Lead-free Green

DMN2112SN

N-CHANNEL ENHANCEMENT MODE FIELD EFFECT TRANSISTOR

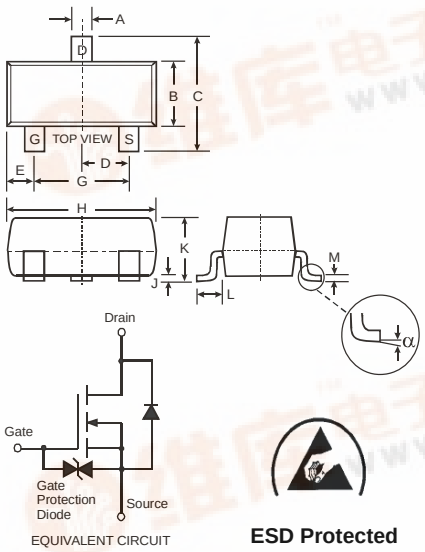
NEW PRODUCT

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: 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 & Date Code Information: See Page 3
- Weight: 0.008 grams (approximate)



EQUIVALENT CIRCUIT

ESD Protected

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
α	0°	8°
All Dimensions in mm		

Maximum Ratings @T_A = 25°C unless otherwise specified

Characteristic		Symbol	Value	Units
Drain-Source Voltage		V_{DSS}	20	V
Gate-Source Voltage	Continuous	V_{GSS}	± 8	V
Drain Current	Continuous Pulsed	I_D	1.2 4.0	A
Total Power Dissipation		P_d	500	mW
Thermal Resistance, Junction to Ambient		$R_{\theta JA}$	250	°C /W
Operating and Storage Temperature Range		T_j, T_{STG}	-55 to +150	°C

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}	20	—	—	V	V_{GS} = 0V, I_D = 250μA
Zero Gate Voltage Drain Current	@ T_j = 25°C	I_{DSS}	—	—	10	μA	V_{DS} = 20V, V_{GS} = 0V
Gate-Body Leakage		I_{GSS}	—	—	± 10	μA	V_{GS} = ± 8V, V_{DS} = 0V
ON CHARACTERISTICS (Note 1)							
Gate Threshold Voltage		$V_{GS(th)}$	0.5	—	1.2	V	V_{DS} = 10V, I_D = 1.0mA
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 = 1.0MHz
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} = 50Ω
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 ≤ 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.

