

DUAL N-CANNEL ENHANCEMENT MODE FIELD EFFECT TRANSISTOR

Features

- Dual N-Channel MOSFET
- Low On-Resistance
 - 100mΩ @V_{GS} = 4.5V, I_D = 2.5A
 - 140mΩ @V_{GS} = 2.5V, I_D = 1.5A
 - 215mΩ @V_{GS} = 1.8V, I_D = 1A
- 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**

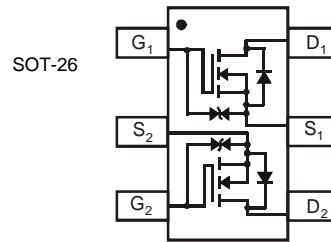


ESD PROTECTED TO 2KV

TOP VIEW

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)



TOP VIEW

Schematic and Pin Configuration

Maximum Ratings @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Units
Drain-Source Voltage	V _{DSS}	20	V
Gate-Source Voltage	V _{GSS}	±12	V
Drain Current (Note 1)	I _D	T _A = 25°C	2.0
		T _A = 85°C	1.4
Pulsed Drain Current (Note 4)	I _{DM}	7.0	A

Thermal Characteristics @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Units
Total Power Dissipation (Note 1)	P _D	650	mW
Thermal Resistance, Junction to Ambient	R _{θJA}	192	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°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.
 4. Pulse width ≤ 10μs, duty cycle ≤ 1%.

