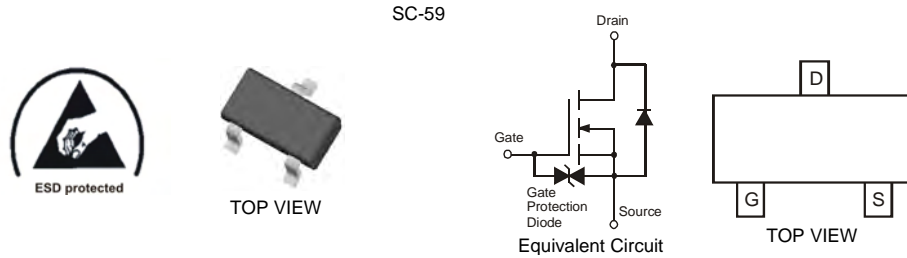


Features

- 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
- **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: SC-59
- 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 Information: See Page 3
- Weight: 0.008 grams (approximate)



Maximum Ratings @T_A = 25°C unless otherwise specified

Characteristic		Symbol	Value	Units
Drain-Source Voltage		V _{DSS}	30	V
Gate-Source Voltage	Continuous	V _{GSS}	±20	V
Drain Current	Continuous	I _D	1.1	A
	Pulsed		4.0	

Thermal Characteristics @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Units
Total Power Dissipation	P _d	500	mW
Thermal Resistance, Junction to Ambient	R _{θJA}	250	K/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

- Notes:
1. Pulse width ≤ 300μs, duty cycle ≤ 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.

Electrical Characteristics @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 4)						
Drain-Source Breakdown Voltage	BV _{DSS}	30	—	—	V	V _{GS} = 0V, I _D = 250μA
Zero Gate Voltage Drain Current	I _{DSS}	—	—	1.0 10	μA	@ T _j = 25°C @ T _j = 125°C V _{DS} = 24V, V _{GS} = 0V
Gate-Body Leakage	I _{GSS}	—	—	± 100	nA	V _{GS} = ± 12V, V _{DS} = 0V
ON CHARACTERISTICS (Note 4)						
Gate Threshold Voltage	V _{GS(th)}	1.0	—	3.0	V	V _{DS} = 10V, I _D = 1.0mA
Static Drain-Source On-Resistance	R _{DS(ON)}	—	—	0.170 0.240	Ω	V _{GS} = 4.5V, I _D = 0.5A V _{GS} = 10V, I _D = 1.0A
Forward Transconductance	g _{FS}	1.3	2.4	—	S	V _{DS} = 10V, I _D = 0.5A
DYNAMIC CHARACTERISTICS						
Input Capacitance	C _{iss}	—	150	—	pF	V _{DS} = 10V, V _{GS} = 0V f = 1.0MHz
Output Capacitance	C _{oss}	—	90	—	pF	
Reverse Transfer Capacitance	C _{rss}	—	30	—	pF	
Total Gate Charge	Q _g	—	5.5	—	nC	V _{DS} = 24V, I _D = 1.0A, V _{GS} = 10V
Gate-to-Source Charge	Q _{gs}	—	0.8	—	nC	
Gate-to-Drain Charge	Q _{gd}	—	1.3	—	nC	
SWITCHING CHARACTERISTICS						
Turn-On Delay Time	t _{D(ON)}	—	10	—	ns	V _{DD} = 10V, I _D = 0.5A, V _{GS} = 5.0V, R _{GEN} = 50Ω
Turn-Off Delay Time	t _{D(OFF)}	—	25	—	ns	
Turn-On Rise Time	t _r	—	15	—	ns	
Turn-Off Fall Time	t _f	—	45	—	ns	
SOURCE-DRAIN RATINGS (BODY DIODE)						
Continuous Source Current	I _S	—	—	0.54	A	—
Pulse Source Current	I _{SM}	—	—	4.0	A	—
Forward Voltage	V _{SD}	—	—	1.2	V	I _F = 1.0A, V _{GS} = 0V
Reverse Recovery Time	t _{rr}	—	35	—	ns	I _F = 1.0A, di/dt = 50A/μs

