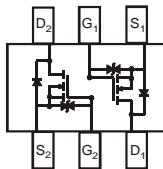


Features

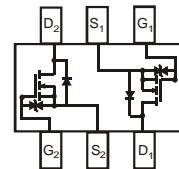
- Dual N-Channel MOSFET
- Low On-Resistance
- Very Low Gate Threshold Voltage, 1.0V Max
- Low Input Capacitance
- Fast Switching Speed
- Low Input/Output Leakage
- Ultra-Small Surface Mount Package
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **ESD Protected up to 2kV**
- **Qualified to AEC-Q101 Standards for High Reliability**



SOT563
Top View



DMN5L06VK



DMN5L06VAK
DMN5010VAK

Mechanical Data

- Case: SOT563
- Case Material: Molded Plastic, "Green" Molding Compound.
- UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections: See Diagram
- Terminals: Finish – Matte Tin Annealed over Copper Leadframe.
- Solderable per MIL-STD-202, Method 208 
- Weight: 0.006 grams (Approximate)

Ordering Information (Note 4)

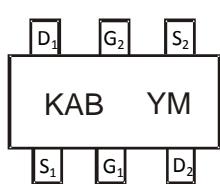
Part Number	Case	Packaging
DMN5L06VK-7	SOT563	3,000/Tape & Reel
DMN5L06VK-7A	SOT563	3,000/Tape & Reel
DMN5L06VK-13	SOT563	10,000/Tape & Reel
DMN5L06VK-13A	SOT563	10,000/Tape & Reel
DMN5L06VAK-7	SOT563	3,000/Tape & Reel
DMN5L06VAK-7A	SOT563	3,000/Tape & Reel
DMN5L06VAK-13	SOT563	10,000/Tape & Reel
DMN5L06VAK-13A	SOT563	10,000/Tape & Reel
DMN5010VAK-7	SOT563	3,000/Tape & Reel
DMN5010VAK-7A	SOT563	3,000/Tape & Reel
DMN5010VAK-13	SOT563	10,000/Tape & Reel
DMN5010VAK-13A	SOT563	10,000/Tape & Reel

Notes:

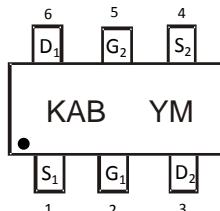
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
2. See http://www.diodes.com/quality/lead_free.html for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
4. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

Marking Information (Note 5 & 6)

DMN5L06VK-7/-13 (Note 5)



DMN5L06VK-7A/-13A (Note 6)



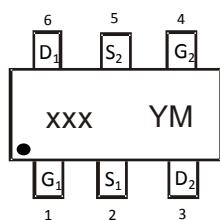
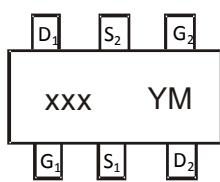
KAB= DMN5L06VK Product Type
Marking Code

YM= Date Code Marking

Y = Year (ex: E = 2017)

M = Month (ex: 9 = September)

 DMN5L06VAK-7/-13 (Note 5)
DMN5010VAK-7/-13 (Note 5)

 DMN5L06VAK-7A/-13A (Note 6)
DMN5010VAK-7A/-13A (Note 6)


xxx= Product Type Marking Code:
KAE or KAE or KAC

YM= Date Code Marking

Y = Year (ex: E = 2017)

M = Month (ex: 9 = September)

Date Code Key

Year	2006	~	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Code	T	~	D	E	F	G	H	I	J	K	L	M
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

Notes: 5. Package is non-polarized. Parts may be on reel in orientation illustrated, 180° rotated, or mixed (both ways).

6. Part number with suffix 7A and 13A designates devices marked with a Pin 1 indicator. There is no other difference between both devices.

Maximum Ratings (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Drain Source Voltage	V_{DSS}	50	V
Drain-Gate Voltage $R_{GS} \leq 1.0\text{M}\Omega$	V_{DGR}	50	V
Gate-Source Voltage	Continuous Pulsed	V_{GSS} ± 20 ± 40	V
Drain Current (Note 7)	Continuous Pulsed	I_D I_{DM}	mA A
		280 1.5	

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Total Power Dissipation (Note 7)	P_D	250	mW
Thermal Resistance, Junction to Ambient (Note 7)	$R_{\theta JA}$	500	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 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 @ $T_J = +25^\circ\text{C}$ @ $T_J = +0^\circ\text{C}$ to $+85^\circ\text{C}$ (Note 9)	$V_{GS(TH)}$	0.49 0.30	—	1.0 1.2	V	$V_{DS} = V_{GS}, I_D = 250\mu\text{A}$
Static Drain-Source On-Resistance	$R_{DS(ON)}$	— — —	— — —	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	$I_{D(ON)}$	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 (Note 9)						
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: 7. Device mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout.

