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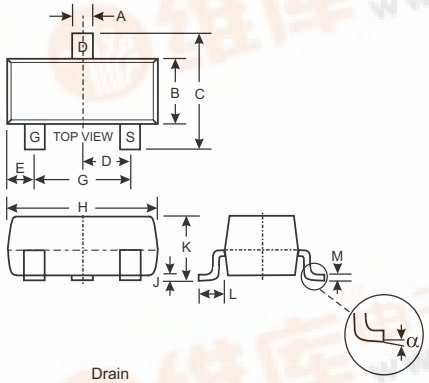
DMN5L06K

N-CHANNEL ENHANCEMENT MODE FIELD EFFECT TRANSISTOR

NEW PRODUCT

Features

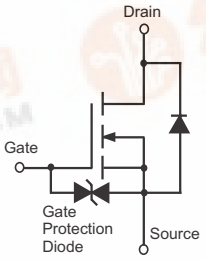
- Low On-Resistance: $R_{DS(ON)}$
- Very Low Gate Threshold Voltage
- Low Input Capacitance
- Fast Switching Speed
- Low Input/Output Leakage
- **Lead Free By Design/RoHS Compliant (Note 2)**
- **ESD Protected Up To 2kV**
- **"Green" Device (Note 4)**
- **Qualified to AEC-Q101 standards for High Reliability**



SOT-23		
Dim	**Min**	**Max**
A	0.37	0.51
B	1.20	1.40
C	2.30	2.50
D	0.89	1.03
E	0.45	0.60
G	1.78	2.05
H	2.80	3.00
J	0.013	0.10
K	0.903	1.10
L	0.45	0.61
M	0.085	0.180
α	0°	8°
All Dimensions in mm		

Mechanical Data

- Case: SOT-23
- 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 Alloy 42 leadframe. Solderable per MIL-STD-202, Method 208
- Terminal Connections: See Diagram
- Marking: See Last Page
- Ordering & Date Code Information: See Last Page
- Weight: 0.008 grams (approximate)



EQUIVALENT CIRCUIT

ESD protected up to 2kV

Maximum Ratings

@ T_A = 25°C unless otherwise specified

Characteristic		Symbol	Value	Units
Drain-Source Voltage		V_{DSS}	50	V
Gate-Source Voltage		V_{GSS}	±20	V
Drain Current (Note 1)	Continuous Pulsed (Note 3)	I_D	300 800	mA
Total Power Dissipation (Note 1)		P_d	350	mW
Thermal Resistance, Junction to Ambient		$R_{\theta JA}$	357	°C/W
Operating and Storage Temperature Range		T_j, T_{STG}	-65 to +150	°C

Note:
1. Device mounted on FR-4 PCB.
2. No purposefully added lead.
3. Pulse width ≤10μS, Duty Cycle ≤1%.
4. Diodes Inc.'s "Green" policy can be found on our website at http://www.diodes.com/products/lead_free/index.php.

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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}	50	—	—	V	$V_{GS} = 0V$, $I_D = 10\mu A$
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	$V_{GS} = \pm12V$, $V_{DS} = 0V$ $V_{GS} = \pm10V$, $V_{DS} = 0V$ $V_{GS} = \pm5V$, $V_{DS} = 0V$
ON CHARACTERISTICS (Note 5)						
Gate Threshold Voltage	$V_{GS(th)}$	0.49	—	1.2	V	$V_{DS} = V_{GS}$, $I_D = 250\mu A$
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: 5. Short duration test pulse used to minimize self-heating effect.

