

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

Characteristic			Symbol	Value	Units
Drain-Source Voltage			V _{DSS}	100	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	4.2 3.3	A
	t < 10s	T _A = +25°C T _A = +70°C	I _D	5.8 4.5	A
Continuous Drain Current (Note 6) V _{GS} = 6V	Steady State	T _A = +25°C T _A = +70°C	I _D	3.6 2.9	A
	t < 10s	T _A = +25°C T _A = +70°C	I _D	5.2 4.1	A
Pulsed Drain Current (10µs pulse, duty cycle = 1%)			I _{DM}	20	A

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

Characteristic		Symbol	Value	Units
Total Power Dissipation (Note 5)	T _A = +25°C	P _D	0.98	W
	T _A = +70°C		0.57	
Thermal Resistance, Junction to Ambient (Note 5)	Steady state	R _{θJA}	131	°C/W
	t < 10s		76	
Total Power Dissipation (Note 6)	T _A = +25°C	P _D	2.31	W
	T _A = +70°C		1.18	
Thermal Resistance, Junction to Ambient (Note 6)	Steady state	R _{θJA}	55	°C/W
	t < 10s		28	
Thermal Resistance, Junction to Case (Note 6)		R _{θJC}	6.9	
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}	100	-	-	V	V _{GS} = 0V, I _D = 250µA
Zero Gate Voltage Drain Current	I _{DSS}	-	-	1.0	µA	V _{DS} = 80V, V _{GS} = 0V
Gate-Source Leakage	I _{GSS}	-	-	±100	nA	V _{GS} = ±20V, V _{DS} = 0V
ON CHARACTERISTICS (Note 7)						
Gate Threshold Voltage	V _{GS(th)}	1.5	2.0	3.0	V	V _{DS} = V _{GS} , I _D = 250µA
Static Drain-Source On-Resistance	R _{DS(on)}	-	54	80	mΩ	V _{GS} = 10V, I _D = 3.3A
		-	58	99		V _{GS} = 6.0V, I _D = 3.0A
Forward Transfer Admittance	Y _{fs}	-	13	-	S	V _{DS} = 10V, I _D = 3.3A
Diode Forward Voltage	V _{SD}	-	0.77	-	V	V _{GS} = 0V, I _S = 3.2A
DYNAMIC CHARACTERISTICS (Note 8)						
Input Capacitance	C _{iss}	-	1172	-	pF	V _{DS} = 50V, V _{GS} = 0V, f = 1.0MHz
Output Capacitance	C _{oss}	-	40.8	-	pF	
Reverse Transfer Capacitance	C _{rss}	-	31.3	-	pF	
Gate Resistance	R _g	-	1.6	-	Ω	V _{DS} = 0V, V _{GS} = 0V, f = 1.0MHz
Total Gate Charge V _{GS} = 10V	Q _g	-	25.2	-	nC	
Total Gate Charge V _{GS} = 4.5V	Q _g	-	12.2	-	nC	
Gate-Source Charge	Q _{gs}	-	5.3	-	nC	
Gate-Drain Charge	Q _{gd}	-	5.9	-	nC	V _{GS} = 10V, V _{DS} = 50V, R _G = 6.0Ω, I _D = 3.3A
Turn-On Delay Time	t _{D(on)}	-	5.4	-	ns	
Turn-On Rise Time	t _r	-	5.9	-	ns	
Turn-Off Delay Time	t _{D(off)}	-	20.0	-	ns	
Turn-Off Fall Time	t _f	-	7.3	-	ns	

- 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.

