

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

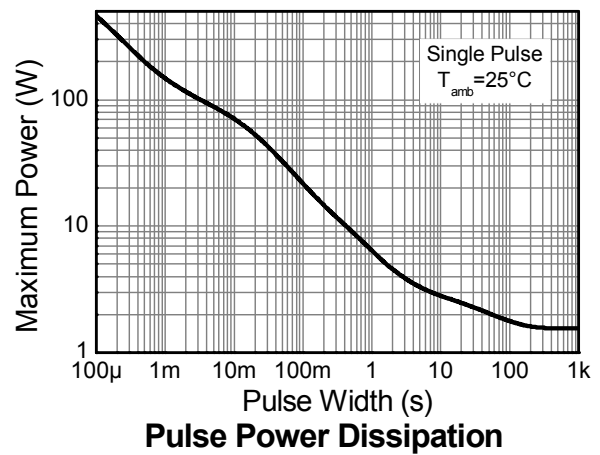
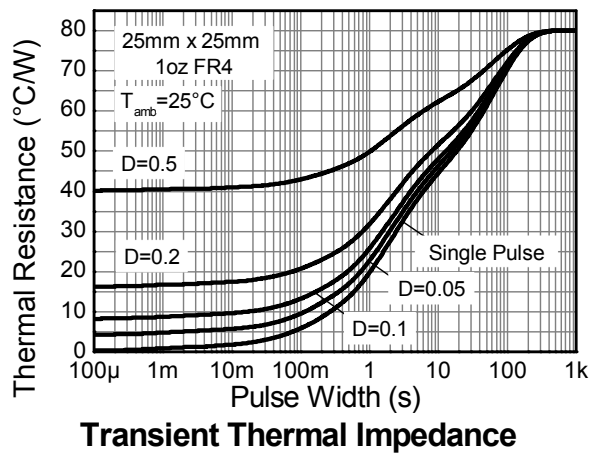
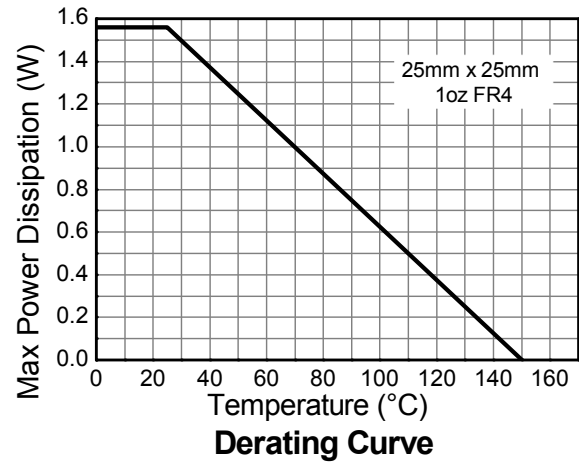
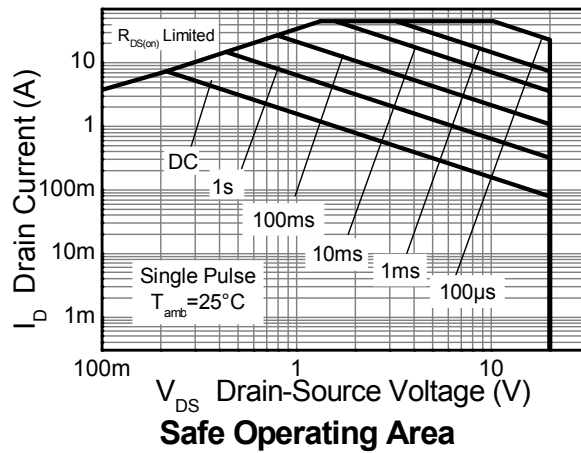
Characteristic			Symbol	Value	Unit
Drain-Source voltage			V _{DSS}	20	V
Gate-Source voltage			V _{GS}	±12	
Continuous Drain current	V _{GS} = 4.5V	(Note 6)	I _D	9.8	A
		T _A = +70°C (Note 6)		7.9	
		(Note 5)		7.3	
Pulsed Drain current	V _{GS} = 4.5V	(Note 7)	I _{DM}	45.0	
Continuous Source current (Body diode)		(Note 6)	I _S	6.0	
Pulsed Source current (Body diode)		(Note 7)	I _{SM}	45.0	

