

## 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 5)	Steady State	T <sub>A</sub> = +25°C	I <sub>D</sub>	-4.2	A
		T <sub>A</sub> = +70°C		-3.4	
Pulsed Drain Current (Note 6)			I <sub>DM</sub>	-10	A

## Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	P <sub>D</sub>	1.4	W
Thermal Resistance, Junction to Ambient @T <sub>A</sub> = +25°C	R <sub>θJA</sub>	90	°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 (Note 7)</b>						
Drain-Source Breakdown Voltage	BV <sub>DS</sub>	-20	—	—	V	V <sub>GS</sub> = 0V, I <sub>D</sub> = -250μA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	—	—	-1.0	μA	T <sub>J</sub> = +25°C, 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 (Note 7)</b>						
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>	—	45	60	mΩ	V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -4.2A
			60	90		V <sub>GS</sub> = -2.5V, I <sub>D</sub> = -3.4A
			87	113		V <sub>GS</sub> = -1.8V, I <sub>D</sub> = -2.0A
Forward Transfer Admittance	Y <sub>FS</sub>	—	9	—	S	V <sub>DS</sub> = -5V, I <sub>D</sub> = -4A
<b>DYNAMIC CHARACTERISTICS (Note 8)</b>						
Input Capacitance	C <sub>iss</sub>	—	727	—	pF	V <sub>DS</sub> = -20V, V <sub>GS</sub> = 0V f = 1.0MHz
Output Capacitance	C <sub>oss</sub>	—	69	—	pF	
Reverse Transfer Capacitance	C <sub>rss</sub>	—	64	—	pF	
Gate Resistance	R <sub>g</sub>	—	23	—	Ω	V <sub>GS</sub> = 0V, V <sub>DS</sub> = 0V, f = 1.0MHz
<b>SWITCHING CHARACTERISTICS</b>						
Total Gate Charge	Q <sub>g</sub>	—	7.6	—	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>	—	1.4	—	nC	
Gate-Drain Charge	Q <sub>gd</sub>	—	1.2	—	nC	
Turn-On Delay Time	t <sub>D(ON)</sub>	—	14.0	—	ns	V <sub>DS</sub> = -4V, V <sub>GS</sub> = -4.5V, R <sub>L</sub> = 4Ω, R <sub>G</sub> = 6Ω, I <sub>D</sub> = -1A
Turn-On Rise Time	t <sub>r</sub>	—	13.0	—	ns	
Turn-Off Delay Time	t <sub>D(OFF)</sub>	—	53.8	—	ns	
Turn-Off Fall Time	t <sub>f</sub>	—	23.2	—	ns	

- Notes:
- Device mounted on FR-4 PCB with 2oz. copper and test pulse width t ≤ 10s.
  - Repetitive rating, pulse width limited by junction temperature.
  - Short duration pulse test used to minimize self-heating effect.
  - Guaranteed by design. Not subject to production testing.

