

## Features

- Dual N-Channel MOSFET
- Low On-Resistance
  - $100\text{m}\Omega$  @  $V_{GS} = 4.5\text{V}$ ,  $I_D = 2.5\text{A}$
  - $140\text{m}\Omega$  @  $V_{GS} = 2.5\text{V}$ ,  $I_D = 1.5\text{A}$
  - $215\text{m}\Omega$  @  $V_{GS} = 1.8\text{V}$ ,  $I_D = 1\text{A}$
- Very Low Gate Threshold Voltage
- Low Input Capacitance
- Fast Switching Speed
- ESD Protected Gate to 2kV HBM
- **Lead Free By Design/RoHS Compliant (Note 2)**
- **"Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

## Mechanical Data

- Case: SOT-26
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- Terminal Connections: See Diagram
- Terminals: Finish — Matte Tin annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208
- Marking Information: See Page 4
- Ordering Information: See Page 4
- Weight: 0.015 grams (approximate)

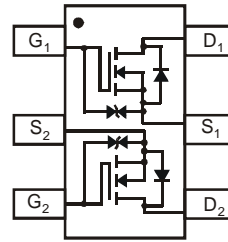


ESD PROTECTED TO 2kV



TOP VIEW

SOT-26



TOP VIEW

Schematic and Pin Configuration

## Maximum Ratings @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Value	Units
Drain-Source Voltage	$V_{DS}$	20	V
Gate-Source Voltage	$V_{GS}$	$\pm 12$	V
Drain Current (Note 1)	$I_D$	2.0	A
		1.4	A
Pulsed Drain Current (Note 4)	$I_{DM}$	7.0	A

## Thermal Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Value	Units
Total Power Dissipation (Note 1)	$P_D$	650	mW
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	192	$^\circ\text{C/W}$
Operating and Storage Temperature Range	$T_J, T_{STG}$	-55 to +150	$^\circ\text{C}$

- Notes:
1. Device mounted on FR-4 PCB, or minimum recommended pad layout
  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](http://www.diodes.com/products/lead_free/index.php).
  4. Pulse width  $\leq 10\mu\text{s}$ , duty cycle  $\leq 1\%$ .

# Electrical Characteristics @T<sub>A</sub> = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
<b>OFF CHARACTERISTICS (Note 5)</b>						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	20	—	—	V	V <sub>GS</sub> = 0V, I <sub>D</sub> = 10μA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	—	—	1	μA	V <sub>DS</sub> = 20V, V <sub>GS</sub> = 0V
Gate-Source Leakage	I <sub>GSS</sub>	—	—	±10	μA	V <sub>GS</sub> = ±12V, V <sub>DS</sub> = 0V
<b>ON CHARACTERISTICS (Note 5)</b>						
Gate Threshold Voltage	V <sub>GS(th)</sub>	0.6	—	1.0	V	V <sub>DS</sub> = V <sub>CS</sub> , I <sub>D</sub> = 250μA
Static Drain-Source On-Resistance	R <sub>DS(on)</sub>	—	80	100	mΩ	V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 2.5A
			105	140		V <sub>GS</sub> = 2.5V, I <sub>D</sub> = 1.5A
			165	215		V <sub>GS</sub> = 1.8V, I <sub>D</sub> = 1.0A
Forward Transfer Admittance	Y <sub>fs</sub>	—	5	—	S	V <sub>DS</sub> = 5V, I <sub>D</sub> = 2.4A
Diode Forward Voltage (Note 5)	V <sub>SD</sub>	—	0.73	1.1	V	V <sub>GS</sub> = 0V, I <sub>S</sub> = 1.05A
<b>DYNAMIC CHARACTERISTICS</b>						
Input Capacitance	C <sub>iss</sub>	—	188	—	pF	V <sub>DS</sub> = 10V, V <sub>GS</sub> = 0V f = 1.0MHz
Output Capacitance	C <sub>oss</sub>	—	44	—	pF	
Reverse Transfer Capacitance	C <sub>rss</sub>	—	30	—	pF	
Turn-On Delay Time	t <sub>d(on)</sub>	—	8	—	ns	V <sub>DD</sub> = 10V, R <sub>L</sub> = 10Ω I <sub>D</sub> = 1A, V <sub>GEN</sub> = 4.5V, R <sub>G</sub> = 6Ω
Rise Time	t <sub>r</sub>	—	3.8	—		
Turn-Off Delay Time	t <sub>d(off)</sub>	—	19.6	—		
Fall Time	t <sub>f</sub>	—	8.3	—		

Notes: 5. Short duration pulse test used to minimize self-heating effect.

