

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

Characteristic			Symbol	Value	Units
Drain-Source Voltage			V _{DSS}	60	V
Gate-Source Voltage			V _{GSS}	±20	V
Continuous Drain Current (Note 6) V _{GS} = 10V	Steady State	T _A = +25°C T _A = +70°C	I _D	10.8 8.6	A
	t < 10s	T _A = +25°C T _A = +70°C	I _D	14.4 11.5	A
Maximum Continuous Body Diode Forward Current (Note 6)			I _S	3	A
Pulsed Drain Current (10μs Pulse, Duty Cycle = 1%)			I _{DM}	60	A
Avalanche Current, L = 0.1mH			I _{AS}	25	A
Avalanche Energy, L = 0.1mH			E _{AS}	31.5	mJ

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

Characteristic			Symbol	Value	Units
Total Power Dissipation (Note 5)			P _D	1.25	W
Thermal Resistance, Junction to Ambient (Note 5)	Steady State		R _{θJA}	100	°C/W
	t < 10s			55.5	°C/W
Total Power Dissipation (Note 6)			P _D	1.6	W
Thermal Resistance, Junction to Ambient (Note 6)	Steady State		R _{θJA}	75	°C/W
	t < 10s			42	°C/W
Thermal Resistance, Junction to Case (Note 6)			R _{θJC}	12	°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	I _{DSS}	-	-	1	μA	V _{DS} = 48V, V _{GS} = 0V
Gate-Source Leakage	I _{GSS}	-	-	±100	nA	V _{GS} = ±16V, V _{DS} = 0V
ON CHARACTERISTICS (Note 7)						
Gate Threshold Voltage	V _{GS(TH)}	0.7	-	2	V	V _{DS} = V _{GS} , I _D = 250μA
Static Drain-Source On-Resistance	R _{DS(ON)}	-	7.2	9.5	mΩ	V _{GS} = 10V, I _D = 13.5A
		-	9	12		V _{GS} = 4.5V, I _D = 11.5A
Diode Forward Voltage	V _{SD}	-	0.9	1.2	V	V _{GS} = 0V, I _S = 20A
DYNAMIC CHARACTERISTICS (Note 8)						
Input Capacitance	C _{iss}	-	1,925	-	pF	V _{DS} = 30V, V _{GS} = 0V, f = 1MHz
Output Capacitance	C _{oss}	-	438	-		
Reverse Transfer Capacitance	C _{rss}	-	41	-		
Gate Resistance	R _G	-	1.7	-	Ω	V _{DS} = 0V, V _{GS} = 0V, f = 1MHz
Total Gate Charge (V _{GS} = 10V)	Q _g	-	33.5	-	nC	V _{DS} = 30V, I _D = 13.5A
Total Gate Charge (V _{GS} = 4.5V)	Q _g	-	15.6	-		
Gate-Source Charge	Q _{gs}	-	4.7	-		
Gate-Drain Charge	Q _{gd}	-	5.3	-		
Turn-On Delay Time	t _{D(ON)}	-	4.5	-	ns	V _{DD} = 30V, V _{GS} = 10V, R _G = 6Ω, I _D = 13.5A
Turn-On Rise Time	t _R	-	8.6	-		
Turn-Off Delay Time	t _{D(OFF)}	-	35.9	-		
Turn-Off Fall Time	t _F	-	15.7	-		
Body Diode Reverse Recovery Time	t _{RR}	-	18.2	-	ns	I _F = 13.5A, di/dt = 400A/μs
Body Diode Reverse Recovery Charge	Q _{RR}	-	33.1	-	nC	

- Notes:
5. Device mounted on FR-4 substrate PC board, 2oz. copper, with minimum recommended pad layout.
 6. Device mounted on FR-4 substrate PC board, 2oz. copper, with 1inch square copper plate.
 7. Short duration pulse test used to minimize self-heating effect.
 8. Guaranteed by design. Not subject to product testing.

