DUAL N-CHANNEL ENHANCEMENT MODE FIELD EFFECT TRANSISTOR

Product Summary

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

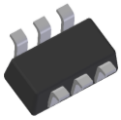
Mechanical Data

- 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)

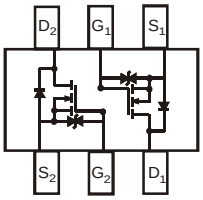
ESD protected up 2kV

SOT-26

TOP VIEW



BOTTOM VIEW



TOP VIEW
Internal Schematic

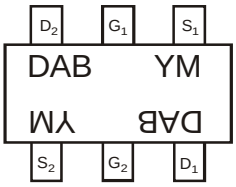
Ordering Information (Note 5)

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°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)	Continuous	I_D	305	mA
	Pulsed (Note 7)		800	

Thermal Characteristics (@T_A = +25°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°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} = 0V, I_D = 10μA
Zero Gate Voltage Drain Current	@ T_C = +25°C	I_{DSS}	—	—	60	nA	V_{DS} = 50V, V_{GS} = 0V
Gate-Body Leakage		I_{GSS}	—	—	1 500 50	μA nA nA	V_{GS} = ±12V, V_{DS} = 0V V_{GS} = ±10V, V_{DS} = 0V V_{GS} = ±5V, V_{DS} = 0V
ON CHARACTERISTICS (Note 8)							
Gate Threshold Voltage		$V_{GS(th)}$	0.49	—	1.0	V	V_{DS} = V_{GS}, I_D = 250μA
Static Drain-Source On-Resistance		$R_{DS\ (ON)}$	— — —	— — —	3.0 2.5 2.0	Ω	V_{GS} = 1.8V, I_D = 50mA V_{GS} = 2.5V, I_D = 50mA V_{GS} = 5.0V, I_D = 50mA
On-State Drain Current		$I_{D(ON)}$	0.5	1.4	—	A	V_{GS} = 10V, V_{DS} = 7.5V
Forward Transconductance		$\|Y_{fs}\|$	200	—	—	mS	V_{DS} =10V, I_D = 0.2A
Source-Drain Diode Forward Voltage		V_{SD}	0.5	—	1.4	V	V_{GS} = 0V, I_S = 115mA
DYNAMIC CHARACTERISTICS							
Input Capacitance		C_{iss}	—	—	50	pF	V_{DS} = 25V, V_{GS} = 0V f = 1.0MHz
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 ≤10μS, Duty Cycle ≤1%.
8. Short duration pulse test used to minimize self-heating effect.

