

### Product Summary

$V_{(BR)DSS}$	$R_{DS(on)}$	$I_D$ $T_A = 25^\circ C$
20V	$3.0m\Omega @ V_{GS} = 4.5V$	240mA
	$6.0m\Omega @ V_{GS} = 1.8V$	170mA

### Description and Applications

This new generation 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.

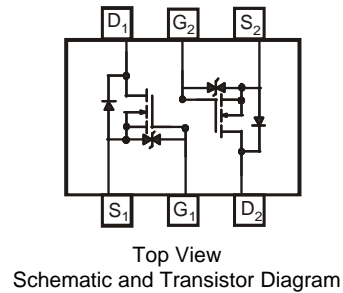
- DC-DC Converters
- Power management functions

### Features and Benefits

- Dual N-Channel MOSFET
- Low On-Resistance:
  - $3.0\ \Omega @ 4.5V$
  - $4.0\ \Omega @ 2.5V$
  - $6.0\ \Omega @ 1.8V$
  - $10\ \Omega @ 1.5V$
- Very Low Gate Threshold Voltage, 1.05V max
- Low Input Capacitance
- Fast Switching Speed
- Ultra-Small Surface Mount Package
- ESD Protected Gate (HBM 300V)
- **Lead, Halogen, and Antimony Free By Design/RoHS Compliant (Note 1)**
- **"Green" Device (Note 2)**

### Mechanical Data

- Case: SOT-963
- 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
- Weight: 0.0027 grams (approximate)

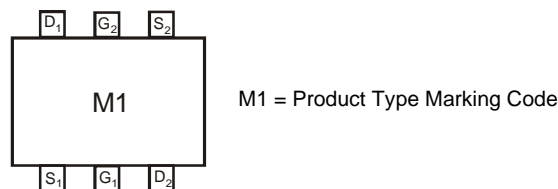


### Ordering Information (Note 3)

Part Number	Case	Packaging
DMN26D0UDJ-7	SOT-963	10,000/Tape & Reel

- Notes:
1. No purposefully added lead.
  2. Diodes Inc.'s "Green" policy can be found on our website at <http://www.diodes.com>.
  3. For packaging details, go to our website at <http://www.diodes.com>.

### Marking Information (Note 4)



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

**Maximum Ratings** @T<sub>A</sub> = 25°C unless otherwise specified

Characteristic			Symbol	Value	Unit
Drain Source Voltage			V <sub>DSS</sub>	20	V
Gate-Source Voltage			V <sub>GS</sub>	±10	V
Continuous Drain Current (Note 5) V <sub>GS</sub> = 4.5V	Steady State	T <sub>A</sub> = 25°C	I <sub>D</sub>	240	mA
		T <sub>A</sub> = 70°C		190	
Continuous Drain Current (Note 5) V <sub>GS</sub> = 1.8V	Steady State	T <sub>A</sub> = 25°C	I <sub>D</sub>	180	mA
		T <sub>A</sub> = 70°C		140	
Pulsed Drain Current - T <sub>P</sub> = 10μs			I <sub>DM</sub>	805	mA

**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Total Power Dissipation (Note 5)	P <sub>D</sub>	300	mW
Thermal Resistance, Junction to Ambient (Note 5)	R <sub>θJA</sub>	409	°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>	20	—	—	V	V <sub>GS</sub> = 0V, I <sub>D</sub> = 100μA
Zero Gate Voltage Drain Current @ T <sub>C</sub> = 25°C	I <sub>DSS</sub>	—	—	500	nA	V <sub>DS</sub> = 20V, V <sub>GS</sub> = 0V
Gate-Body Leakage	I <sub>GSS</sub>	—	—	±1	μA	V <sub>GS</sub> = ±10V, V <sub>DS</sub> = 0V
				±100		
<b>ON CHARACTERISTICS (Note 6)</b>						
Gate Threshold Voltage	V <sub>GS(th)</sub>	0.45	0.8	1.05	V	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250μA
Static Drain-Source On-Resistance	R <sub>DS(ON)</sub>	—	1.8	3.0	Ω	V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 100mA
		—	2.5	4.0		V <sub>GS</sub> = 2.5V, I <sub>D</sub> = 50mA
		—	3.4	6.0		V <sub>GS</sub> = 1.8V, I <sub>D</sub> = 20mA
		—	4.7	10.0		V <sub>GS</sub> = 1.5V, I <sub>D</sub> = 10mA
		—	9.5	—		V <sub>GS</sub> = 1.2V, I <sub>D</sub> = 1mA
Forward Transconductance	Y <sub>fs</sub>	180	240	—	mS	V <sub>DS</sub> = 10V, I <sub>D</sub> = 0.1A
Source-Drain Diode Forward Voltage	V <sub>SD</sub>	0.5	0.8	1.0	V	V <sub>GS</sub> = 0V, I <sub>S</sub> = 10mA
<b>DYNAMIC CHARACTERISTICS (Note 7)</b>						
Input Capacitance	C <sub>iSS</sub>	—	14.1	—	pF	V <sub>DS</sub> = 15V, V <sub>GS</sub> = 0V f = 1.0MHz
Output Capacitance	C <sub>oss</sub>	—	2.9	—	pF	
Reverse Transfer Capacitance	C <sub>rSS</sub>	—	1.6	—	pF	
<b>SWITCHING CHARACTERISTICS, V<sub>GS</sub> = 4.5V (Note 7)</b>						
Turn-On Delay Time	t <sub>d(on)</sub>	—	3.8	—	ns	V <sub>GS</sub> = 4.5V, V <sub>DD</sub> = 10V I <sub>D</sub> = 200mA, R <sub>G</sub> = 2.0Ω
Rise Time	t <sub>r</sub>	—	7.9	—		
Turn-Off Delay Time	t <sub>d(off)</sub>	—	13.4	—		
Fall Time	t <sub>f</sub>	—	15.2	—		

