

Characteristic			Symbol	Value	Units
Drain-Source Voltage			V _{DSS}	40	V
Gate-Source Voltage			V _{GSS}	±20	V
Continuous Drain Current (Note 6) V _{GS} = 10V	Steady State	T _A = +25°C	I _D	14.4	A
		T _A = +70°C	I _D	11.6	A
	t < 10s	T _A = +25°C	I _D	19.2	A
			I _D	15.4	A
Pulsed Drain Current (10µs pulse, duty cycle = 1%)			I _{DM}	90	A
Maximum Continuous Body Diode Forward Current (Note 6)			I _S	3	A
Avalanche Current, L = 0.1mH			I _{AS}	38	A
Avalanche Energy, L = 0.1mH			E _{AS}	75	mJ

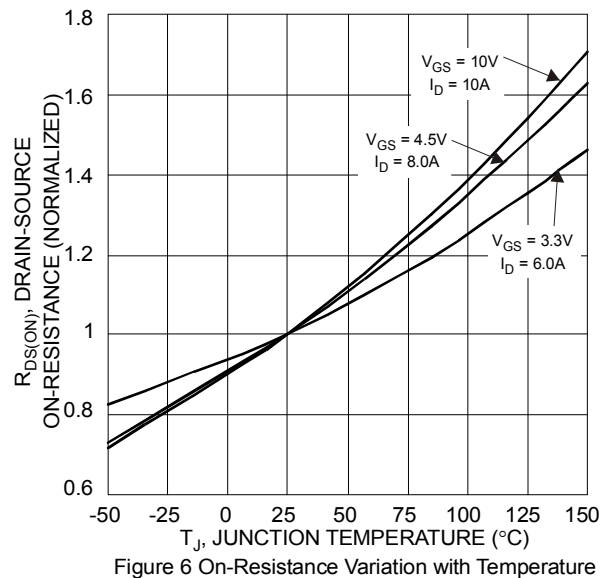
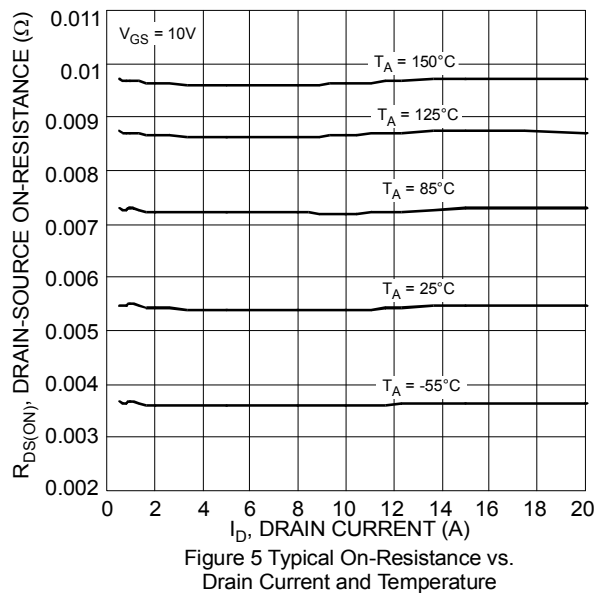
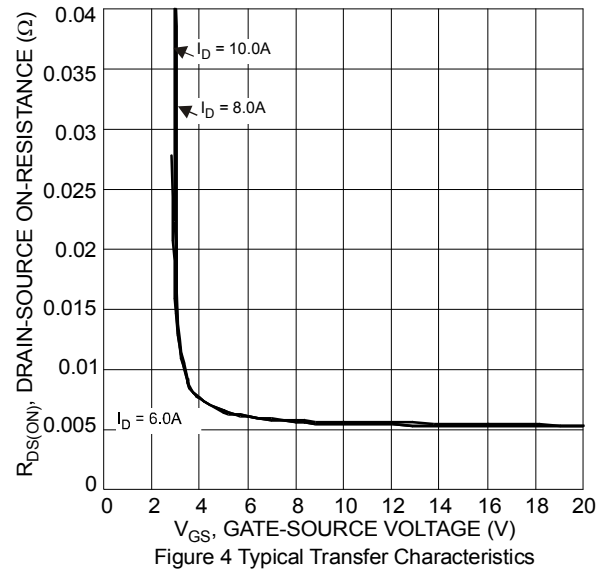
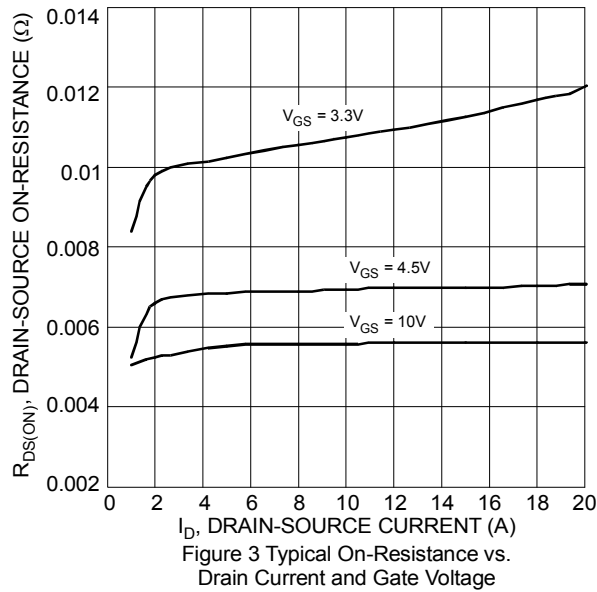
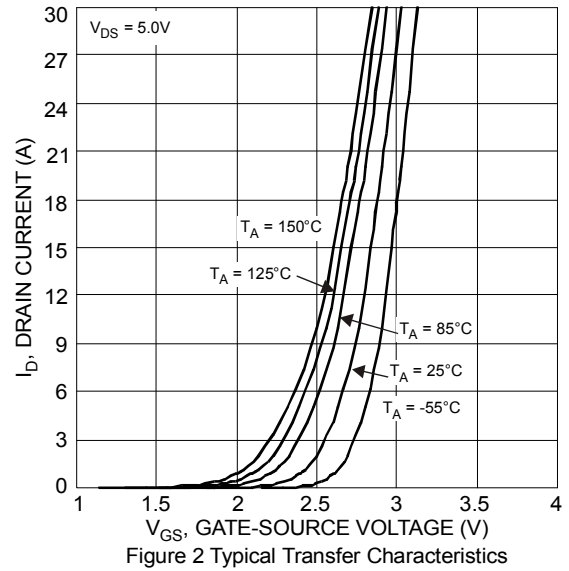
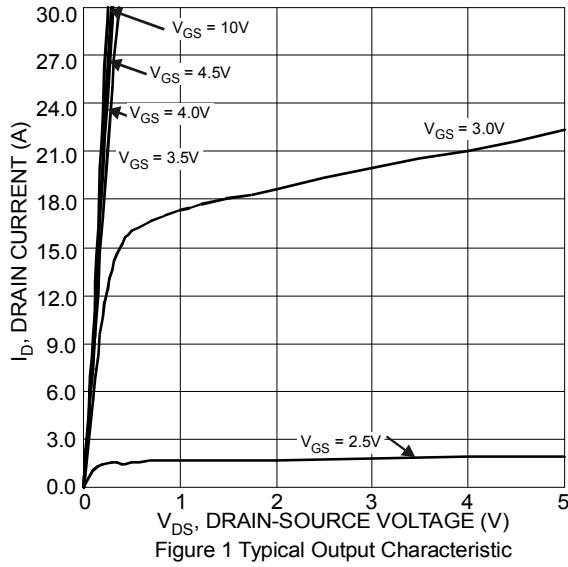
Thermal Characteristics (@T_A = +25°C, unless otherwise specified.)

