DUAL N-CHANNEL ENHANCEMENT MODE FIELD EFFECT TRANSISTOR

Features

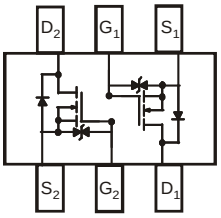
- Dual N-Channel MOSFET
- Low On-Resistance
- Very Low Gate Threshold Voltage, 1.2V max
- Low Input Capacitance
- Fast Switching Speed
- Low Input/Output Leakage
- Ultra-Small Surface Mount Package
- ESD Protected Gate
- **Lead Free By Design/RoHS Compliant (Note 2)**
- **"Green" Device (Note 3)**

Mechanical Data

- Case: SOT-563
- 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
- Marking Information: See Page 3
- Ordering Information: See Page 3
- Weight: 0.006 grams (approximate)

SOT-563

TOP VIEW



TOP VIEW
Schematic and Transistor Diagram

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 1)	I_D	400	mA

Thermal Characteristics @T_A = 25°C unless otherwise specified

Total Power Dissipation (Note 1)	P_D	400	mW
Thermal Resistance, Junction to Ambient (Note 1)	$R_{\theta JA}$	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 4)							
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	μA	V_{DS} = 30V, V_{GS} = 0V
Gate-Body Leakage		I_{GSS}	—	—	±10 ±500	μA nA	V_{GS} = ±10V, V_{DS} = 0V V_{GS} = ±5V, V_{DS} = 0V
ON CHARACTERISTICS (Note 4)							
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 1.5 1.2	Ω	V_{GS} = 1.8V, I_D = 20mA V_{GS} = 2.5V, I_D = 20mA V_{GS} = 4.0V, I_D = 100mA
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							
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 = 10 mA,
	Turn-off Time	t_{off}	—	51	—	nS	V_{GS} = 5V

Notes:
1. 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 on our website at http://www.diodes.com.
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.
4. Short duration pulse test used to minimize self-heating effect.