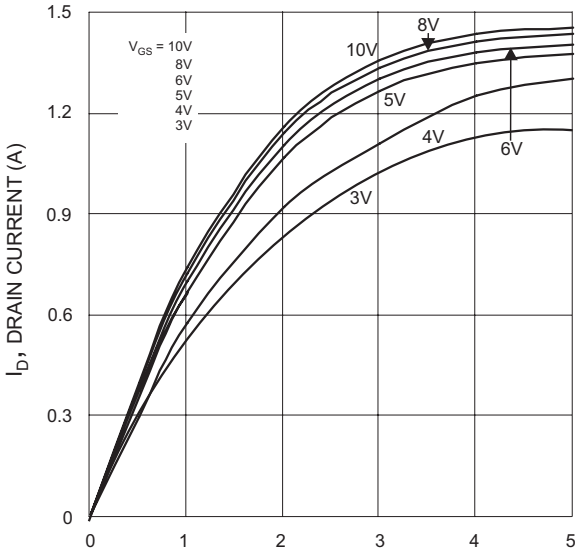

Fig. 1 Typical Output Characteristics

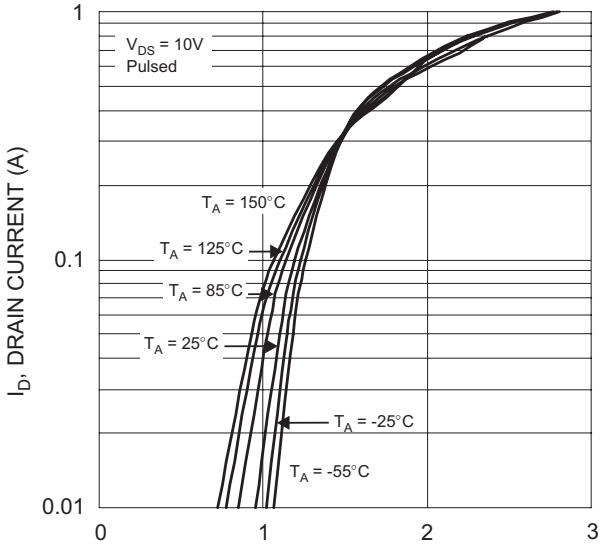

Fig. 2 Typical Transfer Characteristics

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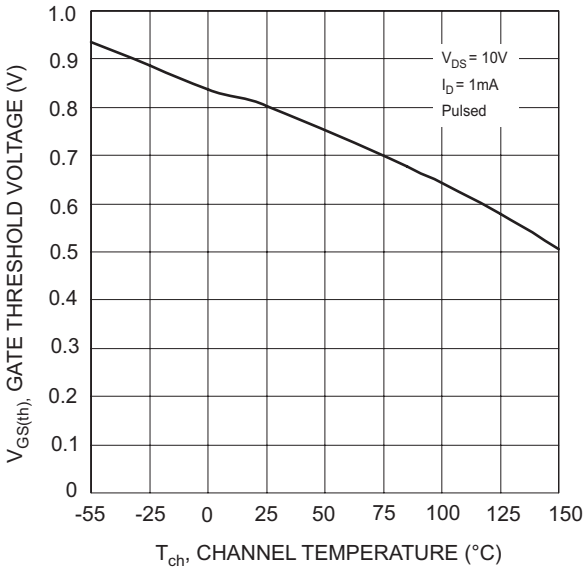