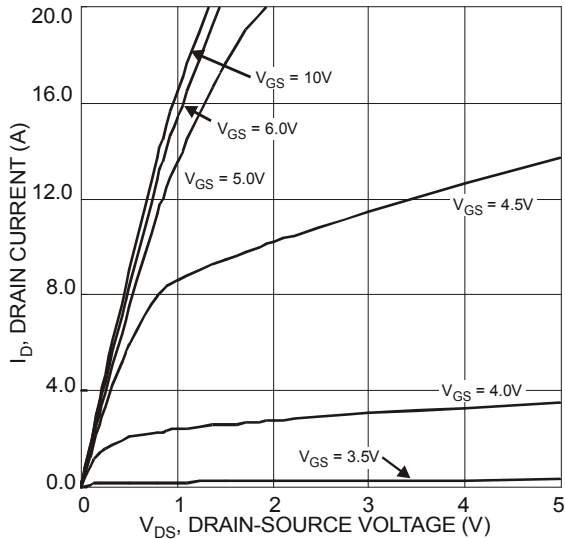


Figure 1 Typical Output Characteristic

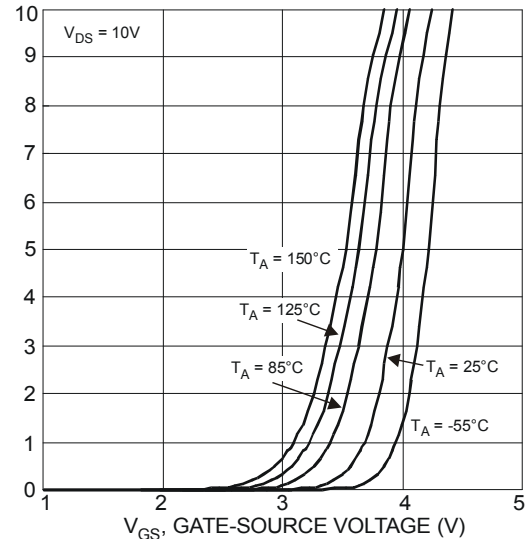


Figure 2 Typical Transfer Characteristics

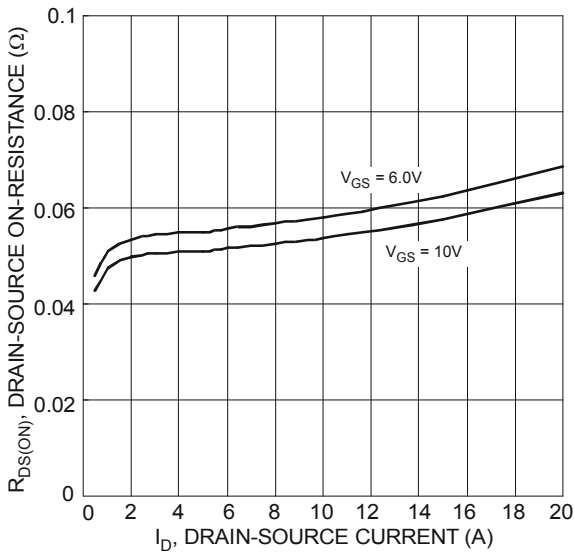


Figure 3 Typical On-Resistance vs. Drain Current and Gate Voltage