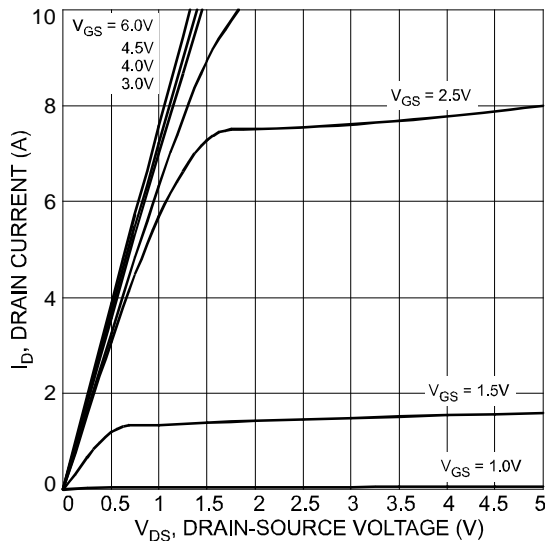


Fig. 1 Typical Output Characteristic

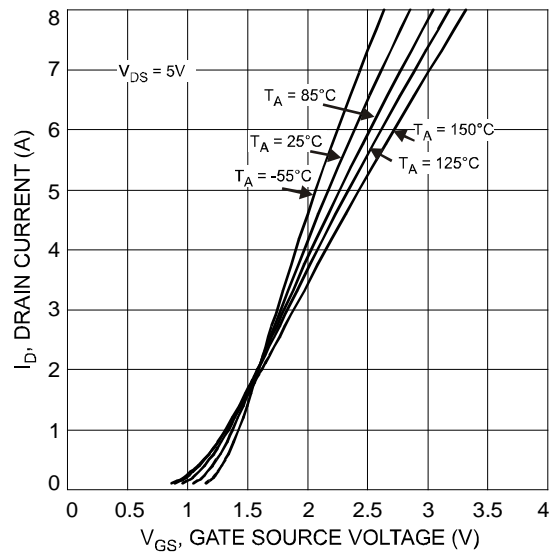


Fig. 2 Typical Transfer Characteristics

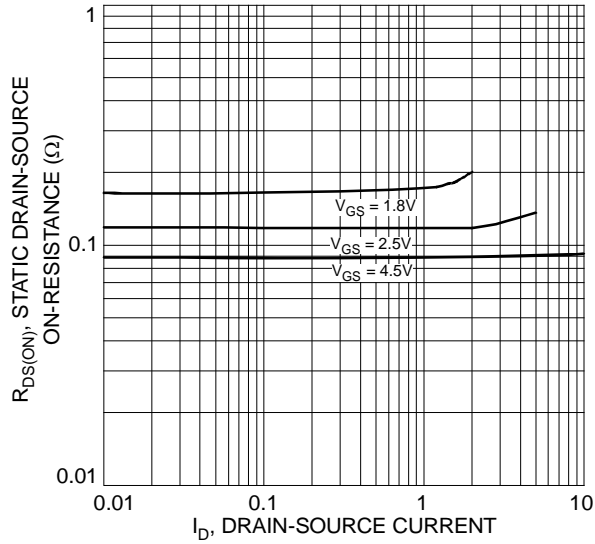


Fig. 3 On-Resistance vs. Drain-Source Current & Gate Voltage

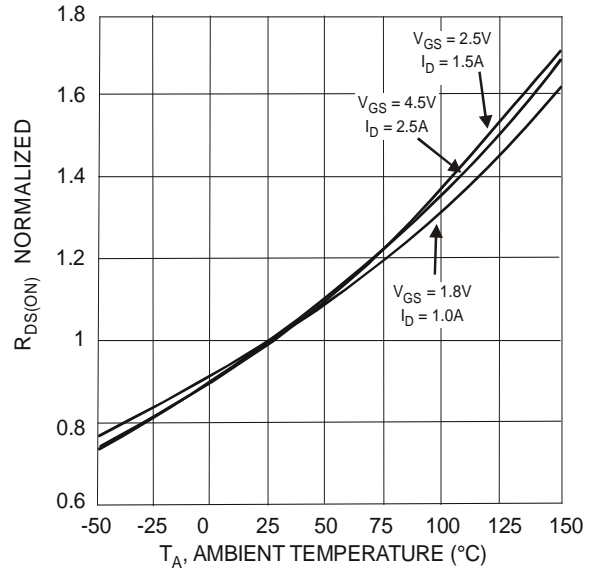


Fig. 4 Normalized Static Drain-Source On-Resistance vs. Ambient Temperature

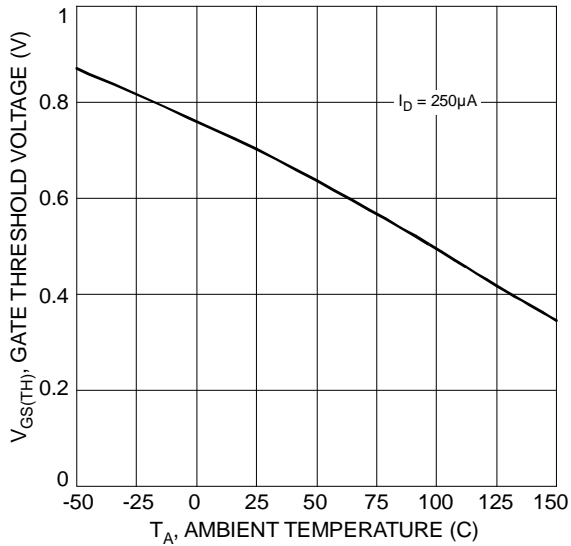


Fig. 5 Gate Threshold Variation with Temperature

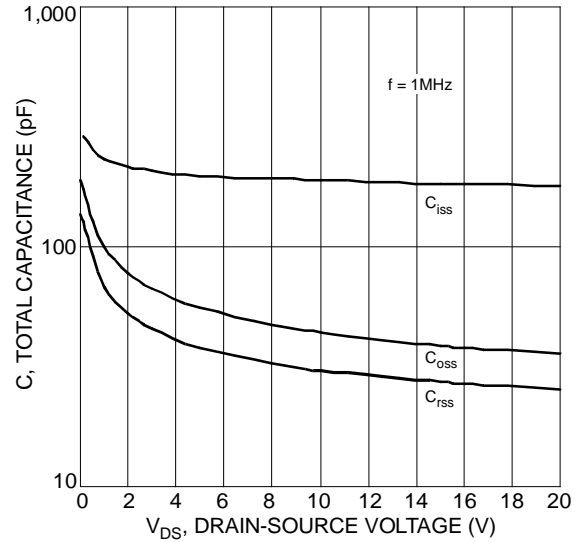


Fig. 6 Typical Total Capacitance

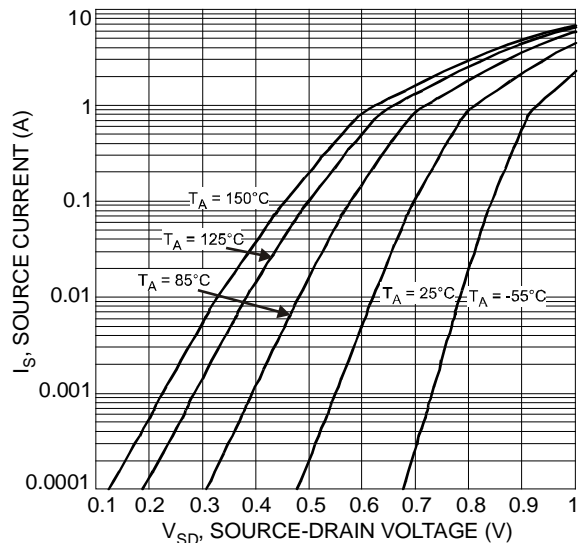
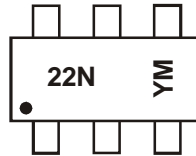


Fig. 7 Reverse Drain Current vs. Source-Drain Voltage

**Ordering Information** (Note 6)

Part Number	Case	Packaging
DMN2215UDM-7	SOT-26	3000/Tape & Reel