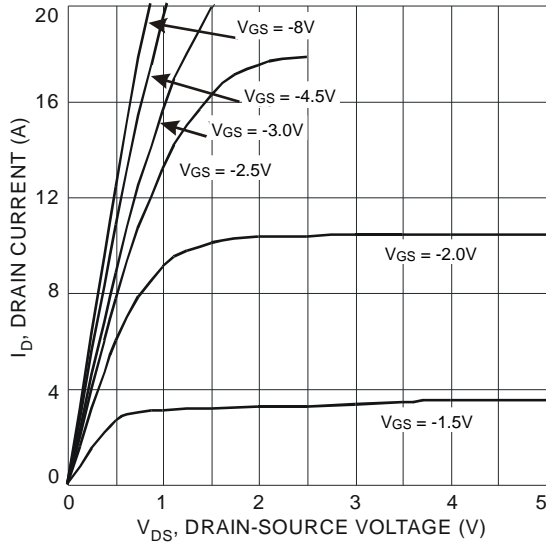


Fig. 1 Typical Output Characteristic

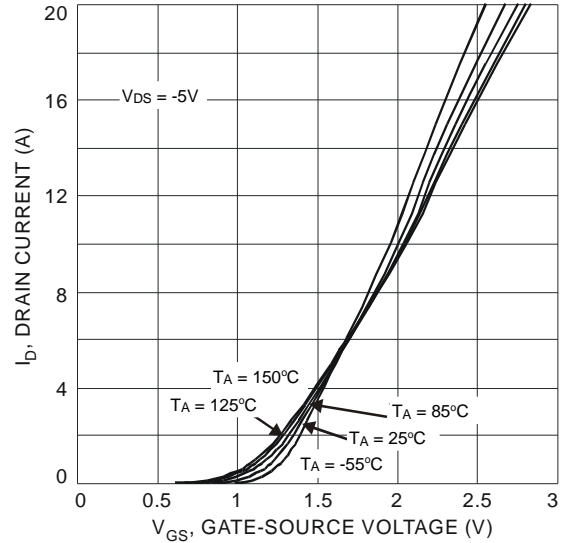


Fig. 2 Typical Transfer Characteristic

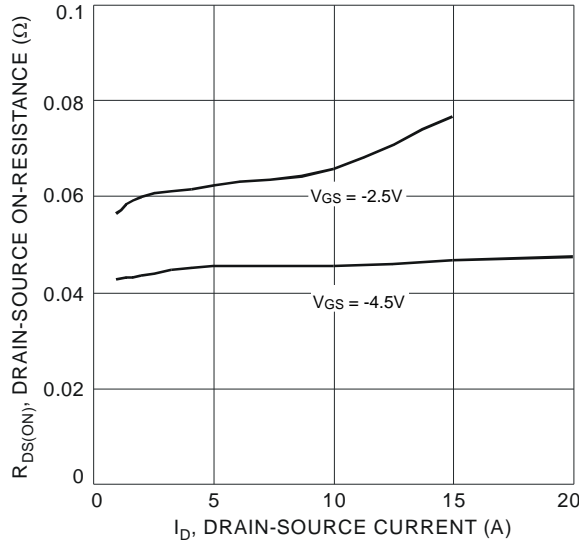


Fig. 3 Typical On-Resistance vs. Drain Current and Gate Voltage

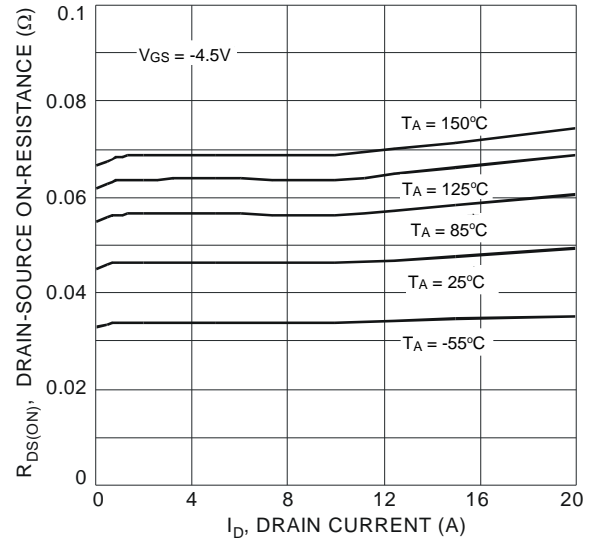


Fig. 4 Typical On-Resistance vs. Drain Current and Temperature

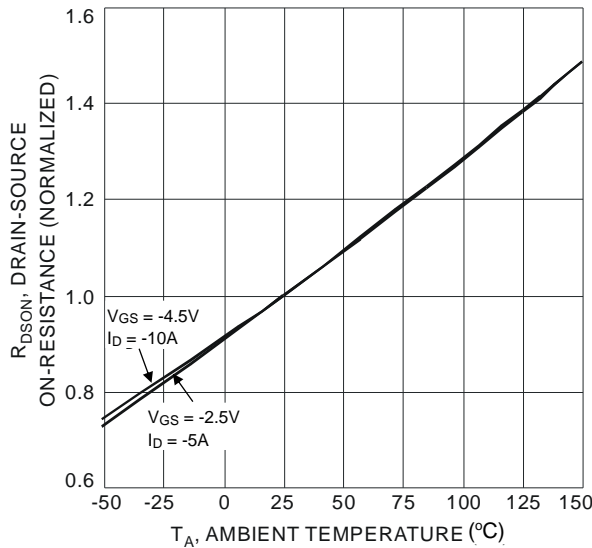


Fig. 5 On-Resistance Variation with Temperature