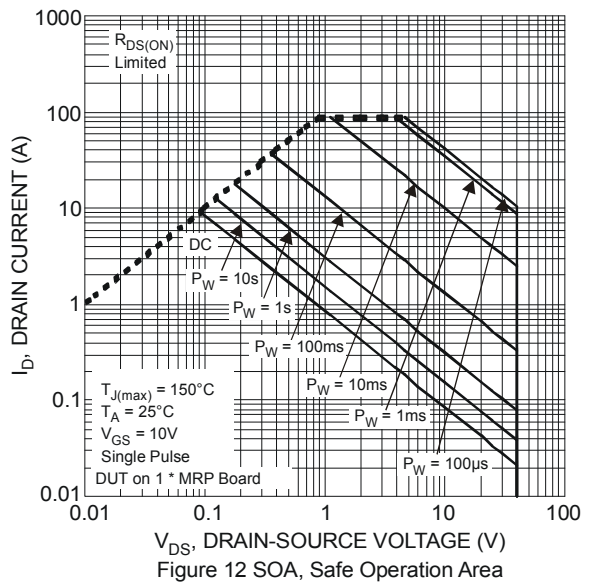
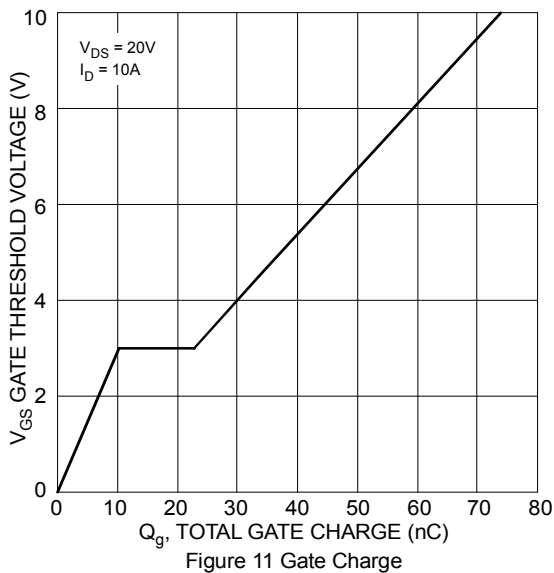
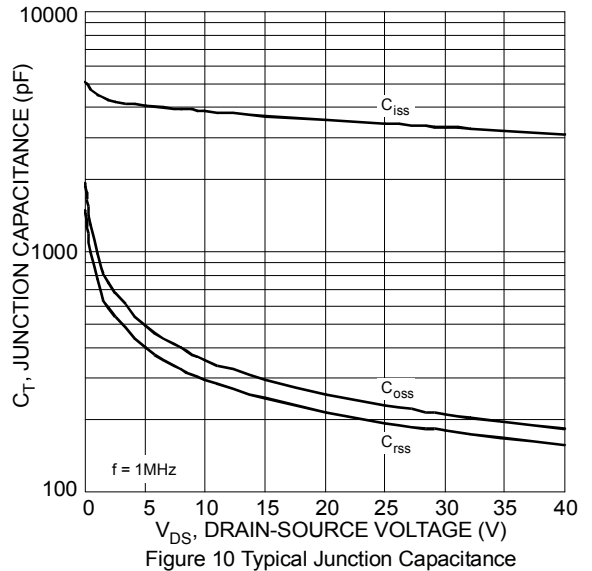
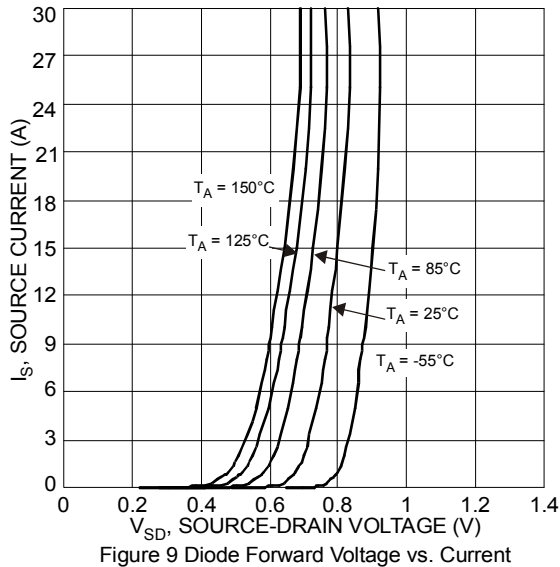
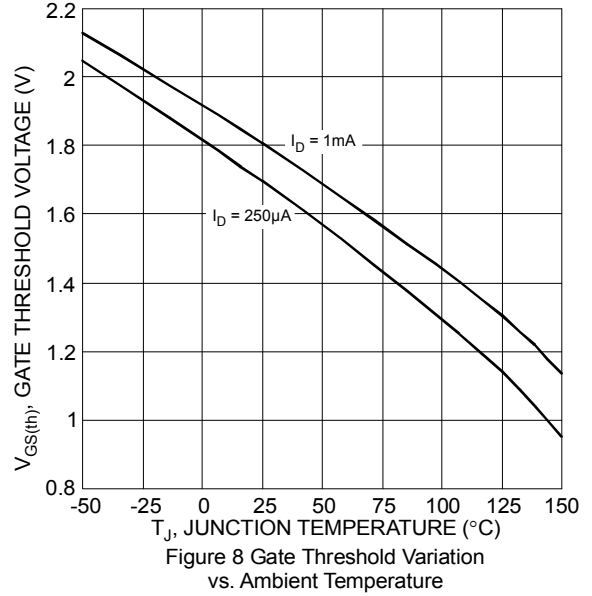
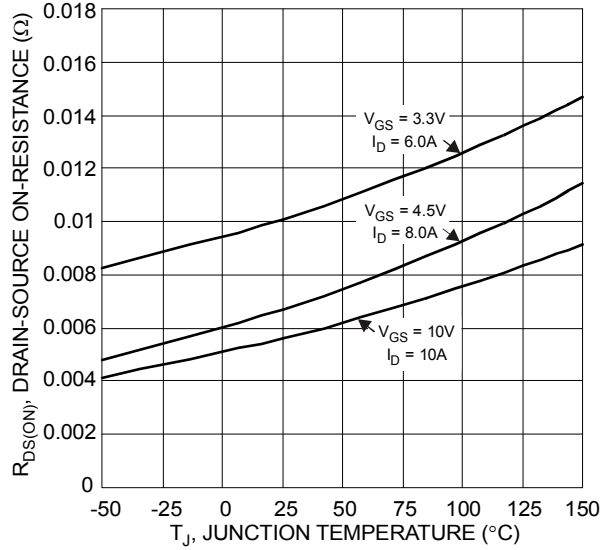
Characteristic		Symbol	Value	Units
Total Power Dissipation (Note 5)		P _D	1.0	W
Thermal Resistance, Junction to Ambient (Note 5)	Steady state	R _{θJA}	119	°C/W
	t < 10s		66	
Total Power Dissipation (Note 6)		P _D	2.3	W
Thermal Resistance, Junction to Ambient (Note 6)	Steady state	R _{θJA}	53	°C/W
	t < 10s		30	
Thermal Resistance, Junction to Case (Note 6)		R _{θJC}	6.1	
Operating and Storage Temperature Range		T _J , T _{STG}	-55 to +150	°C

