

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

Characteristic			Symbol	Value	Unit
Drain-Source Voltage			V <sub>DSS</sub>	-20	V
Gate-Source Voltage			V <sub>GSS</sub>	±8	V
Continuous Drain Current (Note 6) V <sub>GS</sub> = -4.5V	Steady State	T <sub>A</sub> = +25°C T <sub>A</sub> = +70°C	I <sub>D</sub>	-4.2 -3.3	A
	t < 10s	T <sub>A</sub> = +25°C T <sub>A</sub> = +70°C	I <sub>D</sub>	-5.0 -4.0	A
Pulsed Drain Current (Note 7)			I <sub>DM</sub>	-15	A

**Thermal Characteristics**

Characteristic		Symbol	Value	Unit
Power Dissipation (Note 6)		P <sub>D</sub>	1.4	W
Thermal Resistance, Junction to Ambient (Note 6)	Steady State	R <sub>θJA</sub>	90	°C/W
	t < 10s		64	°C/W
Thermal Resistance, Junction to Case (Note 8)		R <sub>θJC</sub>	33	°C/W
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>	-20	—	—	V	V <sub>GS</sub> = 0V, I <sub>D</sub> = -250μA
Zero Gate Voltage Drain Current (T <sub>J</sub> = +25°C)	I <sub>DSS</sub>	—	—	-1.0	μA	V <sub>DS</sub> = -20V, V <sub>GS</sub> = 0V
Gate-Source Leakage	I <sub>GSS</sub>	—	—	±100	nA	V <sub>GS</sub> = ±8V, V <sub>DS</sub> = 0V
<b>ON CHARACTERISTICS</b> (Note 8)						
Gate Threshold Voltage	V <sub>GS(TH)</sub>	-0.5	—	-0.9	V	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = -250μA
Static Drain-Source On-Resistance	R <sub>DS(ON)</sub>	—	40	52	mΩ	V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -4.2A
			52	100		V <sub>GS</sub> = -2.5V, I <sub>D</sub> = -3.4A
			68	200		V <sub>GS</sub> = -1.8V, I <sub>D</sub> = -2A
Forward Transfer Admittance	Y <sub>FS</sub>	—	9	—	S	V <sub>DS</sub> = -5V, I <sub>D</sub> = -4A
<b>DYNAMIC CHARACTERISTICS</b> (Note 9)						
Input Capacitance	C <sub>iss</sub>	—	808	—	pF	V <sub>DS</sub> = -15V, V <sub>GS</sub> = 0V f = 1.0MHz
Output Capacitance	C <sub>oss</sub>	—	85	—	pF	
Reverse Transfer Capacitance	C <sub>rss</sub>	—	77	—	pF	
Gate Resistance	R <sub>G</sub>	—	15.2	—	Ω	V <sub>GS</sub> = 0V, V <sub>DS</sub> = 0V, f = 1.0MHz
<b>SWITCHING CHARACTERISTICS</b> (Note 9)						
Total Gate Charge	Q <sub>G</sub>	—	10.2	—	nC	V <sub>GS</sub> = -4.5V, V <sub>DS</sub> = -4V, I <sub>D</sub> = -3.5A
Gate-Source Charge	Q <sub>GS</sub>	—	1.3	—	nC	
Gate-Drain Charge	Q <sub>GD</sub>	—	2.2	—	nC	
Turn-On Delay Time	t <sub>D(ON)</sub>	—	10.8	—	ns	V <sub>DS</sub> = -4V, V <sub>GS</sub> = -4.5V, R <sub>G</sub> = 6Ω, I <sub>D</sub> = -1A
Turn-On Rise Time	t <sub>R</sub>	—	13.7	—	ns	
Turn-Off Delay Time	t <sub>D(OFF)</sub>	—	79.3	—	ns	
Turn-Off Fall Time	t <sub>F</sub>	—	34.7	—	ns	

- Notes:
6. Device mounted on FR-4 substrate PC board, 2oz copper, with 1-inch square copper plate.
  7. Repetitive rating, pulse width limited by junction temperature.
  8. Short duration pulse test used to minimize self-heating effect.
  9. Guaranteed by design. Not subject to product testing.

