

**Maximum Ratings** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic			Symbol	Value	Unit
Drain-Source Voltage			V <sub>DSS</sub>	30	V
Gate-Source Voltage			V <sub>GSS</sub>	±8	
Continuous Drain Current	V <sub>GS</sub> = 4.5V	(Note 6)	I <sub>D</sub>	0.65	A
		T <sub>A</sub> = +70°C (Note 6)		0.52	
		(Note 5)	I <sub>D</sub>	0.55	
Pulsed Drain Current		(Note 7)	I <sub>DM</sub>	2.5	

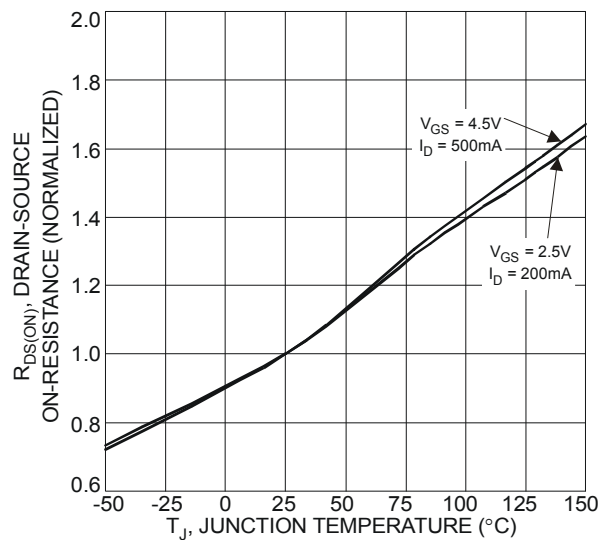
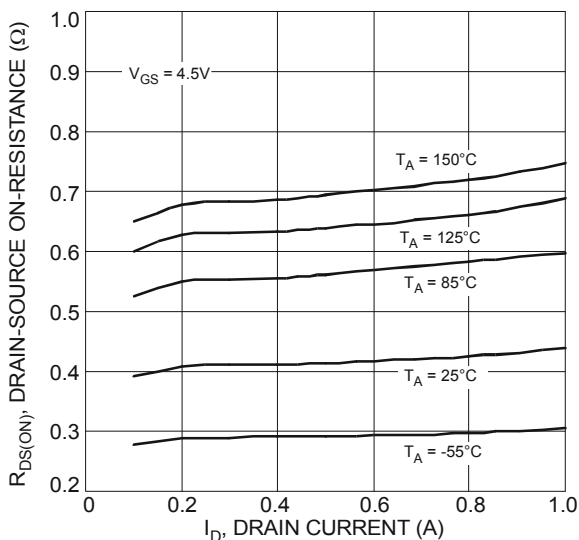
