

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

Characteristic			Symbol	Value	Units
Drain-Source Voltage			V <sub>DSS</sub>	60	V
Gate-Source Voltage			V <sub>GSS</sub>	±20	V
Continuous Drain Current (Note 5) V <sub>GS</sub> = 10V	Steady State	T <sub>A</sub> = +25°C	I <sub>D</sub>	1.6	A
		T <sub>A</sub> = +70°C		1.2	
	t<10s	T <sub>A</sub> = +25°C	I <sub>D</sub>	2.0	A
		T <sub>A</sub> = +70°C		1.6	
Continuous Drain Current (Note 6) V <sub>GS</sub> = 10V	Steady State	T <sub>A</sub> = +25°C	I <sub>D</sub>	2.3	A
		T <sub>A</sub> = +70°C		1.8	
	t<10s	T <sub>A</sub> = +25°C	I <sub>D</sub>	2.9	A
		T <sub>A</sub> = +70°C		2.3	
Maximum Continuous Body Diode Forward Current (Note 6)			I <sub>S</sub>	1.5	A
Pulsed Drain Current (10μs pulse, duty cycle = 1%)			I <sub>DM</sub>	10	A

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

Characteristic		Symbol	Value	Units
Total Power Dissipation (Note 5)	T <sub>A</sub> = +25°C	P <sub>D</sub>	0.7	W
	T <sub>A</sub> = +70°C		0.4	
Thermal Resistance, Junction to Ambient (Note 5)	Steady State	R <sub>θJA</sub>	183	°C/W
	t < 10s		115	
Total Power Dissipation (Note 6)	T <sub>A</sub> = +25°C	P <sub>D</sub>	1.3	W
	T <sub>A</sub> = +70°C		0.8	
Thermal Resistance, Junction to Ambient (Note 6)	Steady State	R <sub>θJA</sub>	94	°C/W
	t < 10s		61	
Thermal Resistance, Junction to Case		R <sub>θJC</sub>	39	
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 (Note 7)</b>						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	60	—	—	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> = 60V, V <sub>GS</sub> = 0V
Gate-Source Leakage	I <sub>GSS</sub>	—	—	±100	nA	V <sub>GS</sub> = ±20V, V <sub>DS</sub> = 0V
<b>ON CHARACTERISTICS (Note 7)</b>						
Gate Threshold Voltage	V <sub>GS(th)</sub>	1	—	3	V	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250μA
Static Drain-Source On-Resistance	R <sub>DS(on)</sub>	—	92	140	mΩ	V <sub>GS</sub> = 10V, I <sub>D</sub> = 1.8A
			115	170		V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 1.3A
Forward Transfer Admittance	Y <sub>fs</sub>	—	2.2	—	S	V <sub>DS</sub> = 15V, I <sub>D</sub> = 1.8A
Diode Forward Voltage	V <sub>SD</sub>	—	0.75	1.0	V	V <sub>GS</sub> = 0V, I <sub>S</sub> = 0.45A
<b>DYNAMIC CHARACTERISTICS (Note 8)</b>						
Input Capacitance	C <sub>iss</sub>	—	315	—	pF	V <sub>DS</sub> = 40V, V <sub>GS</sub> = 0V f = 1.0MHz
Output Capacitance	C <sub>oss</sub>	—	18	—		
Reverse Transfer Capacitance	C <sub>rss</sub>	—	16	—		
Gate Resistnace	R <sub>g</sub>	—	0.65	—	Ω	V <sub>DS</sub> = 0V, V <sub>GS</sub> = 0V, f = 1.0MHz
Total Gate Charge (V <sub>GS</sub> = 10V)	Q <sub>g</sub>	—	8.6	—	nC	V <sub>DS</sub> = 30V, I <sub>D</sub> = 1.8A
Total Gate Charge (V <sub>GS</sub> = 5V)	Q <sub>g</sub>	—	4.1	—		
Gate-Source Charge	Q <sub>gs</sub>	—	1.0	—		
Gate-Drain Charge	Q <sub>gd</sub>	—	1.7	—		
Turn-On Delay Time	t <sub>D(on)</sub>	—	2.6	—	ns	V <sub>DS</sub> = 30V, V <sub>GS</sub> = 10V, R <sub>G</sub> = 6.0Ω, I <sub>D</sub> = 1.8A
Turn-On Rise Time	t <sub>r</sub>	—	3.6	—		
Turn-Off Delay Time	t <sub>D(off)</sub>	—	16.3	—		
Turn-Off Fall Time	t <sub>f</sub>	—	2.7	—		
Reverse Recovery Time	t <sub>rr</sub>	—	16.8	—	ns	I <sub>F</sub> = 1.8A, di/dt = 100A/μs
Reverse Recovery Charge	Q <sub>rr</sub>	—	9.0	—	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 vias to bottom layer 1in. square copper plate.
  - Short duration pulse test used to minimize self-heating effect.
  - Guaranteed by design. Not subject to production testing.

