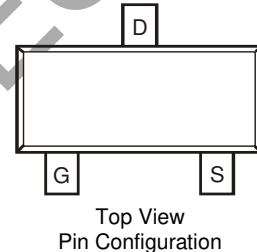
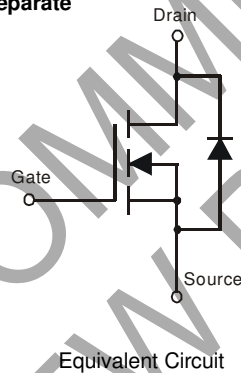


## Features

- Low On-Resistance:
  - 57mΩ @ V<sub>GS</sub> = 10V
  - 112mΩ @ V<sub>GS</sub> = 4.5V
- Low Gate Threshold Voltage
- Low Input Capacitance
- Fast Switching Speed
- Low Input/Output Leakage
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **For automotive applications requiring specific change control (i.e.: parts qualified to AEC-Q100/101/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please refer to the related automotive grade (Q-suffix) part. A listing can be found at <https://www.diodes.com/products/automotive/automotive-products/>.**
- **This part is qualified to JEDEC standards (as references in AEC-Q) for High Reliability. <https://www.diodes.com/quality/product-definitions/>**
- **An Automotive-Compliant Part is Available Under Separate Datasheet ([DMN3112SQ](#))**

## Mechanical Data

- Package: SOT23
- Package Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish – Matte Tin Annealed Over Copper Leadframe. Solderable per MIL-STD-202, Method 208 <sup>(3)</sup>
- Terminal Connections: See Diagram
- Weight: 0.008 grams (Approximate)

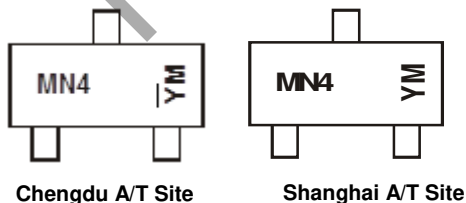


## Ordering Information (Note 4)

Part Number	Qualification	Package	Packing	
			Qty.	Carrier
DMN3112S-7	Standard	SOT23	3000pcs	Tape & Reel

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
  2. See <https://www.diodes.com/quality/lead-free/> for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
  3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
  4. For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

## Marking Information



MN4 = Product Type Marking Code  
 YM = Date Code Marking for SAT (Shanghai Assembly/ Test Site)  
 YM' = Date Code Marking for CAT (Chengdu Assembly/ Test Site)  
 Y or Y' = Year (ex: 1 = 2021)  
 M = Month (ex: 9 = September)

### Date Code Key

Year	2007	...	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Code	U	...	I	J	K	L	M	N	O	P	R	S

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<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic		Symbol	Value	Unit
Drain Source Voltage		V <sub>DSS</sub>	30	V
Gate-Source Voltage		V <sub>GSS</sub>	±20	V
Drain Current (Note 5)	T <sub>A</sub> = +25°C	I <sub>D</sub>	5.8	A
	T <sub>A</sub> = +70°C	I <sub>D</sub>	4.2	A
Drain Current (Note 5)	Pulsed	I <sub>DM</sub>	20	A
Body-Diode Continuous Current (Note 5)		I <sub>S</sub>	2.0	A

**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Total Power Dissipation (Note 5)	P <sub>D</sub>	1.4	W
Thermal Resistance, Junction to Ambient @T <sub>A</sub> = +25°C (Note 5)	R <sub>θJA</sub>	90	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

**Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
<b>OFF CHARACTERISTICS (Note 6)</b>						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	30	—	—	V	V <sub>GS</sub> = 0V, I <sub>D</sub> = 250μA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	—	—	800	nA	V <sub>DS</sub> = 30V, V <sub>GS</sub> = 0V
Gate-Body Leakage	I <sub>GSS</sub>	—	—	±80 ±800	nA	V <sub>GS</sub> = ±20V, V <sub>DS</sub> = 0V V <sub>GS</sub> = ±25V, V <sub>DS</sub> = 0V
<b>ON CHARACTERISTICS (Note 6)</b>						
Gate Threshold Voltage	V <sub>GS(TH)</sub>	1.3	1.9	2.2	V	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250μA
Static Drain-Source On-Resistance	R <sub>DS(ON)</sub>	—	47	57	mΩ	V <sub>GS</sub> = 10V, I <sub>D</sub> = 5.8A
		—	92	112		V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 4.2A
Forward Transconductance	Y <sub>fs</sub>	—	4.7	—	S	V <sub>DS</sub> = 5V, I <sub>D</sub> = 4.2A
Source-Drain Diode Forward Voltage	V <sub>SD</sub>	—	0.78	1.1	V	V <sub>GS</sub> = 0V, I <sub>S</sub> = 2.0A
<b>DYNAMIC CHARACTERISTICS (Note 7)</b>						
Input Capacitance	C <sub>iSS</sub>	—	268	—	pF	V <sub>DS</sub> = 5V, V <sub>GS</sub> = 0V f = 1.0MHz
Output Capacitance	C <sub>oss</sub>	—	73	—	pF	
Reverse Transfer Capacitance	C <sub>rSS</sub>	—	50	—	pF	

Notes: 5. Device mounted on FR-4 PCB. t ≤ 5 sec.  
6. Short duration pulse test used to minimize self-heating effect.  
7. Guaranteed by design. Not subject to production testing.