Electrical Characteristics @T_A = 25°C unless otherwise specified

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

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

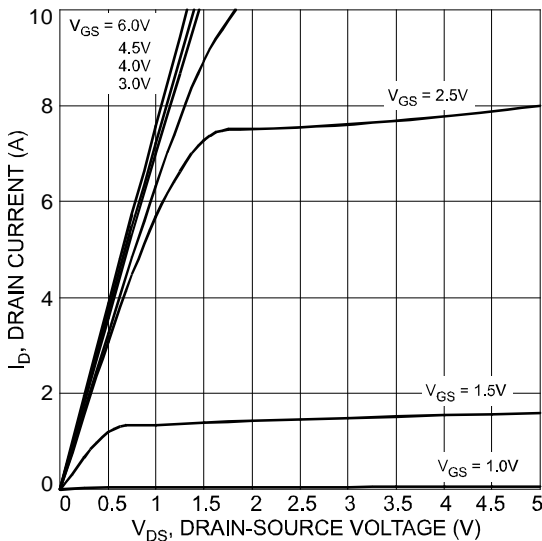


Fig. 1 Typical Output Characteristic

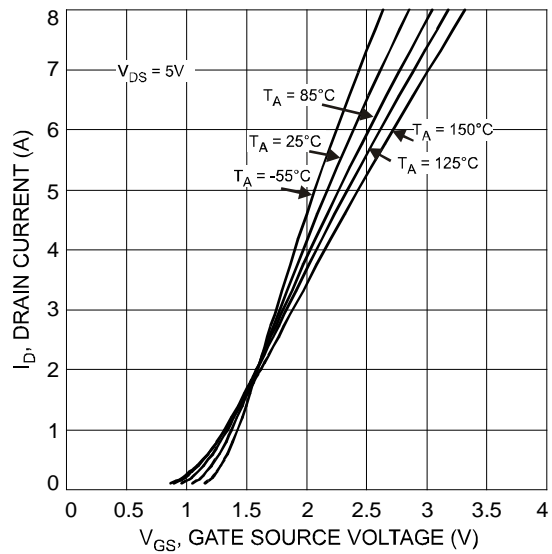


Fig. 2 Typical Transfer Characteristics

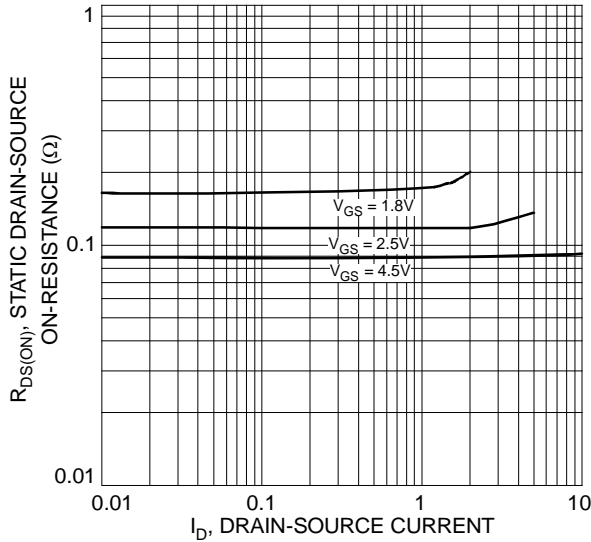


Fig. 3 On-Resistance vs. Drain-Source Current & Gate Voltage

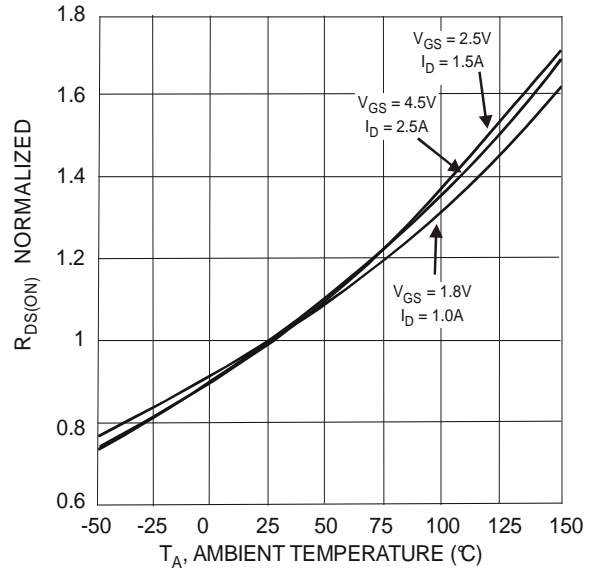


Fig. 4 Normalized Static Drain-Source On-Resistance vs. Ambient Temperature

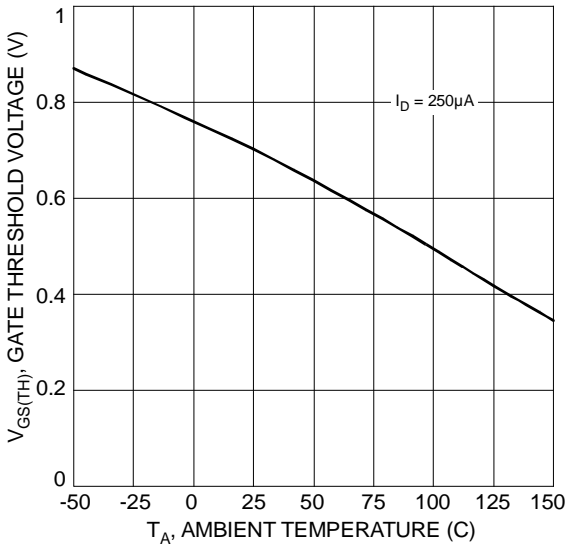


Fig. 5 Gate Threshold Variation with Temperature

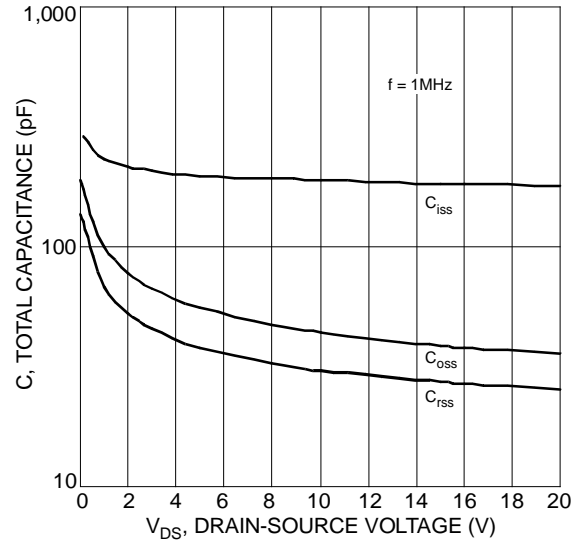


Fig. 6 Typical Total Capacitance

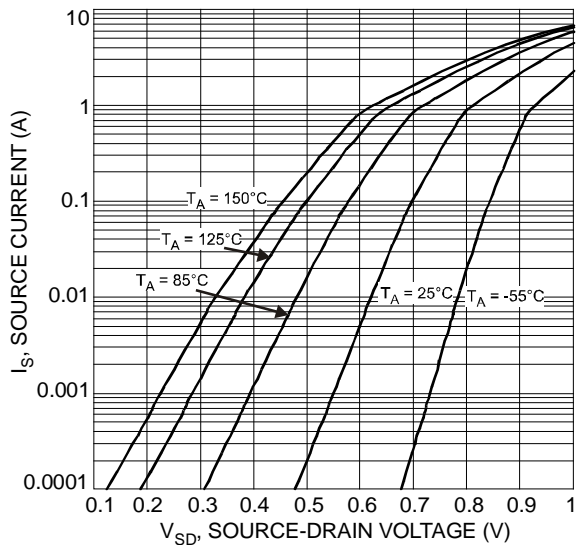


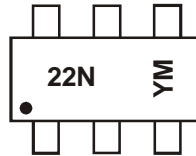
Fig. 7 Reverse Drain Current vs. Source-Drain Voltage

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



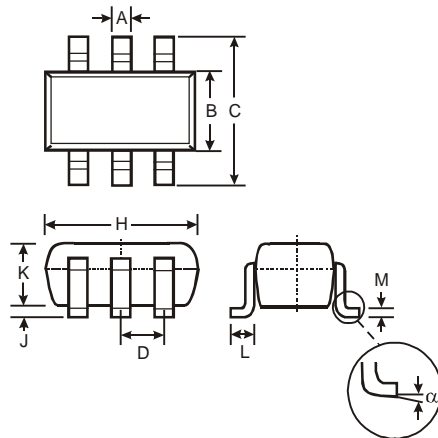
22N = Marking Code
 YM = Date Code Marking
 Y = Year ex: U = 2007
 M = Month ex: 9 = September

Date Code Key

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

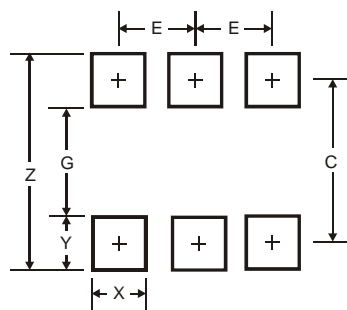
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

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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