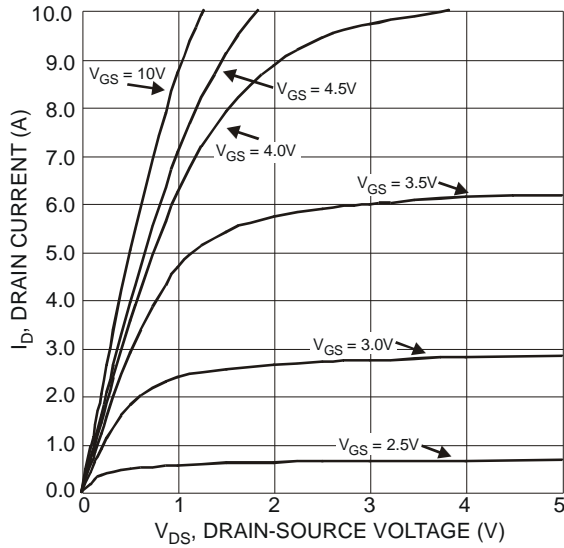


Figure 1 Typical Output Characteristic

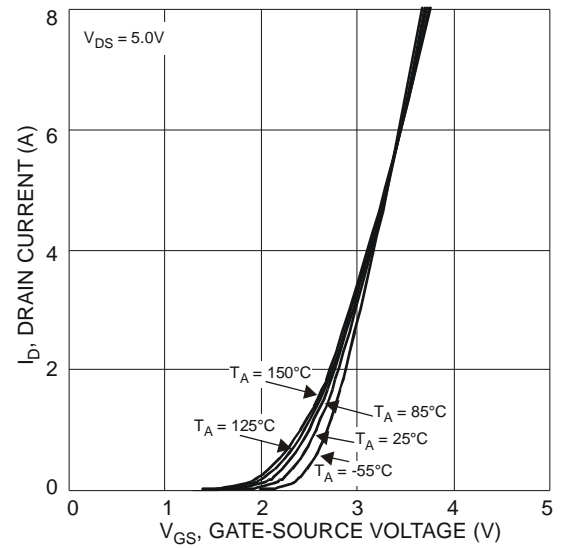


Figure 2 Typical Transfer Characteristics

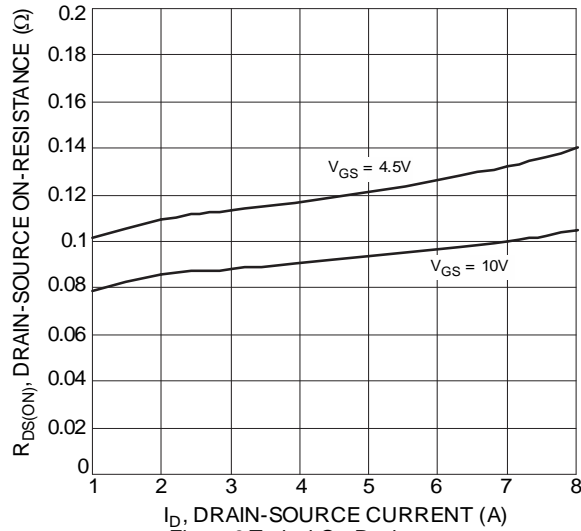


Figure 3 Typical On-Resistance vs. Drain Current and Gate Voltage