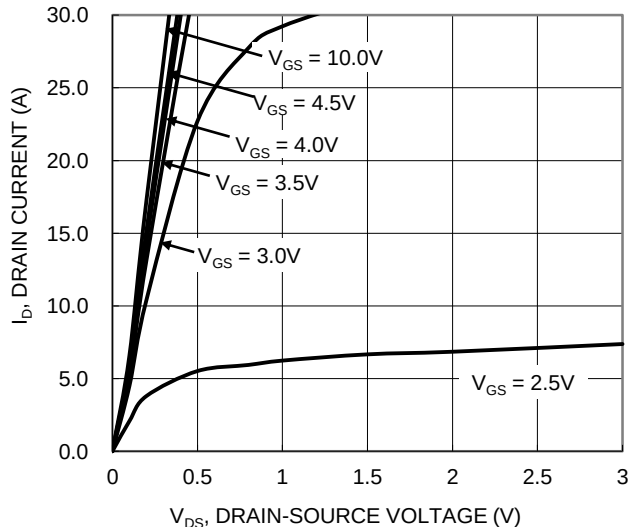


Figure 1. Typical Output Characteristic

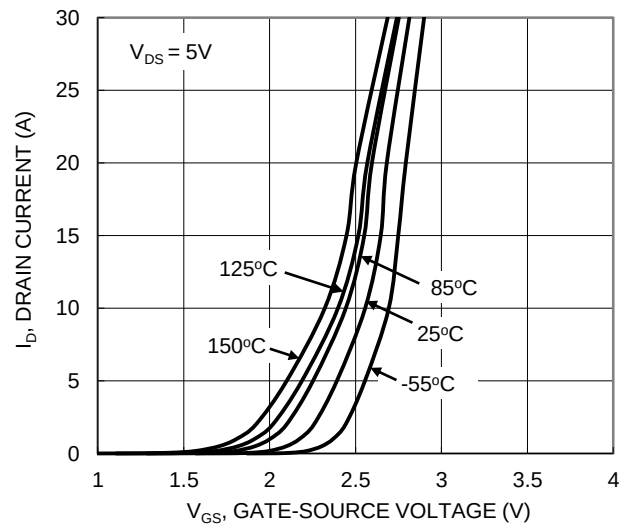


Figure 2. Typical Transfer Characteristic

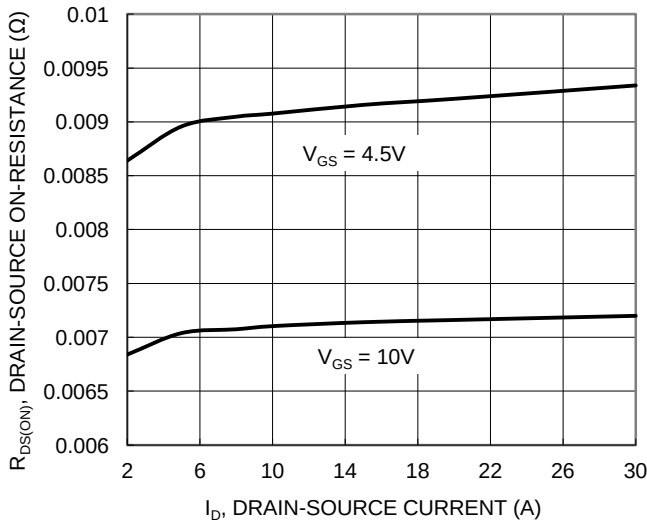


Figure 3. Typical On-Resistance vs. Drain Current and Gate Voltage

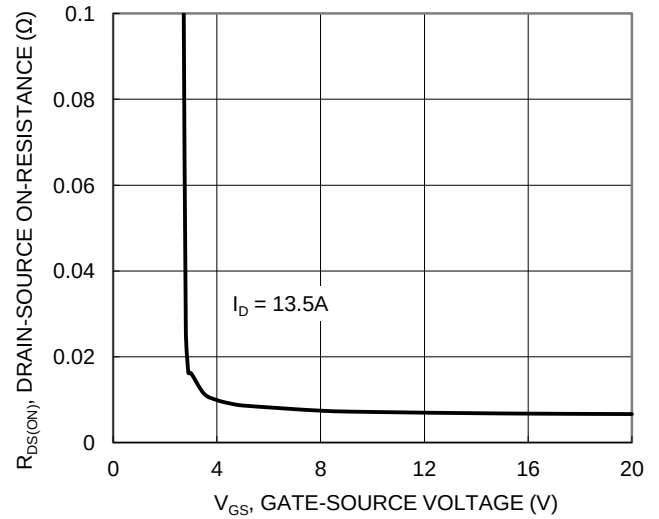


Figure 4. Typical Transfer Characteristic

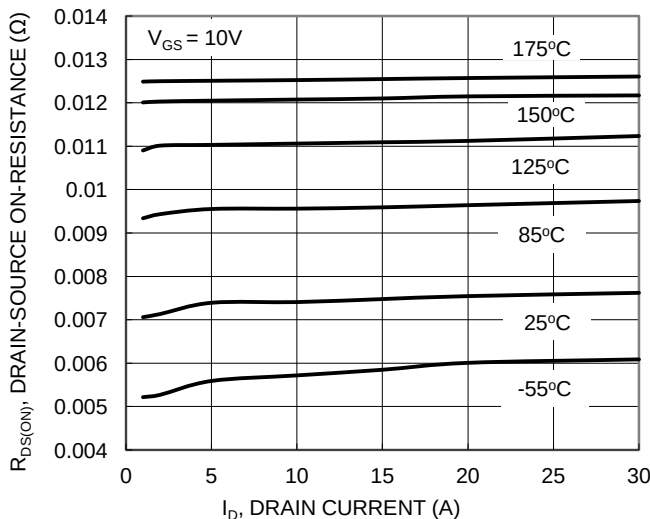


Figure 5. Typical On-Resistance vs. Drain Current and Junction Temperature

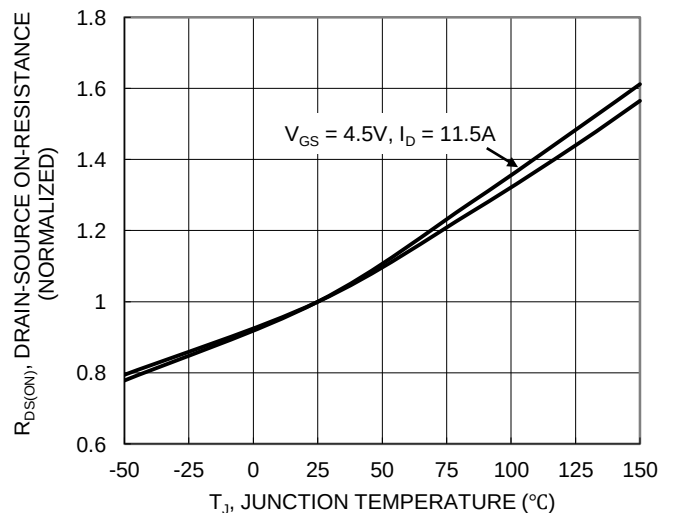
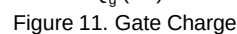
