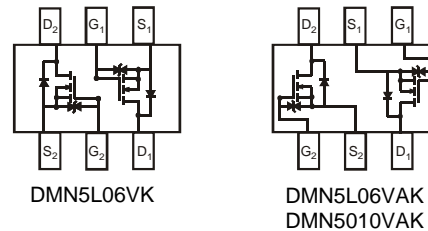
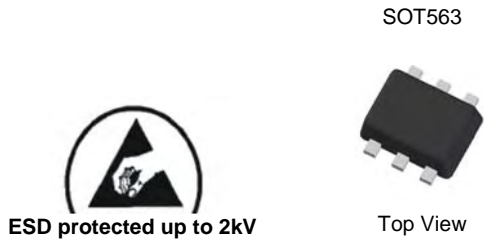


DUAL N-CHANNEL ENHANCEMENT MODE MOSFET
Features

- 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**

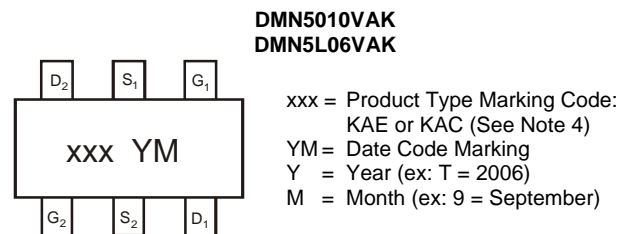
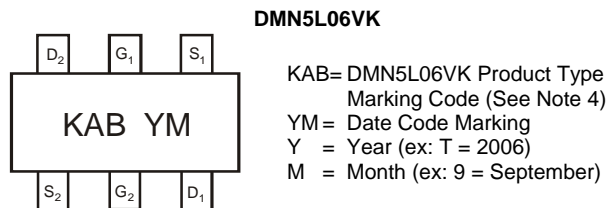
Mechanical Data

- 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 (3)
- Weight: 0.006 grams (approximate)


Ordering Information (Note 4)

Part Number	Case	Packaging
DMN5L06VK-7	SOT563	3,000/Tape & Reel
DMN5L06VK-13	SOT563	10,000/Tape & Reel
DMN5L06VAK-7	SOT563	3,000/Tape & Reel
DMN5L06VAK-13	SOT563	10,000/Tape & Reel
DMN5010VAK-7	SOT563	3,000/Tape & Reel
DMN5010VAK-13	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> 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>.
 5. Package is non-polarized. Parts may be on reel in orientation illustrated, 180° rotated, or mixed (both ways).

Marking Information (Note 5)


Date Code Key

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Code	T	U	V	W	X	Y	Z	A	B	C	D	E

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
Drain-Gate Voltage $R_{GS} \leq 1.0M\Omega$		V_{DGR}	50	V
Gate-Source Voltage	Continuous	V_{GSS}	± 20	V
	Pulsed		± 40	
Drain Current (Note 6)	Continuous	I_D	280	mA
	Pulsed	I_{DM}	1.5	A

Thermal Characteristics

Characteristic		Symbol	Value	Unit
Total Power Dissipation (Note 6)		P_D	250	mW
Thermal Resistance, Junction to Ambient (Note 6)		$R_{\theta JA}$	500	$^\circ\text{C}/\text{W}$
Operating and Storage Temperature Range		T_J, T_{STG}	-55 to +150	$^\circ\text{C}$

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 7)						
Drain-Source Breakdown Voltage	BV_{DSS}	50	—	—	V	$V_{GS} = 0V, I_D = 10\mu\text{A}$
Zero Gate Voltage Drain Current	I_{DSS}	—	—	60	nA	@ $T_C = +25^\circ\text{C}$ $V_{DS} = 50V, V_{GS} = 0V$
Gate-Body Leakage	I_{GSS}	—	—	1	μA	$V_{GS} = \pm 12V, V_{DS} = 0V$
				500	nA	$V_{GS} = \pm 10V, V_{DS} = 0V$
				50	nA	$V_{GS} = \pm 5V, V_{DS} = 0V$
ON CHARACTERISTICS (Note 7)						
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	$R_{DS(ON)}$	—	—	3.0	Ω	$V_{GS} = 1.8V, I_D = 50\text{mA}$
		—	—	2.5		$V_{GS} = 2.5V, I_D = 50\text{mA}$
		—	—	2.0		$V_{GS} = 5.0V, I_D = 50\text{mA}$
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	$V_{GS} = 0V, I_S = 115\text{mA}$
DYNAMIC CHARACTERISTICS (Note 8)						
Input Capacitance	C_{iss}	—	—	50	pF	$V_{DS} = 25V, V_{GS} = 0V$ $f = 1.0\text{MHz}$
Output Capacitance	C_{oss}	—	—	25	pF	
Reverse Transfer Capacitance	C_{rss}	—	—	5.0	pF	

- Notes:
6. Device mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout.
 7. Short duration pulse test used to minimize self-heating effect.
 8. Guaranteed by design. Not subject to product testing.