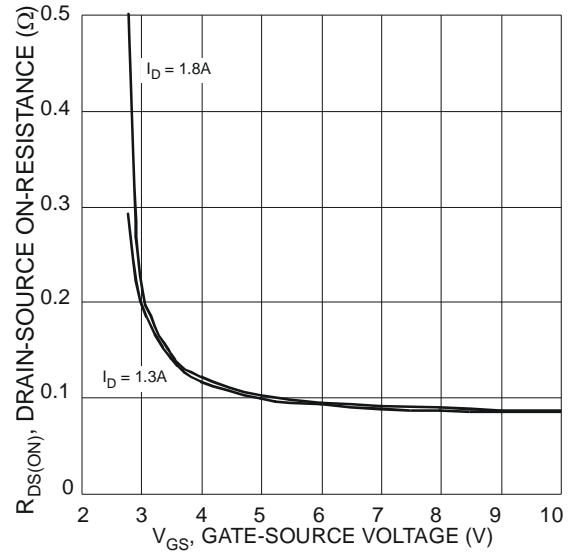


Figure 4 Typical Drain-Source On Resistance vs. Gate-Source Voltage

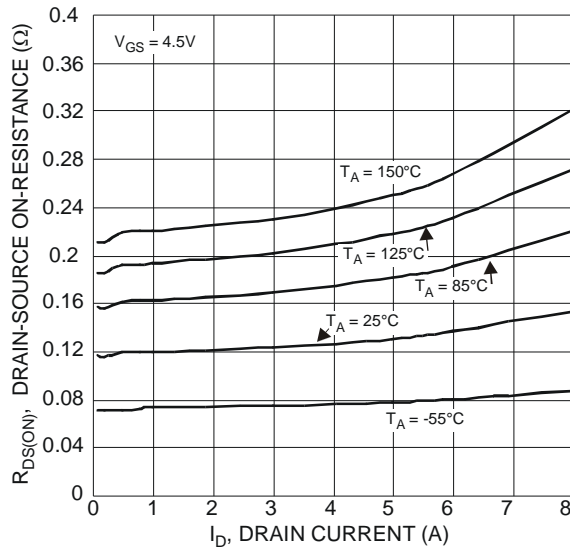


Figure 5 Typical On-Resistance vs. Drain Current and Temperature

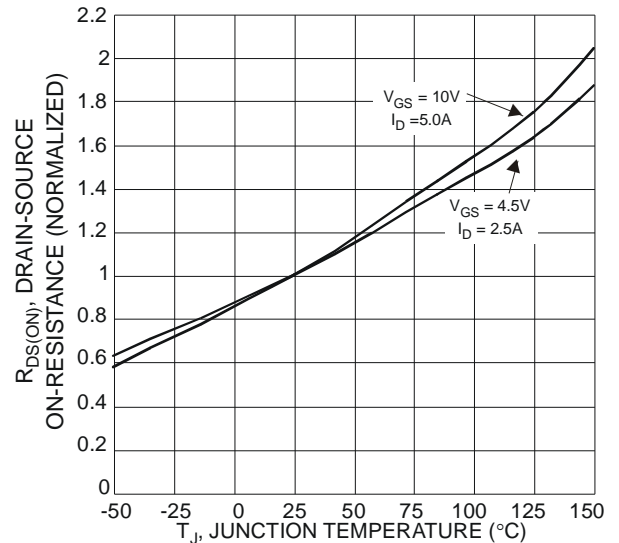
