

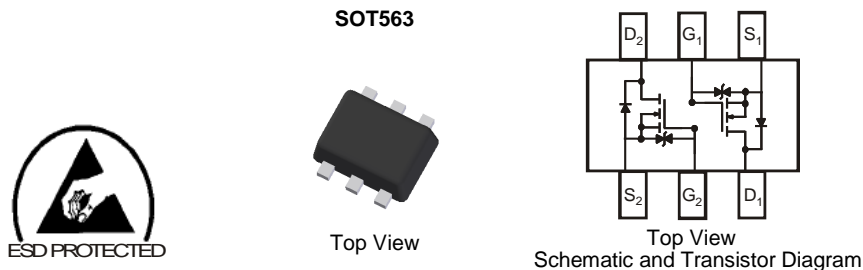
**DUAL N-CHANNEL ENHANCEMENT MODE FIELD EFFECT TRANSISTOR**

**Features**

- Dual N-Channel MOSFET
- Low On-Resistance
- Very Low Gate Threshold Voltage, 1.2V max
- Low Input Capacitance
- Fast Switching Speed
- Low Input/Output Leakage
- Ultra-Small Surface Mount Package
- ESD Protected Gate
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

**Mechanical Data**

- Case: SOT563
- Case Material: Molded Plastic, "Green" Molding Compound.  
UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections: See Diagram
- Terminals: Finish – Matte Tin Annealed over Copper Leadframe.  
Solderable per MIL-STD-202, Method 208 (E3)
- Weight: 0.006 grams (Approximate)

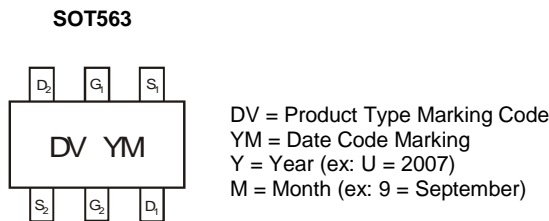


**Ordering Information** (Note 4)

Part Number	Case	Packaging
DMN32D2LV-7	SOT563	3,000/Tape & Reel

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
  2. See [http://www.diodes.com/quality/lead\\_free.html](http://www.diodes.com/quality/lead_free.html) 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 <http://www.diodes.com/products/packages.html>

**Marking Information**



Date Code Key

Year	2007	---	2014	2015	2016	2017	2018	2019	2020	2021
Code	U	---	B	C	D	E	F	G	H	I

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>	±10	V
Drain Current (Note 5)	I <sub>D</sub>	400	mA

**Thermal Characteristics**

Total Power Dissipation (Note 5)	P <sub>D</sub>	450	mW
Thermal Resistance, Junction to Ambient (Note 5)	R <sub>θJA</sub>	313	°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</b> (Note 6)						
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>	—	—	1	μA	V <sub>DS</sub> = 30V, V <sub>GS</sub> = 0V
Gate-Body Leakage	I <sub>GSS</sub>	—	—	±10	μA	V <sub>GS</sub> = ±10V, V <sub>DS</sub> = 0V
				±500	nA	V <sub>GS</sub> = ±5V, V <sub>DS</sub> = 0V
				±1	nA	V <sub>GS</sub> = ±2.5V, V <sub>DS</sub> = 0V
Gate-Body Leakage (Note 7)	I <sub>GSS</sub>	—	±8	±100	nA	V <sub>GS</sub> = ±2.5V, V <sub>DS</sub> = 0V
			±15	±100	nA	V <sub>GS</sub> = ±2.5V, V <sub>DS</sub> = 0V
<b>ON CHARACTERISTICS</b> (Note 6)						
Gate Threshold Voltage	V <sub>GS(TH)</sub>	0.6	—	1.2	V	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250μA
Static Drain-Source On-Resistance	R <sub>DS(ON)</sub>	—	—	2.2	Ω	V <sub>GS</sub> = 1.8V, I <sub>D</sub> = 20mA
				1.5	Ω	V <sub>GS</sub> = 2.5V, I <sub>D</sub> = 20mA
				1.2	Ω	V <sub>GS</sub> = 4.0V, I <sub>D</sub> = 100mA
Forward Transconductance	Y <sub>FS</sub>	100	—	—	mS	V <sub>DS</sub> = 10V, I <sub>D</sub> = 0.1A
Source-Drain Diode Forward Voltage	V <sub>SD</sub>	0.5	—	1.4	V	V <sub>GS</sub> = 0V, I <sub>S</sub> = 115mA
<b>DYNAMIC CHARACTERISTICS</b> (Note 7)						
Input Capacitance	C <sub>ISS</sub>	—	39	—	pF	V <sub>DS</sub> = 3V, V <sub>GS</sub> = 0V f = 1.0MHz
Output Capacitance	C <sub>OSS</sub>	—	10	—	pF	
Reverse Transfer Capacitance	C <sub>RSS</sub>	—	3.6	—	pF	
Switching Time	Turn-On Time	t <sub>ON</sub>	—	11	ns	V <sub>DD</sub> = 5V, I <sub>D</sub> = 10 mA,
	Turn-Off Time	t <sub>OFF</sub>	—	51	ns	V <sub>GS</sub> = 5V