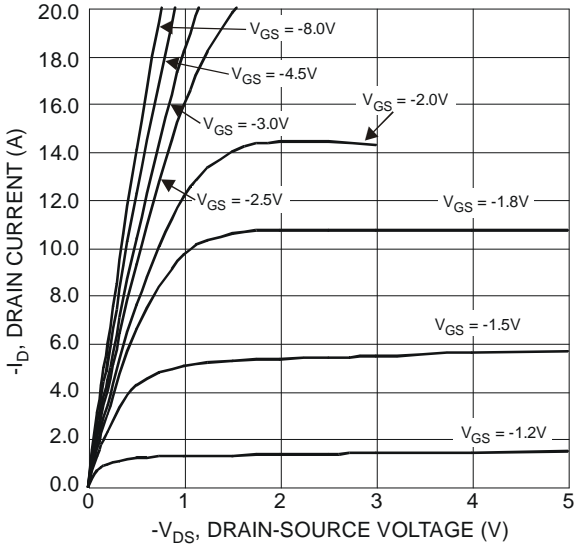


Figure 1 Typical Output Characteristics

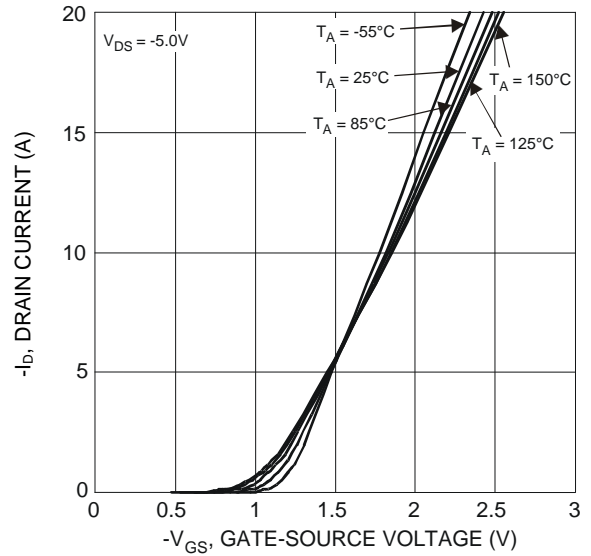


Figure 2 Typical Transfer Characteristics

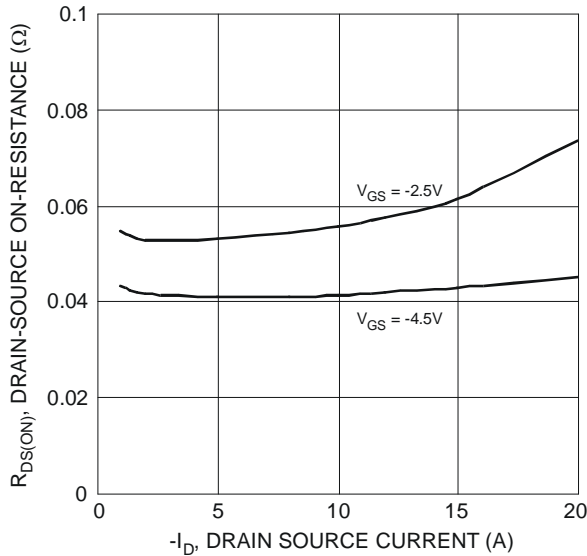


Figure 3 Typical On-Resistance vs. Drain Current and Gate Voltage

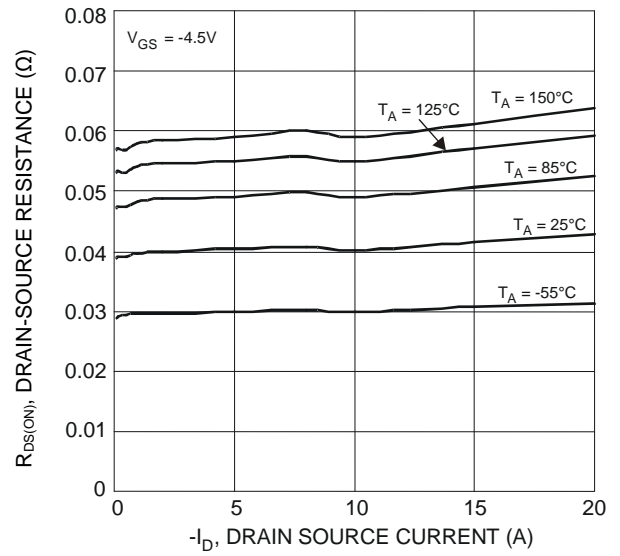


Figure 4 Typical On-Resistance vs. Drain Current and Temperature

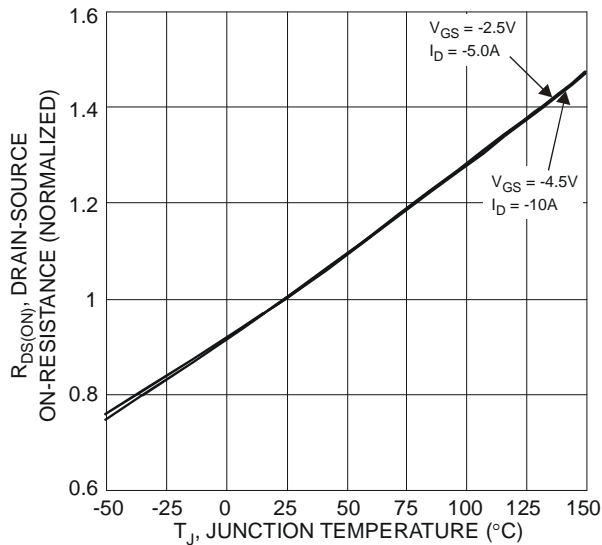


Figure 5 On-Resistance Variation with Temperature

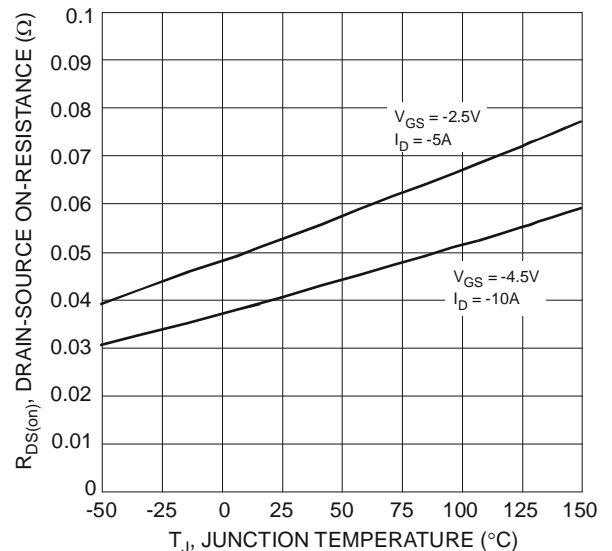


