

Product Summary

BV_{DSS}	$R_{DS(ON)}$ max	I_D max $T_A = +25^\circ C$
50V	2.0 Ω @ $V_{GS} = 5V$	305mA
	2.5 Ω @ $V_{GS} = 2.5V$	280mA
	3.0 Ω @ $V_{GS} = 1.8V$	265mA

Features

- Low On-Resistance
- Very Low Gate Threshold Voltage
- Low Input Capacitance
- Fast Switching Speed
- Low Input/Output Leakage
- **ESD Protected up to 2kV**
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**
- **PPAP Capable**

Description and Applications

This MOSFET is designed to minimize the on-state resistance and yet maintain superior switching performance, making it ideal for high efficiency power management applications.

- General Purpose Interfacing Switch
- Power Management Functions

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-020C
- Terminals: Finish – Matte Tin Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208 (e3)
- Weight: 0.015 grams (Approximate)

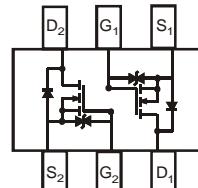

ESD protected up to 2kV


TOP VIEW

SOT-26



BOTTOM VIEW


 TOP VIEW
 Internal Schematic

Ordering Information (Note 5)

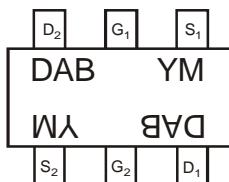
Part Number	Case	Packaging
DMN5L06DMKQ-7	SOT-26	3,000/Tape & Reel

Notes:

1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
2. See http://www.diodes.com/quality/lead_free.html 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. Automotive products are AEC-Q101 qualified and are PPAP capable. Automotive, AEC-Q101 and standard products are electrically and thermally the same, except where specified. For more information, please refer to http://www.diodes.com/quality/product_grade_definitions/.
5. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

Marking Information

SOT-26



DAB = Marking Code
 YM = Date Code Marking
 Y = Year ex: T = 2006
 M = Month ex: 9 = September

Date Code Key

Year	2006	2007	...	2015	2016	2017	2018	2019	2020	2021		
Code	T		U		...	C	D	E	F	G	H	I
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 (@ $T_A = +25^\circ\text{C}$ unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Drain Source Voltage	V_{DSS}	50	V
Gate-Source Voltage	V_{GSS}	± 20	V
Drain Current (Note 6)	I_D Continuous Pulsed (Note 7)	305 800	mA

