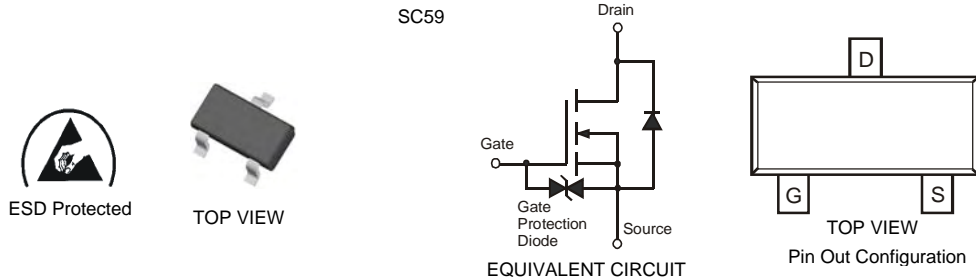


Features

- Low On-Resistance
- Ideal for Notebook Computer, Portable Phone, PCMCIA Cards, and Battery Powered Circuits
- **Lead Free By Design/RoHS Compliant (Note 2)**
- **Qualified to AEC-Q101 Standards for High Reliability**
- **ESD Protected Gate**
- **"Green" Device (Note 3)**

Mechanical Data

- Case: SC59
- Case Material - Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminals: Finish Matte Tin annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208
- Terminal Connections: See Diagram
- Marking Information: See Page 3
- Ordering & Date Code Information: See Page 3
- Weight: 0.014 grams (approximate)



Maximum Ratings @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Value	Units
Drain-Source Voltage	V_{DSS}	20	V
Gate-Source Voltage	V_{GSS}	± 8	V
Drain Current	Continuous	1.2	A
	Pulsed	4.0	A

Thermal Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Value	Units
Total Power Dissipation	P_d	500	mW
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	250	$^\circ\text{C}/\text{W}$
Operating and Storage Temperature Range	T_j, T_{STG}	-55 to +150	$^\circ\text{C}$

Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 1)						
Drain-Source Breakdown Voltage	BV_{DSS}	20	—	—	V	$V_{GS} = 0V, I_D = 250\mu\text{A}$
Zero Gate Voltage Drain Current	I_{DSS}	—	—	10	μA	@ $T_j = 25^\circ\text{C}$ $V_{DS} = 20V, V_{GS} = 0V$
Gate-Body Leakage	I_{GSS}	—	—	± 10	μA	$V_{GS} = \pm 8V, V_{DS} = 0V$
ON CHARACTERISTICS (Note 1)						
Gate Threshold Voltage	$V_{GS(th)}$	0.5	—	1.2	V	$V_{DS} = 10V, I_D = 1.0\text{mA}$
Static Drain-Source On-Resistance	$R_{DS(on)}$	—	—	0.10 0.14 0.25	Ω	$V_{GS} = 4.5V, I_D = 0.5A$ $V_{GS} = 2.5V, I_D = 0.5A$ $V_{GS} = 1.5V, I_D = 0.1A$
Forward Transfer Admittance	$ Y_{fs} $	—	4.2	—	S	$V_{DS} = 10V, I_D = 0.5A$
Diode Forward Voltage	V_{SD}	—	0.8	1.1	V	$V_{GS} = 0V, I_S = 1A$
DYNAMIC CHARACTERISTICS						
Input Capacitance	C_{iss}	—	220	—	pF	$V_{DS} = 10V, V_{GS} = 0V$ $f = 1.0\text{MHz}$
Output Capacitance	C_{oss}	—	120	—	pF	
Reverse Transfer Capacitance	C_{rss}	—	45	—	pF	
SWITCHING CHARACTERISTICS						
Turn-On Delay Time	$t_{D(ON)}$	—	10	—	ns	$V_{DD} = 5V, I_D = 0.5A,$ $V_{GS} = 10V, R_{GEN} = 50\Omega$
Turn-Off Delay Time	$t_{D(OFF)}$	—	75	—	ns	
Turn-On Rise Time	t_r	—	15	—	ns	
Turn-Off Fall Time	t_f	—	65	—	ns	

- Notes:
1. Pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$.
 2. No purposefully added lead.
 3. Diodes Inc.'s "Green" Policy can be found on our website at http://www.diodes.com/products/lead_free/index.php.