- Notes:
- Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch with minimum recommended pad layout; pad layout as shown on Diodes Inc. suggested pad layout document AP02001, which can be found on our website at <http://www.diodes.com>.
  - Short duration pulse test used to minimize self-heating effect.
  - Switching characteristics are independent of operating junction temperature. Guaranteed by design, not subject to production testing.

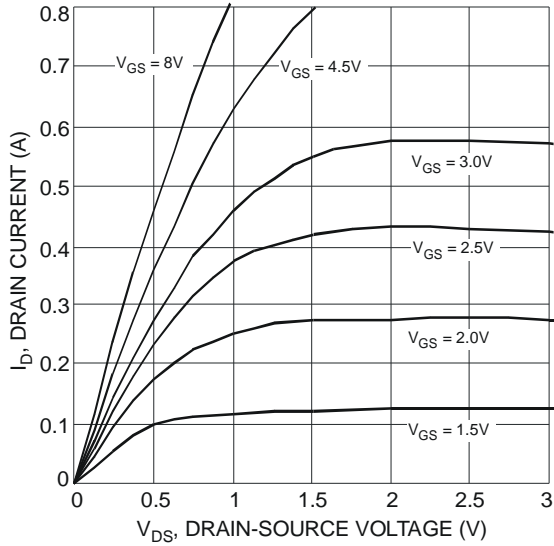


Fig. 1 Typical Output Characteristic

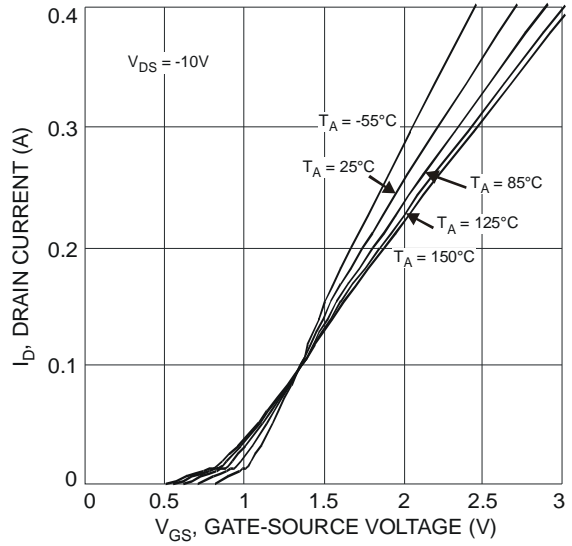


Fig. 2 Typical Transfer Characteristic