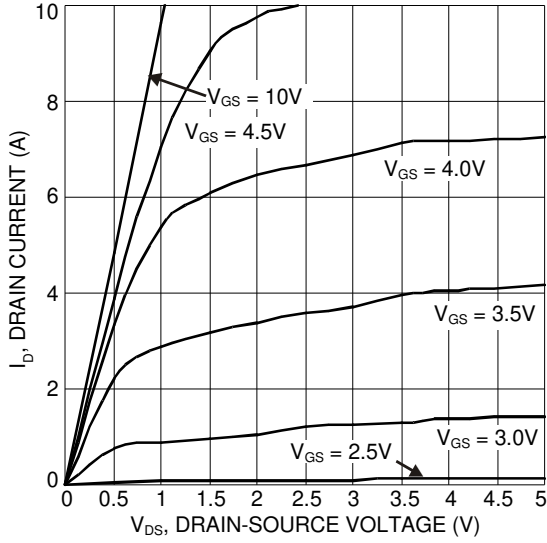


Figure 1. Typical Output Characteristic

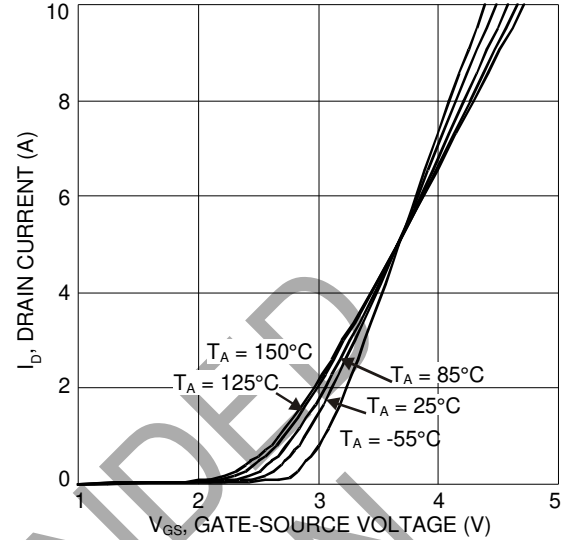


Figure 2. Typical Transfer Characteristic

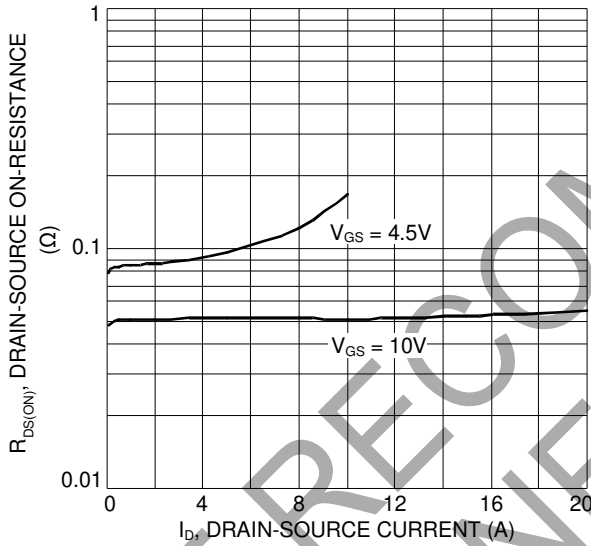


Figure 3. Typical On-Resistance vs. Drain Current and Gate Voltage

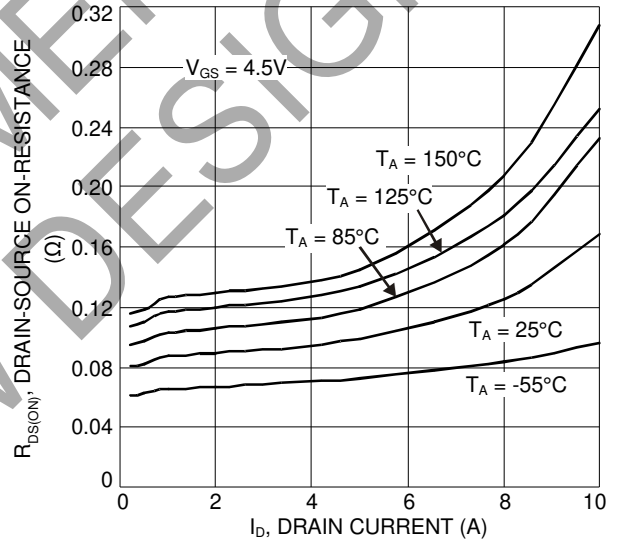


Figure 4. Typical On-Resistance vs. Drain Current and Temperature

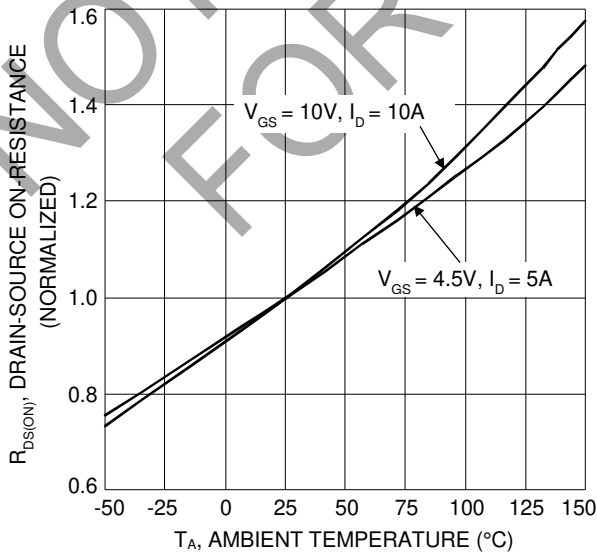


Figure 5. On-Resistance Variation with Temperature

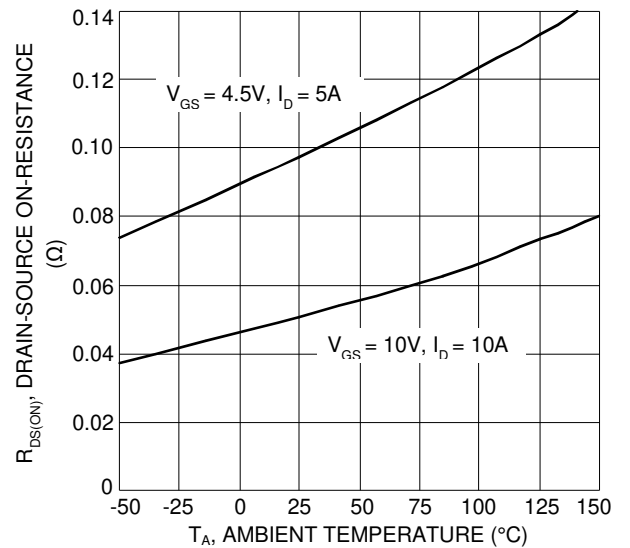


