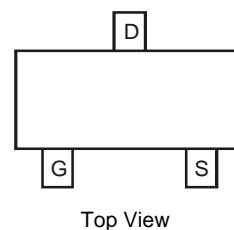
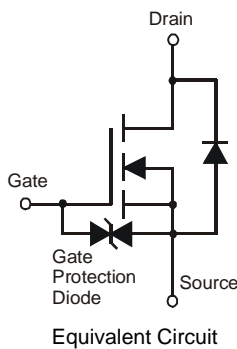


## Features

- Extremely Low On-Resistance: 170mΩ @  $V_{GS} = 4.5V$
- High Drain Current: 1.1A
- Ideal for Notebook Computer, Portable Phone, PCMCIA Cards, and Battery Powered Circuits
- **ESD Protected Gate**
- **Lead Free By Design/RoHS Compliant (Note 1)**
- **"Green" Device (Note 2)**
- **Qualified to AEC-Q101 Standards for High Reliability**

## Mechanical Data

- Case: SC59
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208
- Terminal Connections: See Diagram
- Weight: 0.014 grams (approximate)

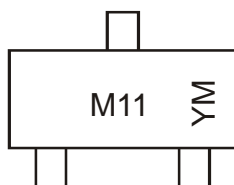


## Ordering Information (Note 3)

Part Number	Case	Packaging
DMN100-7-F	SC59	3000/Tape & Reel

- Notes:
1. EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. No purposely added lead. Halogen and Antimony free.
  2. Diodes Inc.'s "Green" Policy can be found on our website at <http://www.diodes.com>.
  3. For packaging details, go to our website at <http://www.diodes.com>.

## Marking Information



M11 = Product Type Marking Code  
 YM = Date Code Marking  
 Y = Year (ex: T = 2006)  
 M = Month (ex: 9 = September)

### Date Code Key

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Code	T	U	V	W	X	Y	Z	A	B	C	D	E

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

**Maximum Ratings** @T<sub>A</sub> = 25°C unless otherwise specified

Characteristic	Symbol	Value	Units
Drain-Source Voltage	V <sub>DSS</sub>	30	V
Gate-Source Voltage	V <sub>GSS</sub>	±20	V
Drain Current	I <sub>D</sub>	1.1 4.0	A
		Continuous Pulsed	

**Thermal Characteristics** @T<sub>A</sub> = 25°C unless otherwise specified

Characteristic	Symbol	Value	Units
Total Power Dissipation	P <sub>D</sub>	500	mW
Thermal Resistance, Junction to Ambient	R <sub>θJA</sub>	250	K/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
OFF CHARACTERISTICS (Note 4)						
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>	—	—	1.0 10	μA	@ T <sub>J</sub> = 25°C @ T <sub>J</sub> = 125°C V <sub>DS</sub> = 24V, V <sub>GS</sub> = 0V
Gate-Body Leakage	I <sub>GSS</sub>	—	—	± 100	nA	V <sub>GS</sub> = ± 12V, V <sub>DS</sub> = 0V
ON CHARACTERISTICS (Note 4)						
Gate Threshold Voltage	V <sub>GS(th)</sub>	1.0	—	3.0	V	V <sub>DS</sub> = 10V, I <sub>D</sub> = 1.0mA
Static Drain-Source On-Resistance	R <sub>DS (ON)</sub>	—	—	0.170 0.150	Ω	V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 0.5A V <sub>GS</sub> = 10V, I <sub>D</sub> = 1.0A
Forward Transconductance	g <sub>FS</sub>	1.3	2.4	—	S	V <sub>DS</sub> = 10V, I <sub>D</sub> = 0.5A
DYNAMIC CHARACTERISTICS						
Input Capacitance	C <sub>iss</sub>	—	150	—	pF	V <sub>DS</sub> = 10V, V <sub>GS</sub> = 0V f = 1.0MHz
Output Capacitance	C <sub>oss</sub>	—	90	—	pF	
Reverse Transfer Capacitance	C <sub>rss</sub>	—	30	—	pF	
Total Gate Charge	Q <sub>g</sub>	—	5.5	—	nC	V <sub>DS</sub> = 24V, I <sub>D</sub> = 1.0A, V <sub>GS</sub> = 10V
Gate-to-Source Charge	Q <sub>gs</sub>	—	0.8	—	nC	
Gate-to-Drain Charge	Q <sub>gd</sub>	—	1.3	—	nC	
SWITCHING CHARACTERISTICS						
Turn-On Delay Time	t <sub>D(ON)</sub>	—	10	—	ns	V <sub>DD</sub> = 10V, I <sub>D</sub> = 0.5A, V <sub>GS</sub> = 5.0V, R <sub>GEN</sub> = 50Ω
Turn-Off Delay Time	t <sub>D(OFF)</sub>	—	25	—	ns	
Turn-On Rise Time	t <sub>r</sub>	—	15	—	ns	
Turn-Off Fall Time	t <sub>f</sub>	—	45	—	ns	
SOURCE-DRAIN RATINGS (BODY DIODE)						
Continuous Source Current	I <sub>S</sub>	—	—	0.54	A	—
Pulse Source Current	I <sub>SM</sub>	—	—	4.0	A	—
Forward Voltage	V <sub>SD</sub>	—	—	1.2	V	I <sub>F</sub> = 1.0A, V <sub>GS</sub> = 0V
Reverse Recovery Time	t <sub>rr</sub>	—	35	—	ns	I <sub>F</sub> = 1.0A, di/dt = 50A/μs