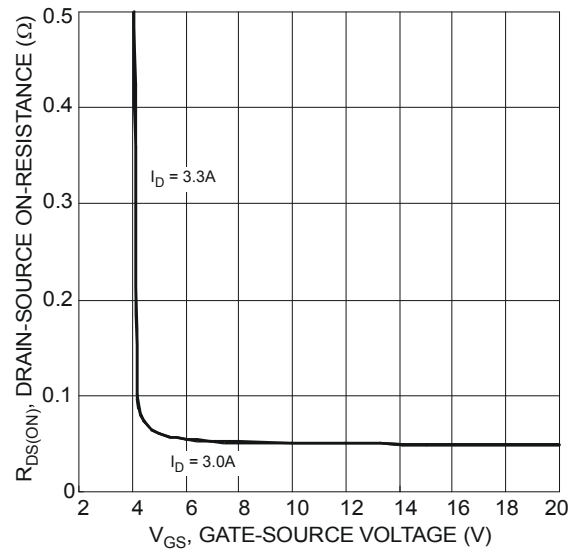


Figure 4 Typical Drain-Source On-Resistance vs. Gate-Source Voltage

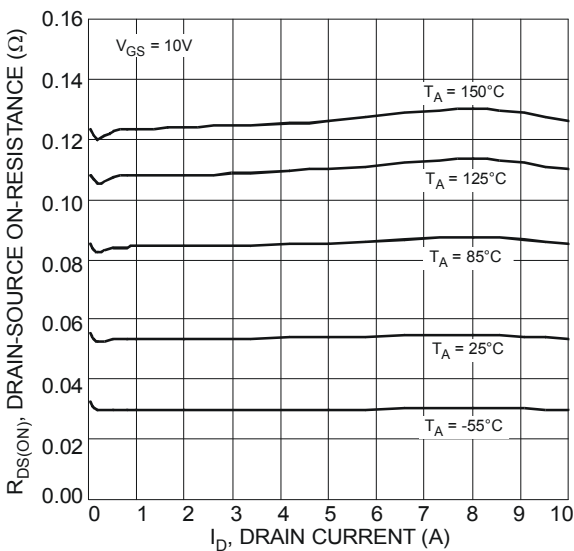


Figure 5 Typical On-Resistance vs. Drain Current and Temperature

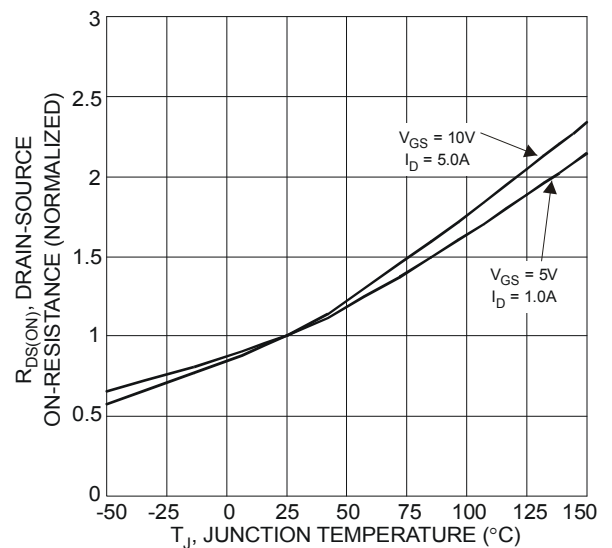
