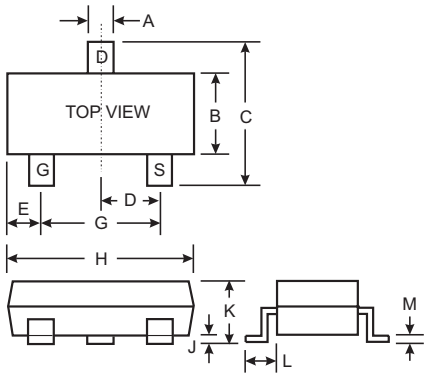
DMN100

N-CHANNEL ENHANCEMENT MODE FIELD EFFECT TRANSISTOR

Features

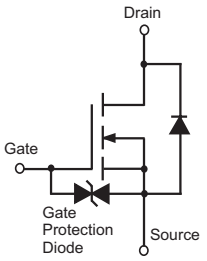
- Extremely Low On-Resistance: 170mΩ @ V_{GS} = 4.5V
- High Drain Current: 1.1A
- Ideal for Notebook Computer, Portable Phone, PCMCIA Cards, and Battery Powered Circuits
- **Lead Free By Design/RoHS Compliant (Note 2)**
- **Qualified to AEC-Q101 Standards for High Reliability**
- **ESD Protected Gate**
- **"Green" Device (Note 3)**



SC-59		
Dim	**Min**	**Max**
A	0.30	0.50
B	1.40	1.80
C	2.50	3.00
D	0.85	1.05
E	0.30	0.70
G	1.70	2.10
H	2.70	3.10
J	—	0.10
K	1.00	1.40
L	0.55	0.70
M	0.10	0.35
All Dimensions in mm		

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: See Last Page
- Ordering & Date Code Information: See Last Page
- Weight: 0.008 grams (approximate)



EQUIVALENT CIRCUIT

ESD protected

Maximum Ratings @ T_A = 25°C unless otherwise specified

Characteristic		Symbol	DMN100	Units
Drain-Source Voltage		V_{DSS}	30	V
Gate-Source Voltage	Continuous	V_{GSS}	±20	V
Drain Current	Continuous Pulsed	I_D	1.1 4.0	A
Total Power Dissipation		P_d	500	mW
Thermal Resistance, Junction to Ambient		$R_{\theta JA}$	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 1)						
Drain-Source Breakdown Voltage	BV_{DSS}	30	—	—	V	V_{GS} = 0V, I_D = 250μA
Zero Gate Voltage Drain Current @ T_j = 25°C @ T_j = 125°C	I_{DSS}	—	—	1.0 10	μA	V_{DS} = 24V, V_{GS} = 0V
Gate-Body Leakage	I_{GSS}	—	—	± 100	nA	V_{GS} = ± 12V, V_{DS} = 0V
ON CHARACTERISTICS (Note 1)						
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: 1. Pulse width ≤ 300μs, duty cycle ≤ 2%.