Notes: 4. Pulse width ≤ 300μs, duty cycle ≤ 2%.

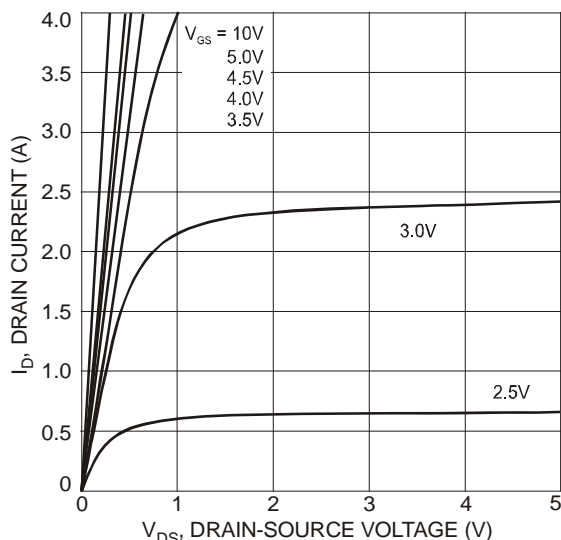


Fig. 1 On-Region Characteristics

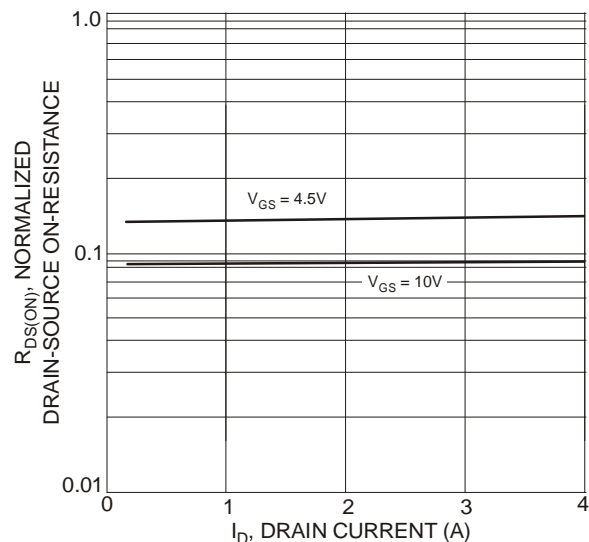


Fig. 2 On-Resistance vs. Drain Current

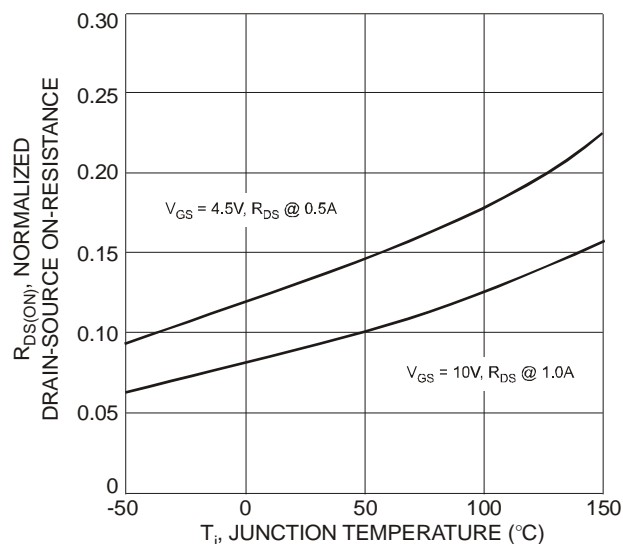


Fig. 3 On-Resistance vs. Junction Temperature

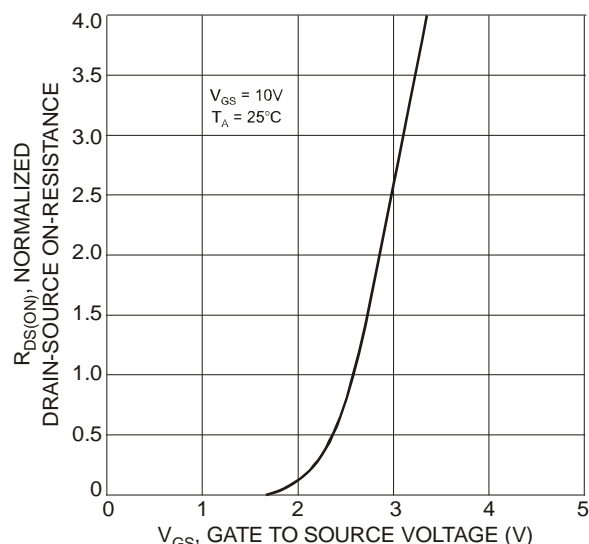
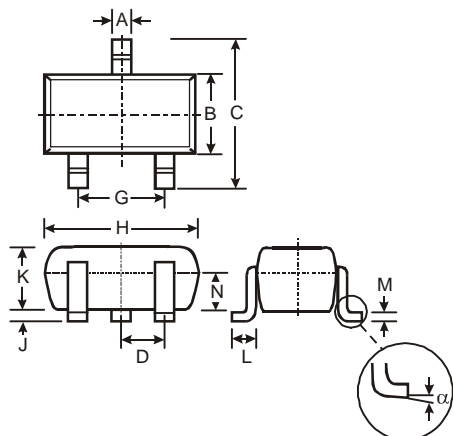


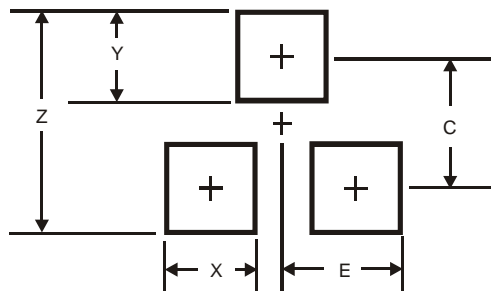
Fig. 4 On-Resistance vs. Gate-Source Voltage

## Package Outline Dimensions



SC59			
Dim	Min	Max	Typ
A	0.35	0.50	0.38
B	1.50	1.70	1.60
C	2.70	3.00	2.80
D	-	-	0.95
G	-	-	1.90
H	2.90	3.10	3.00
J	0.013	0.10	0.05
K	1.00	1.30	1.10
L	0.35	0.55	0.40
M	0.10	0.20	0.15
N	0.70	0.80	0.75
α	0°	8°	-
All Dimensions in mm			

## Suggested Pad Layout



Dimensions	Value (in mm)
Z	3.4
X	0.8
Y	1.0
C	2.4
E	1.35

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