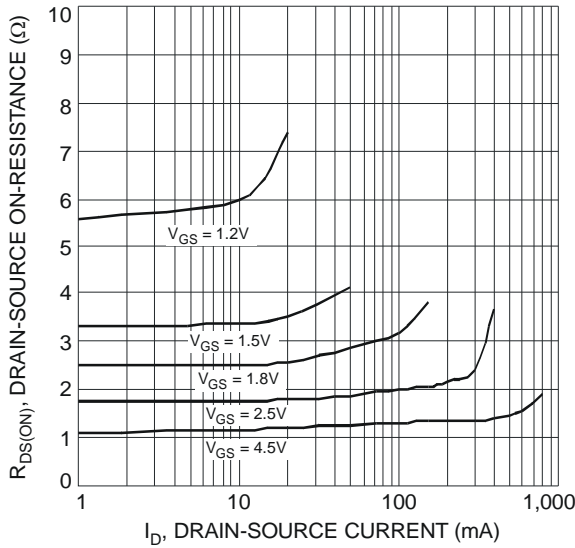


Fig. 3 Typical On-Resistance vs. Drain Current and Gate Voltage

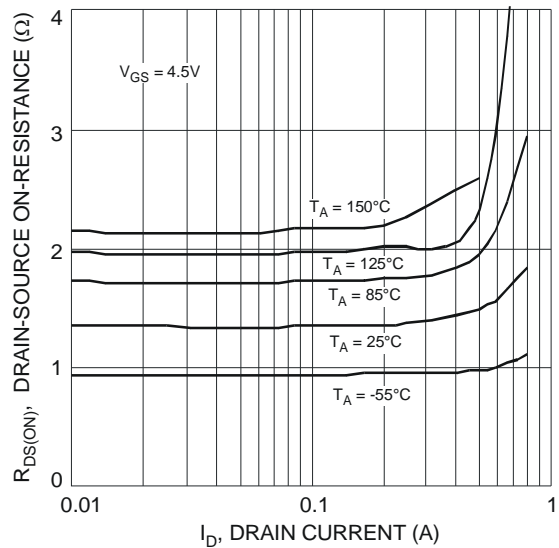


Fig. 4 Typical On-Resistance vs. Drain Current and Temperature

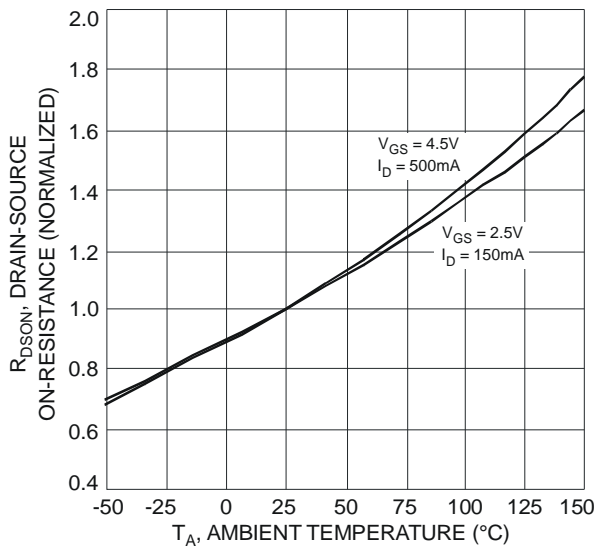


Fig. 5 On-Resistance Variation with Temperature

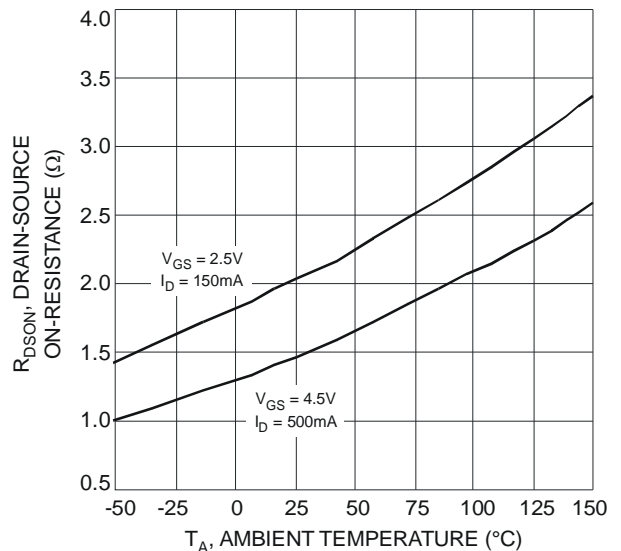


Fig. 6 On-Resistance Variation with Temperature

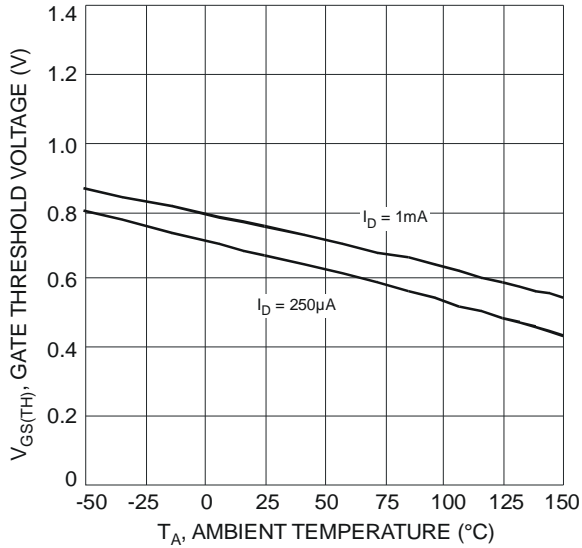


Fig. 7 Gate Threshold Variation vs. Ambient Temperature

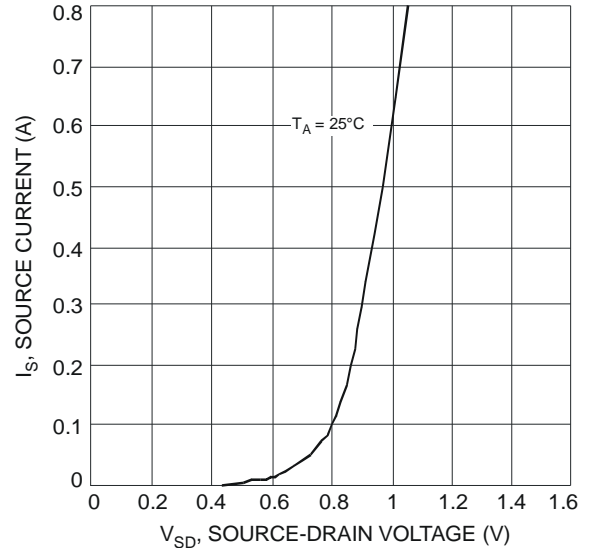


Fig. 8 Diode Forward Voltage vs. Current

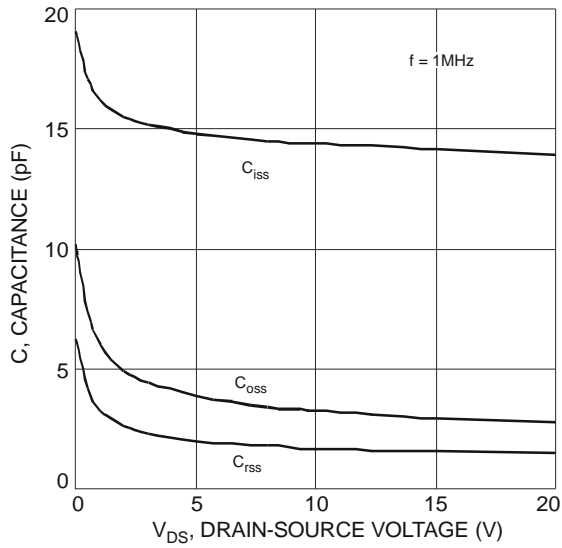