Fig. 3 Gate Threshold Voltage vs. Channel Temperature

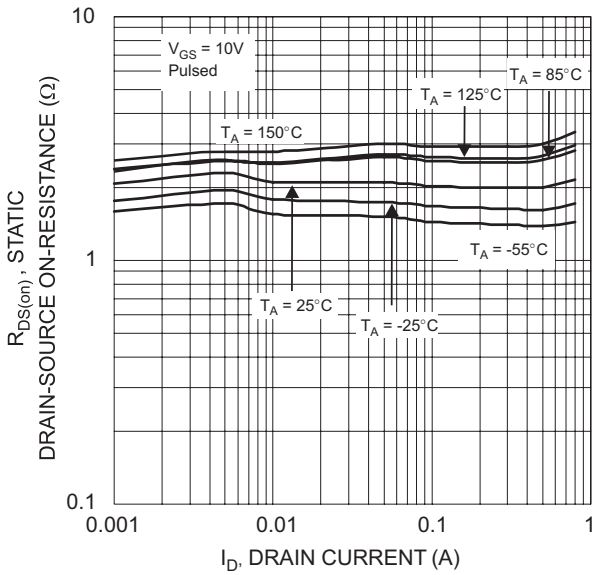

Fig. 4 Static Drain-Source On-Resistance vs. Drain Current

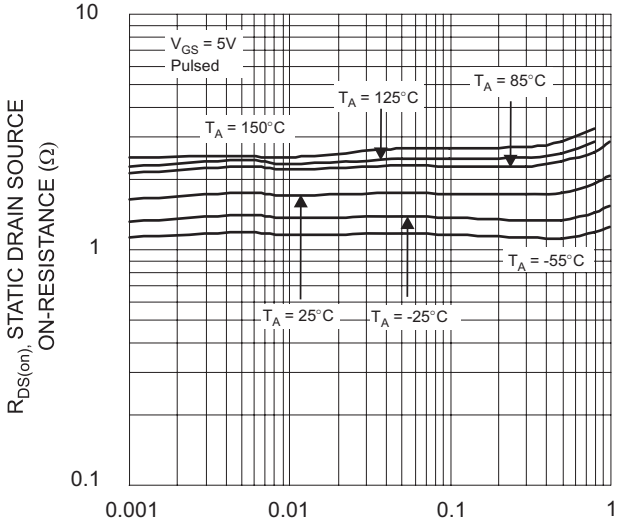

Fig. 5 Static Drain-Source On-Resistance vs. Drain Current

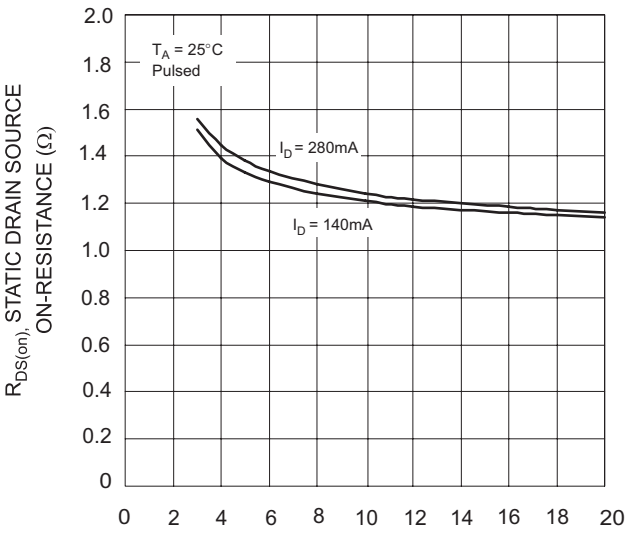

Fig. 6 Static Drain-Source On-Resistance vs. Gate-Source Voltage

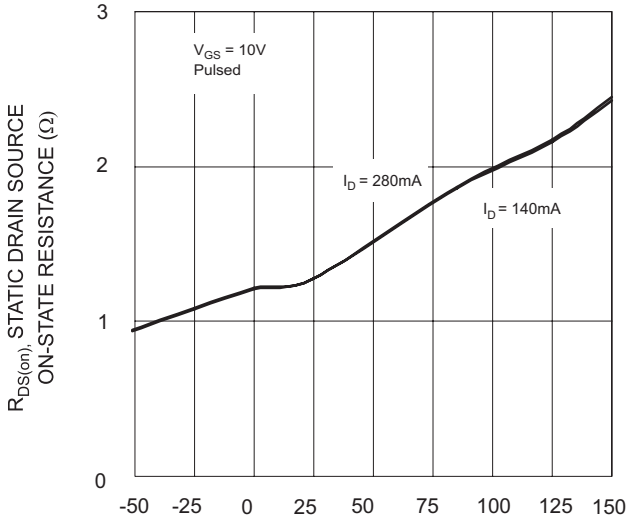

Fig. 7 Static Drain-Source On-State Resistance vs. Channel Temperature

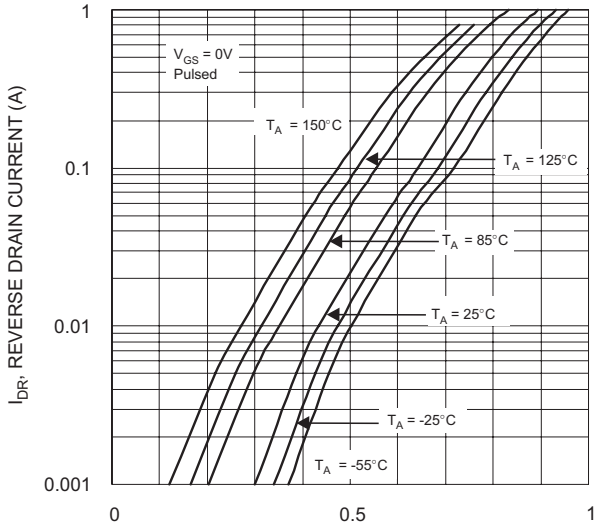

Fig. 8 Reverse Drain Current vs. Source-Drain Voltage

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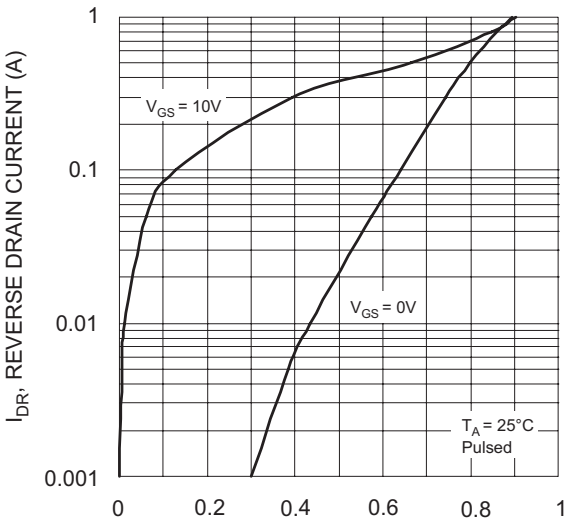

Fig. 9 Reverse Drain Current vs. Source-Drain Voltage