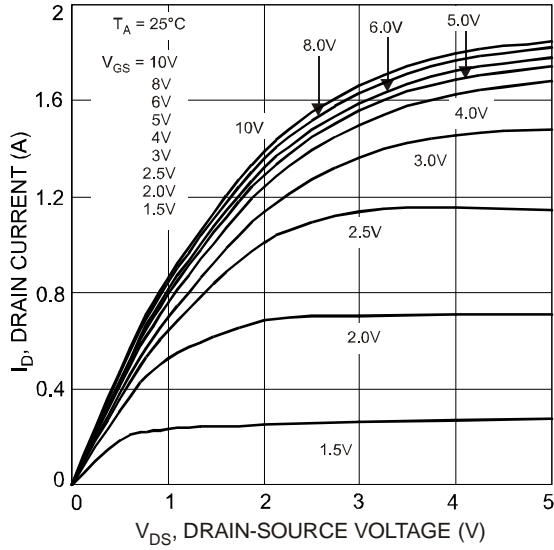


Fig. 1 Typical Output Characteristics

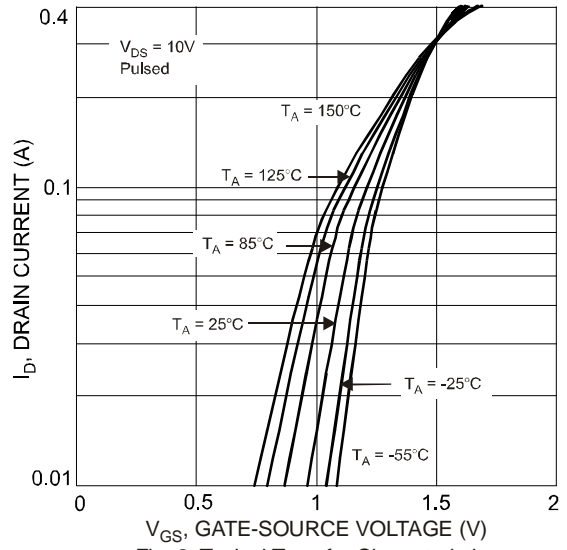


Fig. 2 Typical Transfer Characteristics

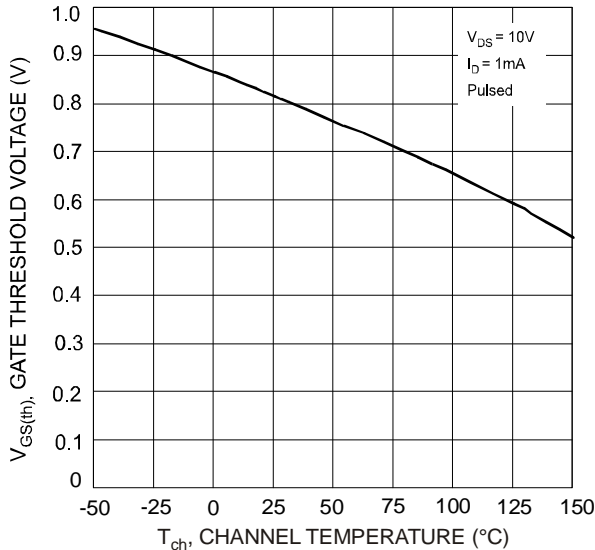


Fig. 3 Gate Threshold Voltage vs. Channel Temperature

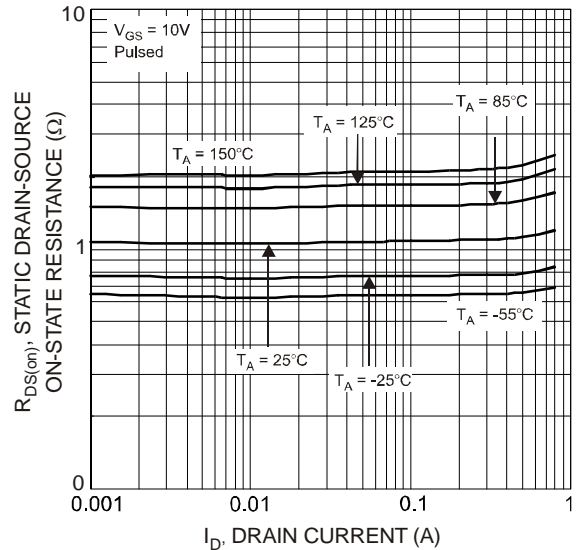


Fig. 4 Static Drain-Source On-Resistance vs. Drain Current

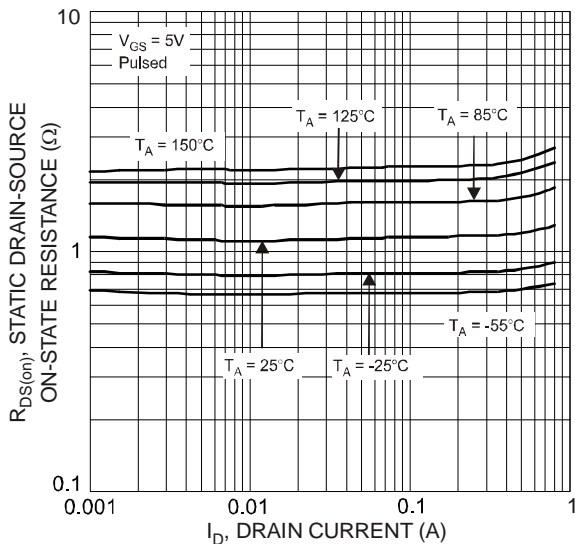


Fig. 5 Static Drain-Source On-Resistance vs. Drain Current

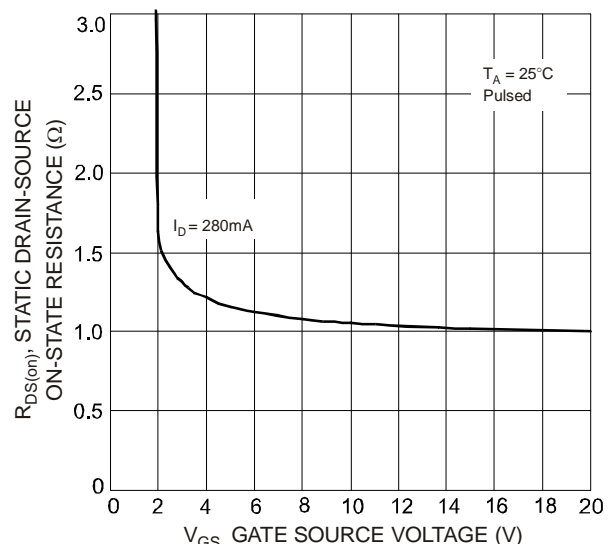