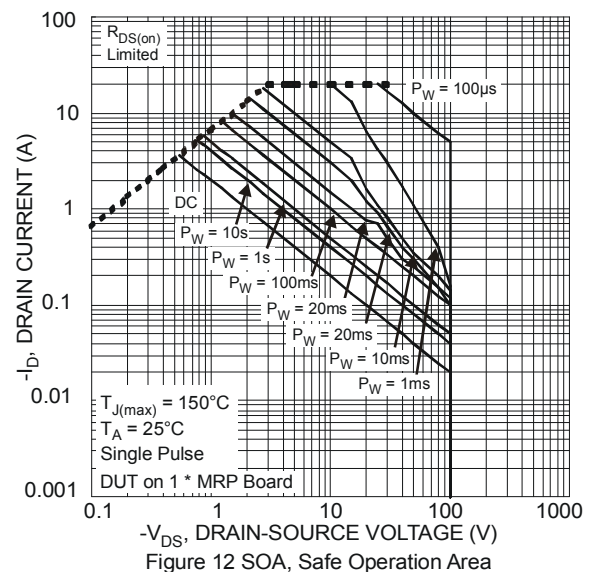
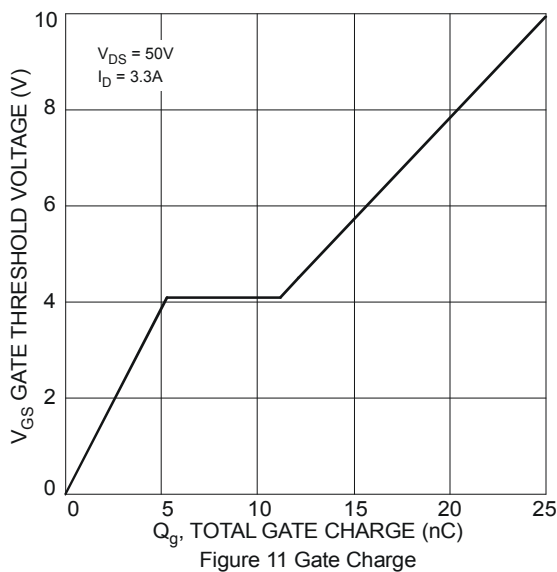
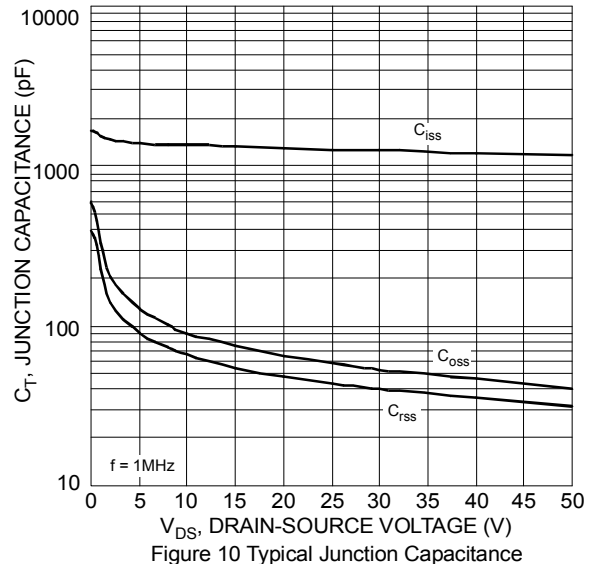
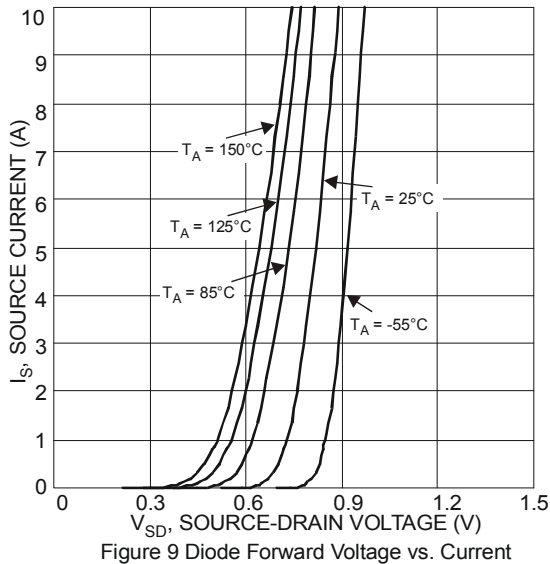
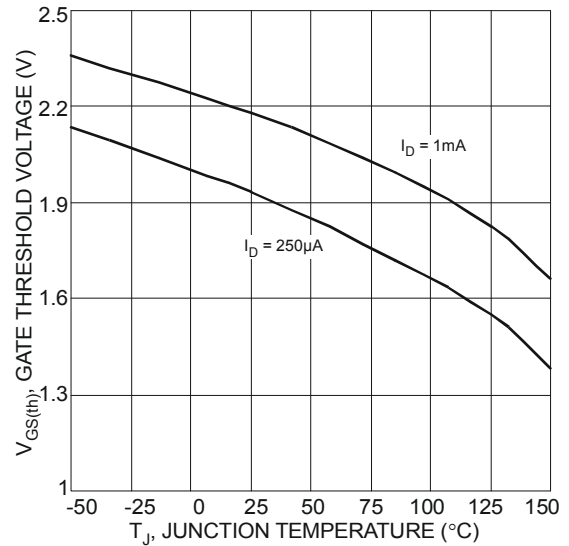
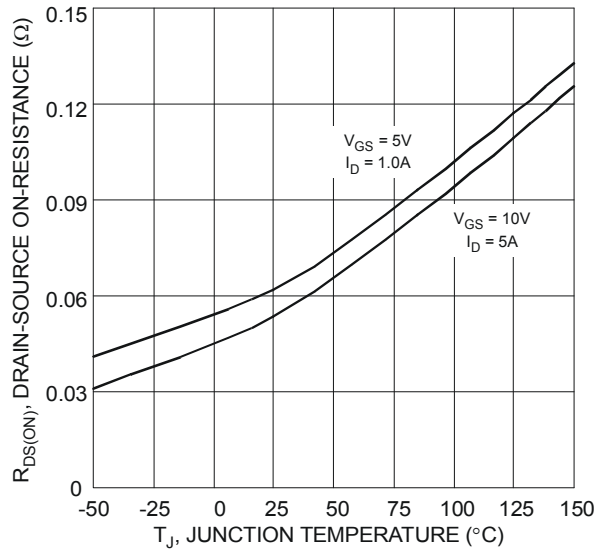