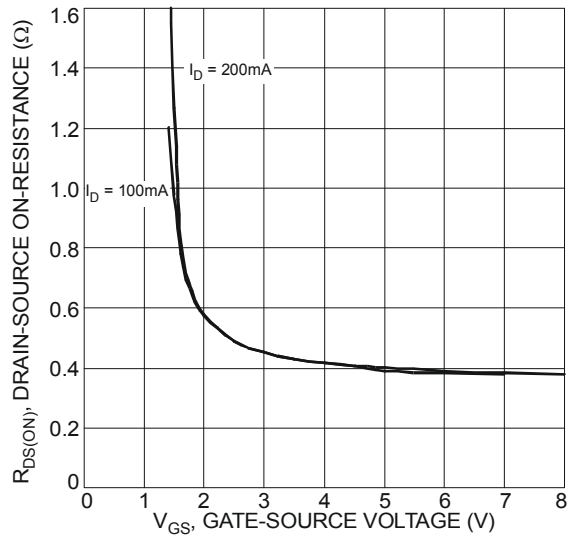
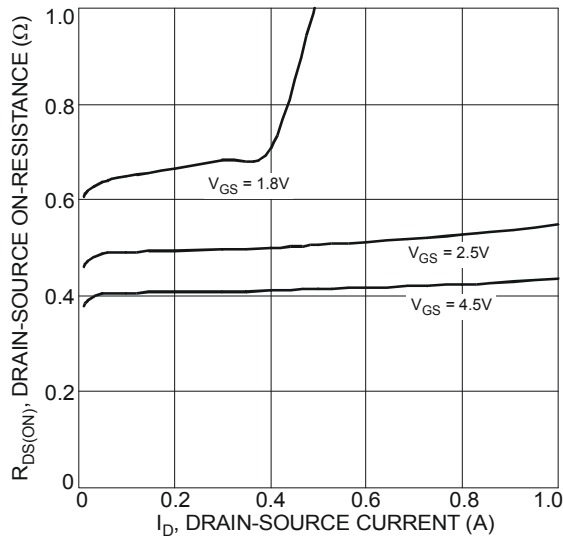
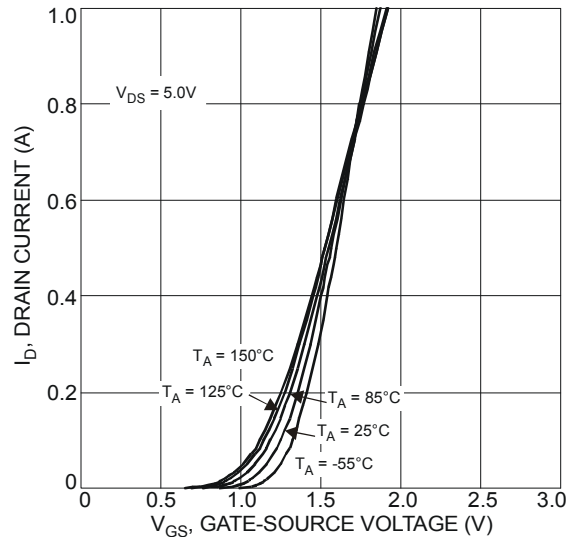
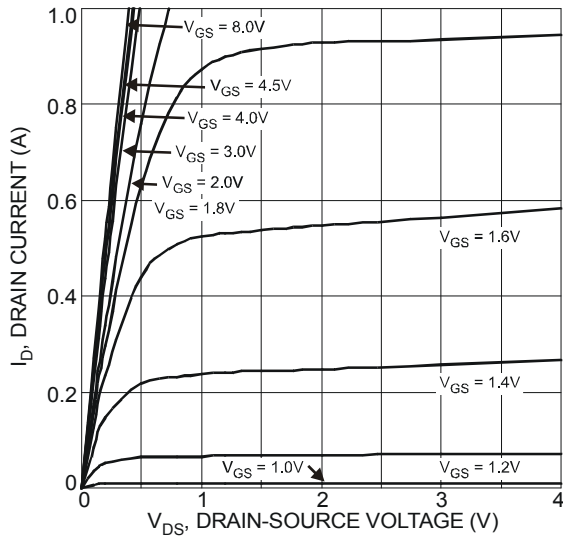
**Thermal Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic		Symbol	Value	Unit
Power Dissipation	(Note 6)	P <sub>D</sub>	490	mW
	(Note 5)		390	
Thermal Resistance, Junction to Ambient	(Note 6)	R <sub>θJA</sub>	255	°C/W
	(Note 5)		327	
Operating and Storage Temperature Range		T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

**Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
<b>OFF CHARACTERISTICS</b> (Note 8)						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	30	—	—	V	V <sub>GS</sub> = 0V, I <sub>D</sub> = 250μA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	—	—	1	μA	V <sub>DS</sub> = 30V, V <sub>GS</sub> = 0V
Gate-Source Leakage	I <sub>GSS</sub>	—	—	3	μA	V <sub>GS</sub> = ±8V, V <sub>DS</sub> = 0V
<b>ON CHARACTERISTICS</b> (Note 8)						
Gate Threshold Voltage	V <sub>GS(th)</sub>	0.45	—	0.95	V	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250μA
Static Drain-Source On-Resistance	R <sub>DS(on)</sub>	—	400	760	mΩ	V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 200mA
			480	930		V <sub>GS</sub> = 2.5V, I <sub>D</sub> = 100mA
			617	1500		V <sub>GS</sub> = 1.8V, I <sub>D</sub> = 75mA
Forward Transfer Admittance	Y <sub>fs</sub>	40	—	—	mS	V <sub>DS</sub> = 3V, I <sub>D</sub> = 10mA
Diode Forward Voltage (Note 8)	V <sub>SD</sub>	—	0.7	1.2	V	V <sub>GS</sub> = 0V, I <sub>S</sub> = 300mA
<b>DYNAMIC CHARACTERISTICS</b> (Note 9)						
Input Capacitance	C <sub>iss</sub>	—	42.2	—	pF	V <sub>DS</sub> = 25V, V <sub>GS</sub> = 0V, f = 1.0MHz
Output Capacitance	C <sub>oss</sub>	—	4.5	—	pF	
Reverse Transfer Capacitance	C <sub>rss</sub>	—	3.4	—	pF	
Gate Resistance	R <sub>g</sub>	—	468	—	Ω	V <sub>DS</sub> = 0V, V <sub>GS</sub> = 0V, f = 1MHz
Total Gate Charge	Q <sub>g</sub>	—	0.7	—	nC	V <sub>GS</sub> = 4.5V, V <sub>DS</sub> = 15V, I <sub>D</sub> = 200mA
Gate-Source Charge	Q <sub>gs</sub>	—	0.11	—	nC	
Gate-Drain Charge	Q <sub>gd</sub>	—	0.15	—	nC	
Turn-On Delay Time	t <sub>D(on)</sub>	—	10.5	—	ns	V <sub>DS</sub> = 10V, I <sub>D</sub> = 200mA, V <sub>GS</sub> = 4.5V, R <sub>G</sub> = 6Ω
Turn-On Rise Time	t <sub>r</sub>	—	7.8	—	ns	
Turn-Off Delay Time	t <sub>D(off)</sub>	—	80.6	—	ns	
Turn-Off Fall Time	t <sub>f</sub>	—	23.4	—	ns	

