

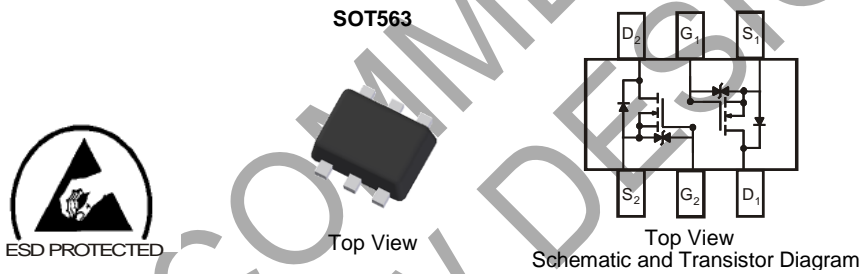
DUAL N-CANNEL ENHANCEMENT MODE FIELD EFFECT TRANSISTOR

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)**
- **For automotive applications requiring specific change control (i.e. parts qualified to AEC-Q100/101/104/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please [contact us](#) or your local Diodes representative.**
<https://www.diodes.com/quality/product-definitions/>

Mechanical Data

- Package: SOT563
- Package 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 Ⓜ3
- Weight: 0.006 grams (Approximate)

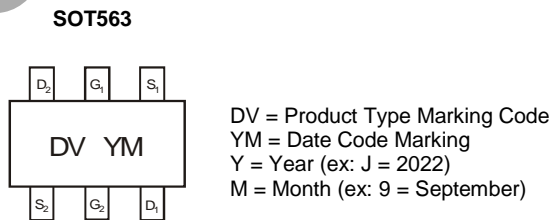


Ordering Information (Note 4)

Part Number	Package	Packing	
		Qty.	Carrier
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) & 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



Date Code Key

Year	2007	...	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Code	U	...	J	K	L	M	N	O	P	R	S	T
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	Unit
Drain-Source Voltage	V _{DSS}	30	V
Gate-Source Voltage	V _{GSS}	±10	V
Drain Current (Note 5)	I _D	400	mA

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Total Power Dissipation (Note 5)	P _D	450	mW
Thermal Resistance, Junction to Ambient (Note 5)	R _{θJA}	313	°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 6)							
Drain-Source Breakdown Voltage	BV _{DSS}	30	—	—	V	V _{GS} = 0V, I _D = 250μA	
Zero Gate Voltage Drain Current	I _{DSS}	—	—	1	μA	V _{DS} = 30V, V _{GS} = 0V	
Gate-Body Leakage	I _{GSS}	—	—	±10	μA	V _{GS} = ±10V, V _{DS} = 0V	
				±500			
Gate-Body Leakage (Note 7)	I _{GSS}	—	±1	±100	nA	V _{GS} = ±2.5V, V _{DS} = 0V	
			±8	±100			
			±15	±100	nA	V _{GS} = ±2.5V, V _{DS} = 0V	
ON CHARACTERISTICS (Note 6)							
Gate Threshold Voltage	V _{GS(TH)}	0.6	—	1.2	V	V _{DS} = V _{GS} , I _D = 250μA	
Static Drain-Source On-Resistance	R _{DS(ON)}	—	—	2.2	Ω	V _{GS} = 1.8V, I _D = 20mA	
				1.5			
				1.2			
Forward Transconductance	Y _{FS}	100	—	—	mS	V _{DS} = 10V, I _D = 0.1A	
Source-Drain Diode Forward Voltage	V _{SD}	0.5	—	1.4	V	V _{GS} = 0V, I _S = 115mA	
DYNAMIC CHARACTERISTICS (Note 7)							
Input Capacitance	C _{iss}	—	39	—	pF	V _{DS} = 3V, V _{GS} = 0V f = 1.0MHz	
Output Capacitance	C _{oss}	—	10	—	pF		
Reverse Transfer Capacitance	C _{rss}	—	3.6	—	pF		
Switching Time	Turn-On Time	t _{ON}	—	11	—	ns	V _{DD} = 5V, I _D = 10mA, V _{GS} = 5V
	Turn-Off Time	t _{OFF}	—	51	—	ns	

Notes: 5. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch; pad layout as shown on Diodes Incorporated's suggested pad layout, which can be found at <http://www.diodes.com/package-outlines.html>.

