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

Characteristic			Symbol	Value	Units
Drain-Source Voltage			V_{DSS}	30	V
Gate-Source Voltage			V_{GSS}	±25	V
Continuous Drain Current (Note 7) V_{GS} = 10V	Steady State	T_A = +25°C T_A = +70°C	I_D	7.5 6.0	A
	t<10s	T_A = +25°C T_A = +70°C	I_D	9.8 7.7	A
Continuous Drain Current (Note 7) V_{GS} = 4.5V	Steady State	T_A = +25°C T_A = +70°C	I_D	6.4 5.0	A
	t<10s	T_A = +25°C T_A = +70°C	I_D	8.4 6.6	A
Maximum Continuous Body Diode Forward Current (Note 7)			I_S	2	A
Pulsed Drain Current (10µs pulse, duty cycle = 1%)			I_{DM}	42	A
Avalanche Current (Notes 8 & 9) L = 0.1mH			I_{AR}	17	A
Repetitive Avalanche Energy (Notes 8 & 9) L = 0.1mH			E_{AR}	14	mJ

Thermal Characteristics

Characteristic		Symbol	Value	Units
Total Power Dissipation (Note 6)		P_D	1.17	W
Thermal Resistance, Junction to Ambient (Note 6)	Steady State	$R_{\theta JA}$	107	°C/W
	t<10s		61	
Total Power Dissipation (Note 7)		P_D	1.5	W
Thermal Resistance, Junction to Ambient (Note 7)	Steady State	$R_{\theta JA}$	83	°C/W
	t<10s		49	
Thermal Resistance, Junction to Case		$R_{\theta JC}$	14.5	
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 10)						
Drain-Source Breakdown Voltage	BV_{DSS}	30	—	—	V	V_{GS} = 0V, I_D = 250µA
Zero Gate Voltage Drain Current T_J = +25°C	I_{DSS}	—	—	1.0	µA	V_{DS} = 30V, V_{GS} = 0V
Gate-Source Leakage	I_{GSS}	—	—	±100	nA	V_{GS} = ±20V, V_{DS} = 0V
ON CHARACTERISTICS (Note 10)						
Gate Threshold Voltage	$V_{GS(th)}$	0.8	—	1.6	V	V_{DS} = V_{GS}, I_D = 250µA
Static Drain-Source On-Resistance	$R_{DS(on)}$	—	12 16	16 22	mΩ	V_{GS} = 10V, I_D = 9A V_{GS} = 4.5V, I_D = 7A
Forward Transfer Admittance	$\|Y_{fs}\|$	—	8	—	S	V_{DS} = 10V, I_D = 9A
Diode Forward Voltage	V_{SD}	—	0.72	0.94	V	V_{GS} = 0V, I_S = 1A
DYNAMIC CHARACTERISTICS (Note 11)						
Input Capacitance	C_{iss}	—	798	—	pF	V_{DS} = 10V, V_{GS} = 0V, f = 1.0MHz
Output Capacitance	C_{oss}	—	128	—	pF	
Reverse Transfer Capacitance	C_{rss}	—	122	—	pF	
Gate Resistance	R_g	—	1.37	—	Ω	V_{DS} = 0V, V_{GS} = 0V, f = 1MHz
Total Gate Charge	Q_g	—	8.56	—	nC	V_{GS} = 5V, V_{DS} = 15V, I_D = 9A
Gate-Source Charge	Q_{gs}	—	1.8	—	nC	
Gate-Drain Charge	Q_{gd}	—	2.5	—	nC	
Turn-On Delay Time	$t_{D(on)}$	—	5.03	—	ns	V_{DD} = 15V, V_{GEN} = 10V, R_L = 15Ω, R_G = 6Ω, I_D = 1A
Turn-On Rise Time	t_r	—	4.50	—	ns	
Turn-Off Delay Time	$t_{D(off)}$	—	26.33	—	ns	
Turn-Off Fall Time	t_f	—	8.55	—	ns	

Notes:
6. Device mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout.
7. Device mounted on FR-4 substrate PC board, 2oz copper, with 1inch square copper plate.
8. I_{AR} and E_{AR} rating are based on low frequency and duty cycles to keep T_J = +25°C.
9. Applicable to products manufactured with Data Code "1146" (Nov, 2011) and newer.
10. Short duration pulse test used to minimize self-heating effect.
11. Guaranteed by design. Not subject to product testing.