8. Short duration pulse test used to minimize self-heating effect.

9. Guaranteed by design. Not subject to product testing.

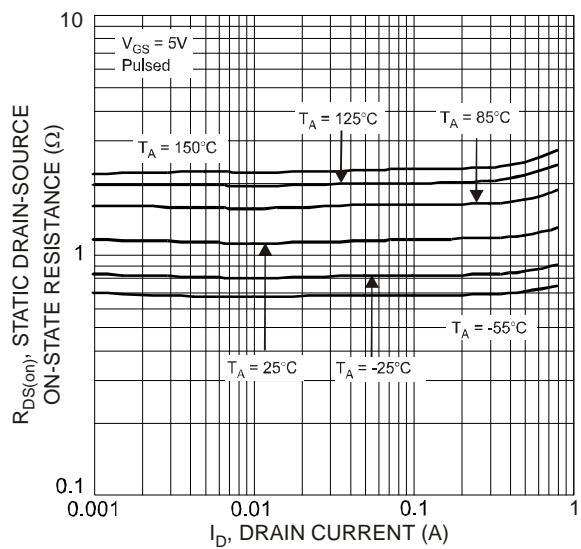
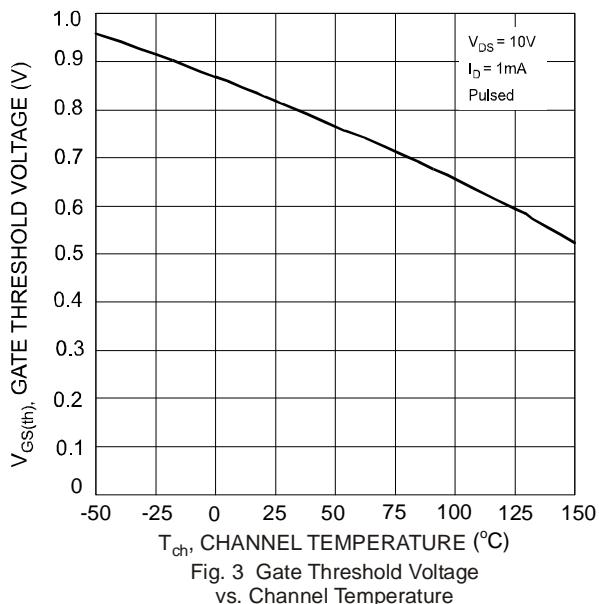
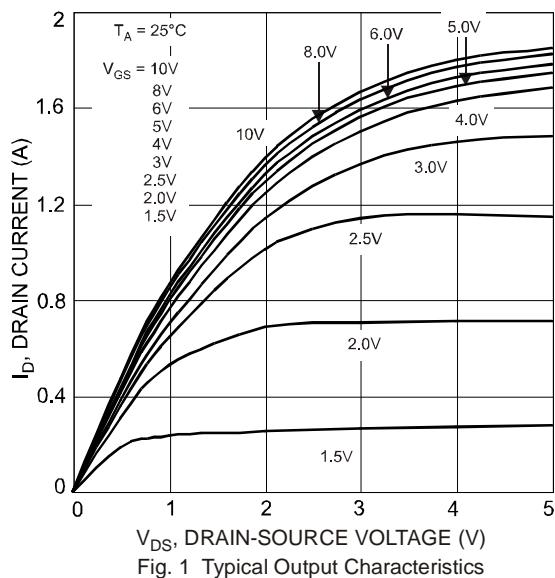
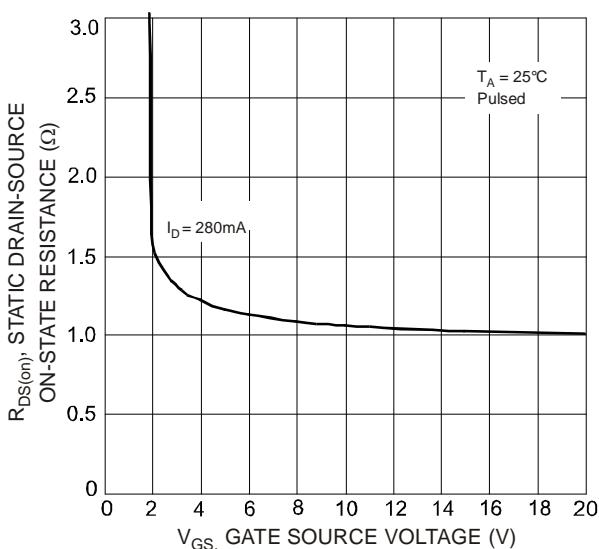
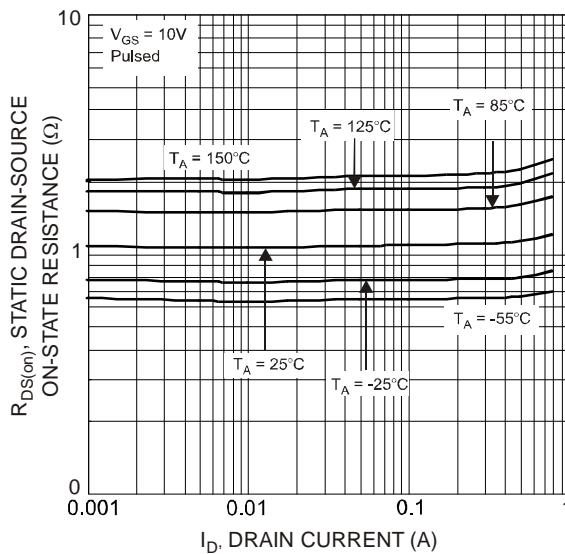
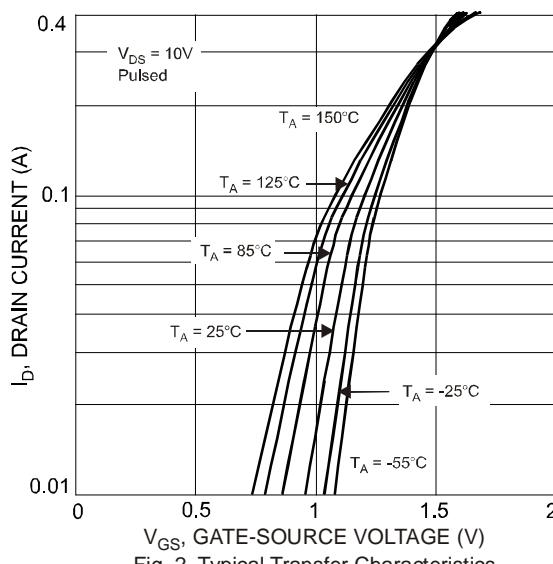