- Notes:
- Device mounted on FR-4 PCB, with minimum recommended pad layout.
  - Device mounted on FR-4 PCB, with minimum recommended pad layout, except the device measured at t ≤ 10 sec.
  - Device mounted on minimum recommended pad layout test board, 10μs pulse duty cycle = 1%.
  - Short duration pulse test used to minimize self-heating effect.
  - Guaranteed by design. Not subject to production testing



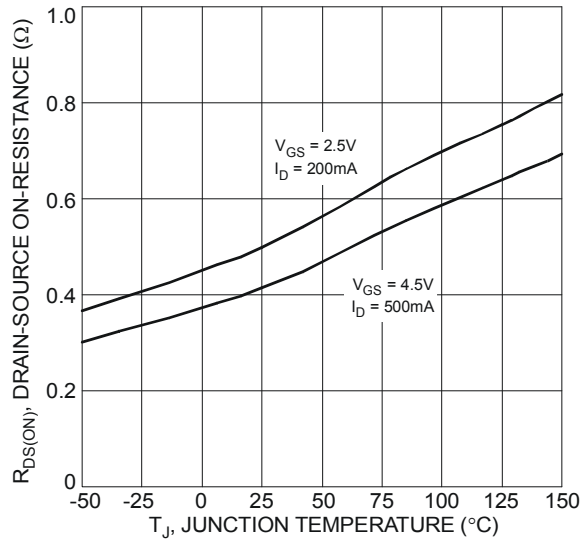


Fig. 7 On-Resistance Variation with Temperature

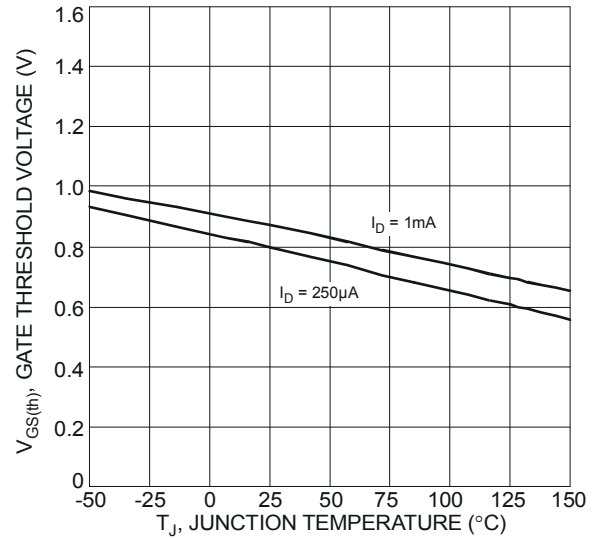


Fig. 8 Gate Threshold Variation vs. Ambient Temperature

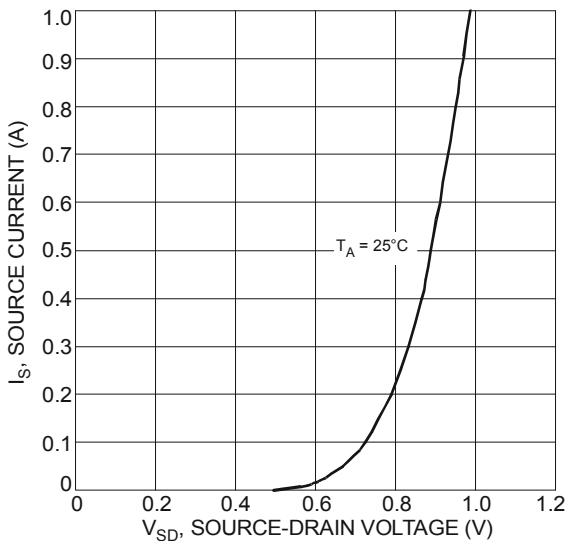


Fig. 9 Diode Forward Voltage vs. Current

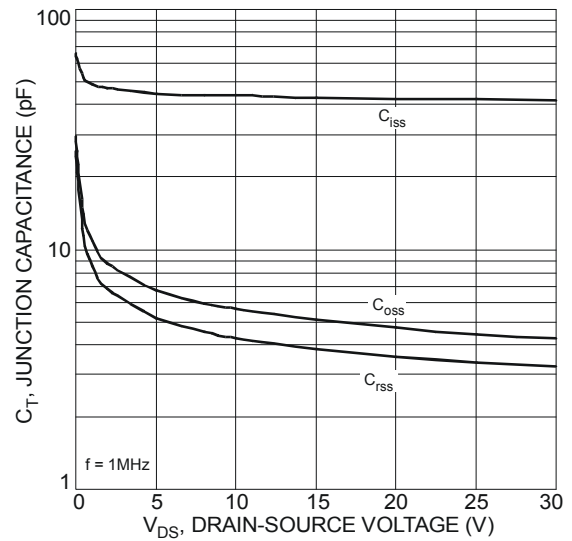


Fig. 10 Typical Junction Capacitance