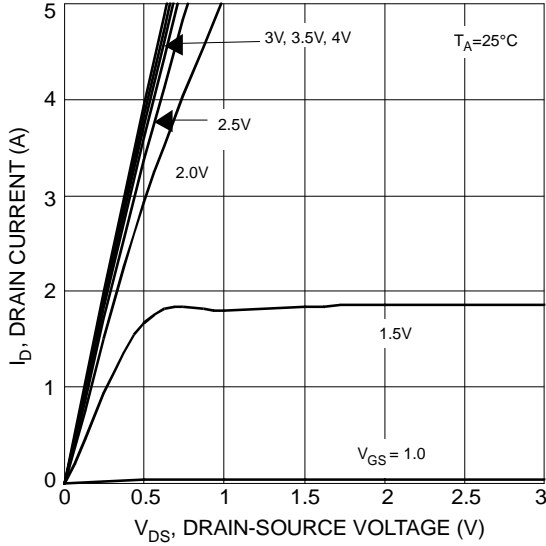


Fig. 1 Typical Output Characteristics

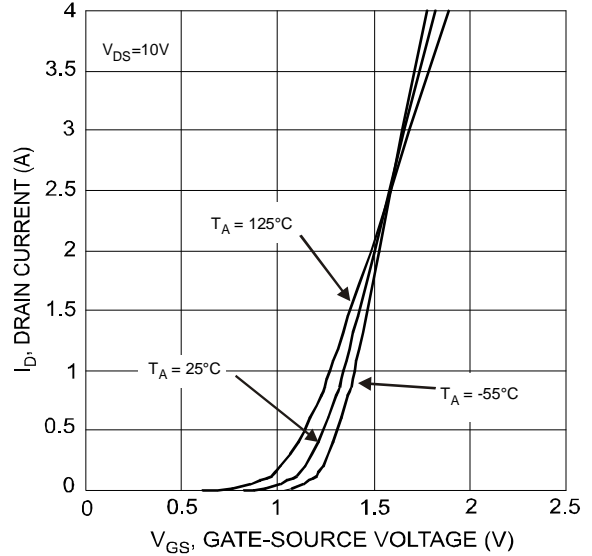


Fig. 2 Typical Transfer Characteristics

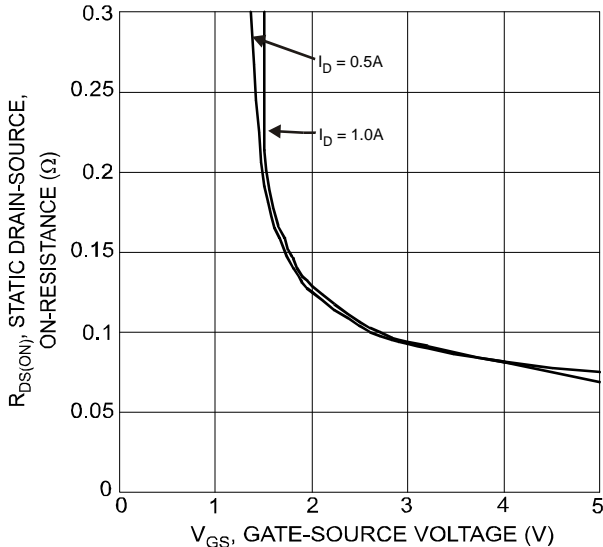


Fig. 3 On-Resistance vs. Gate Voltage

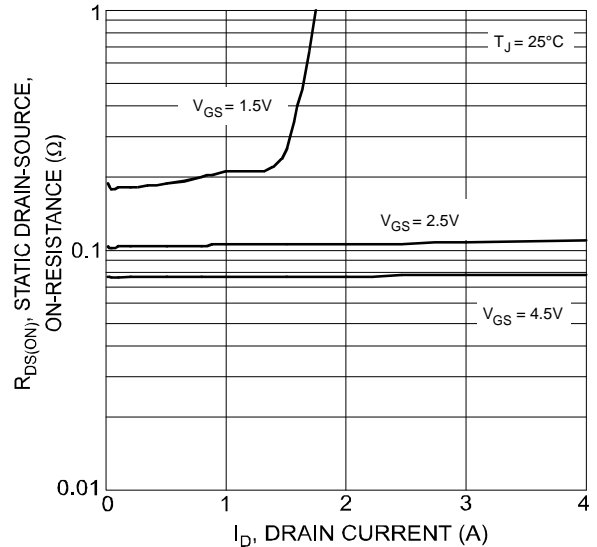


Fig. 4 On-Resistance vs. Drain Current

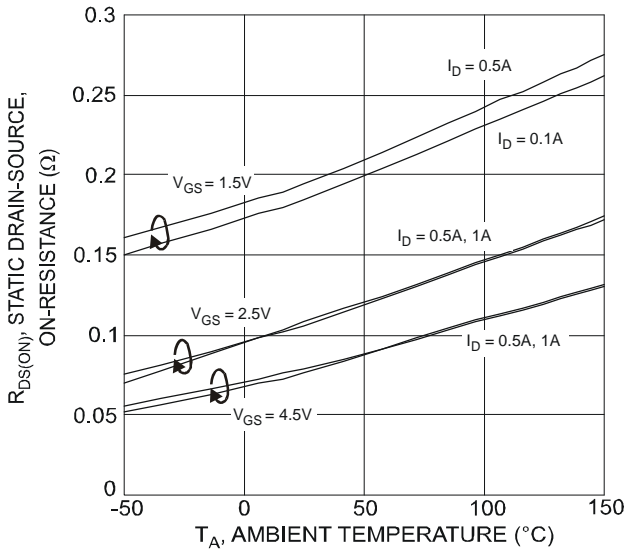


Fig. 5 On-Resistance Variation with Temperature

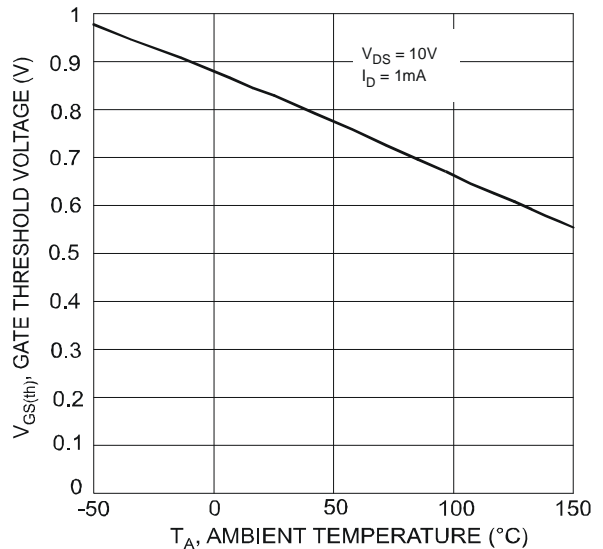


Fig. 6 Gate Threshold Voltage vs. Temperature

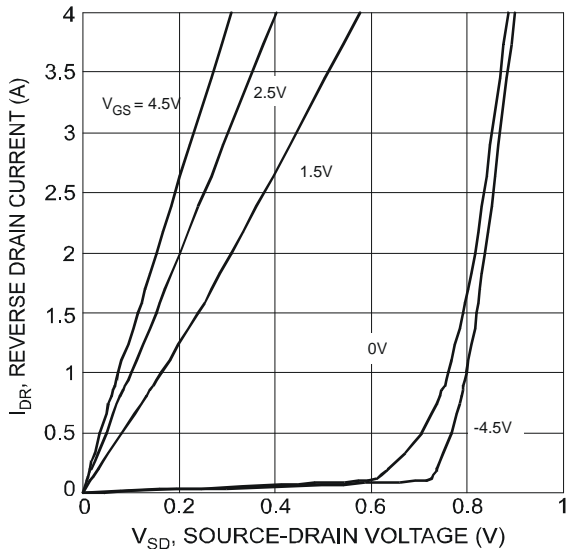


Fig. 7 Reverse Drain Current vs. Source-Drain Voltage