Figure 6 On-Resistance Variation with Temperature

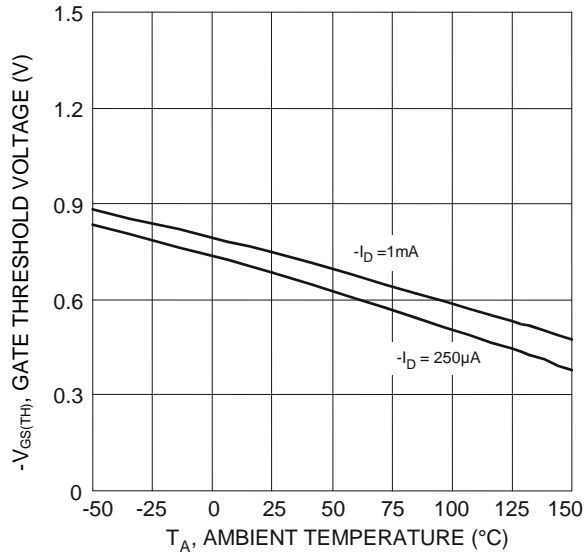


Figure 7 Gate Threshold Variation vs. Ambient Temperature

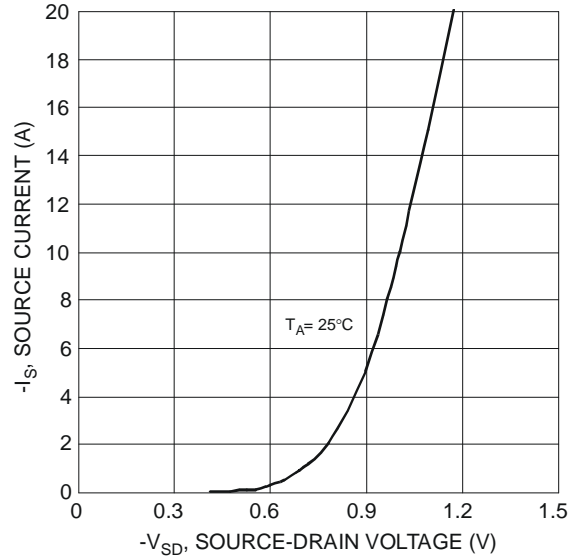


Figure 8 Diode Forward Voltage vs. Current

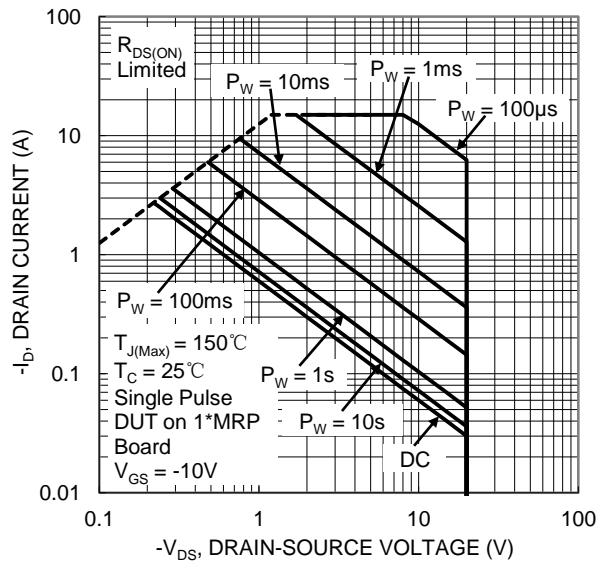
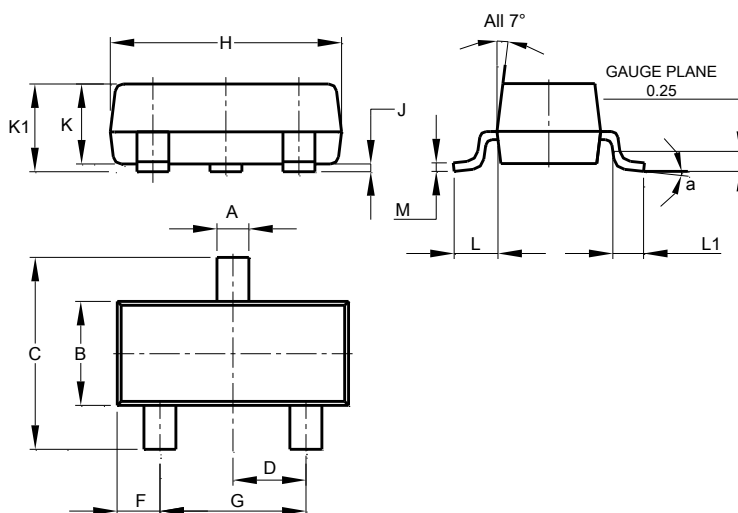


Figure 9 SOA, Safe Operation Area

## Package Outline Dimensions

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

### SOT23

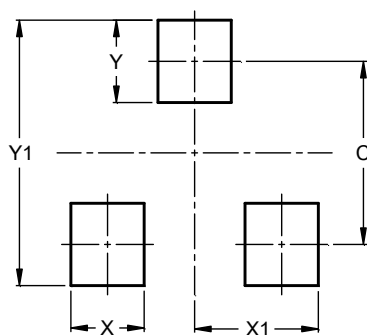


SOT23			
Dim	Min	Max	Typ
A	0.37	0.51	0.40
B	1.20	1.40	1.30
C	2.30	2.50	2.40
D	0.89	1.03	0.915
F	0.45	0.60	0.535
G	1.78	2.05	1.83
H	2.80	3.00	2.90
J	0.013	0.10	0.05
K	0.890	1.00	0.975
K1	0.903	1.10	1.025
L	0.45	0.61	0.55
L1	0.25	0.55	0.40
M	0.085	0.150	0.110
a	0°	8°	--
All Dimensions in mm			

## Suggested Pad Layout

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

### SOT23



Dimensions	Value (in mm)
C	2.0
X	0.8
X1	1.35
Y	0.9
Y1	2.9

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