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

Characteristic		Symbol	Value	Unit
Power dissipation	(Note 5)	P _D	1.56	W
			12.5	
Linear derating factor	(Note 6)		2.81	mW/°C
			22.5	
Thermal Resistance, Junction to Ambient	(Note 5)	R _{θJA}	80.0	°C/W
	(Note 6)		44.5	
Thermal Resistance, Junction to Lead	(Note 8)	R _{θJL}	37.0	
Operating and storage temperature range		T _J , T _{STG}	-55 to +150	°C

- Notes:
5. For a device surface mounted on 25mm x 25mm x 1.6mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions; the device is measured when operating in a steady-state condition.
 6. Same as note (5), except the device is measured at t ≤ 10 sec.
 7. Same as note (5), except the device is pulsed with D = 0.02 and pulse width 300μs.
 8. Thermal resistance from junction to solder-point (at the end of the drain lead).

Thermal Characteristics



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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	20	-	-	V	V _{GS} = 0V, I _D = 250μA
Zero Gate Voltage Drain Current	I _{DSS}	-	-	1.0	μA	V _{DS} = 20V, V _{GS} = 0V
Gate-Source Leakage	I _{GSS}	-	-	±10	μA	V _{GS} = ±12V, V _{DS} = 0V
ON CHARACTERISTICS						
Gate Threshold Voltage	V _{GS(th)}	0.6	1.0	1.3	V	V _{DS} = V _{GS} , I _D = 250μA
Static Drain-Source On-Resistance (Note 9)	R _{DS(on)}	-	11	20	mΩ	V _{GS} = 4.5V, I _D = 9.4A
			15	28		V _{GS} = 2.5V, I _D = 8.3A
Forward Transfer Admittance (Note 9 & 10)	Y _{fs}	-	16	-	S	V _{DS} = 5V, I _D = 9.4A
Diode Forward Voltage (Note 9)	V _{SD}	-	0.7	1.3	V	V _{GS} = 0V, I _S = 1.3A
DYNAMIC CHARACTERISTICS (Note 10)						
Input Capacitance	C _{iss}	-	1000	-	pF	V _{DS} = 10V, V _{GS} = 0V, f = 1.0MHz
Output Capacitance	C _{oss}	-	166	-		
Reverse Transfer Capacitance	C _{rss}	-	158	-		
Gate Resistance	R _g	-	1.51	-	Ω	V _{DS} = 0V, V _{GS} = 0V, f = 1MHz
Total Gate Charge (Note 11)	Q _g	-	7.0	-	nC	V _{DS} = 10V I _D = 9.4A
Total Gate Charge (Note 11)	Q _g	-	11.6	-		
Gate-Source Charge (Note 11)	Q _{gs}	-	2.7	-		
Gate-Drain Charge (Note 11)	Q _{gd}	-	3.4	-		
Turn-On Delay Time (Note 11)	t _{D(on)}	-	11.67	-	ns	V _{GS} = 4.5V, V _{DS} = 10V, R _G = 6Ω, I _D = 1A
Turn-On Rise Time (Note 11)	t _r	-	12.49	-		
Turn-Off Delay Time (Note 11)	t _{D(off)}	-	35.89	-		
Turn-Off Fall Time (Note 11)	t _f	-	12.33	-		

- Notes:
- Measured under pulsed conditions. Pulse width ≤ 300μs; duty cycle ≤ 2%
 - For design aid only, not subject to production testing.
 - Switching characteristics are independent of operating junction temperatures.