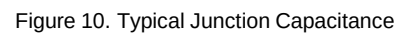
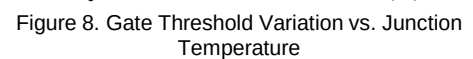
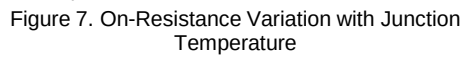


Figure 6. On-Resistance Variation with Junction Temperature



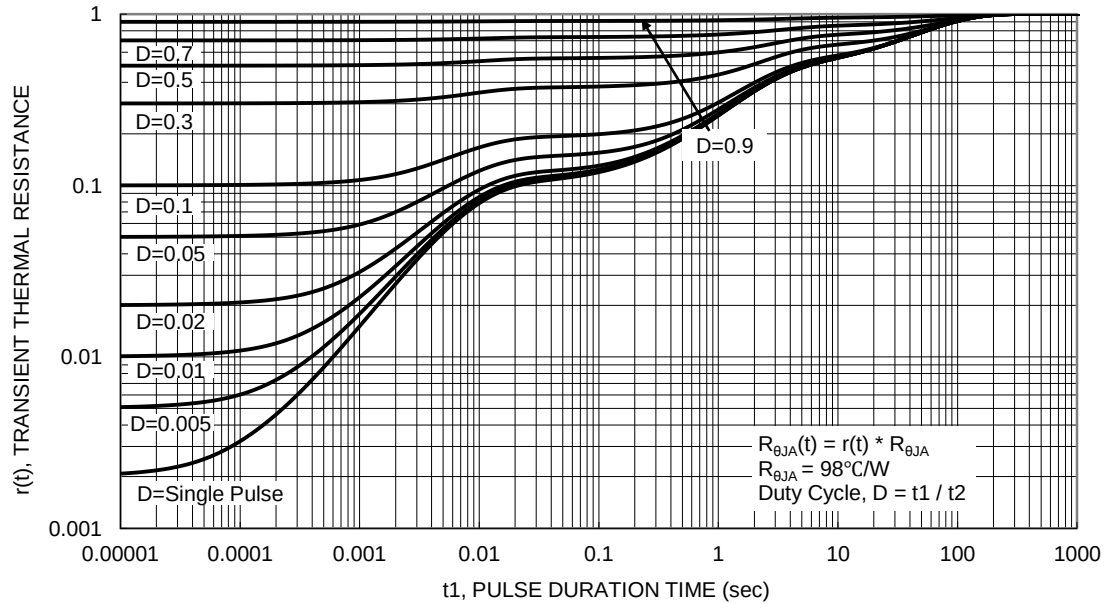
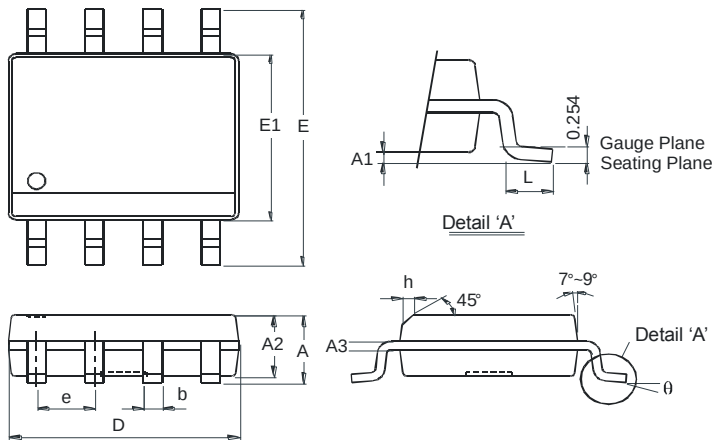


Figure 13. Transient Thermal Resistance

Package Outline Dimensions

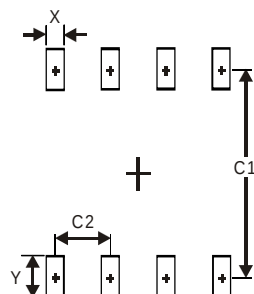
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for the latest version



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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