6. Short duration pulse test used to minimize self-heating effect.

7. Guaranteed by design. Not subject to production testing.

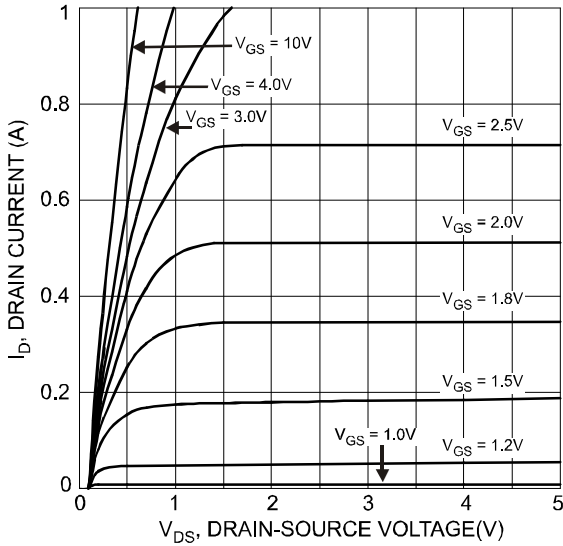


Fig. 1 Typical Output Characteristics

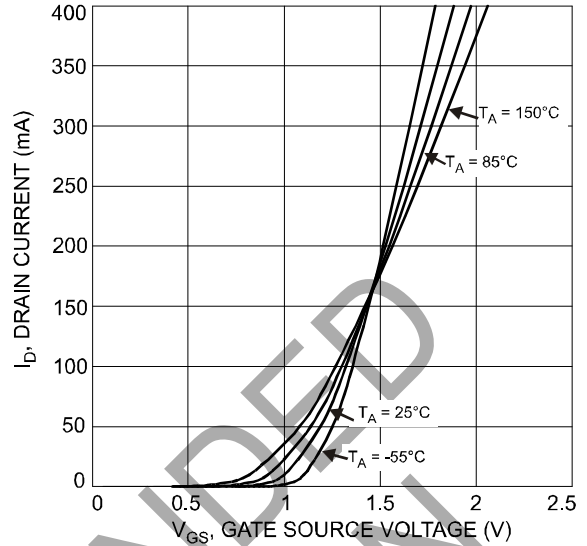


Fig. 2 Typical Transfer Characteristics

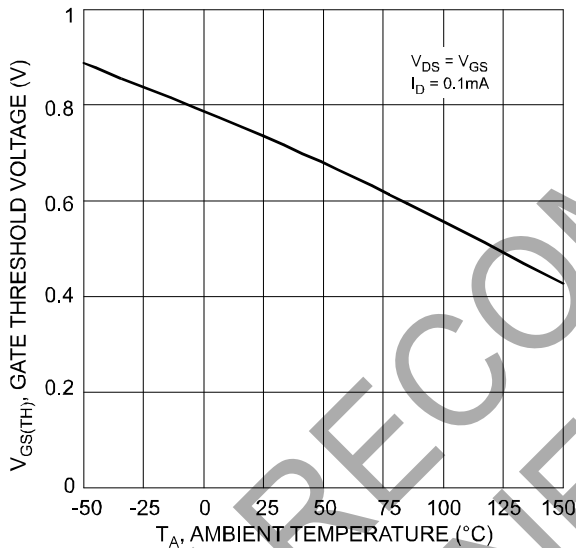


Fig. 3 Gate Threshold Voltage vs. Ambient Temperature

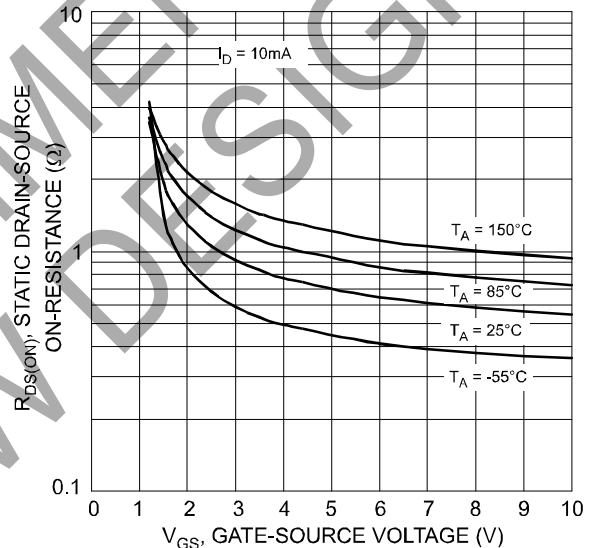


Fig. 4 Static Drain-Source On-Resistance vs. Gate-Source Voltage