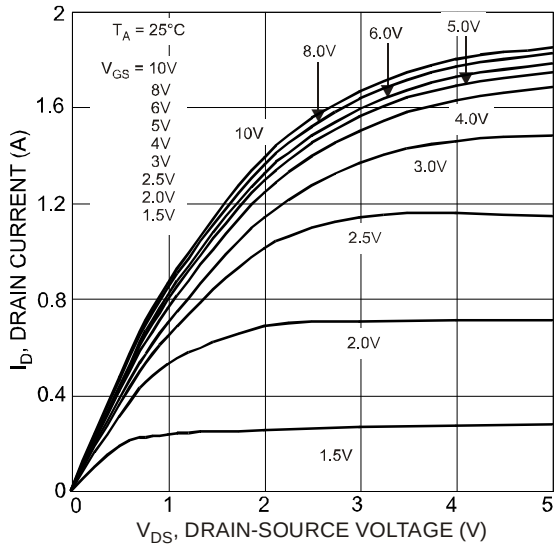


Fig. 1 Typical Output Characteristics

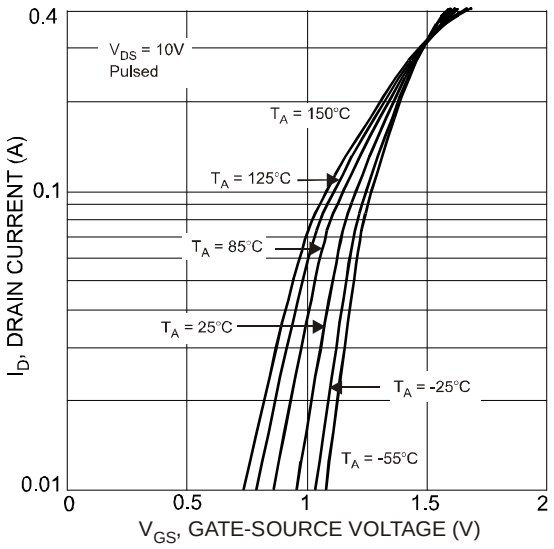


Fig. 2 Typical Transfer Characteristics

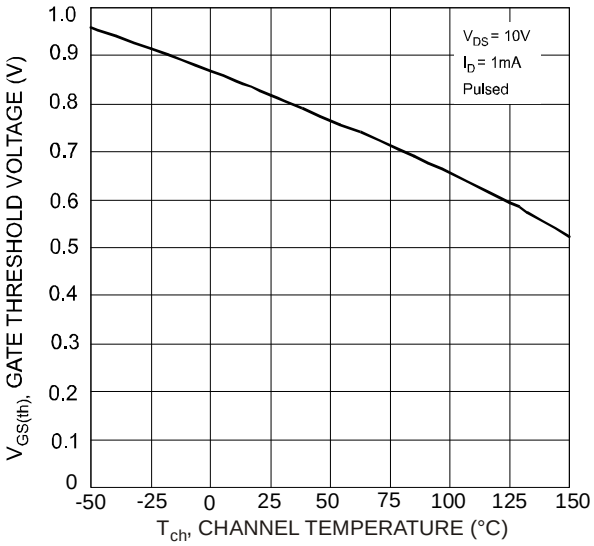


Fig. 3 Gate Threshold Voltage vs. Channel Temperature

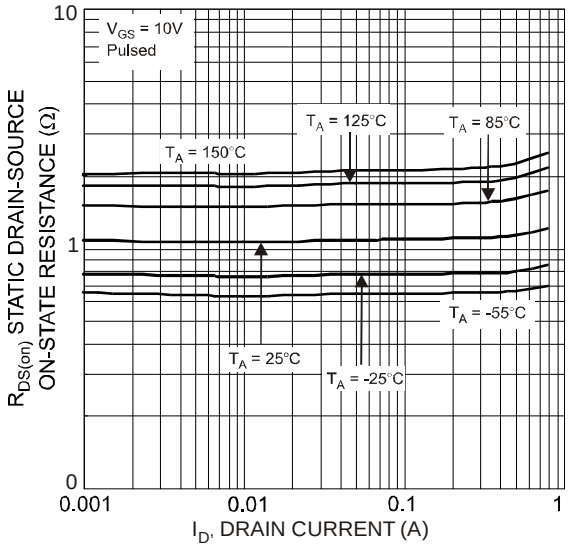


Fig. 4 Static Drain-Source On-Resistance vs. Drain Current

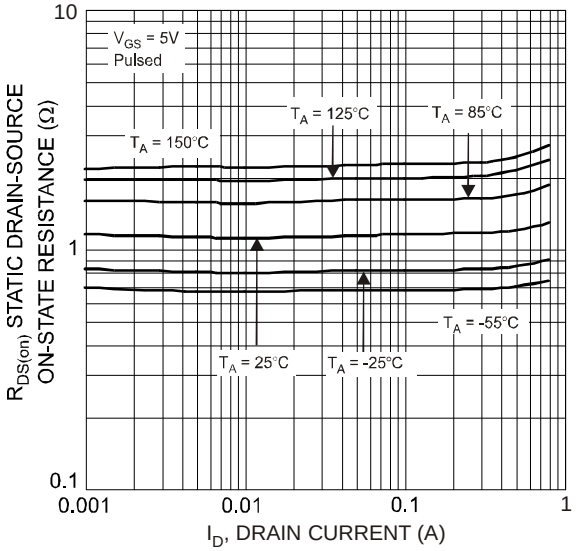


Fig. 5 Static Drain-Source On-Resistance vs. Drain Current

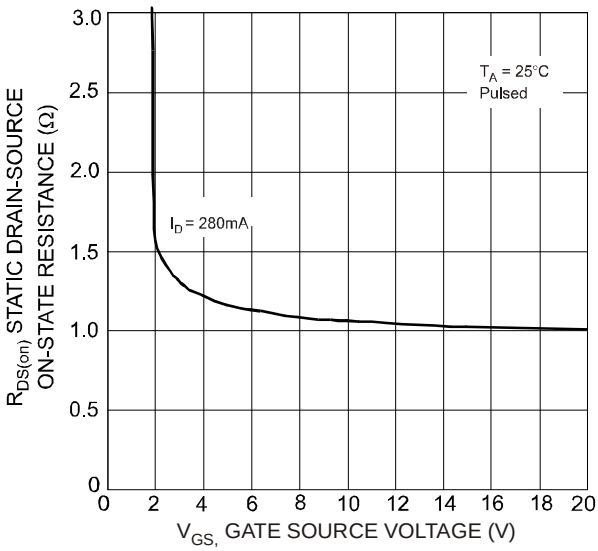