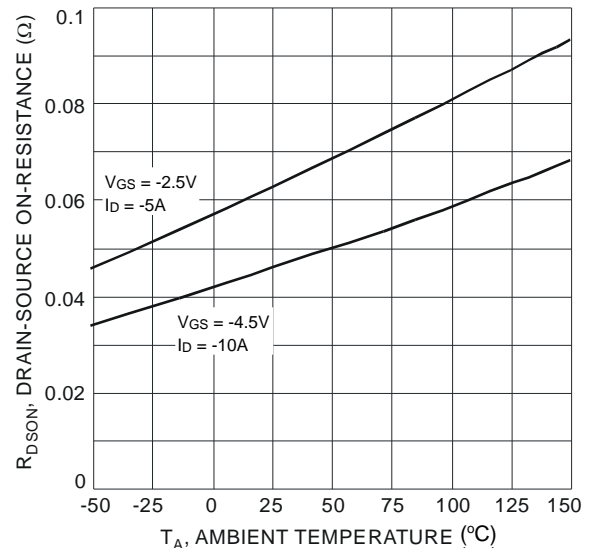


Fig. 6 On-Resistance Variation with Temperature

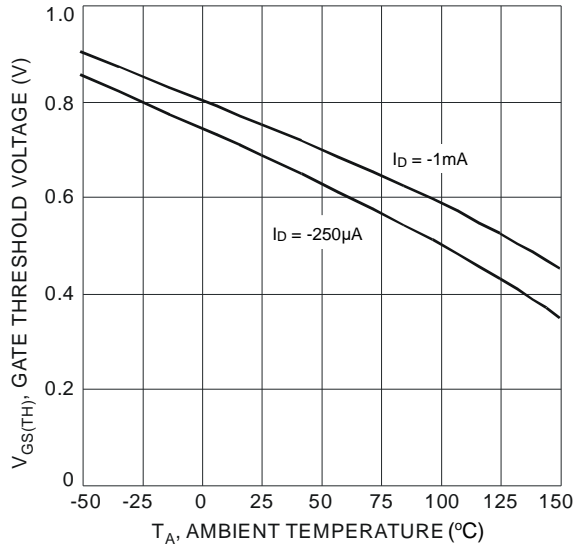


Fig. 7 Gate Threshold Variation vs. Ambient Temperature

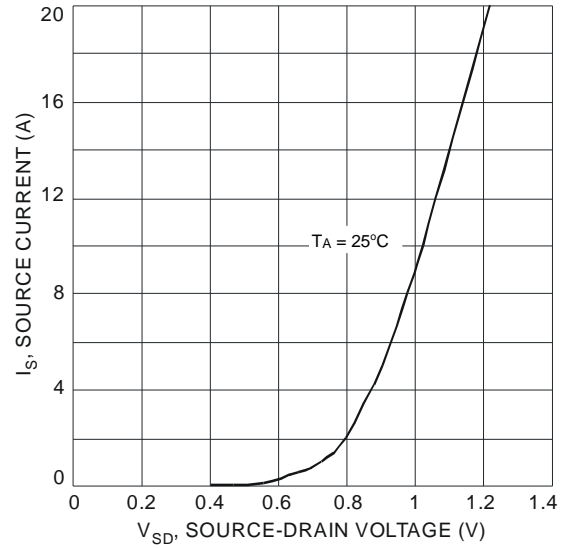


Fig. 8 Diode Forward Voltage vs. Current

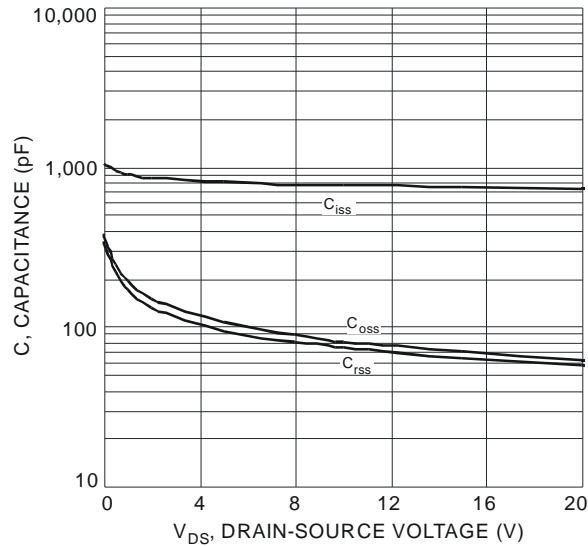


Fig. 9 Typical Total Capacitance

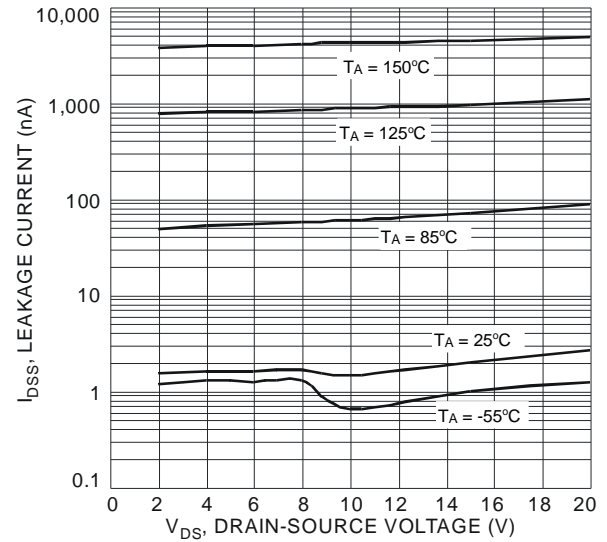