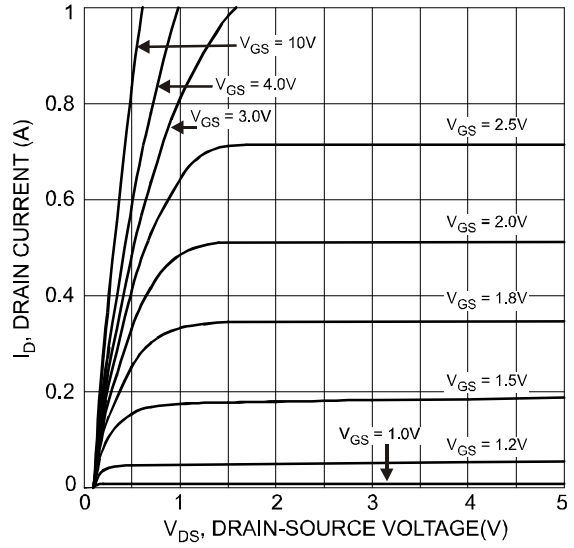


Fig. 1 Typical Output Characteristics

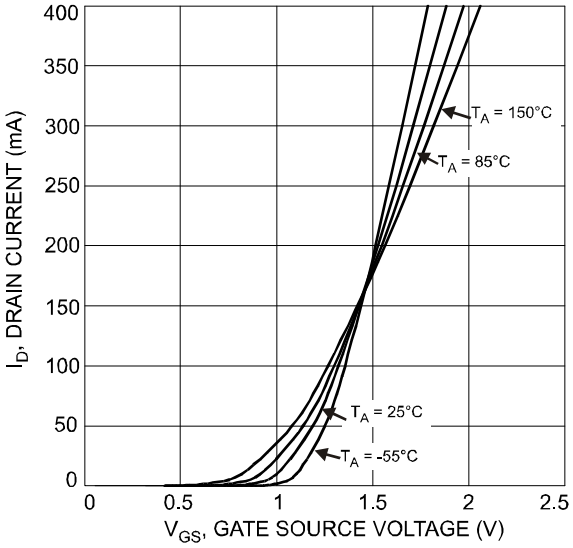


Fig. 2 Typical Transfer Characteristics

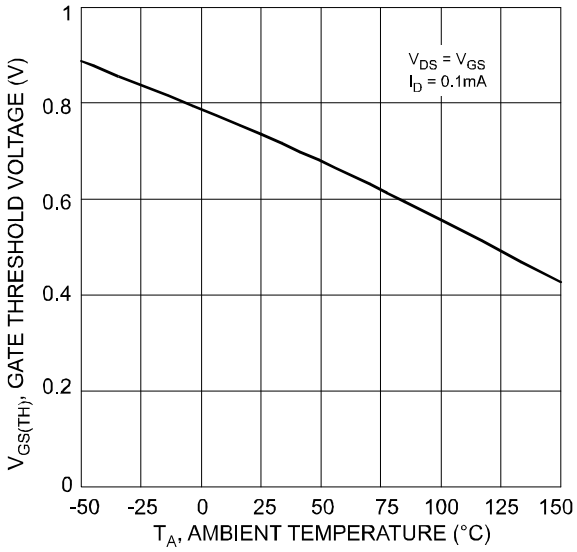


Fig. 3 Gate Threshold Voltage vs. Ambient Temperature

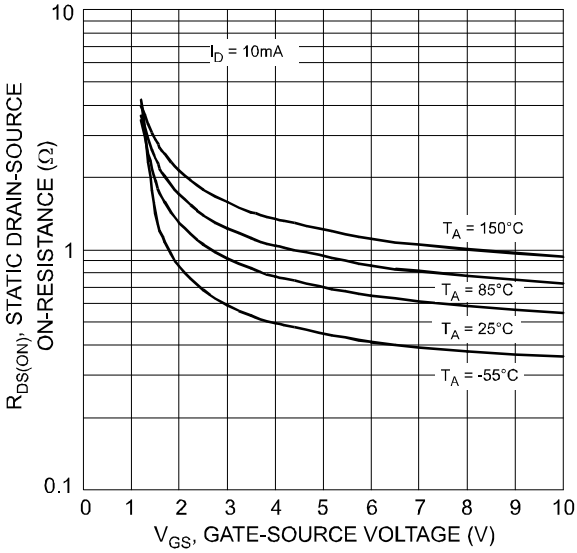


Fig. 4 Static Drain-Source On-Resistance vs. Gate-Source Voltage

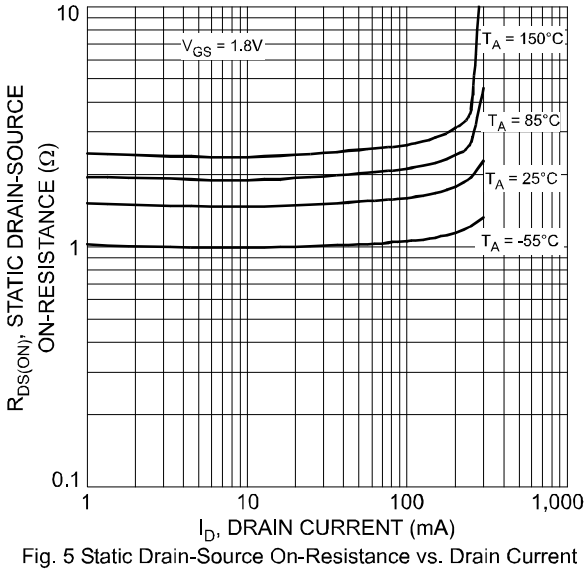


Fig. 5 Static Drain-Source On-Resistance vs. Drain Current

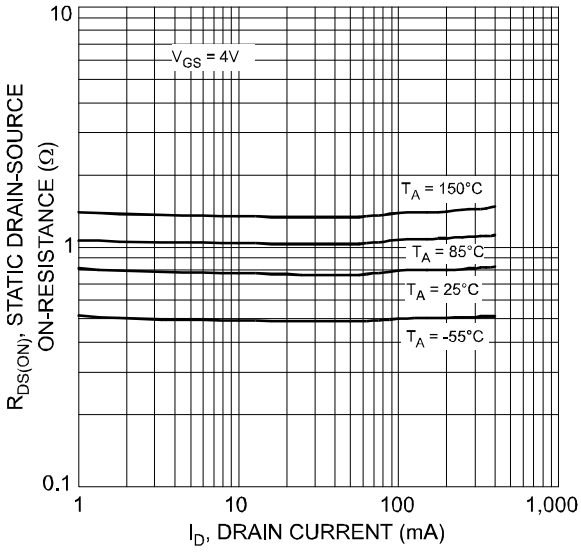


Fig. 6 Static Drain-Source On-Resistance vs. Drain Current

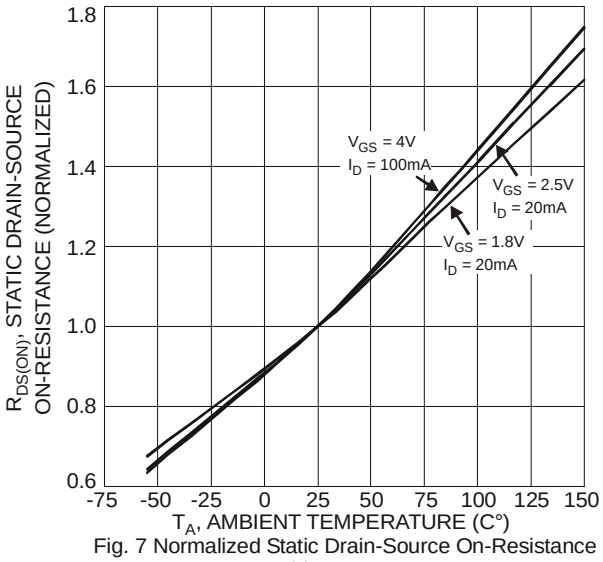