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

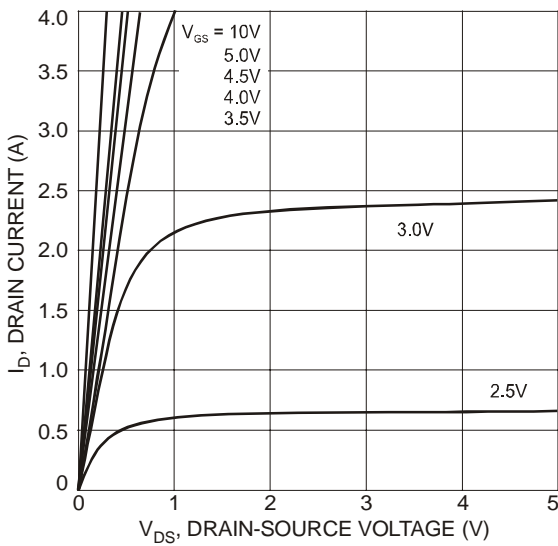


Fig. 1 On-Region Characteristics

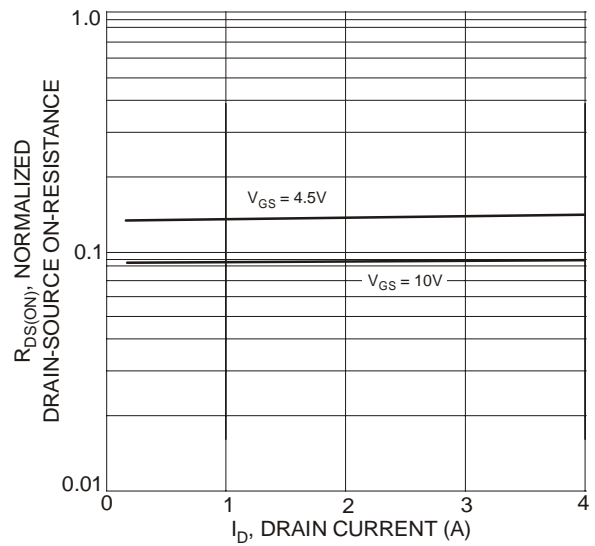


Fig. 2 On-Resistance vs. Drain Current

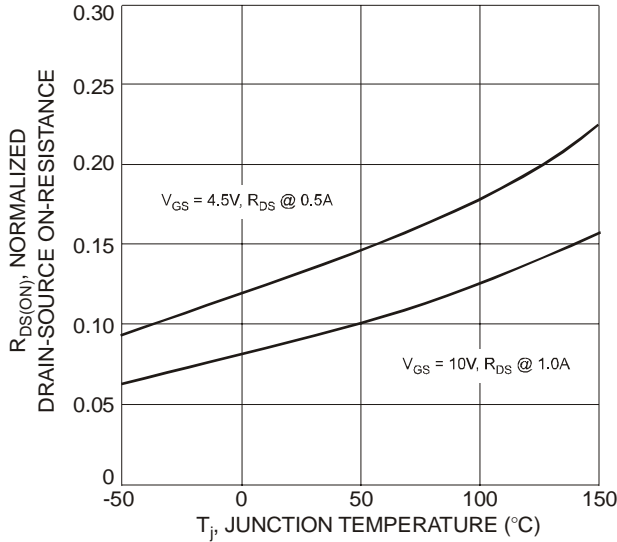


Fig. 3 On-Resistance vs. Junction Temperature

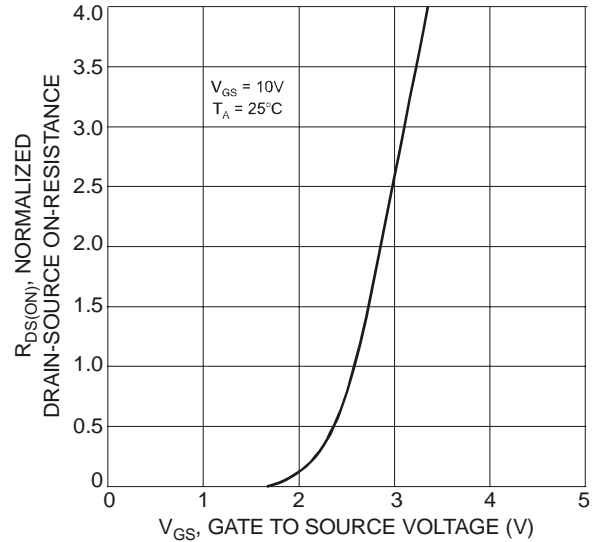


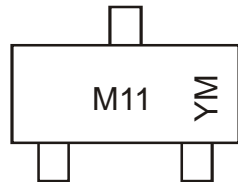
Fig. 4 On-Resistance vs. Gate-Source Voltage

Ordering Information (Note 5)

Part Number	Case	Packaging
DMN100-7-F	SC-59	3000/Tape & Reel

Notes: 5. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

Marking Information



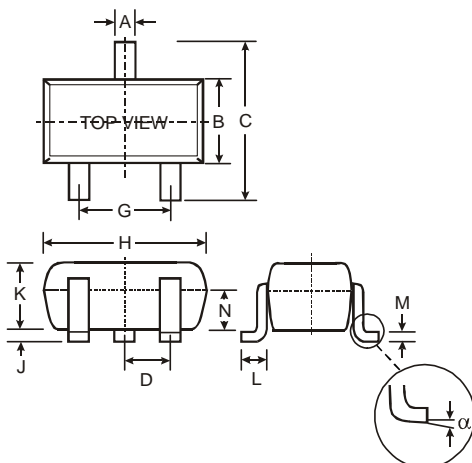
M11 = Product Type Marking Code
 YM = Date Code Marking
 Y = Year ex: T = 2006
 M = Month ex: 9 = September

Date Code Key

Year	2006	2007	2008	2009	2010	2011	2012
Code	T	U	V	W	X	Y	Z

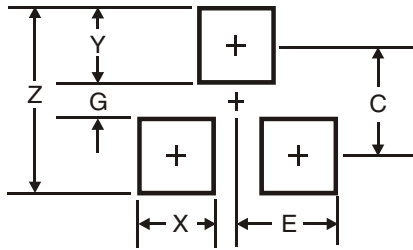
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

Package Outline Dimensions



SC-59		
Dim	Min	Max
A	0.35	0.50
B	1.50	1.70
C	2.70	3.00
D	0.95	
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

IMPORTANT NOTICE

Diodes Incorporated and its subsidiaries reserve the right to make modifications, enhancements, improvements, corrections or other changes without further notice to any product herein. Diodes Incorporated does not assume any liability arising out of the application or use of any product described herein; neither does it convey any license under its patent rights, nor the rights of others. The user of products in such applications shall assume all risks of such use and will agree to hold Diodes Incorporated and all the companies whose products are represented on our website, harmless against all damages.

LIFE SUPPORT

Diodes Incorporated products are not authorized for use as critical components in life support devices or systems without the expressed written approval of the President of Diodes Incorporated.