Fig. 10 Typical Leakage Current vs. Drain-Source Voltage

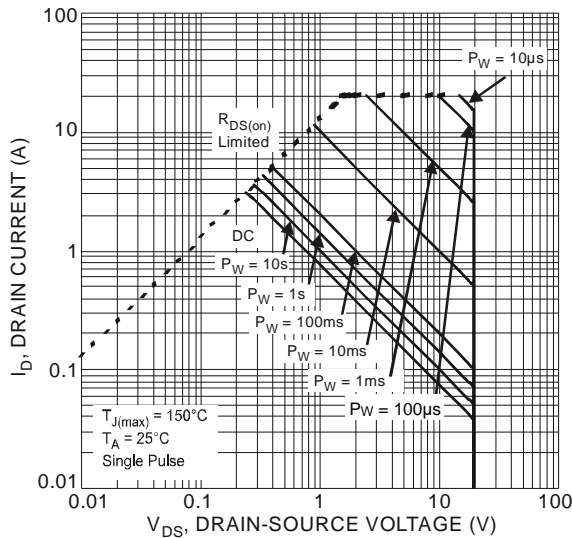


Fig. 11 SOA, Safe Operation Area

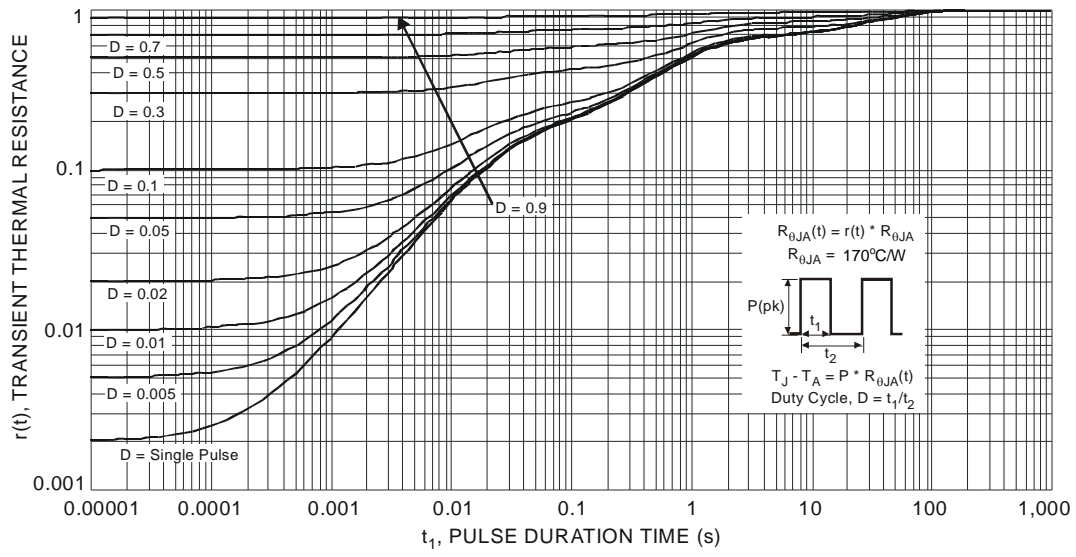
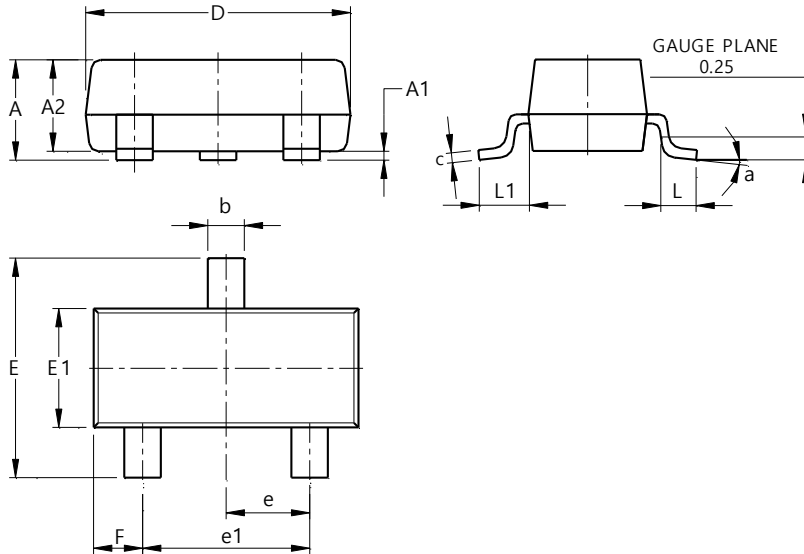


Fig. 12 Transient Thermal Response

## Package Outline Dimensions

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

### SOT23 (Standard)

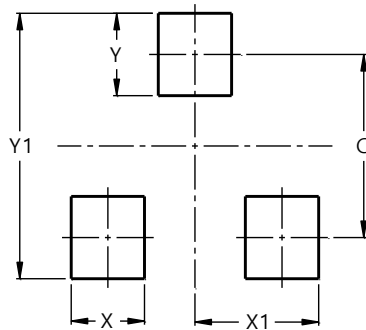


SOT23 (Standard)			
Dim	Min	Max	Typ
A	0.90	1.15	1.025
A1	0.00	0.10	0.05
A2	0.85	1.10	0.975
b	0.30	0.51	0.40
c	0.080	0.202	0.11
D	2.80	3.00	2.90
E	2.25	2.55	2.40
E1	1.20	1.40	1.30
e	0.89	1.03	0.915
e1	1.78	2.05	1.83
F	0.40	0.60	0.535
L1	0.45	0.61	0.55
L	0.25	0.55	0.40
a	0°	8°	--
All Dimensions in mm			

## Suggested Pad Layout

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

### SOT23 (Standard)



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

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