- Notes: 5. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch; pad layout as shown on Diodes Inc. suggested pad layout document AP02001, which can be found at <http://www.diodes.com/datasheets/ap02001.pdf>.  
6. Short duration pulse test used to minimize self-heating effect.  
7. Guaranteed by design. Not subject to production testing.

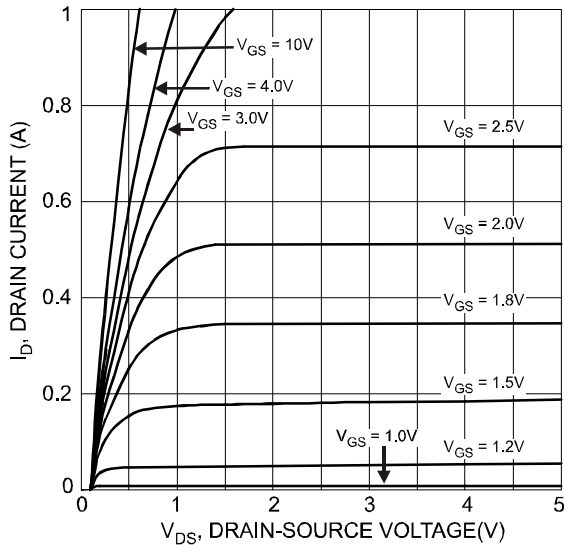


Fig. 1 Typical Output Characteristics

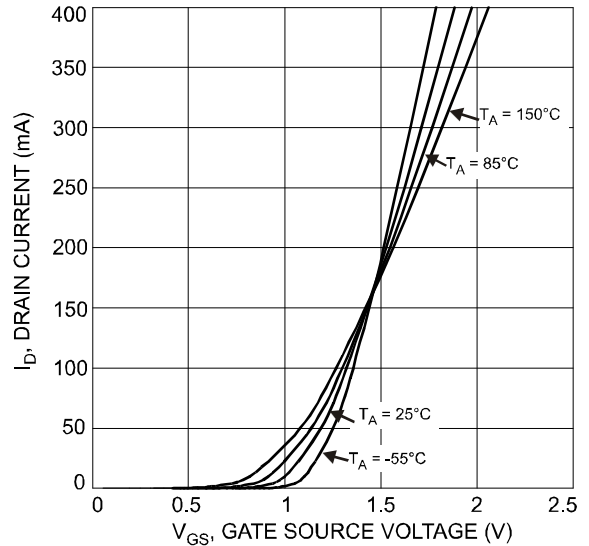


Fig. 2 Typical Transfer Characteristics

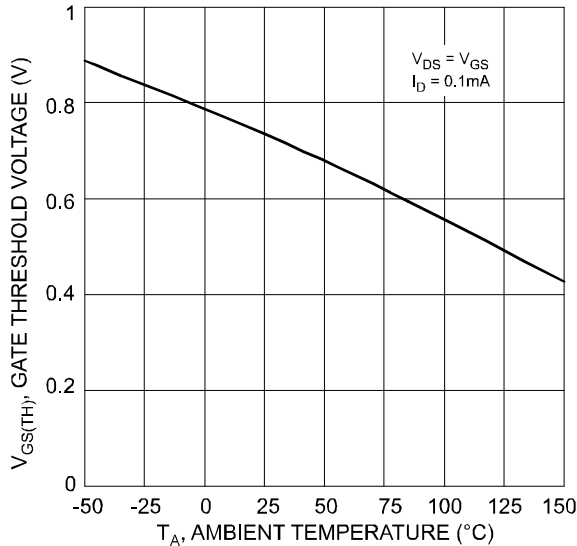