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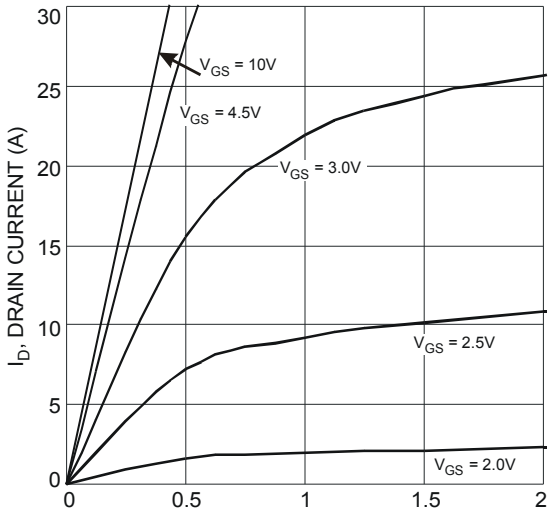

Fig. 1 Typical Output Characteristic

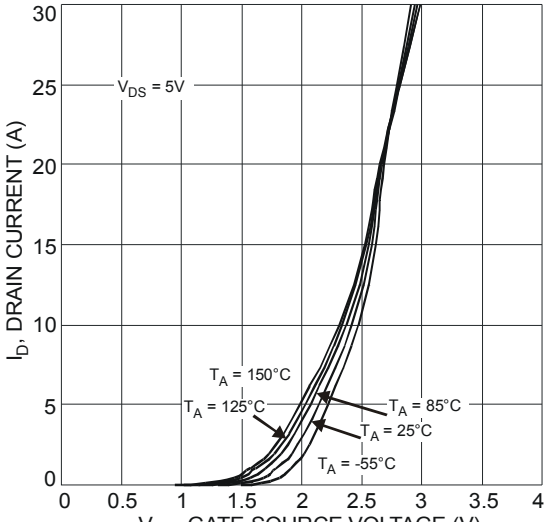

Fig. 2 Typical Transfer Characteristic

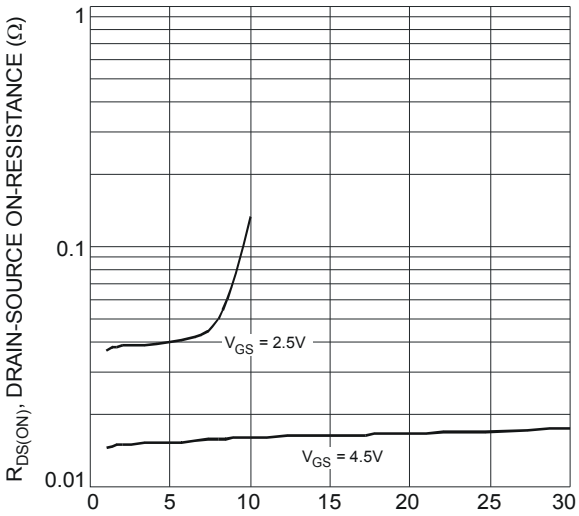

Fig. 3 Typical On-Resistance
vs. Drain Current and Gate Voltage

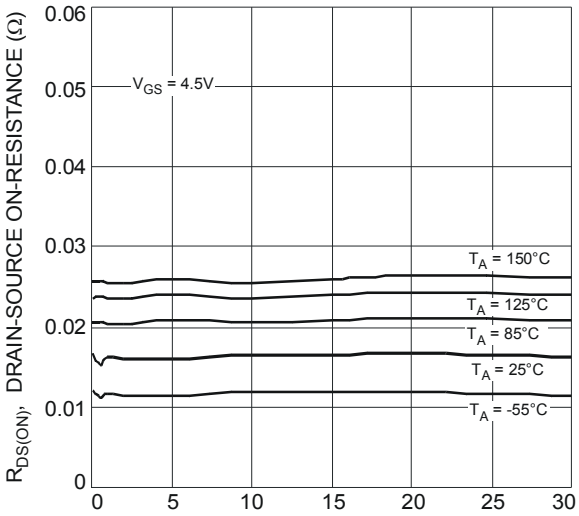