Fig. 7 Normalized Static Drain-Source On-Resistance vs. Ambient Temperature

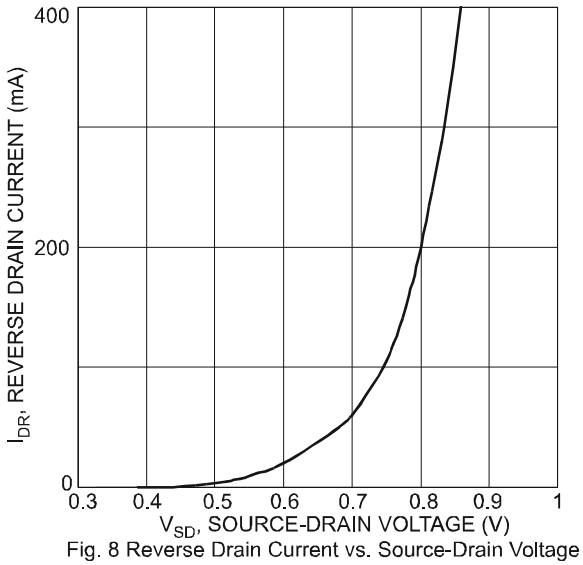


Fig. 8 Reverse Drain Current vs. Source-Drain Voltage

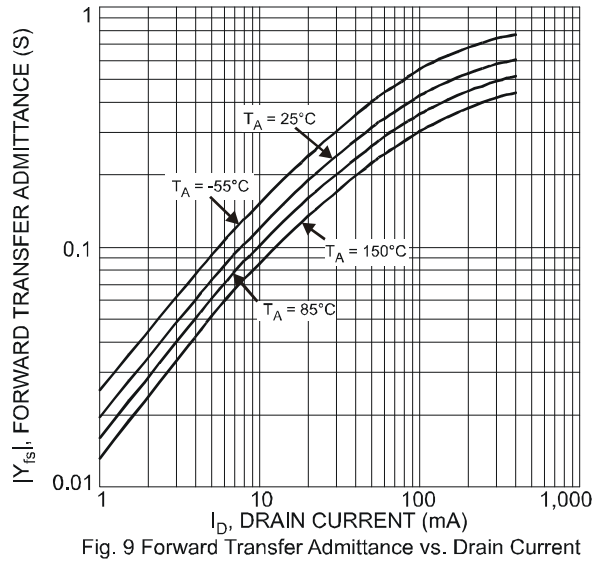


Fig. 9 Forward Transfer Admittance vs. Drain Current

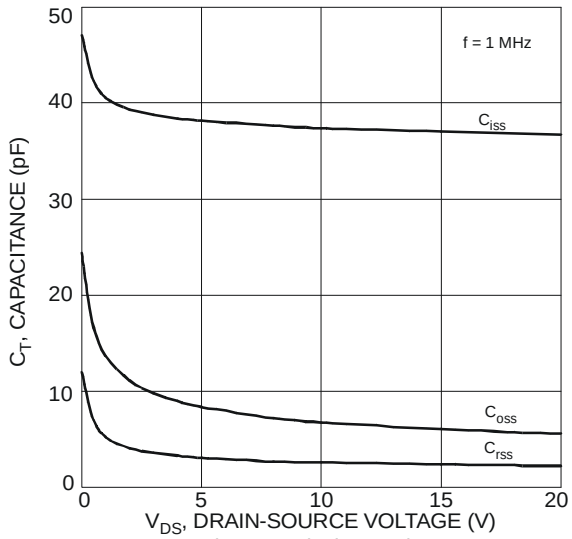


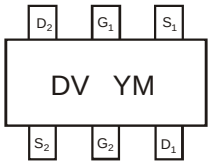
Fig. 10 Typical Capacitance

Ordering Information (Note 5)

Part Number	Case	Packaging
DMN32D2LV-7	SOT-563	3000/Tape & Reel

Notes: 5. For packaging details, go to our website at http://www.diodes.com/datasheets/ap02007.pdf.

Marking Information (Note 6)