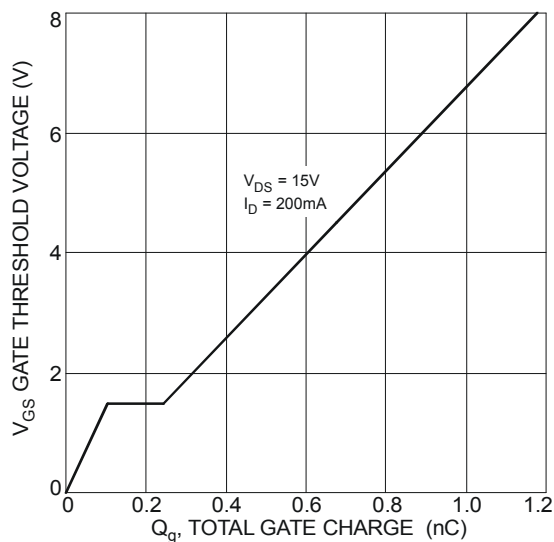


Fig. 11 Gate Charge

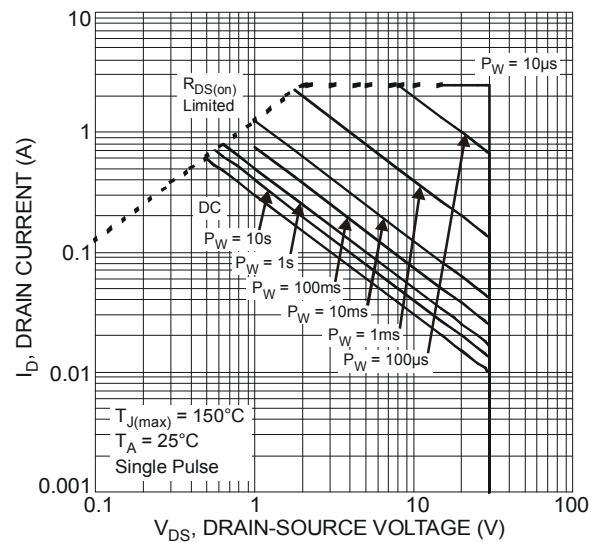
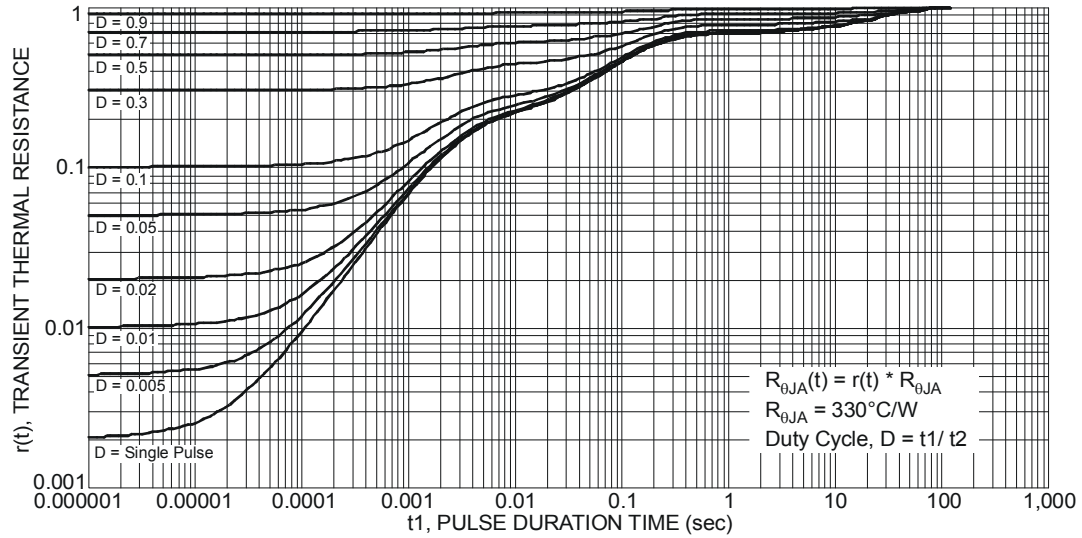
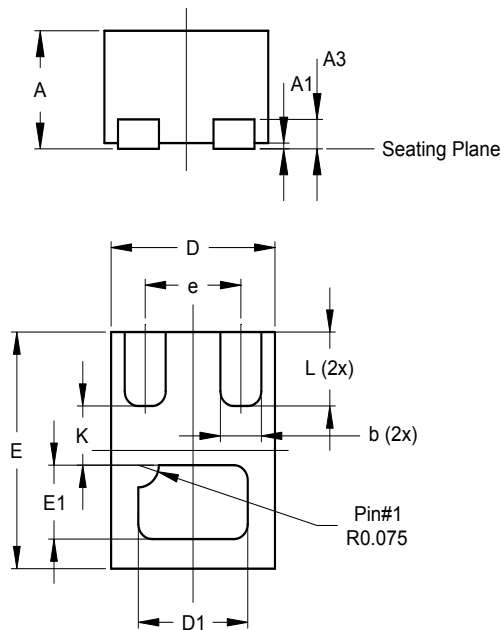


Fig. 12 SOA, Safe Operation Area



## Package Outline Dimensions

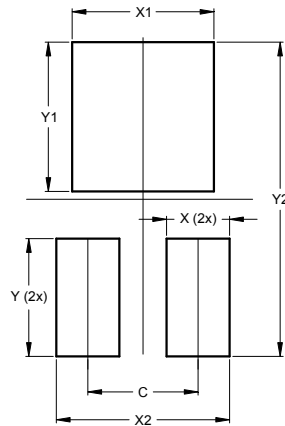
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version.



X2-DFN0806-3			
Dim	Min	Max	Typ
A	0.375	0.40	0.39
A1	0	0.05	0.02
A3	-	-	0.10
b	0.10	0.20	0.15
D	0.55	0.65	0.60
D1	0.35	0.45	0.40
E	0.75	0.85	0.80
E1	0.20	0.30	0.25
e	-	-	0.35
K	-	-	0.20
L	0.20	0.30	0.25
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)
<b>C</b>	0.350
<b>X</b>	0.200
<b>X1</b>	0.450
<b>X2</b>	0.550
<b>Y</b>	0.375
<b>Y1</b>	0.475
<b>Y2</b>	1.000

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