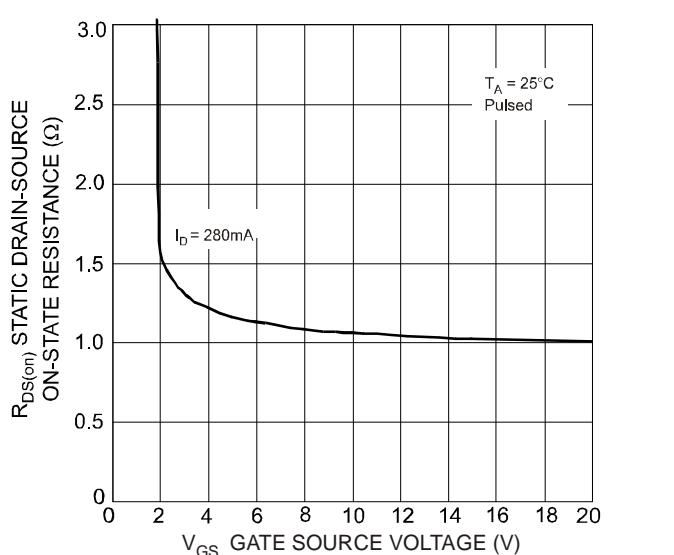
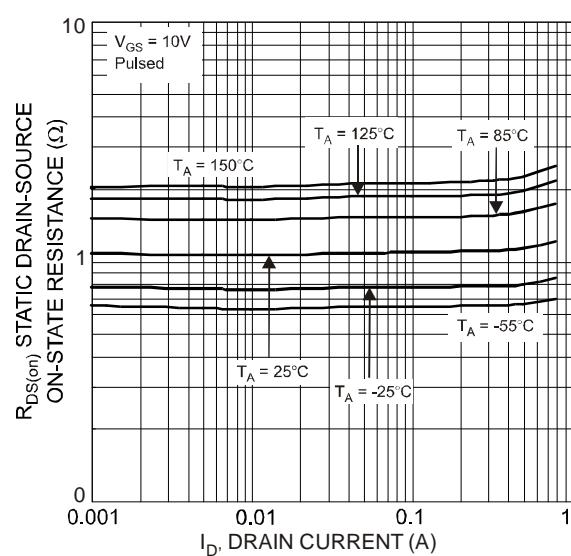
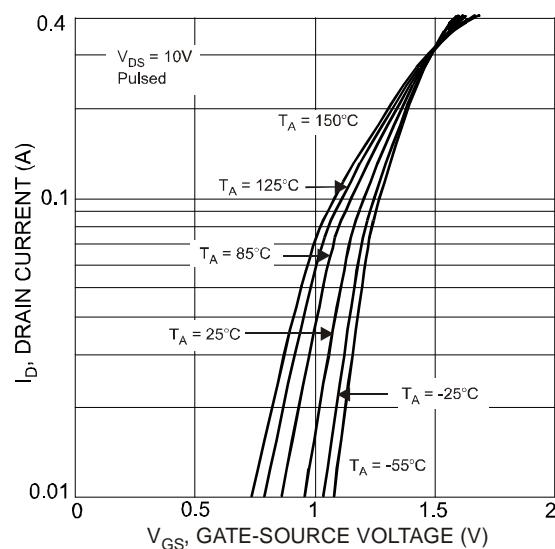
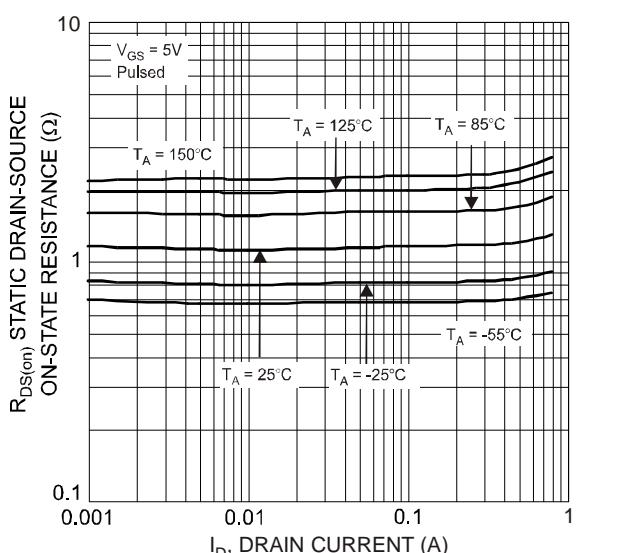
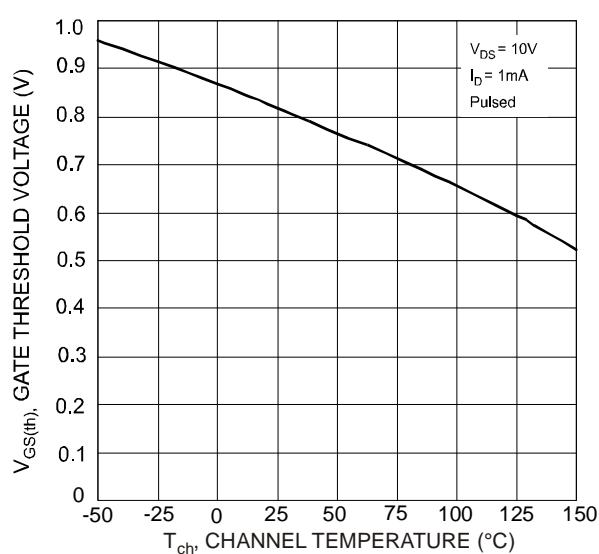
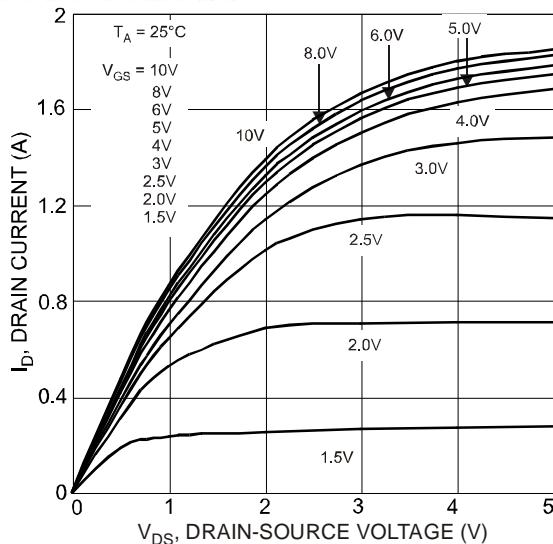
Thermal Characteristics (@ $T_A = +25^\circ\text{C}$ unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Total Power Dissipation (Note 6)	P_D	400	mW
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	313	°C/W
Operating and Storage Temperature Range	T_j, T_{STG}	-65 to +150	°C