DV = Product Type Marking Code (See Note 6)
YM = Date Code Marking
Y = Year (ex: U = 2007)
M = Month (ex: 9 = September)

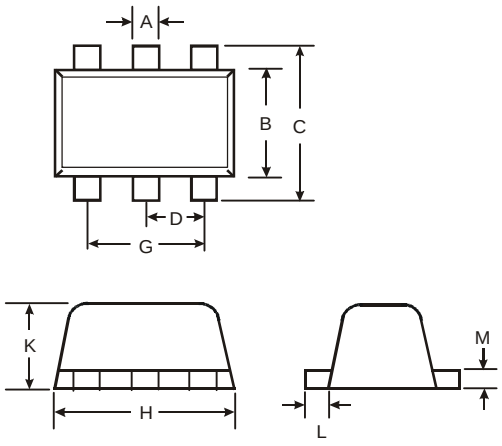
Notes: 6. Package is non-polarized. Parts may be on reel in orientation illustrated, 180° rotated, or mixed (both ways).

Date Code Key

Year	2007	2008	2009	2010	2011	2012
Code	U	V	W	X	Y	Z

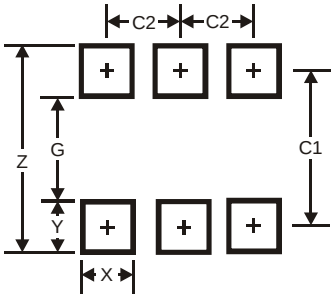
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

Package Outline Dimensions



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



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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