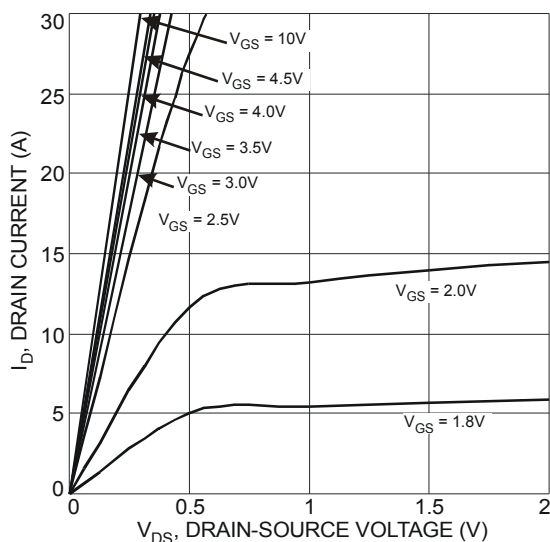


Fig. 1 Typical Output Characteristic

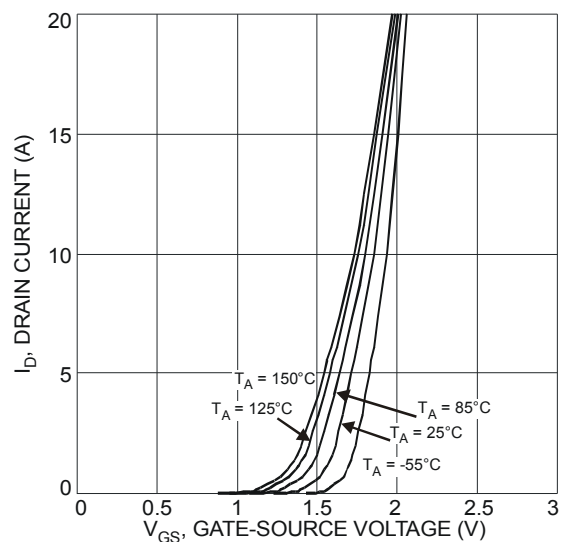


Fig. 2 Typical Transfer Characteristic

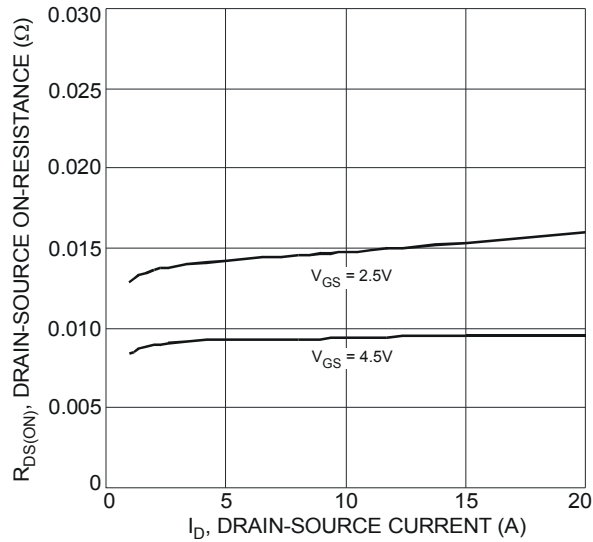


Fig. 3 Typical On-Resistance vs. Drain Current and Gate Voltage

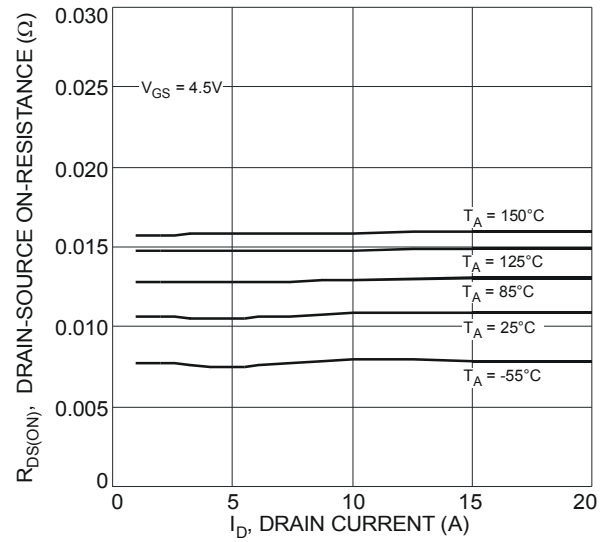


Fig. 4 Typical On-Resistance vs. Drain Current and Temperature