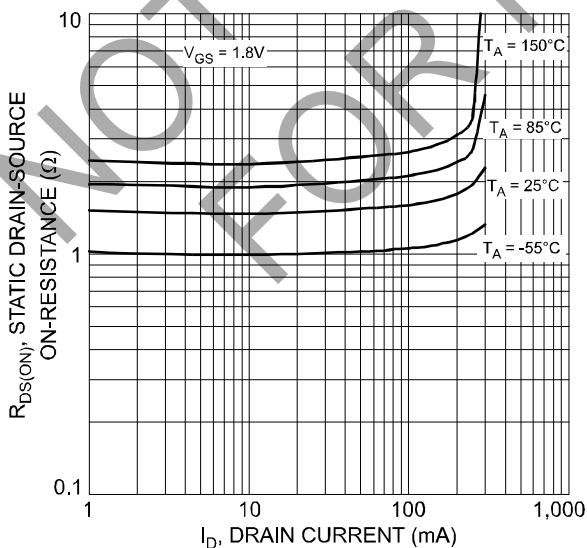


Fig. 5 Static Drain-Source On-Resistance vs. Drain Current

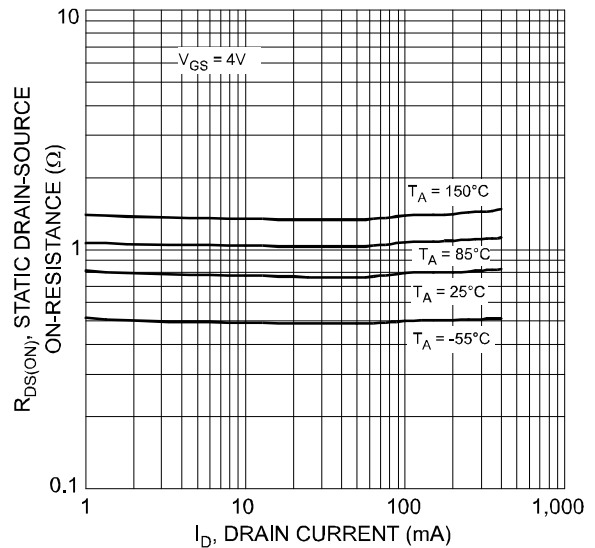


Fig. 6 Static Drain-Source On-Resistance vs. Drain Current

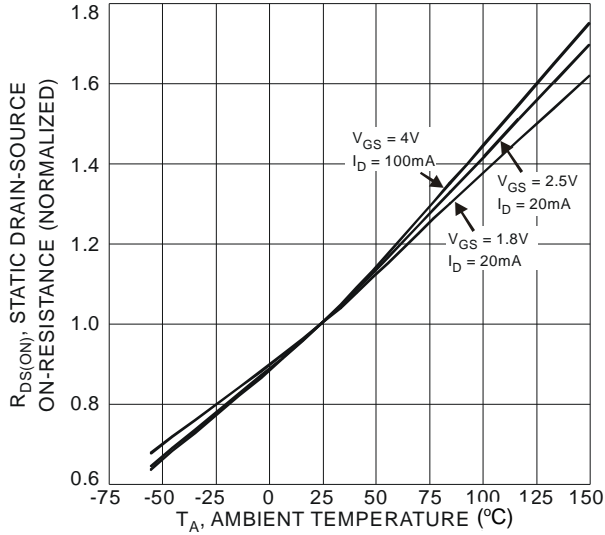


Fig. 7 Normalized Static Drain-Source On-Resistance vs. Ambient Temperature

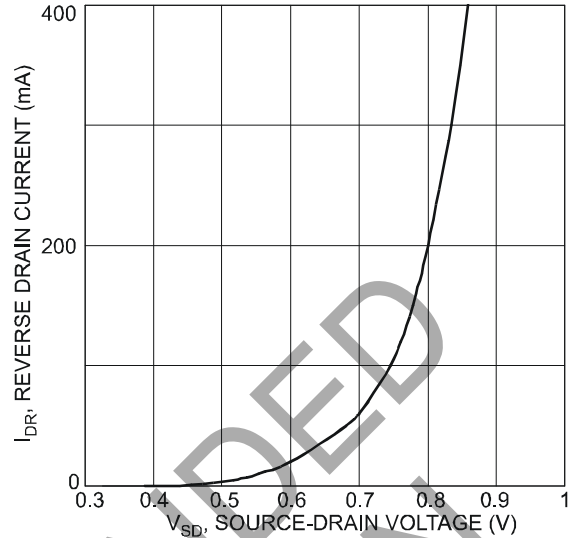


Fig. 8 Reverse Drain Current vs. Source-Drain Voltage

