



DMN100

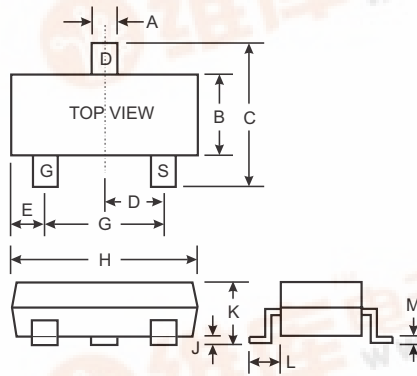
N-CHANNEL ENHANCEMENT MODE FIELD EFFECT TRANSISTOR

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)

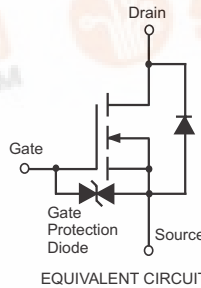
Mechanical Data

- 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)



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



ESD protected

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

Characteristic	Symbol	DMN100	Units
Drain-Source Voltage	V_{DSS}	30	V
Gate-Source Voltage	V_{GSS}	± 20	V
Drain Current	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	$^\circ C$

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





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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 1)						
Drain-Source Breakdown Voltage	BV_{DSS}	30	—	—	V	$V_{GS} = 0V, I_D = 250\mu A$
Zero Gate Voltage Drain Current	I_{DSS}	—	—	1.0 10	μA	$V_{DS} = 24V, V_{GS} = 0V$ @ $T_j = 25^\circ\text{C}$ @ $T_j = 125^\circ\text{C}$
Gate-Body Leakage	I_{GSS}	—	—	± 100	nA	$V_{GS} = \pm 12V, V_{DS} = 0V$
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	$V_{DD} = 10V, I_D = 0.5A,$ $V_{GS} = 5.0V, R_{GEN} = 50\Omega$
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	$I_F = 1.0A, di/dt = 50A/\mu s$

Notes: 1. Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.