Fig. 4 Typical On-Resistance
vs. Drain Current and Temperature

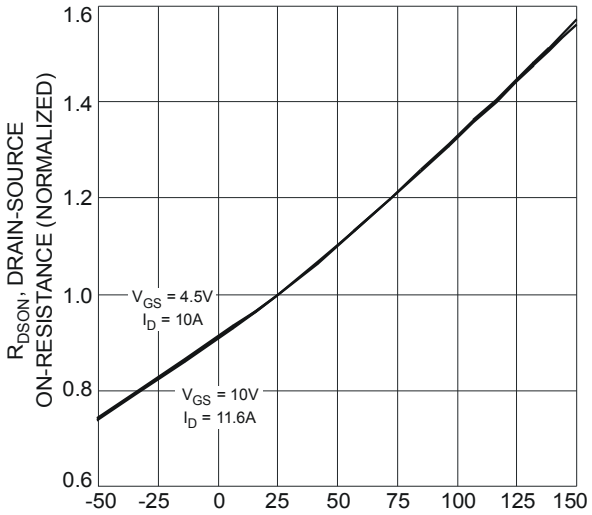

Fig. 5 On-Resistance Variation with Temperature

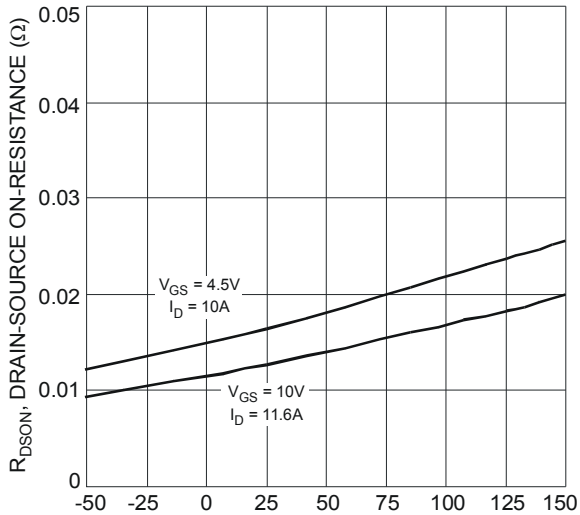

Fig. 6 On-Resistance Variation with Temperature

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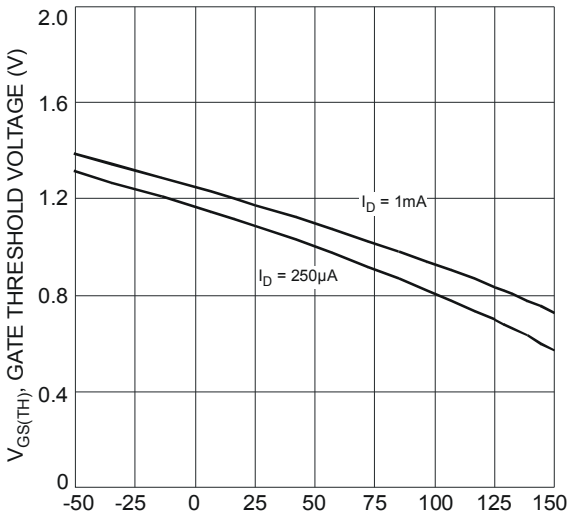