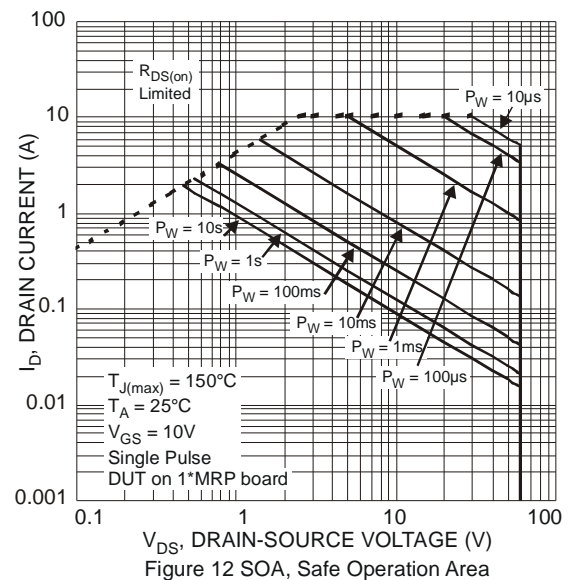
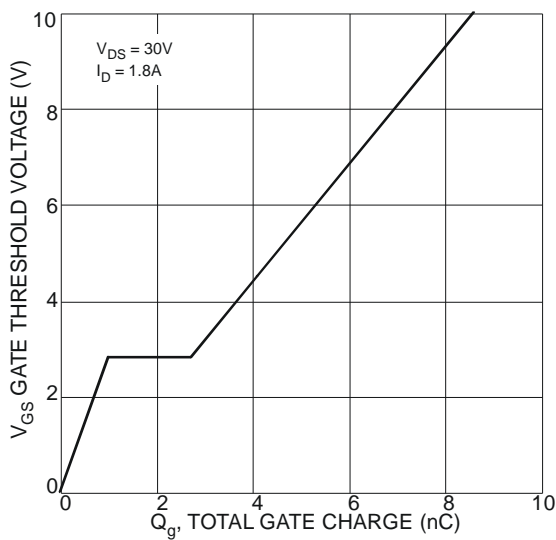
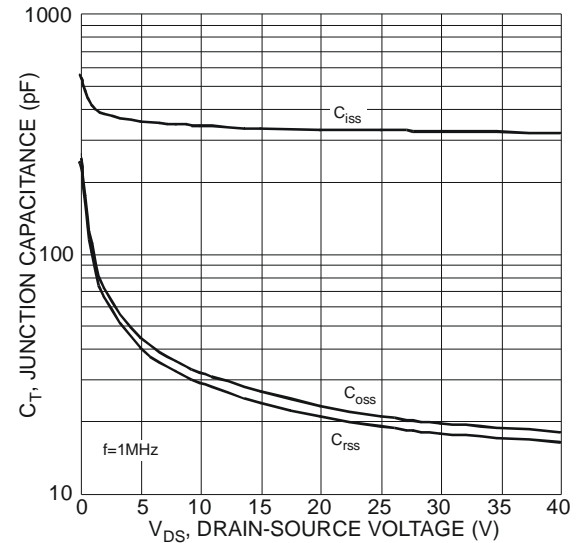
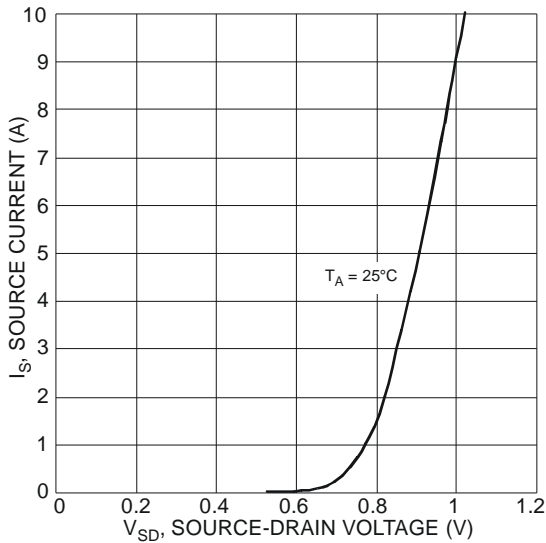
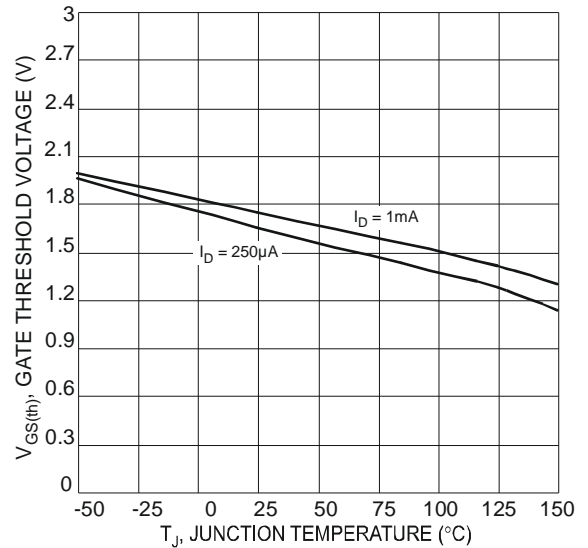
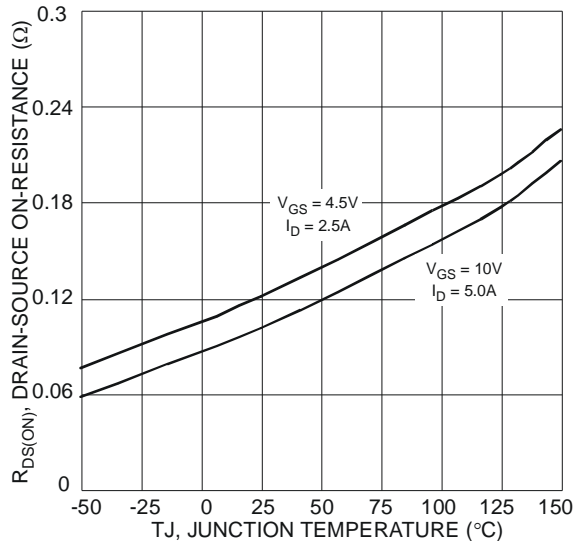
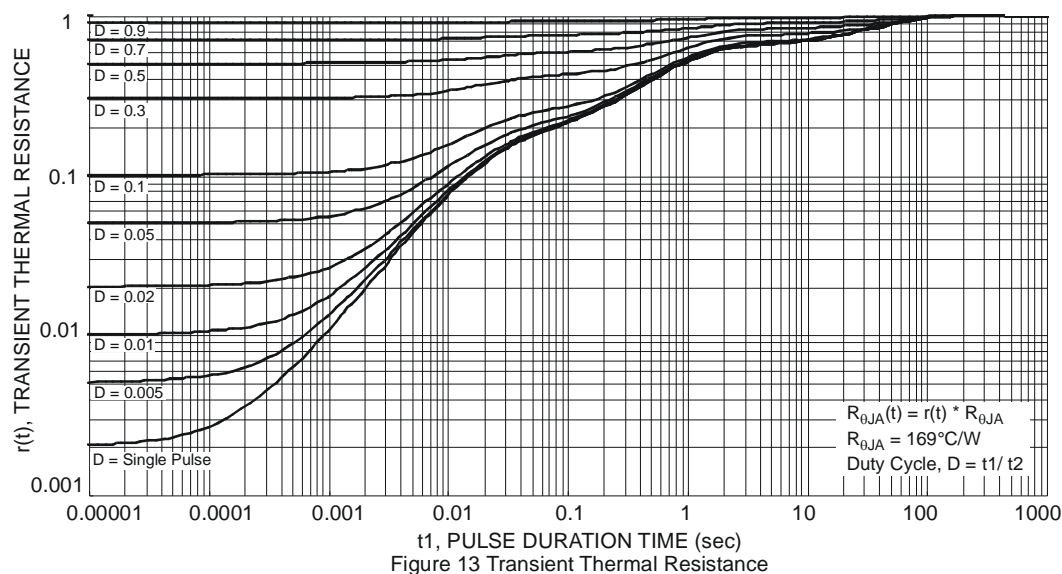