Fig. 3 Gate Threshold Voltage vs. Ambient Temperature

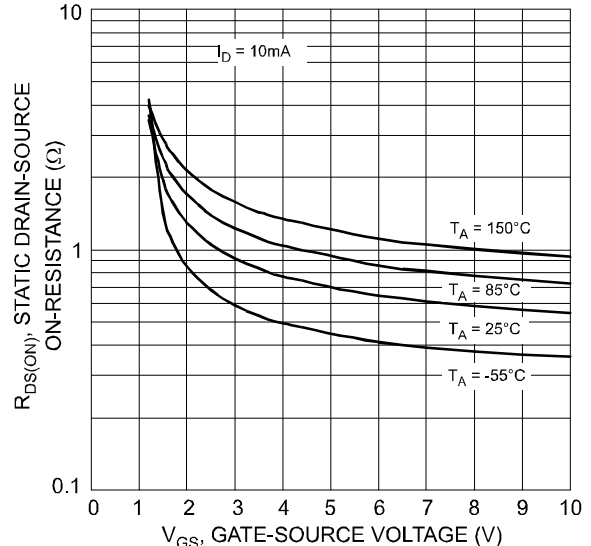


Fig. 4 Static Drain-Source On-Resistance vs. Gate-Source Voltage

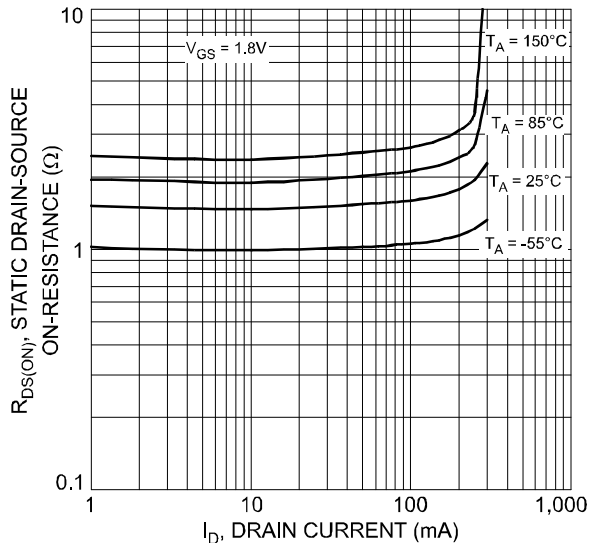


Fig. 5 Static Drain-Source On-Resistance vs. Drain Current

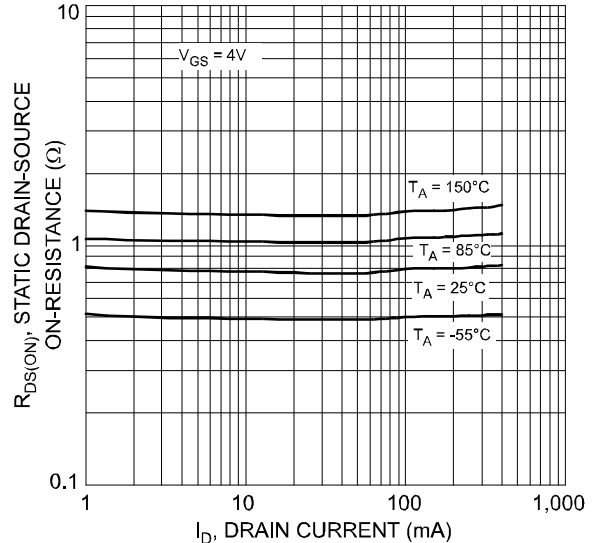


Fig. 6 Static Drain-Source On-Resistance vs. Drain Current

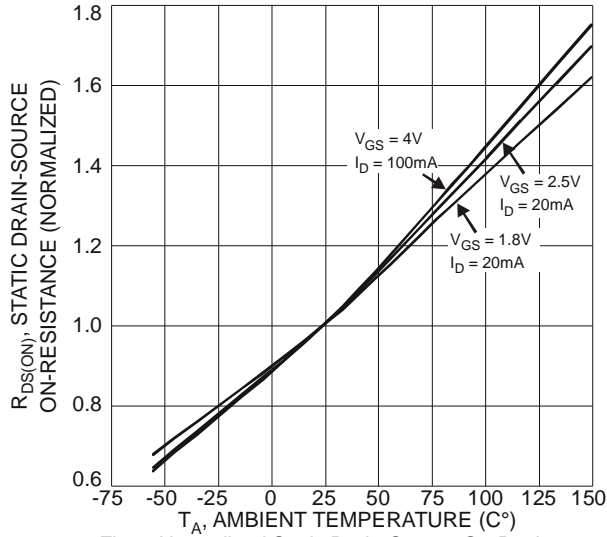


Fig. 7 Normalized Static Drain-Source On-Resistance vs. Ambient Temperature

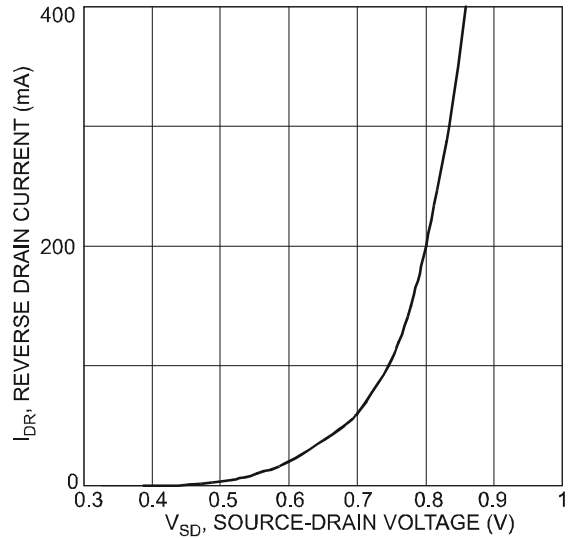