Fig. 6 Static Drain-Source On-Resistance vs. Gate-Source Voltage

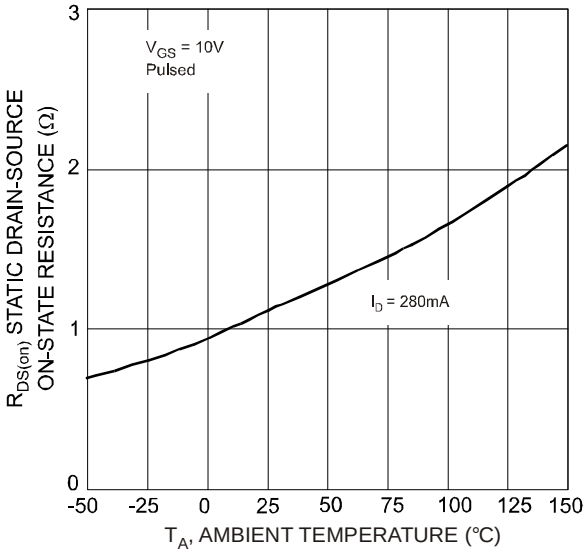


Fig. 7 Static Drain-Source On-State Resistance vs. Ambient Temperature

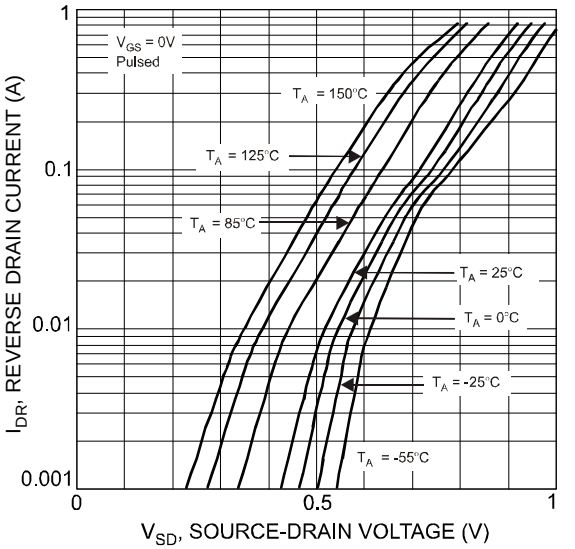


Fig. 8 Reverse Drain Current vs. Source-Drain Voltage

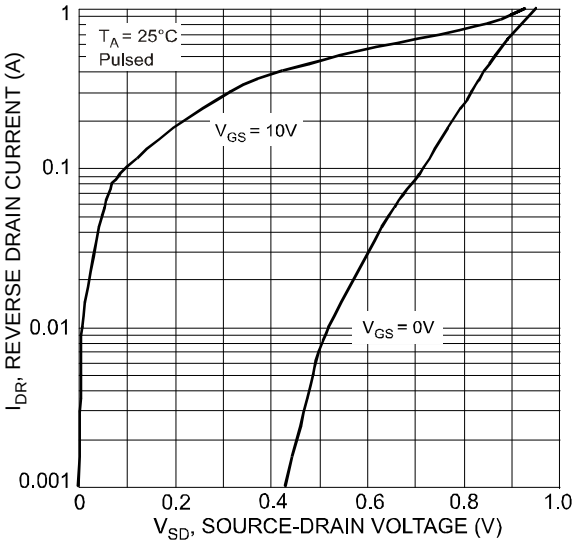


Fig. 9 Reverse Drain Current vs. Source-Drain Voltage

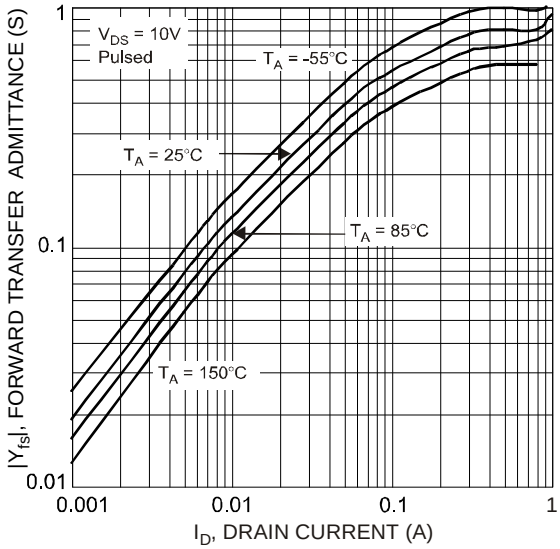


Fig.10 Forward Transfer Admittance vs. Drain Current