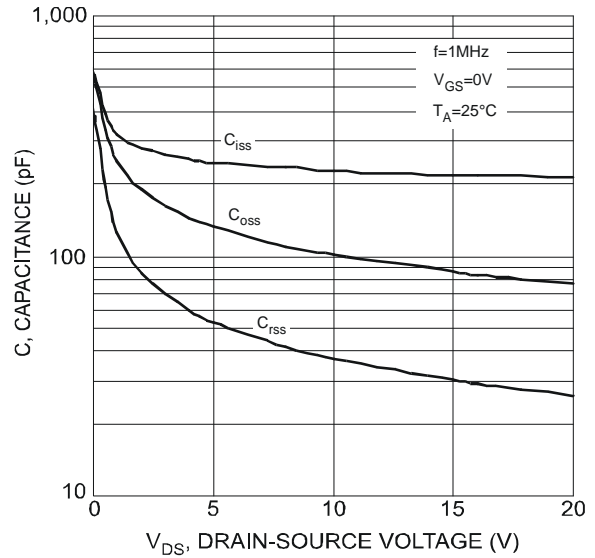


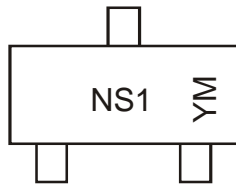
Fig. 8 Typical Junction Capacitance

Ordering Information (Note 4)

Part Number	Case	Packaging
DMN2112SN-7	SC59	3000/Tape & Reel

Notes: 4. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

Marking Information



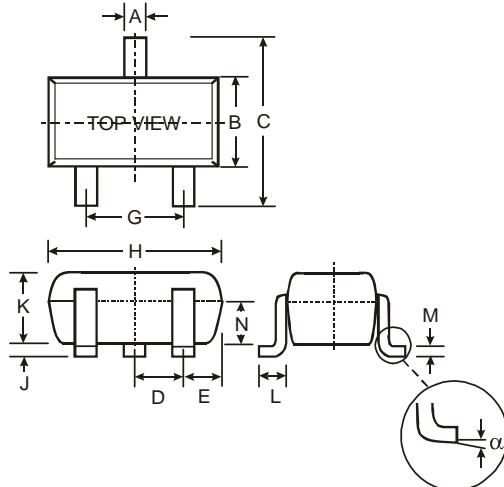
NS1 = Product Type Marking Code
 YM = Date Code Marking
 Y = Year ex: T = 2006
 M = Month ex: 9 = September

Date Code Key

Year	2007	2008	2009	2010	2011	2012
Code	U	V	W	X	Y	Z

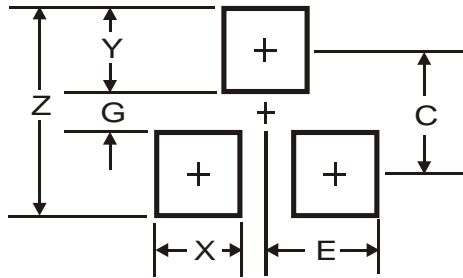
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

Package Outline Dimensions



SC59		
Dim	Min	Max
A	0.35	0.50
B	1.50	1.70
C	2.70	3.00
D	0.95	
E	—	
G	1.90	
H	2.90	3.10
J	0.013	0.10
K	1.00	1.30
L	0.35	0.55
M	0.10	0.20
N	0.70	0.80
α	0°	8°
All Dimensions in mm		

Suggested Pad Layout



Dimensions	Value (in mm)
Z	4.0
G	1.2
X	0.9
Y	1.4
C	2.6
E	0.95

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 - 2. support or sustain life and whose failure to perform when properly used in accordance with instructions for use provided in the labeling can be reasonably expected to result in significant injury to the user.
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