NEW PRODUCT

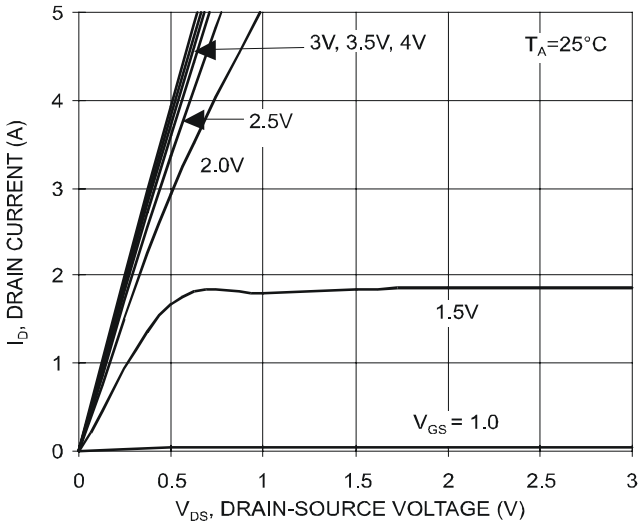


Fig. 1 Typical Output Characteristics

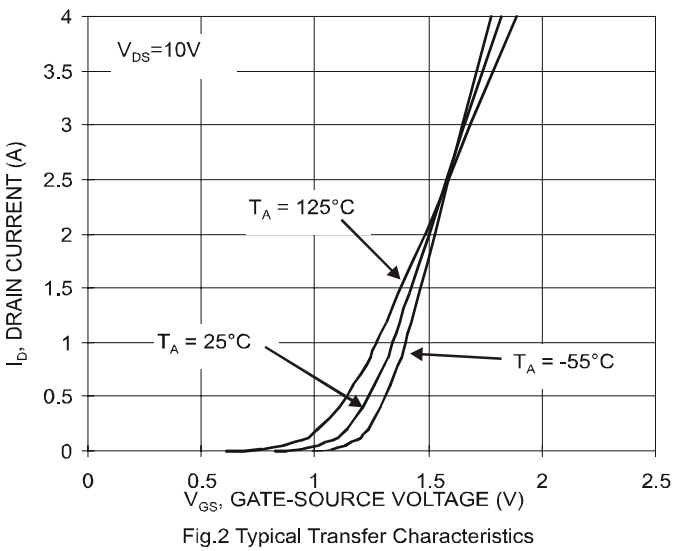


Fig.2 Typical Transfer Characteristics

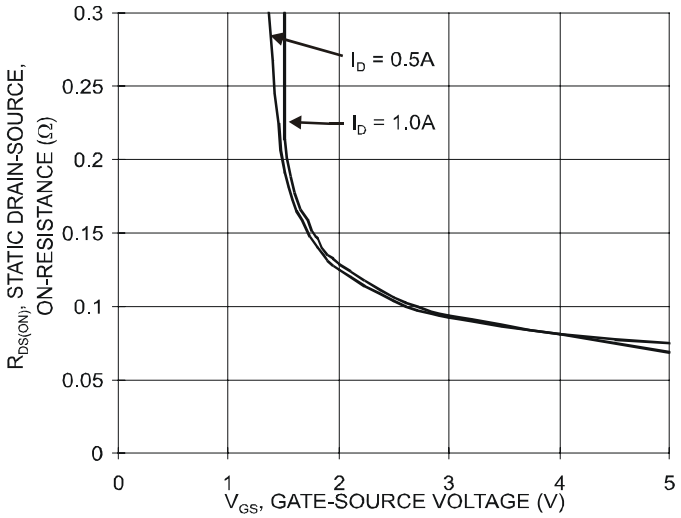


Fig.3 On-Resistance vs. Gate Voltage

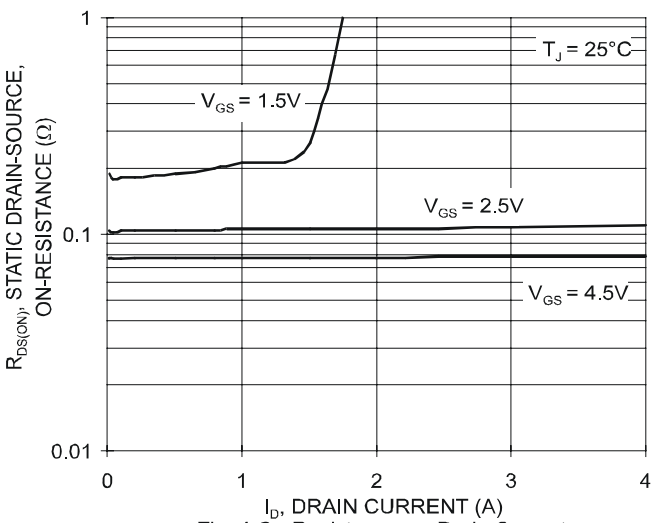


Fig. 4 On-Resistance vs. Drain Current

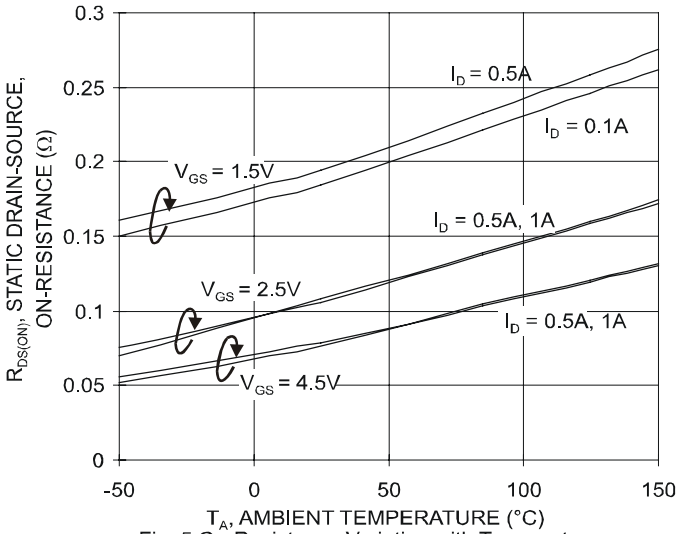


Fig. 5 On-Resistance Variation with Temperature

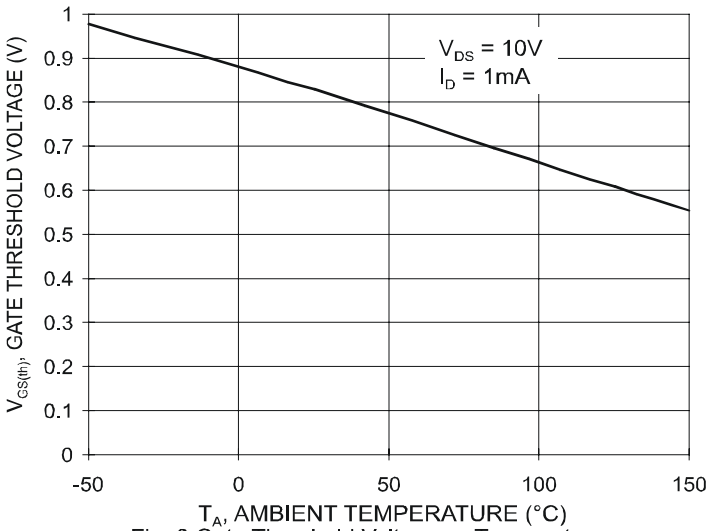


Fig. 6 Gate Threshold Voltage vs Temperature