Fig. 9 Typical Total Capacitance

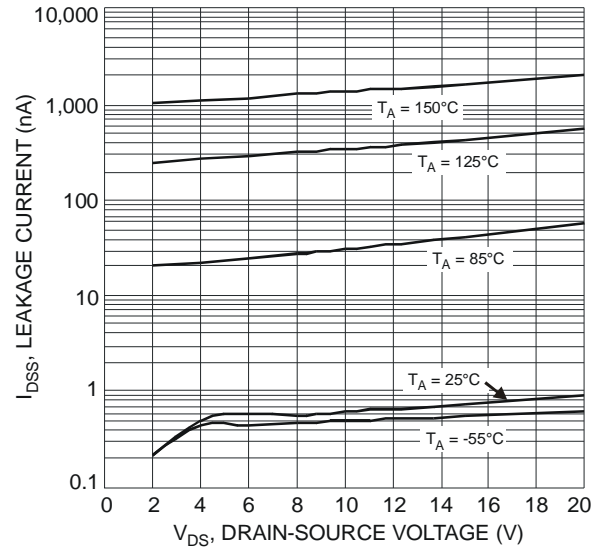
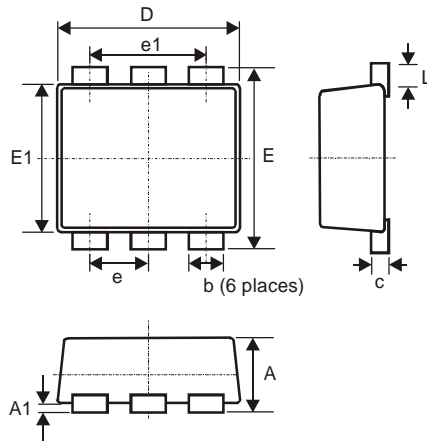


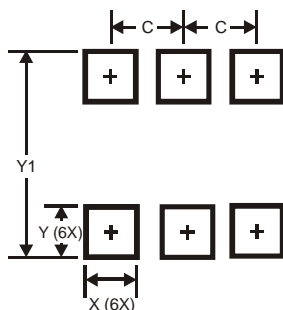
Fig. 10 Typical Leakage Current vs. Drain-Source Voltage

**Package Outline Dimensions**



SOT-963			
Dim	Min	Max	Typ
A	0.40	0.50	0.45
A1	0	0.05	-
c	0.120	0.180	0.150
D	0.95	1.05	1.00
E	0.95	1.05	1.00
E1	0.75	0.85	0.80
L	0.05	0.15	0.10
b	0.10	0.20	0.15
e	0.35 Typ		
e1	0.70 Typ		
All Dimensions in mm			

## Suggested Pad Layout



Dimensions	Value (in mm)
C	0.350
X	0.200
Y	0.200
Y1	1.100

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