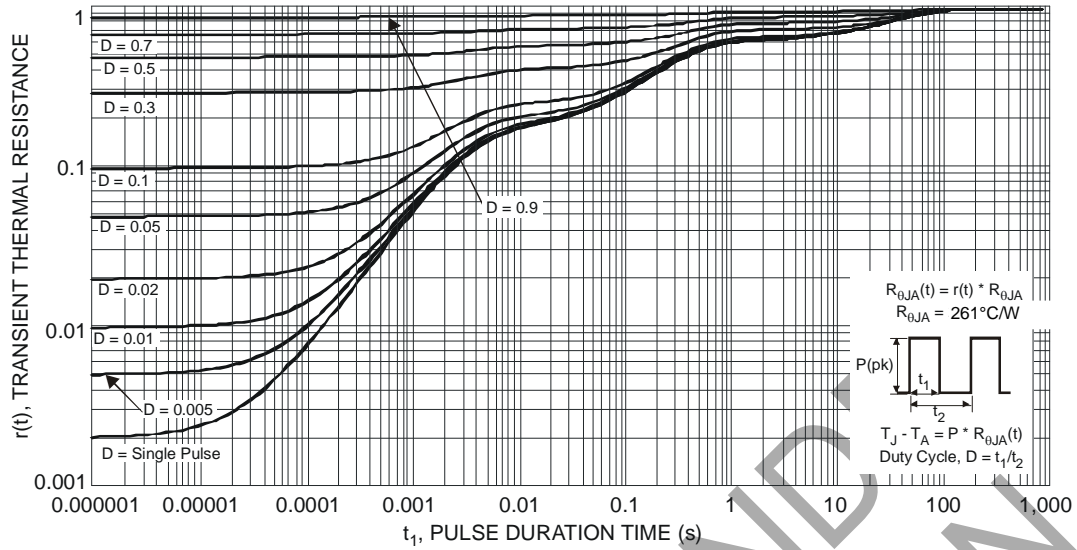
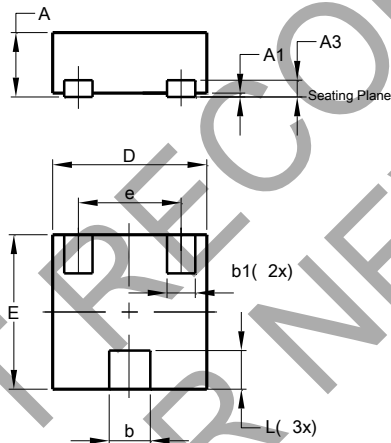


Fig. 12 Transient Thermal Response

Package Outline Dimensions

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

X1-DFN1212-3

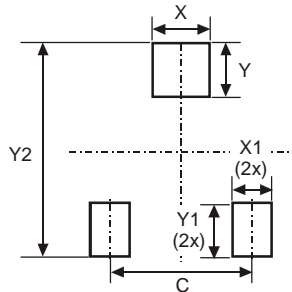


X1-DFN1212-3			
Dim	Min	Max	Typ
A	0.47	0.53	0.50
A1	0	0.05	0.02
A3	-	-	0.13
b	0.27	0.37	0.32
b1	0.17	0.27	0.22
D	1.15	1.25	1.20
E	1.15	1.25	1.20
e	-	-	0.80
L	0.25	0.35	0.30
All Dimensions in mm			

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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