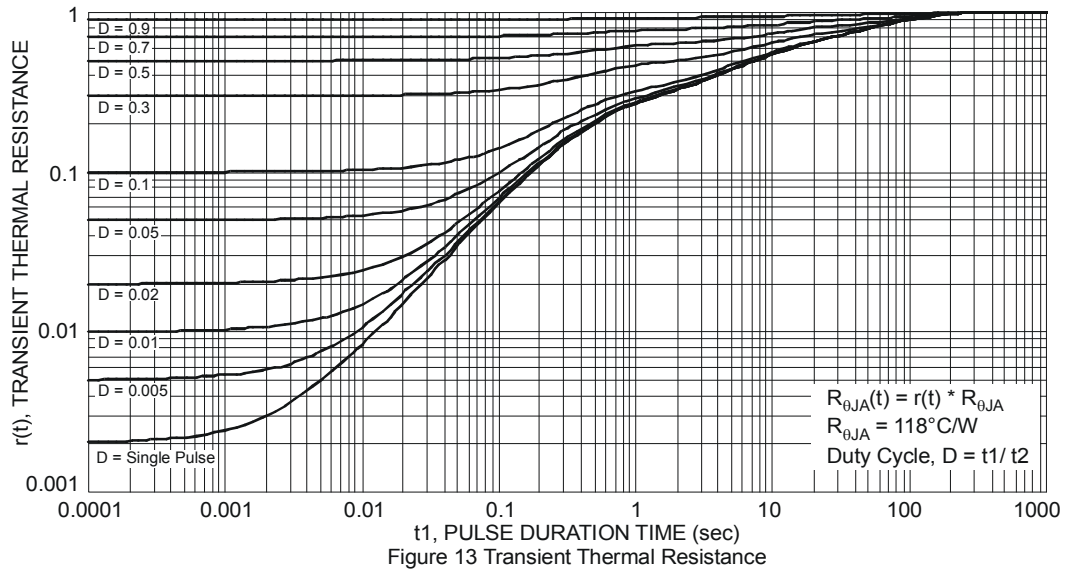
Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 7)						
Drain-Source Breakdown Voltage	BV _{DSS}	40	—	—	V	V _{GS} = 0V, I _D = 250µA
Zero Gate Voltage Drain Current T _J = +25°C	I _{DSS}	—	—	1	µA	V _{DS} = 40V, 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	—	3	V	V _{DS} = V _{GS} , I _D = 250µA
Static Drain-Source On-Resistance	R _{DS(on)}	—	5.5	7.5	mΩ	V _{GS} = 10V, I _D = 10A
		—	7	10		V _{GS} = 4.5V, I _D = 8A
		—	—	20		V _{GS} = 3.3V, I _D = 6A
Diode Forward Voltage	V _{SD}	—	0.7	1.1	V	V _{GS} = 0V, I _S = 1A
DYNAMIC CHARACTERISTICS (Note 8)						
Input Capacitance	C _{iss}	—	3537	—	pF	V _{DS} = 20V, V _{GS} = 0V, f = 1MHz
Output Capacitance	C _{oss}	—	257	—	pF	
Reverse Transfer Capacitance	C _{rss}	—	215	—	pF	
Gate Resistance	R _g	—	0.9	—	Ω	V _{DS} = 0V, V _{GS} = 0V, f = 1MHz
Total Gate Charge (V _{GS} = 4.5V)	Q _g	—	34	—	nC	V _{DS} = 20V, I _D = 10A
Total Gate Charge (V _{GS} = 10V)	Q _g	—	74	—	nC	
Gate-Source Charge	Q _{gs}	—	10.2	—	nC	
Gate-Drain Charge	Q _{gd}	—	12.5	—	nC	
Turn-On Delay Time	t _{D(on)}	—	8.2	—	ns	V _{GS} = 10V, V _{DS} = 20V, R _G = 6Ω, I _D = 10A
Turn-On Rise Time	t _r	—	14.1	—	ns	
Turn-Off Delay Time	t _{D(off)}	—	69.7	—	ns	
Turn-Off Fall Time	t _f	—	24.4	—	ns	
Body Diode Reverse Recovery Time	t _{rr}	—	18.5	—	nS	I _F = 10A, di/dt = 100A/µs
Body Diode Reverse Recovery Charge	Q _{rr}	—	12.0	—	nC	

- 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 bias to bottom layer 1inch square copper plate
 - Short duration pulse test used to minimize self-heating effect.
 - Guaranteed by design. Not subject to product testing.

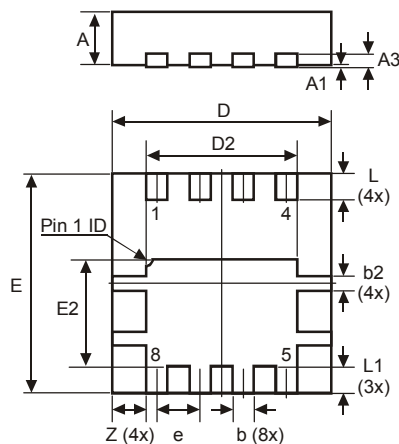






Package Outline Dimensions

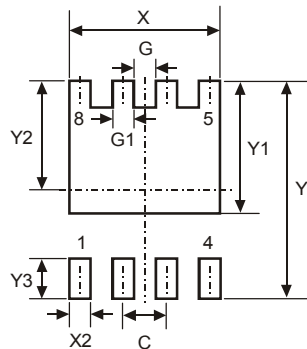
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version.



POWERDI® 3333-8			
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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