Fig. 6 Static Drain-Source On-Resistance vs. Gate-Source Voltage

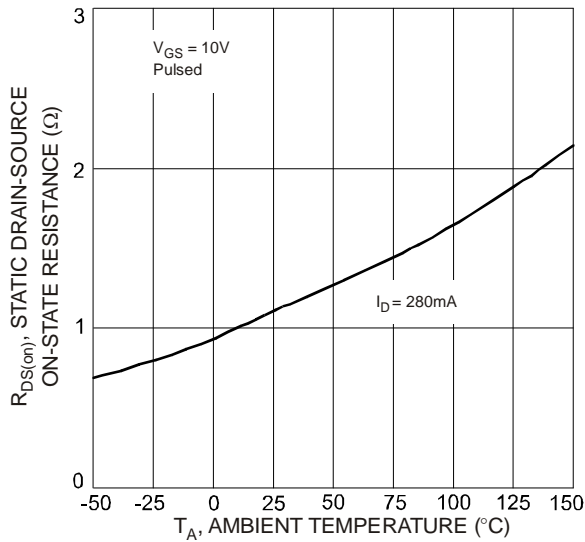


Fig. 7 Static Drain-Source On-State Resistance vs. Ambient Temperature

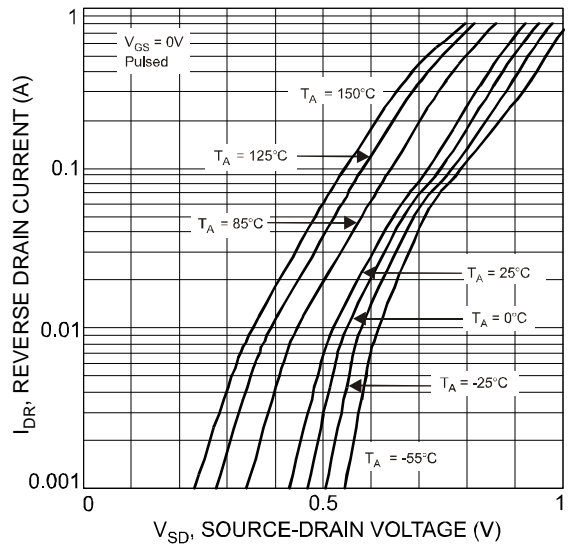


Fig. 8 Reverse Drain Current vs. Source-Drain Voltage

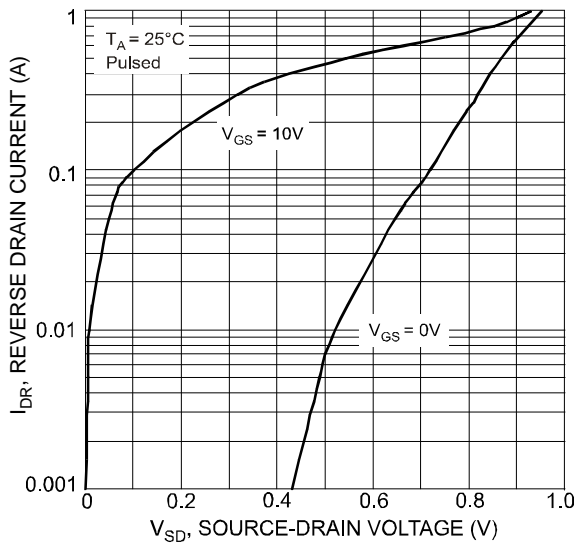


Fig. 9 Reverse Drain Current vs. Source-Drain Voltage

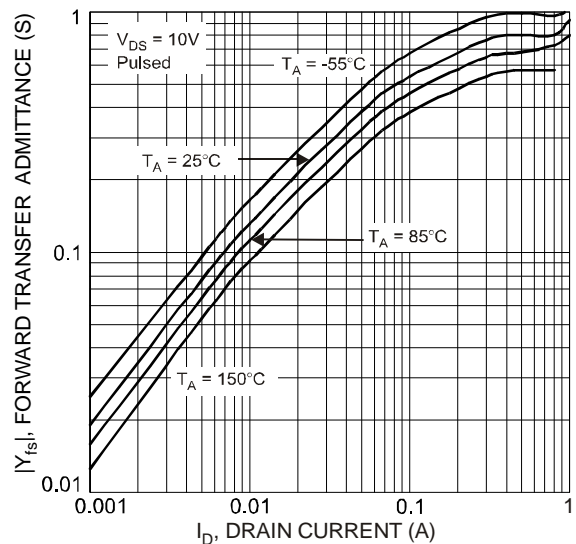


Fig. 10 Forward Transfer Admittance vs. Drain Current

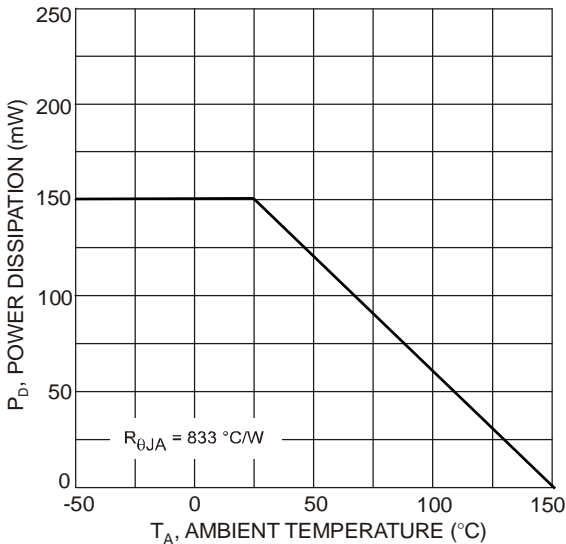
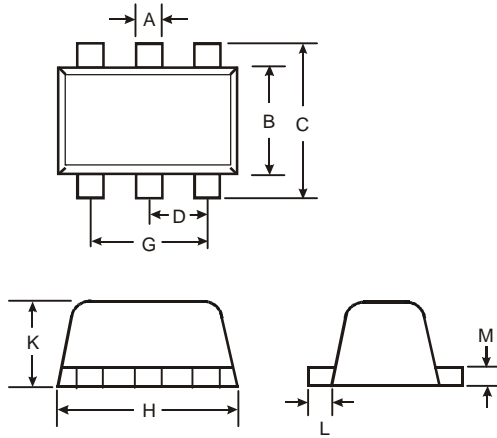


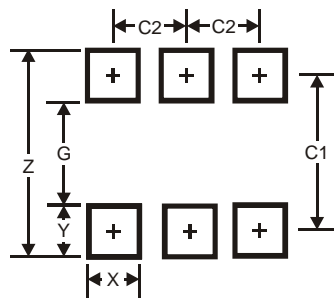
Fig. 11 Derating Curve - Total

Package Outline Dimensions



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



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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- Подбор аналогов;
- Консультации по применению компонента;
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- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



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