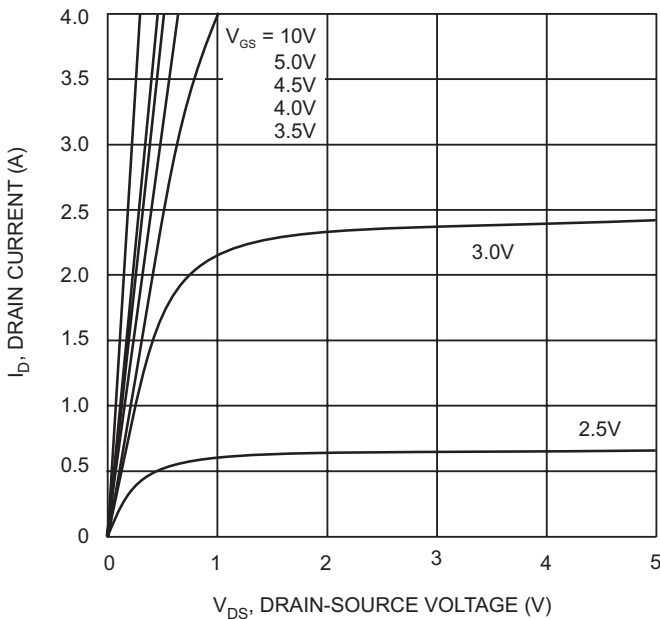


Fig. 1 On-Region Characteristics

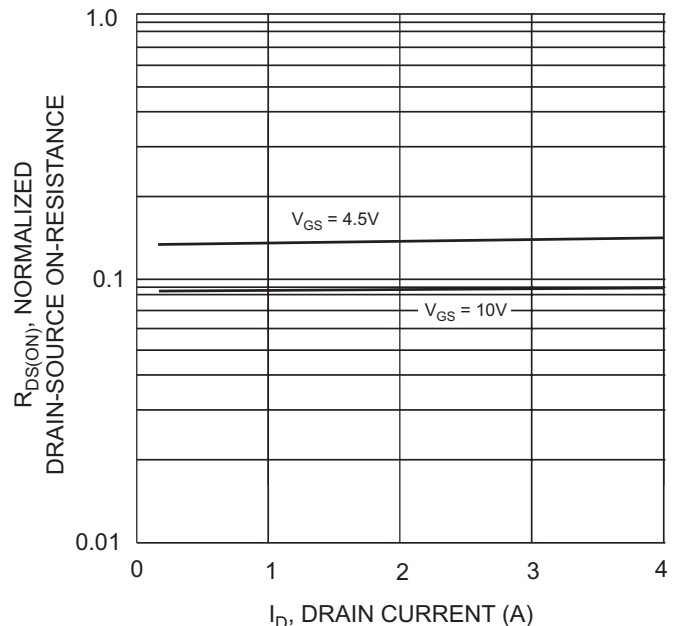


Fig. 2 On-Resistance vs Drain Current

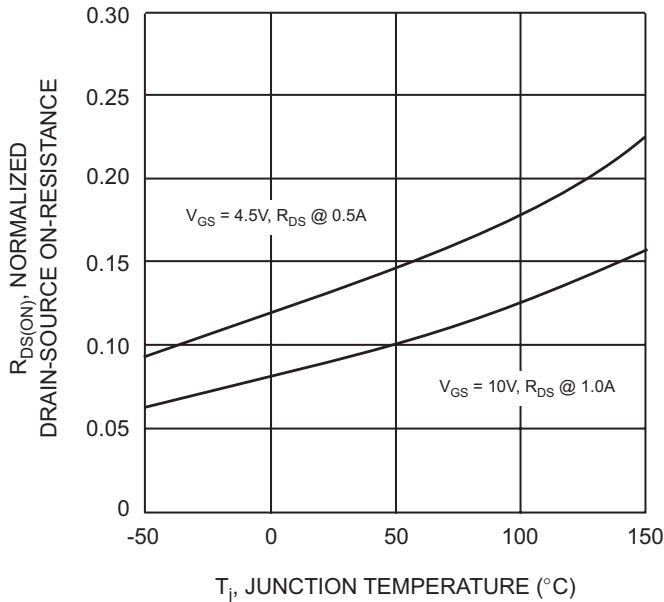


Fig. 3 On-Resistance vs Junction Temperature

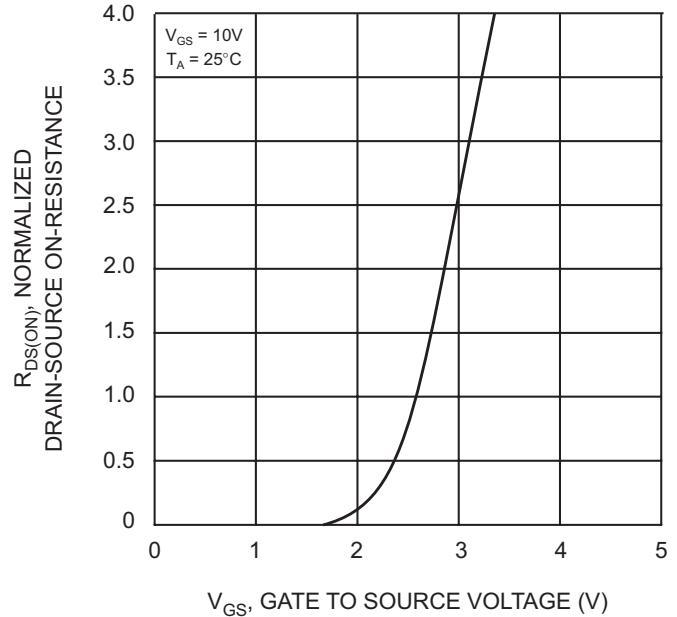


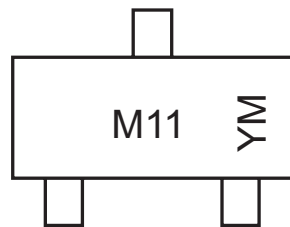
Fig. 4 On-Resistance vs Gate-Source Voltage

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

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