Fig. 8 Reverse Drain Current vs. Source-Drain Voltage

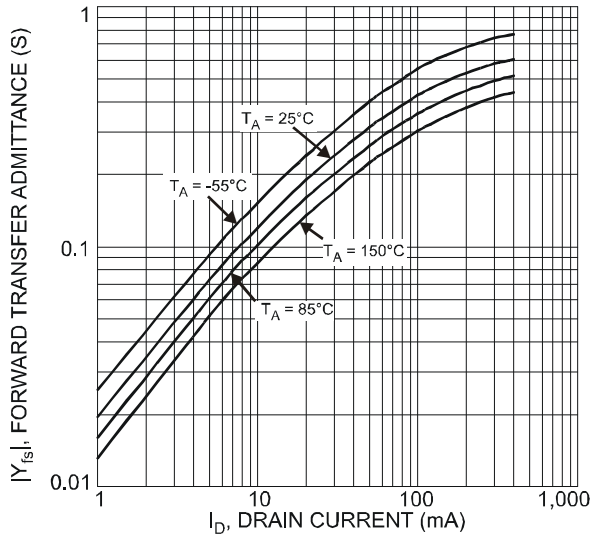


Fig. 9 Forward Transfer Admittance vs. Drain Current

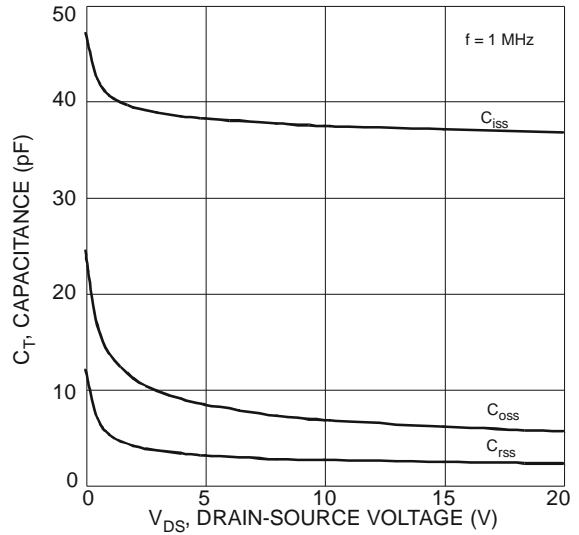


Fig. 10 Typical Capacitance

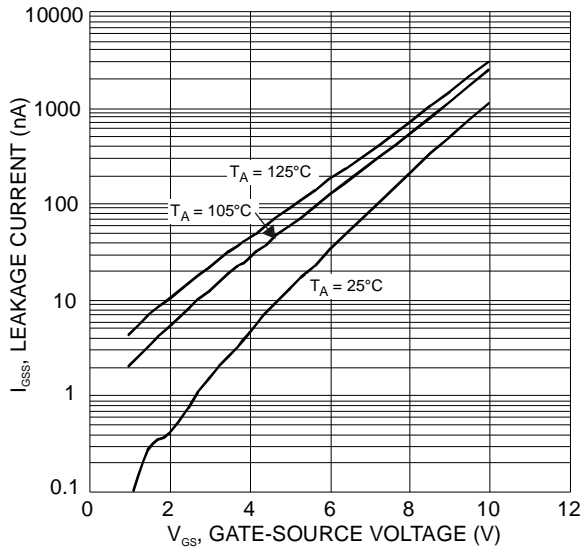


Fig. 11 Gate-Source Leakage Current vs Voltage

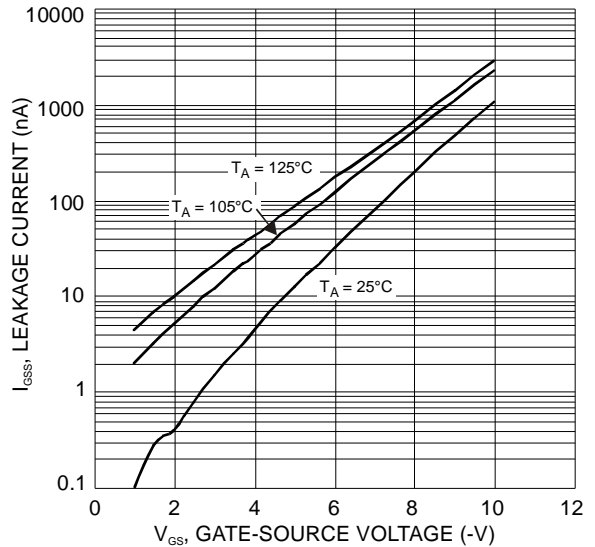
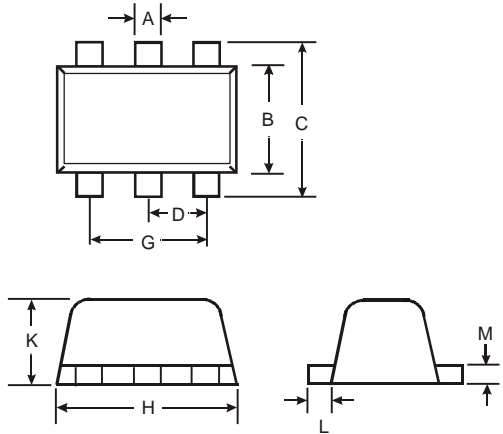


Fig. 12 Gate-Source Leakage Current vs Voltage

**Package Outline Dimensions**

Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for the latest version.

**SOT563**

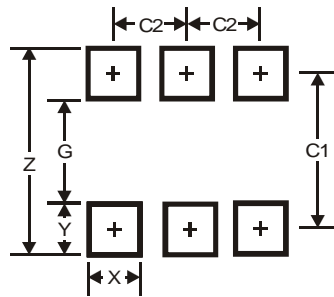


SOT-563			
Dim	Min	Max	Typ
A	0.15	0.30	0.20
B	1.10	1.25	1.20
C	1.55	1.70	1.60
D	—	—	0.50
G	0.90	1.10	1.00
H	1.50	1.70	1.60
K	0.55	0.60	0.60
L	0.10	0.30	0.20
M	0.10	0.18	0.11
All Dimensions in mm			

**Suggested Pad Layout**

Please see AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> for the latest version.

**SOT563**



Dimensions	Value (in mm)
Z	2.2
G	1.2
X	0.375
Y	0.5
C1	1.7
C2	0.5

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