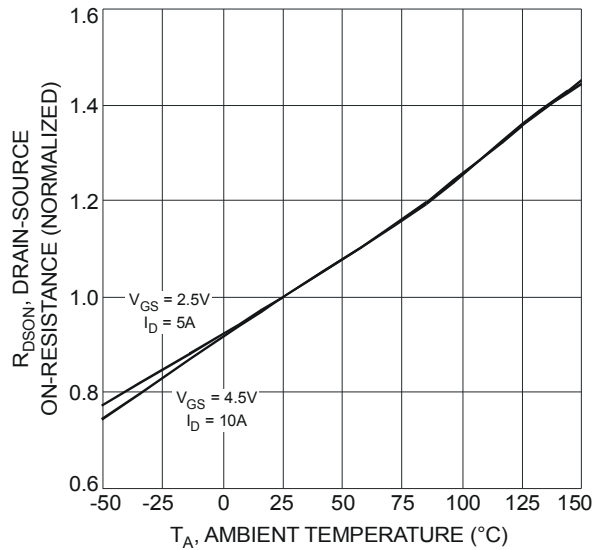


Fig. 5 On-Resistance Variation with Temperature

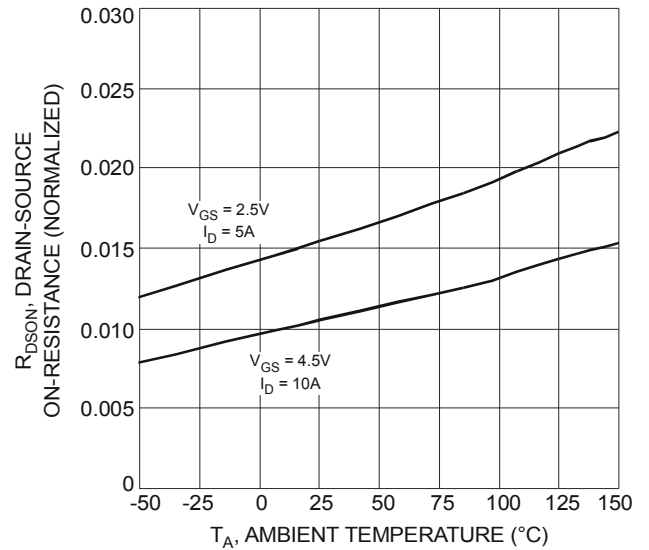


Fig. 6 On-Resistance Variation with Temperature

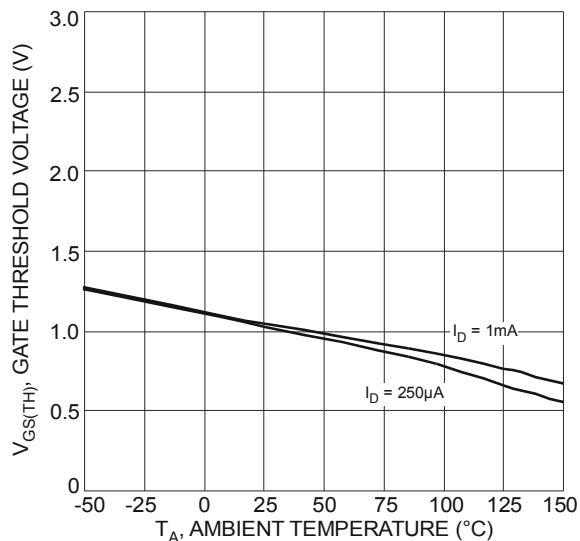


Fig. 7 Gate Threshold Variation vs. Ambient Temperature

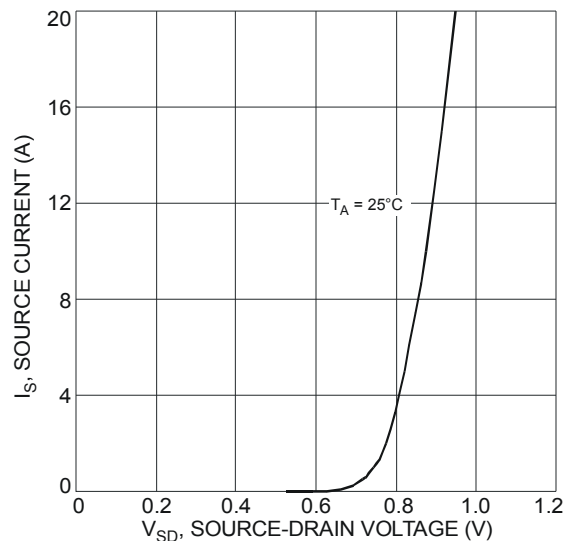
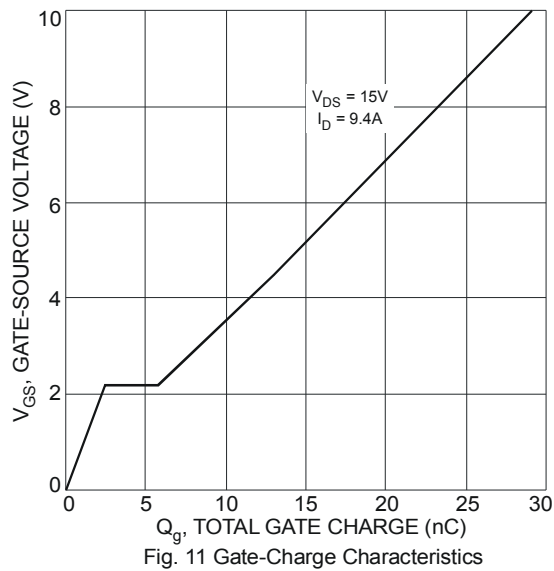
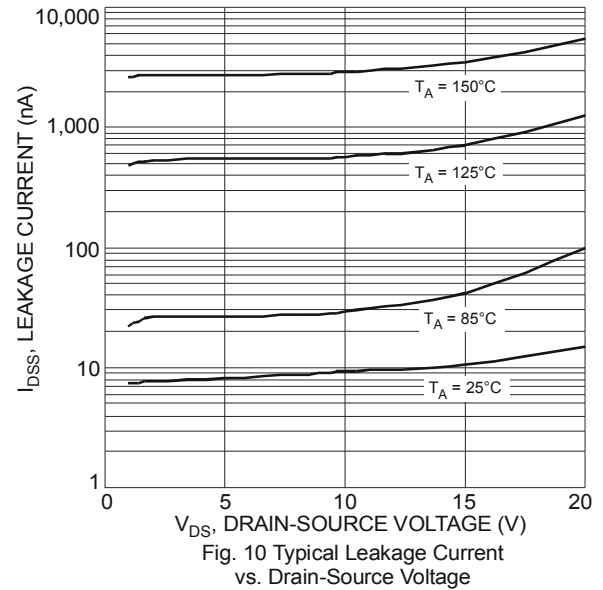