Electrical Characteristics (@ $T_A = +25^\circ\text{C}$ unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 8)						
Drain-Source Breakdown Voltage	BV_{DSS}	50	—	—	V	$V_{GS} = 0\text{V}, I_D = 10\mu\text{A}$
Zero Gate Voltage Drain Current @ $T_C = +25^\circ\text{C}$	I_{DSS}	—	—	60	nA	$V_{DS} = 50\text{V}, V_{GS} = 0\text{V}$
Gate-Body Leakage	I_{GSS}	—	—	1 500 50	μA nA nA	$V_{GS} = \pm 12\text{V}, V_{DS} = 0\text{V}$ $V_{GS} = \pm 10\text{V}, V_{DS} = 0\text{V}$ $V_{GS} = \pm 5\text{V}, V_{DS} = 0\text{V}$
ON CHARACTERISTICS (Note 8)						
Gate Threshold Voltage	$V_{GS(th)}$	0.49	—	1.0	V	$V_{DS} = V_{GS}, I_D = 250\mu\text{A}$
Static Drain-Source On-Resistance	$R_{DS(\text{ON})}$	— — —	— — —	3.0 2.5 2.0	Ω	$V_{GS} = 1.8\text{V}, I_D = 50\text{mA}$ $V_{GS} = 2.5\text{V}, I_D = 50\text{mA}$ $V_{GS} = 5.0\text{V}, I_D = 50\text{mA}$
On-State Drain Current	$I_{D(\text{ON})}$	0.5	1.4	—	A	$V_{GS} = 10\text{V}, V_{DS} = 7.5\text{V}$
Forward Transconductance	$ Y_{fs} $	200	—	—	mS	$V_{DS} = 10\text{V}, I_D = 0.2\text{A}$
Source-Drain Diode Forward Voltage	V_{SD}	0.5	—	1.4	V	$V_{GS} = 0\text{V}, I_S = 115\text{mA}$
DYNAMIC CHARACTERISTICS						
Input Capacitance	C_{iss}	—	—	50	pF	$V_{DS} = 25\text{V}, V_{GS} = 0\text{V}$ $f = 1.0\text{MHz}$
Output Capacitance	C_{oss}	—	—	25	pF	
Reverse Transfer Capacitance	C_{rss}	—	—	5.0	pF	

- Notes:
6. Device mounted on FR-4 PCB.
 7. Pulse width $\leq 10\mu\text{s}$, Duty Cycle $\leq 1\%$.
 8. Short duration pulse test used to minimize self-heating effect.