Figure 6. On-Resistance Variation with Temperature

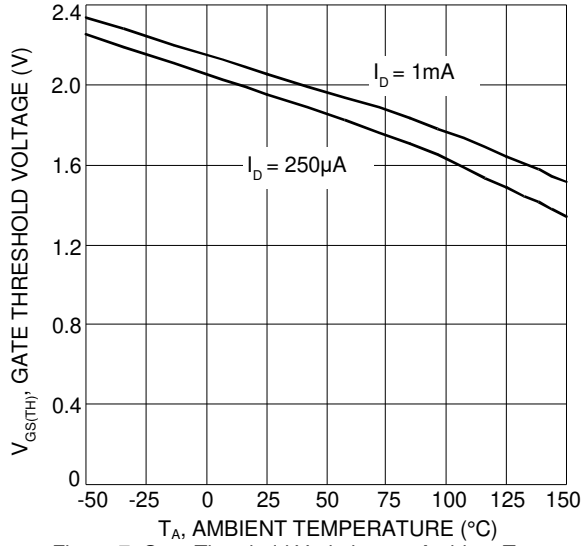


Figure 7. Gate Threshold Variation vs. Ambient Temperature

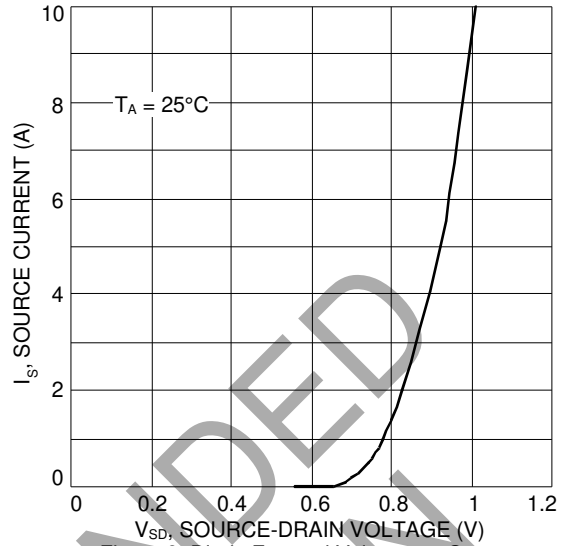


Figure 8. Diode Forward Voltage vs. Current

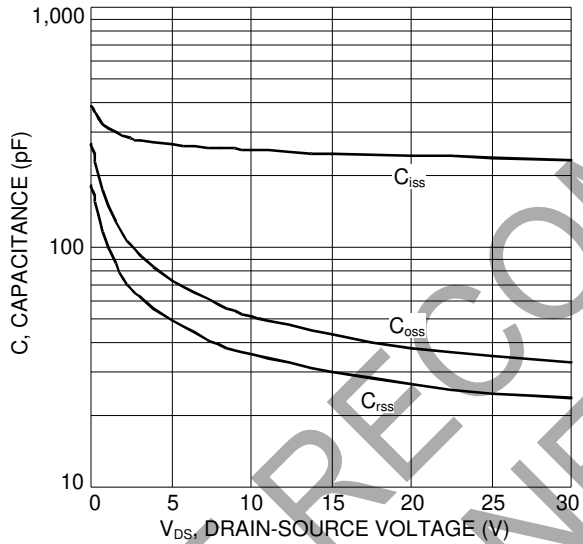


Figure 9. Typical Total Capacitance

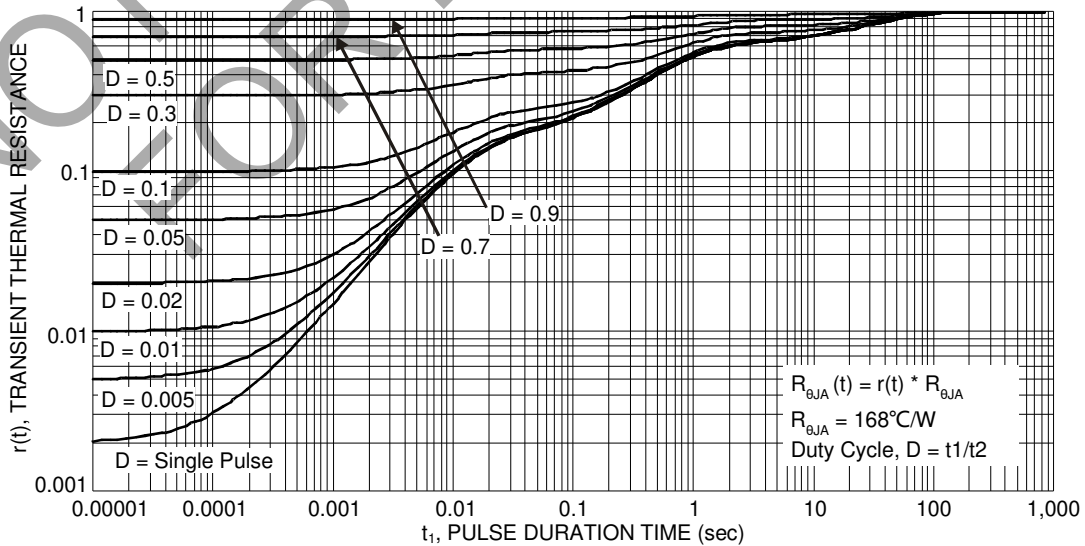
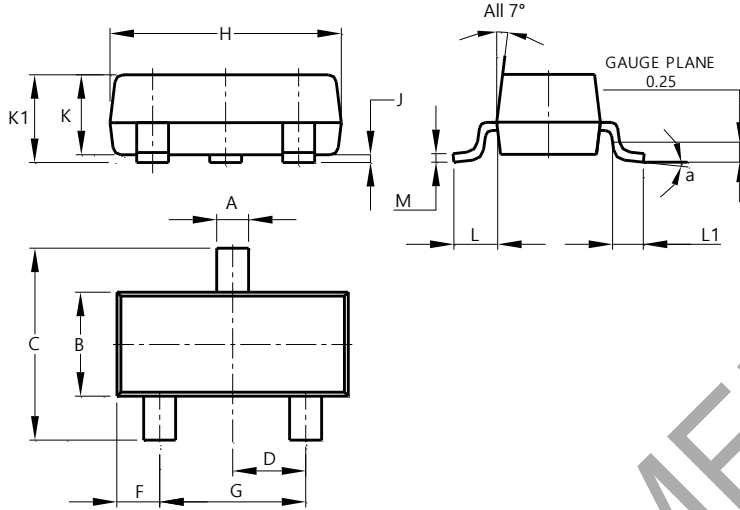


Figure 10. Transient Thermal Resistance

**Package Outline Dimensions**

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

**SOT23**

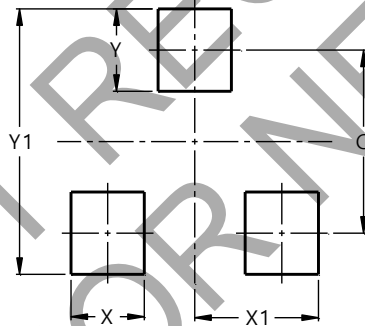


SOT23			
Dim	Min	Max	Typ
A	0.37	0.51	0.40
B	1.20	1.40	1.30
C	2.30	2.50	2.40
D	0.89	1.03	0.915
F	0.45	0.60	0.535
G	1.78	2.05	1.83
H	2.80	3.00	2.90
J	0.013	0.10	0.05
K	0.890	1.00	0.975
K1	0.903	1.10	1.025
L	0.45	0.61	0.55
L1	0.25	0.55	0.40
M	0.085	0.150	0.110
a	0°	8°	--
All Dimensions in mm			

**Suggested Pad Layout**

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

**SOT23**



Dimensions	Value (in mm)
C	2.0
X	0.8
X1	1.35
Y	0.9
Y1	2.9

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