Fig. 5 Static Drain-Source On-Resistance vs. Drain Current



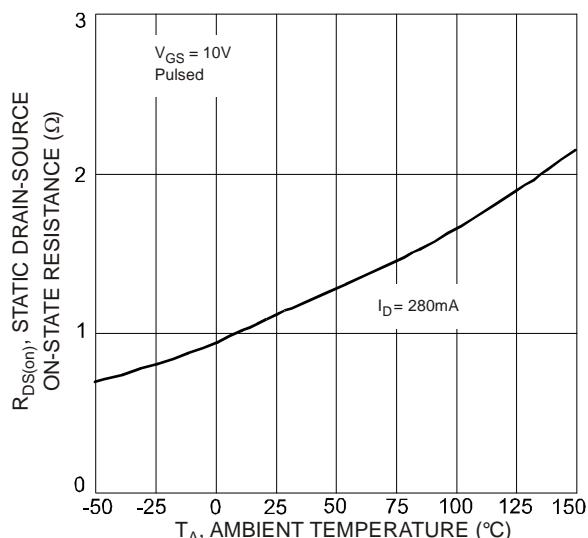


Fig. 7 Static Drain-Source On-State Resistance vs. Ambient Temperature

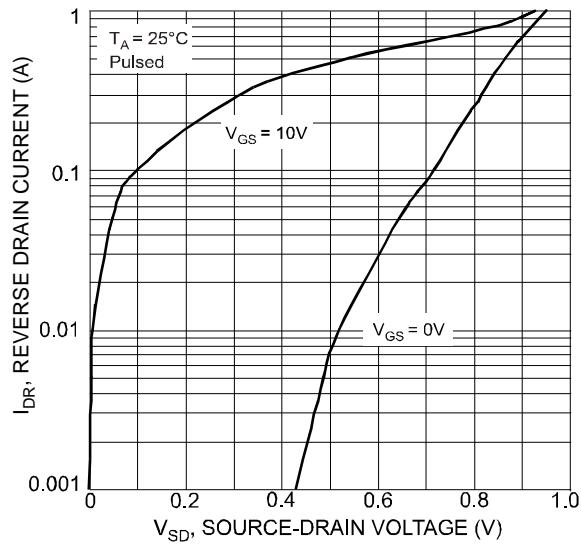


Fig. 9 Reverse Drain Current vs. Source-Drain Voltage

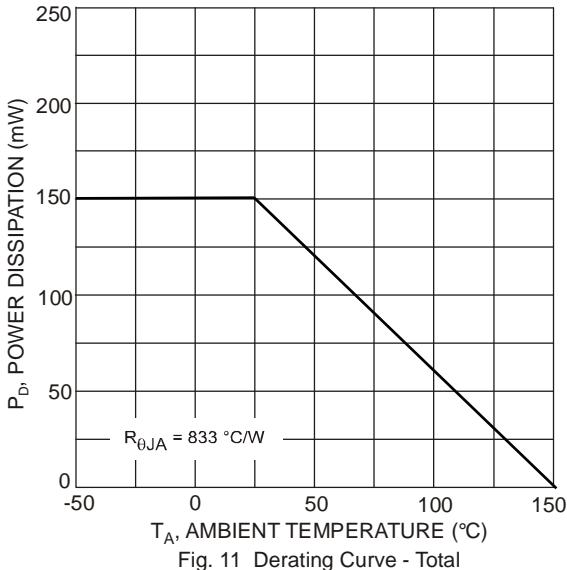


Fig. 11 Derating Curve - Total

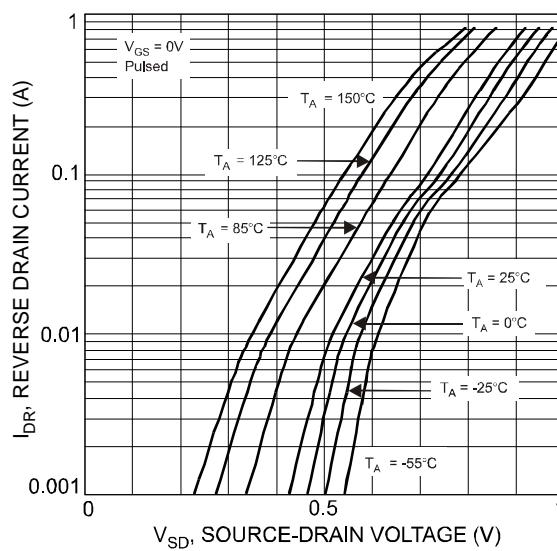


Fig. 8 Reverse Drain Current vs. Source-Drain Voltage

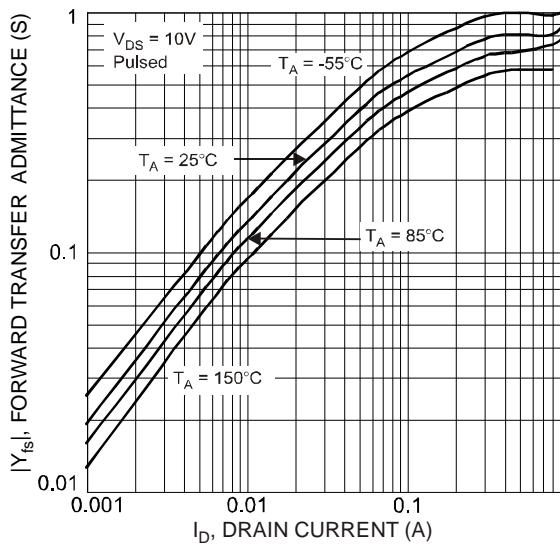
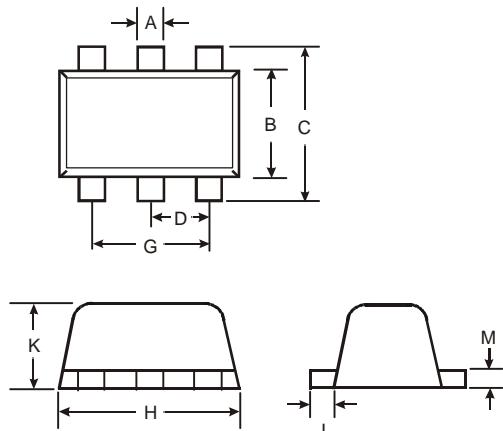


Fig. 10 Forward Transfer Admittance vs. Drain Current

Package Outline Dimensions

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

SOT563



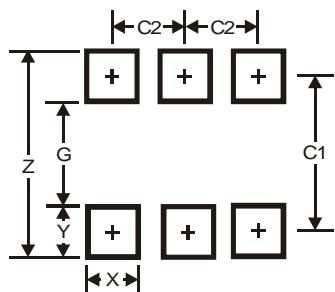
SOT563			
Dim	Min	Max	Typ
A	0.15	0.30	0.20
B	1.10	1.25	1.20
C	1.55	1.70	1.60
D	-	-	0.50
G	0.90	1.10	1.00
H	1.50	1.70	1.60
K	0.55	0.60	0.60
L	0.10	0.30	0.20
M	0.10	0.18	0.11

All Dimensions in mm

Suggested Pad Layout

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

SOT563



Dimensions	Value (in mm)
Z	2.2
G	1.2
X	0.375
Y	0.5
C1	1.7
C2	0.5

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