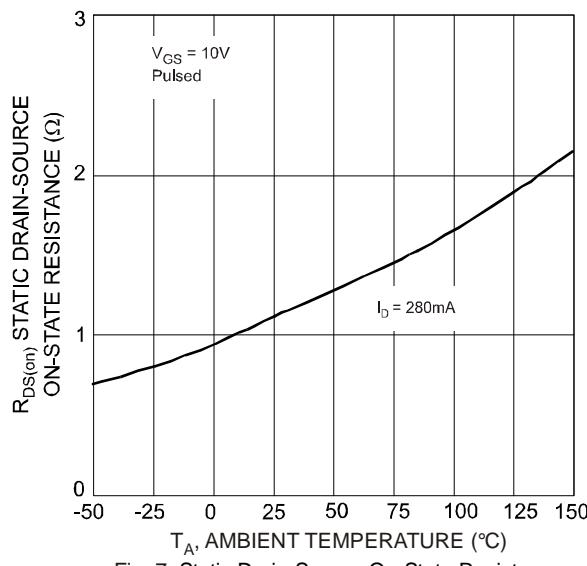


Fig. 7 Static Drain-Source On-State Resistance vs. Ambient Temperature

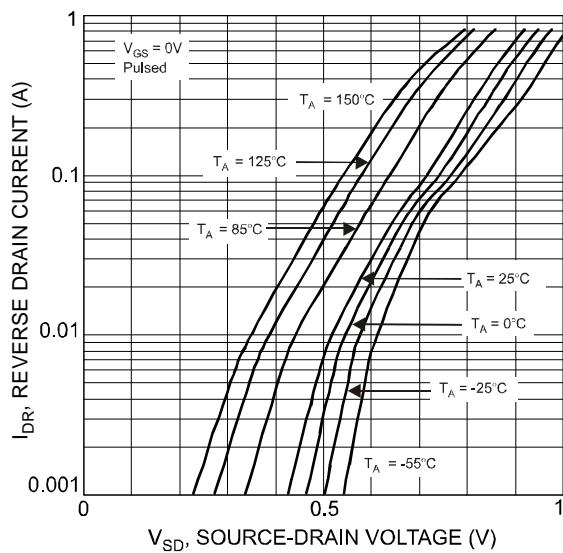


Fig. 8 Reverse Drain Current vs. Source-Drain Voltage

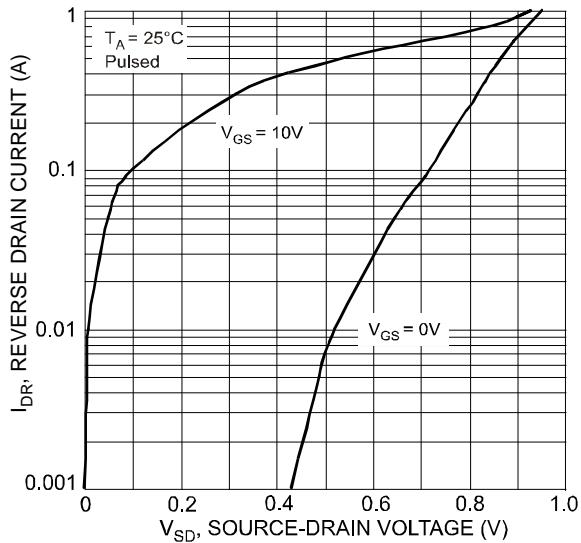


Fig. 9 Reverse Drain Current vs. Source-Drain Voltage

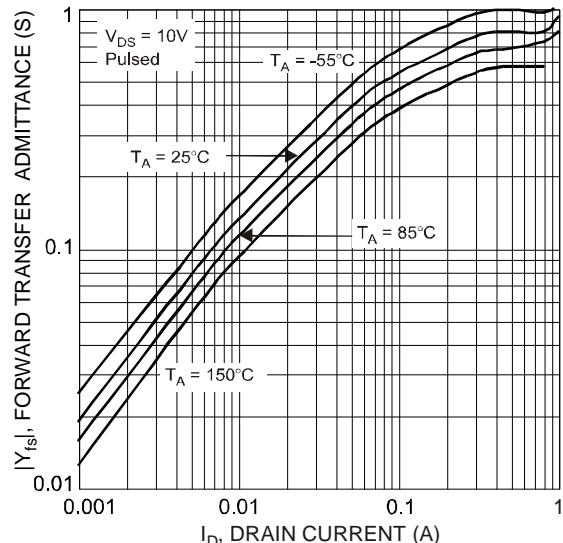


Fig. 10 Forward Transfer Admittance vs. Drain Current

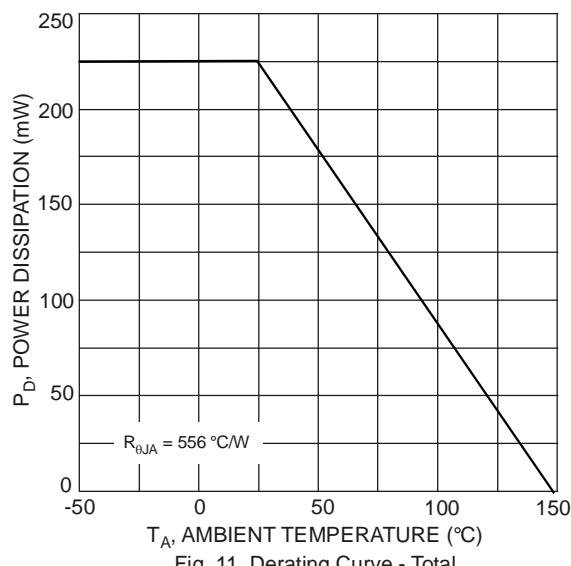
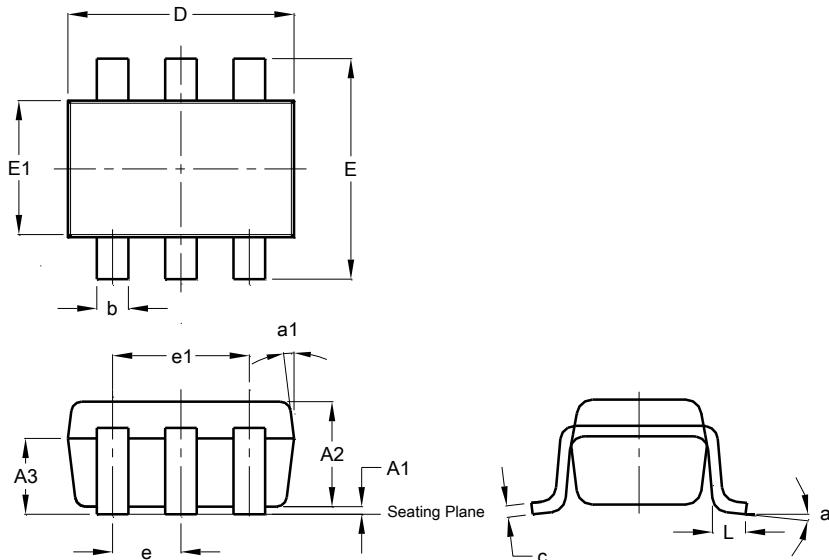


Fig. 11 Derating Curve - Total

Package Outline Dimensions

Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for the latest version.

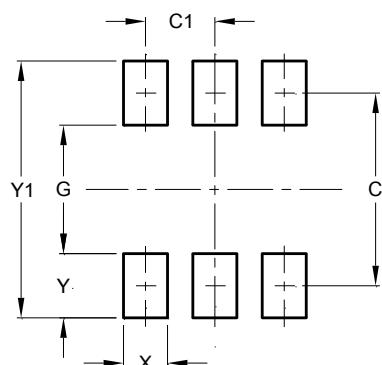


SOT26			
Dim	Min	Max	Typ
A1	0.013	0.10	0.05
A2	1.00	1.30	1.10
A3	0.70	0.80	0.75
b	0.35	0.50	0.38
c	0.10	0.20	0.15
D	2.90	3.10	3.00
e	-	-	0.95
e1	-	-	1.90
E	2.70	3.00	2.80
E1	1.50	1.70	1.60
L	0.35	0.55	0.40
a	-	-	8°
a1	-	-	7°

All Dimensions in mm

Suggested Pad Layout

Please see AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> for the latest version.



Dimensions	Value (in mm)
C	2.40
C1	0.95
G	1.60
X	0.55
Y	0.80
Y1	3.20

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