Notes: 6. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

**Marking Information**


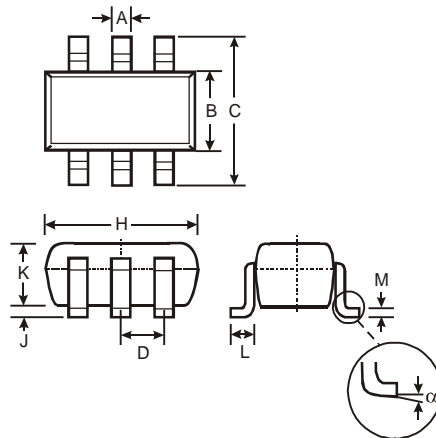
22N = Marking Code  
 YM = Date Code Marking  
 Y = Year ex: U = 2007  
 M = Month ex: 9 = September

**Date Code Key**

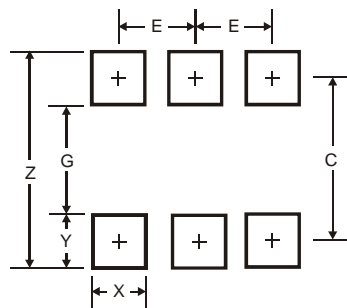
Year	2007	2008	2009	2010	2011	2012	2013	2014	2015
Code	U	V	W	X	Y	Z	A	B	C

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-26			
Dim	Min	Max	Typ
A	0.35	0.50	0.38
B	1.50	1.70	1.60
C	2.70	3.00	2.80
D	—	—	0.95
H	2.90	3.10	3.00
J	0.013	0.10	0.05
K	1.00	1.30	1.10
L	0.35	0.55	0.40
M	0.10	0.20	0.15
α	0°	8°	—
All Dimensions in mm			

**Suggested Pad Layout**


Dimensions	Value (in mm)
Z	3.20
G	1.60
X	0.55
Y	0.80
C	2.40
E	0.95

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