NEW PRODUCT

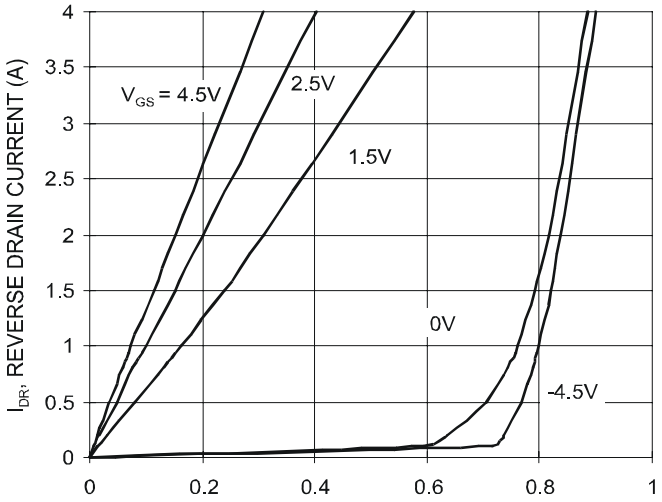


Fig. 7 Reverse Drain Current vs. Source-Drain Voltage

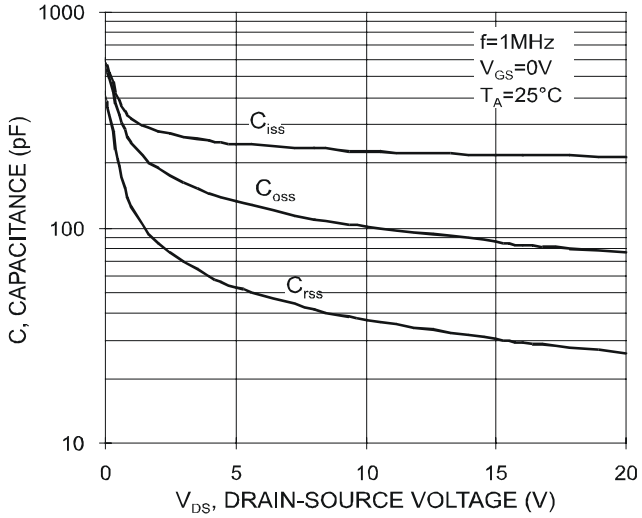


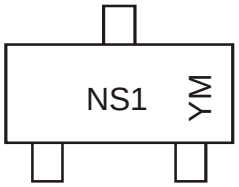
Fig. 8: Typical Junction Capacitance

Ordering Information (Note 4)

Device	Packaging	Shipping
DMN2112SN-7	SC-59	3000/Tape & Reel

Notes: 4. For packaging details, please go to our website at http://www.diodes.com/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	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