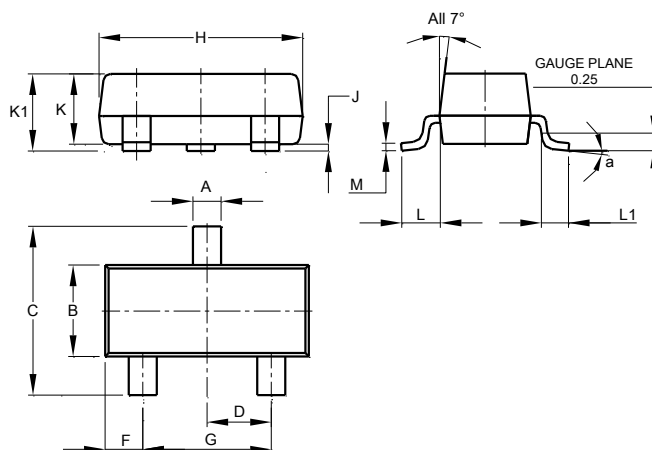
Figure 6 On-Resistance Variation with Temperature





## Package Outline Dimensions

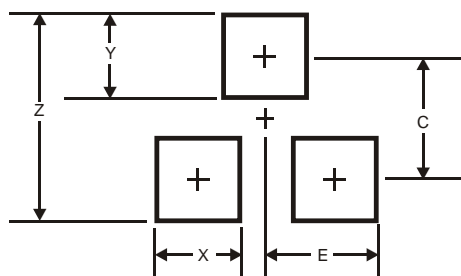
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for the latest version.



SOT23			
Dim	Min	Max	Typ
A	0.37	0.51	0.40
B	1.20	1.40	1.30
C	2.30	2.50	2.40
D	0.89	1.03	0.915
F	0.45	0.60	0.535
G	1.78	2.05	1.83
H	2.80	3.00	2.90
J	0.013	0.10	0.05
K	0.890	1.00	0.975
K1	0.903	1.10	1.025
L	0.45	0.61	0.55
L1	0.25	0.55	0.40
M	0.085	0.150	0.110
α	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)
Z	2.9
X	0.8
Y	0.9
C	2.0
E	1.35

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