Figure 6 On-Resistance Variation with Temperature



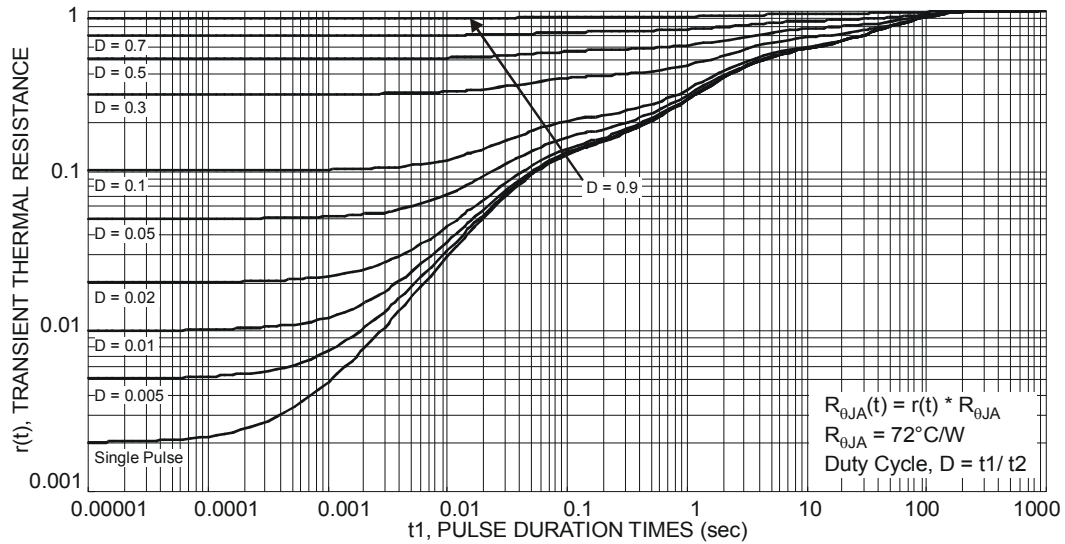
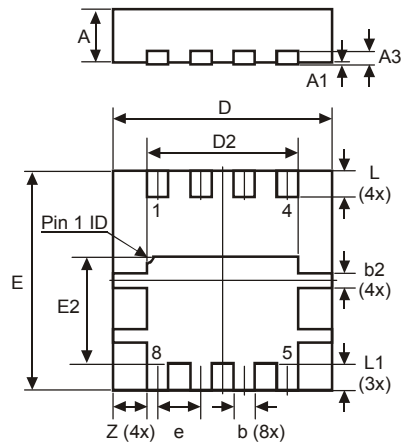


Figure 13 Transient Thermal Resistance

Package Outline Dimensions

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

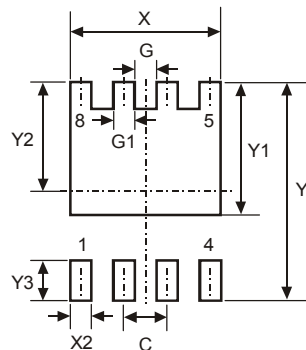


POWERDI3333-8			
Dim	Min	Max	Typ
D	3.25	3.35	3.30
E	3.25	3.35	3.30
D2	2.22	2.32	2.27
E2	1.56	1.66	1.61
A	0.75	0.85	0.80
A1	0	0.05	0.02
A3	—	—	0.203
b	0.27	0.37	0.32
b2	—	—	0.20
L	0.35	0.45	0.40
L1	—	—	0.39
e	—	—	0.65
Z	—	—	0.515

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)
C	0.650
G	0.230
G1	0.420
Y	3.700
Y1	2.250
Y2	1.850
Y3	0.700
X	2.370
X2	0.420

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