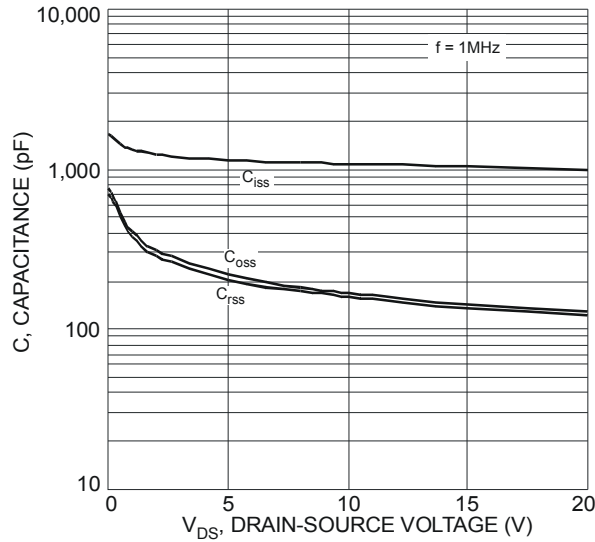
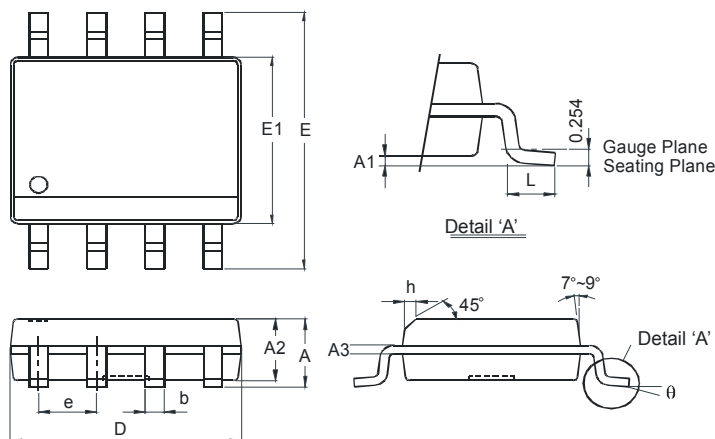


Fig. 8 Diode Forward Voltage vs. Current



Package Outline Dimensions

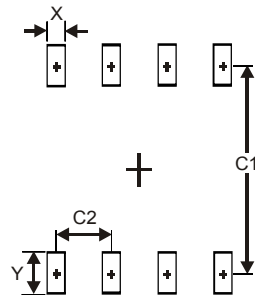
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version.



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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