DMN3110S

N-CHANNEL ENHANCEMENT MODE MOSFET

Product Summary

$V_{(BR)DSS}$	$R_{DS(ON)}$ max	I_D max T_A = 25°C
30V	73mΩ @ V_{GS} = 10V	3.3A
	110mΩ @ V_{GS} = 4.5V	2.7A

Features and Benefits

- Low On-Resistance
- Low Input Capacitance
- Fast Switching Speed
- **Lead Free By Design/RoHS Compliant (Note 1)**
- **"Green" Device (Note 2)**
- **Qualified to AEC-Q101 standards for High Reliability**

Description and Applications

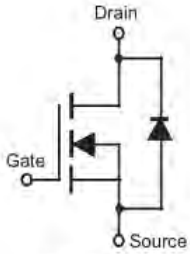
This MOSFET has been designed to minimize the on-state resistance ($R_{DS(on)}$) and yet maintain superior switching performance, making it ideal for high efficiency power management applications.

- General Purpose Interfacing Switch
- Power Management Functions
- Boost Application
- Analog Switch

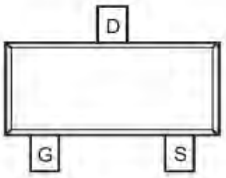
Mechanical Data

- Case: SOT-23
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections Indicator: See diagram
- Terminals: Finish — NiPdAu over Copper leadframe. Solderable per MIL-STD-202, Method 208
- Weight: 0.027 grams (approximate)

TOP VIEW



Internal Schematic



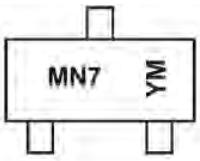
TOP VIEW

Ordering Information (Note 3)

Part Number	Case	Packaging
DMN3110S-7	SOT-23	3000/Tape & Reel

Notes: 1. No purposefully added lead.

Marking Information



MN7 = Product Type Marking Code
YM = Date Code Marking
Y = Year (ex: W = 2009)
M = Month (ex: 9 = September)

Date Code Key

Year	2009	2010	2011	2012	2013	2014	2015
Code	W	X	Y	Z	A	B	C

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

Maximum Ratings @T_A = 25°C unless otherwise specified

Characteristic			Symbol	Value	Units
Drain-Source Voltage			V_{DSS}	30	V
Gate-Source Voltage			V_{GSS}	±20	V
Continuous Drain Current (Note 4) V_{GS} = 10V	Steady State	T_A = 25°C T_A = 70°C	I_D	2.5 2.0	A
Continuous Drain Current (Note 5) V_{GS} = 10V	Steady State	T_A = 25°C T_A = 70°C	I_D	3.3 2.7	A
Continuous Drain Current (Note 5) V_{GS} = 10V	t≦10sec	T_A = 25°C T_A = 70°C	I_D	3.8 3.1	A
Continuous Drain Current (Note 5) V_{GS} = 4.5V	Steady State	T_A = 25°C T_A = 70°C	I_D	2.7 2.1	A
Pulsed Drain Current (Note 6)			I_{DM}	25	A

Thermal Characteristics @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Units
Total Power Dissipation (Note 4)	P_D	0.74	W
Thermal Resistance, Junction to Ambient (Note 4)	$R_{\theta JA}$	173.4	°C/W
Total Power Dissipation (Note 5)	P_D	1.3	W
Thermal Resistance, Junction to Ambient (Note 5)	$R_{\theta JA}$	99.1	°C/W
Total Power Dissipation (Note 5) t≦10sec	P_D	1.8	W
Thermal Resistance, Junction to Ambient (Note 5) t≦10sec	$R_{\theta JA}$	72	°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 7)						
Drain-Source Breakdown Voltage	BV_{DSS}	30	-	-	V	V_{GS} = 0V, I_D = 250μA
Zero Gate Voltage Drain Current @T_c = 25°C	I_{DSS}	-	-	1.0	μA	V_{DS} = 30V, V_{GS} = 0V
Gate-Source Leakage	I_{GSS}	-	-	±100	nA	V_{GS} = ±20V, V_{DS} = 0V
ON CHARACTERISTICS (Note 7)						
Gate Threshold Voltage	$V_{GS(th)}$	1.0	-	3.0	V	V_{DS} = V_{GS}, I_D = 250μA
Static Drain-Source On-Resistance	$R_{DS\ (ON)}$	-	54	73	mΩ	V_{GS} = 10V, I_D = 3.1A
		-	88	110		V_{GS} = 4.5V, I_D = 2A
Forward Transfer Admittance	$\|Y_{fs}\|$	-	4.8	-	mS	V_{DS} = 10V, I_D = 3.1A
Diode Forward Voltage (Note 6)	V_{SD}	-	0.75	1.0	V	V_{GS} = 0V, I_S = 1A
DYNAMIC CHARACTERISTICS (Note 8)						
Input Capacitance	C_{iss}	-	305.8	-	pF	V_{DS} = 15V, V_{GS} = 0V, f = 1.0MHz
Output Capacitance	C_{oss}	-	39.9	-	pF	
Reverse Transfer Capacitance	C_{rss}	-	39.5	-	pF	
Gate Resistance	R_g	-	1.4	-	Ω	V_{DS} = 0V, V_{GS} = 0V,f = 1.0MHz
Total Gate Charge (V_{GS} = 4.5V)	Q_g	-	4.1	-	nC	V_{GS} = 10V, V_{DS} = 10V, I_D = 3A
Total Gate Charge (V_{GS} = 10V)	Q_g	-	8.6	-	nC	
Gate-Source Charge	Q_{gs}	-	1.2	-	nC	
Gate-Drain Charge	Q_{gd}	-	1.5	-	nC	
Turn-On Delay Time	$t_{D(on)}$	-	2.6	-	ns	V_{DD} = 15V, V_{GS} = 10V, R_L = 47Ω, R_G = 3Ω,
Turn-On Rise Time	t_r	-	4.6	-	ns	
Turn-Off Delay Time	$t_{D(off)}$	-	13.1	-	ns	
Turn-Off Fall Time	t_f	-	2.5	-	ns	

Notes: 2. Device mounted on FR-4 PCB, with minimum recommended pad layout.
3. Device mounted on FR-4 substrate PC board, 2oz copper, on 1inch square copper plate
4. Device mounted on minimum recommended pad layout test board, 10μs pulse duty cycle = 1%
5. Short duration pulse test used to minimize self-heating effect.
6. Guaranteed by design. Not subject to product testing.