Fig. 7 Gate Threshold Variation vs. Ambient Temperature

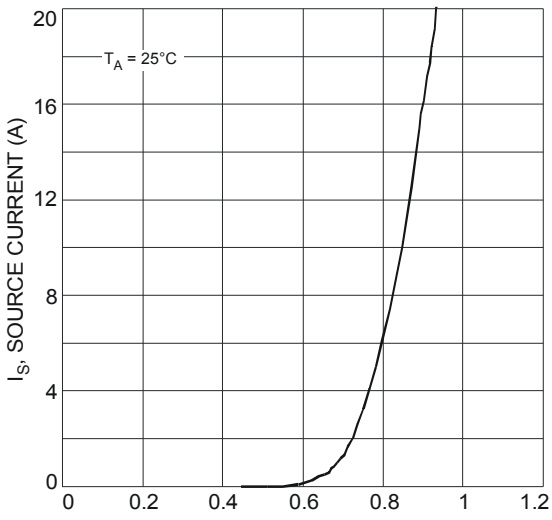

Fig. 8 Diode Forward Voltage vs. Current

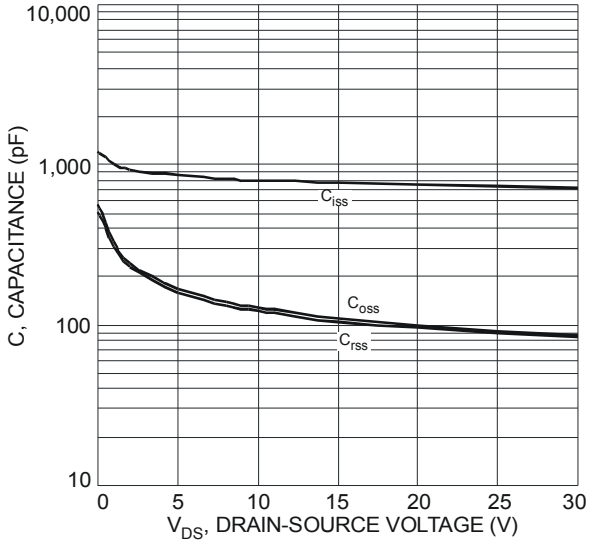

Fig. 9 Typical Total Capacitance

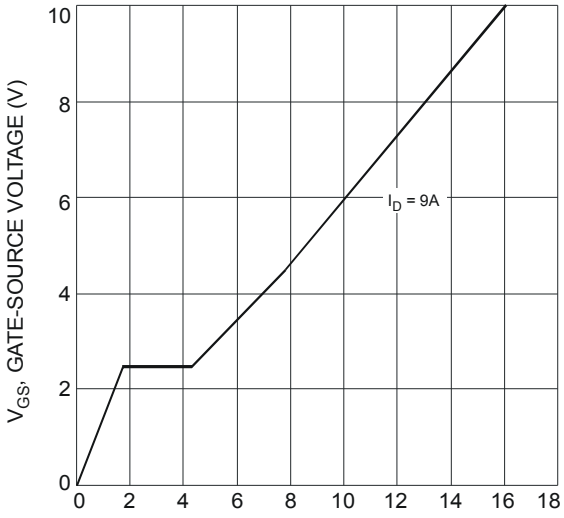

Fig. 10 Total Gate Charge

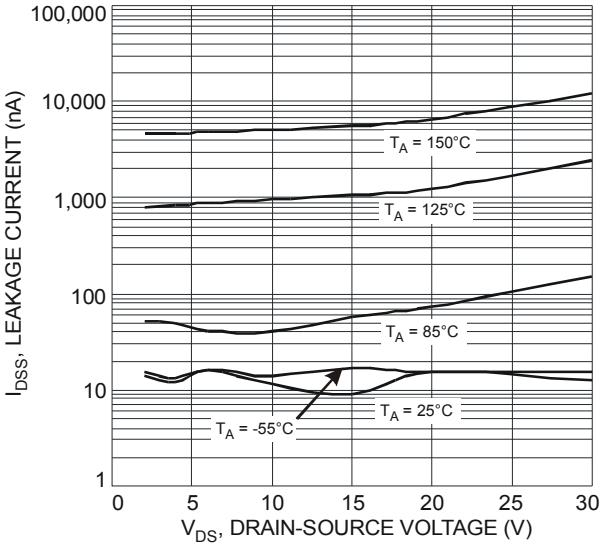

Fig. 11 Typical Leakage Current vs. Drain-Source Voltage

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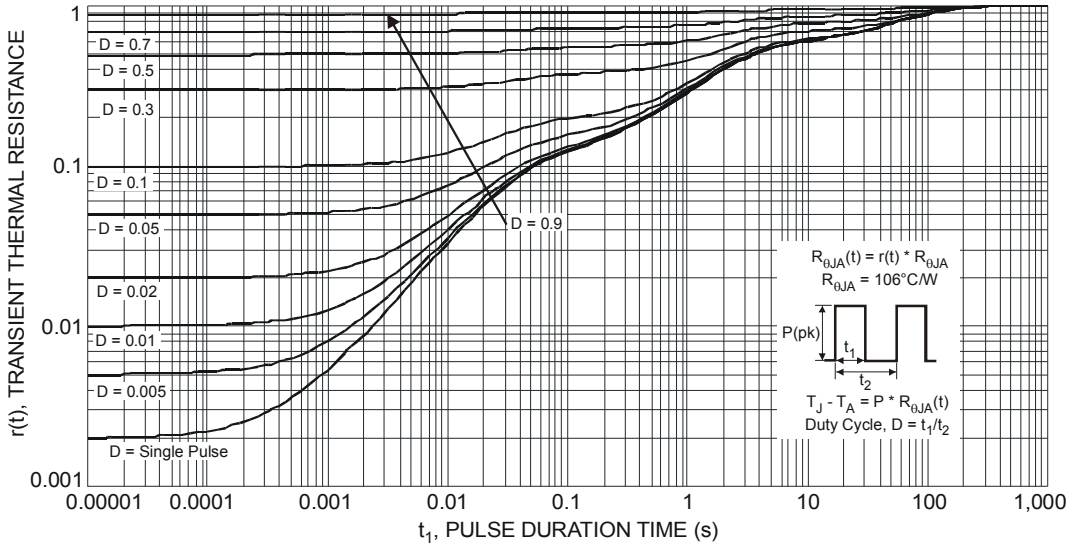
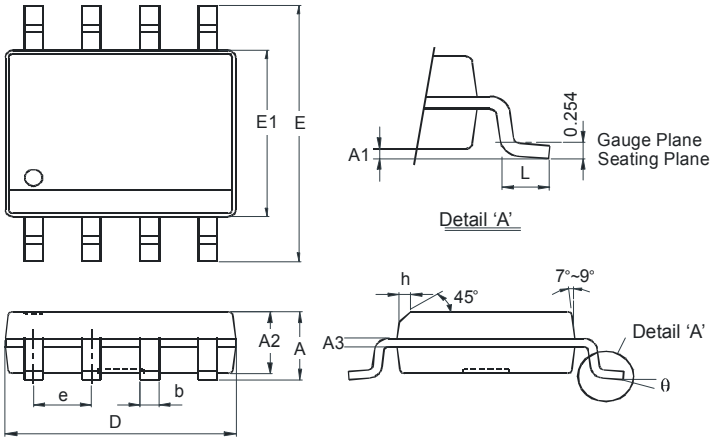


Fig. 12 Transient Thermal Response

Package Outline Dimensions

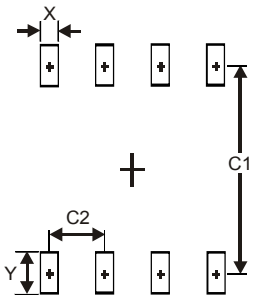
Please see AP02001 at http://www.diodes.com/datasheets/ap02001.pdf for the latest version.



SO-8		
Dim	**Min**	**Max**
A	-	1.75
A1	0.10	0.20
A2	1.30	1.50
A3	0.15	0.25
b	0.3	0.5
D	4.85	4.95
E	5.90	6.10
E1	3.85	3.95
e	1.27 Typ	
h	-	0.35
L	0.62	0.82
θ	0°	8°
All Dimensions in mm		

Suggested Pad Layout

Please see AP02001 at http://www.diodes.com/datasheets/ap02001.pdf for the latest version.



Dimensions	Value (in mm)
X	0.60
Y	1.55
C1	5.4
C2	1.27

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