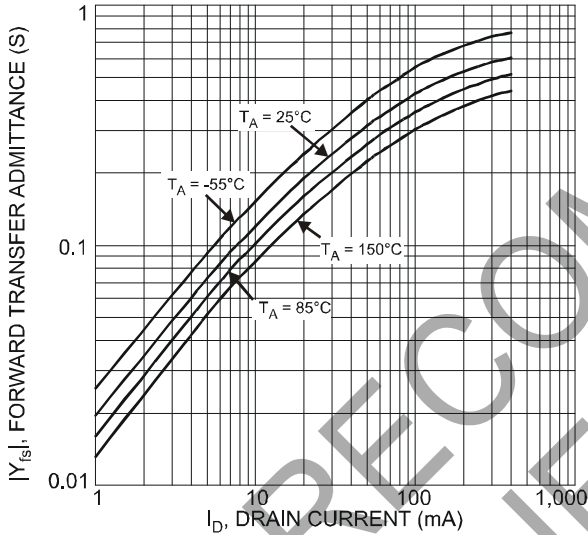


Fig. 9 Forward Transfer Admittance vs. Drain Current

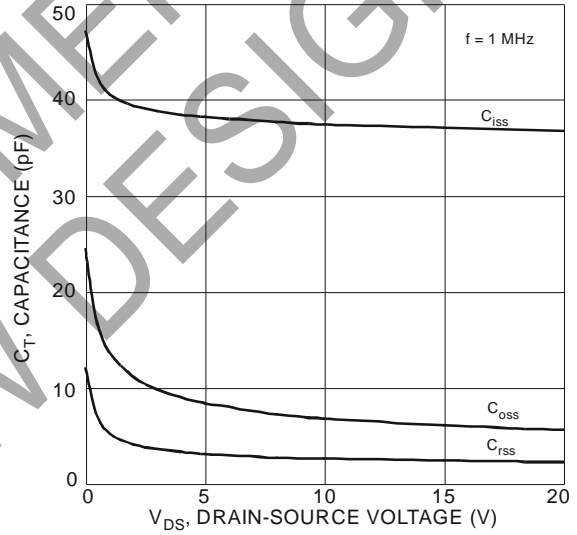


Fig. 10 Typical Capacitance

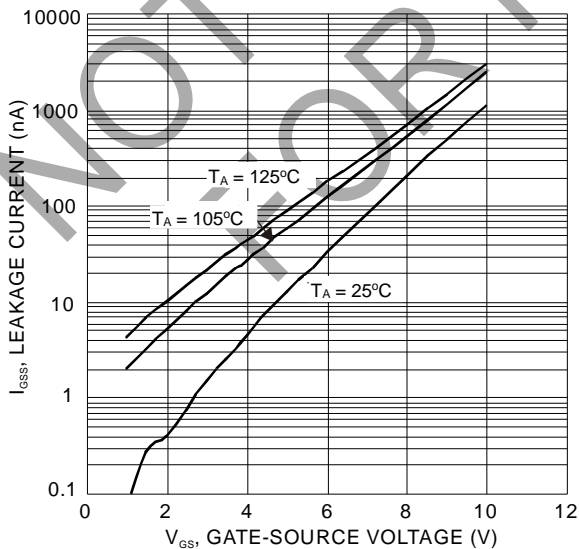


Fig. 11 Gate-Source Leakage Current vs. Voltage

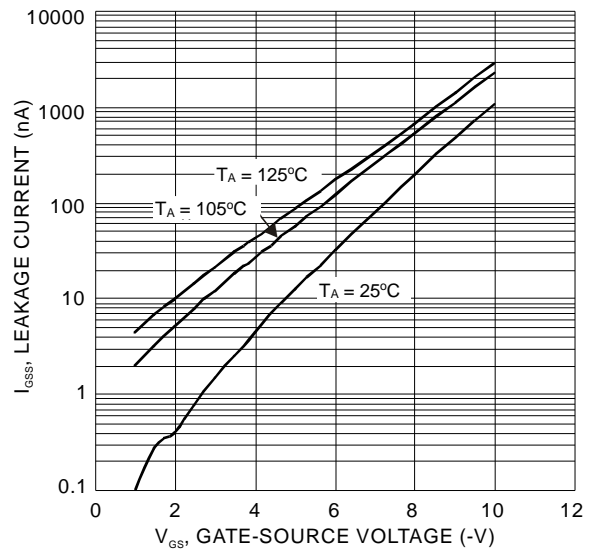
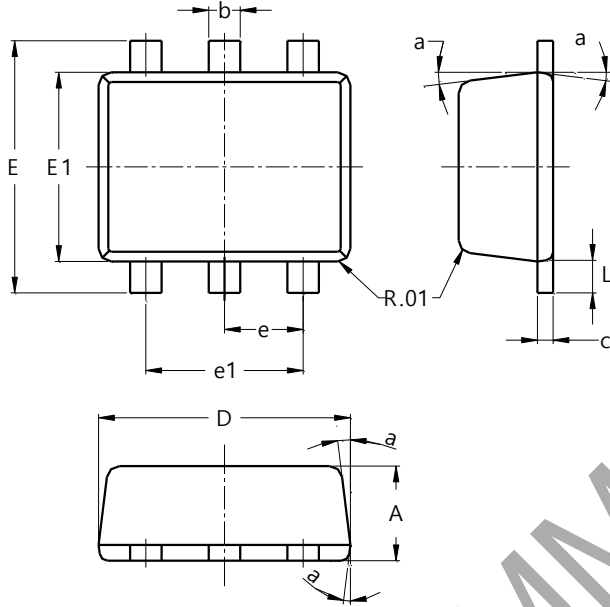


Fig. 12 Gate-Source Leakage Current vs. Voltage

Package Outline Dimensions

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

SOT563

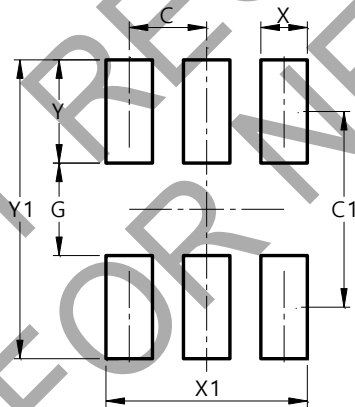


SOT563			
Dim	Min	Max	Typ
A	0.55	0.60	--
b	0.15	0.30	0.20
c	0.10	0.18	0.11
D	1.50	1.70	1.60
E	1.55	1.70	1.60
E1	1.10	1.25	1.20
e	--	--	0.50
e1	0.90	1.10	1.00
L	0.10	0.30	0.20
a	8°	9°	7°
All Dimensions in mm			

Suggested Pad Layout

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

SOT563



Dimensions	Value (in mm)
C	0.500
C1	1.270
G	0.600
X	0.300
X1	1.300
Y	0.670
Y1	1.940

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