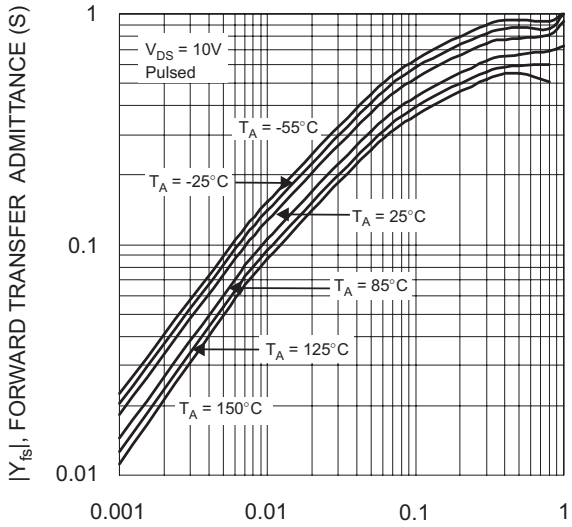

Fig.10 Forward Transfer Admittance vs. Drain Current

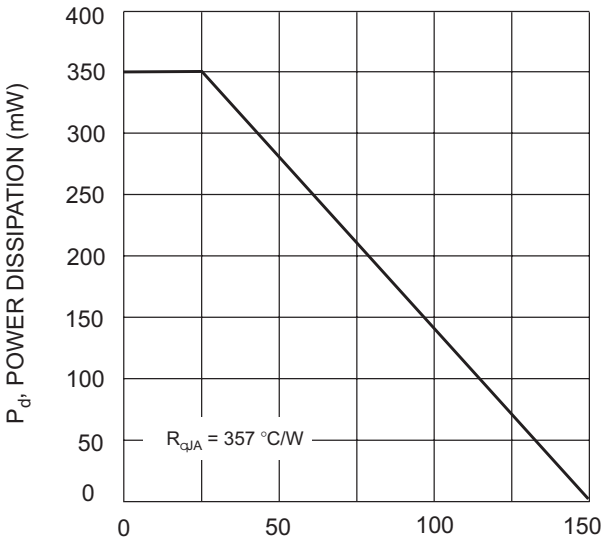

Fig. 11 Derating Curve - Total

Ordering Information (Note 6)

Device	Packaging	Shipping
DMN5L06K-7	SOT-23	3000/Tape & Reel

Notes: 6. For Packaging Details, go to our website at http://www.diodes.com/datasheets/ap02007.pdf.

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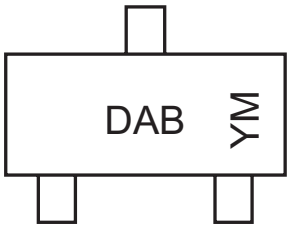
Marking Information



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

Date Code Key

Year	2006	2007	2008	2009
Code	T	U	V	W

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

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