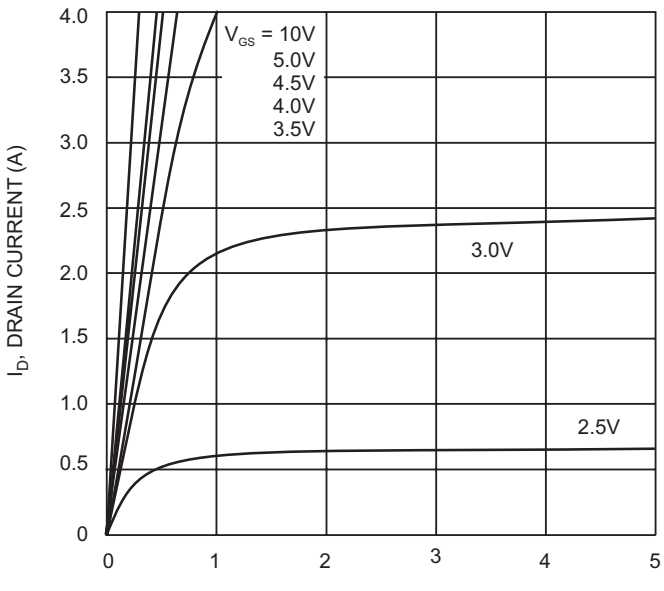


Fig. 1 On-Region Characteristics

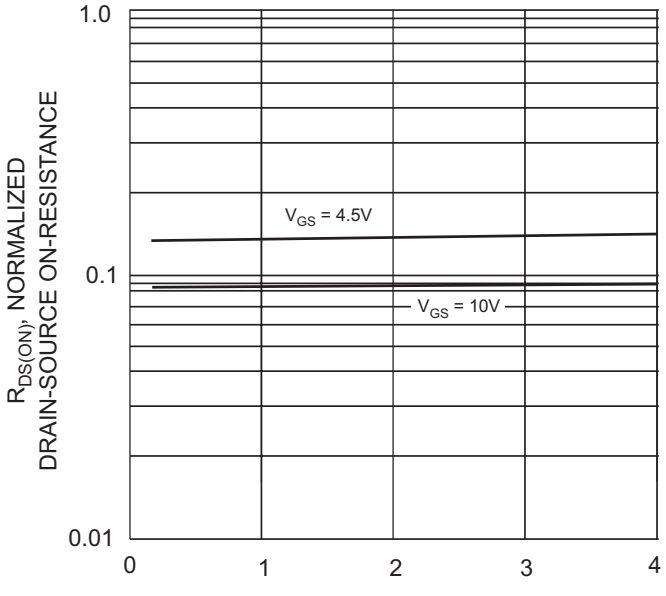


Fig. 2 On-Resistance vs Drain Current

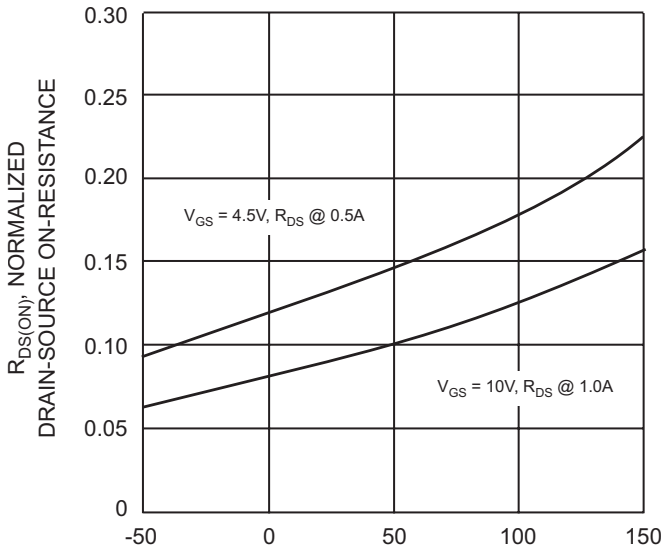


Fig. 3 On-Resistance vs Junction Temperature

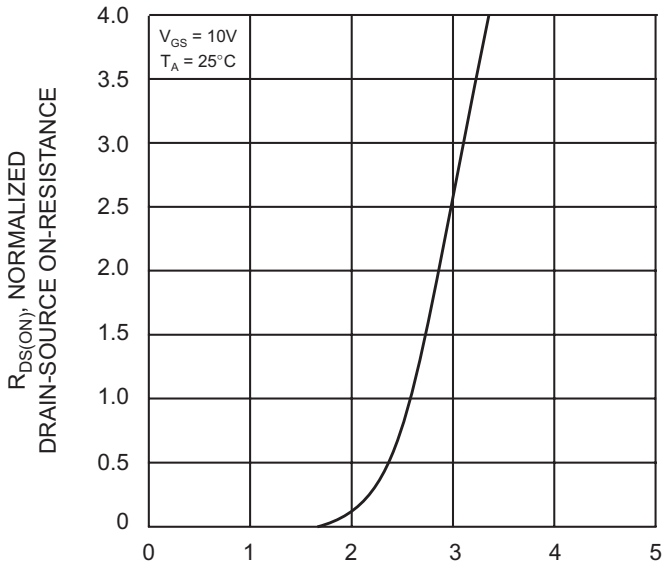


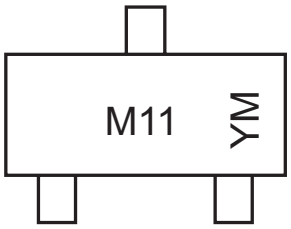
Fig. 4 On-Resistance vs Gate-Source Voltage

Ordering Information (Note 4)

Device	Packaging	Shipping
DMN100-7-F	SC-59	3000/Tape & Reel

Notes: 4. 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
Code	T	U	V	W

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