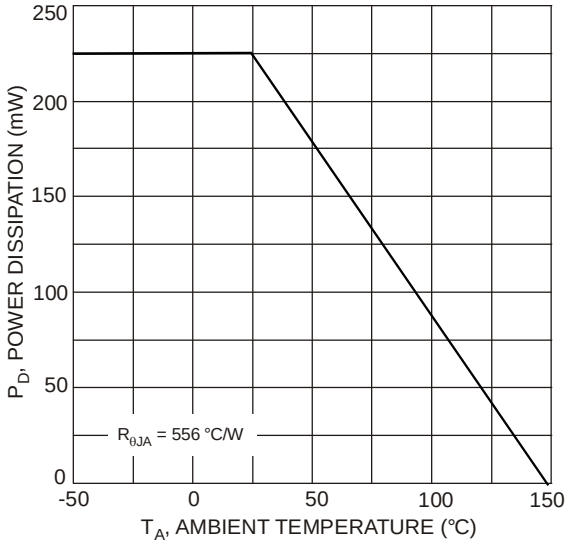
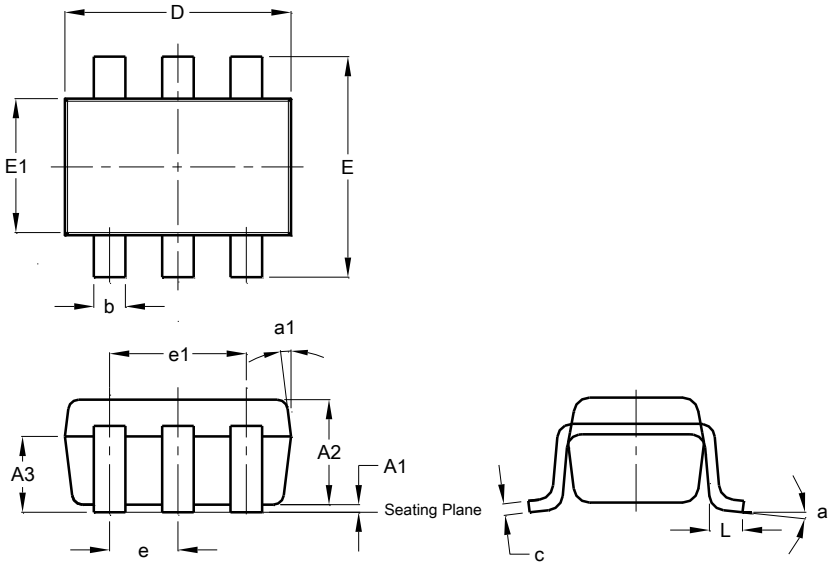


Fig. 11 Derating Curve - Total

Package Outline Dimensions

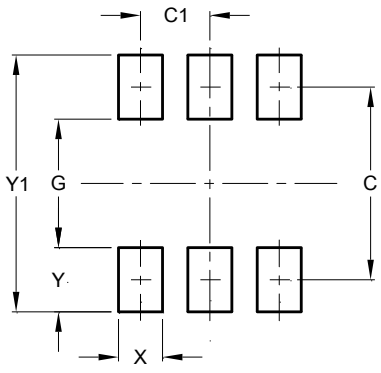
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for the latest version.



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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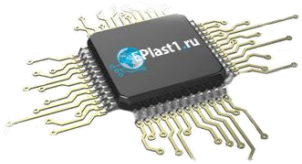
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



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