



DMN601VK

DUAL N-CHANNEL ENHANCEMENT MODE FIELD EFFECT TRANSISTOR

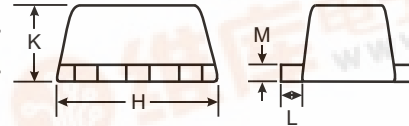
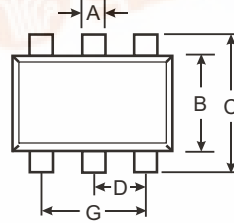
NEW PRODUCT

Features

- Dual N-Channel MOSFET
- Low On-Resistance
- Low Gate Threshold Voltage
- Low Input Capacitance
- Fast Switching Speed
- Low Input/Output Leakage
- Ultra-Small Surface Mount Package
- **Lead Free By Design/RoHS Compliant (Note 2)**
- **ESD Protected Up To 2kV**
- "Green" Device (Note 4)

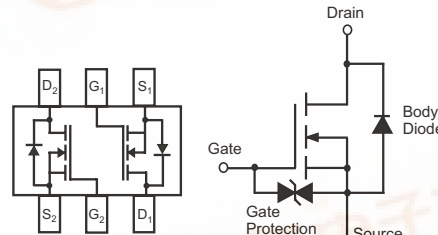
Mechanical Data

- Case: SOT-563
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminals Connections: See Diagram
- Terminals: Finish - Matte Tin annealed over Alloy 42 leadframe. Solderable per MIL-STD-202, Method 208
- Marking: See Page 2
- Ordering & Date Code Information: See Page 2
- Weight: 0.006 grams (approximate)



SOT-563			
Dim	Min	Max	Typ
A	0.15	0.30	0.25
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	0.56	0.60	0.60
L	0.10	0.30	0.20
M	0.10	0.18	0.11

All Dimensions in mm



EQUIVALENT CIRCUIT PER ELEMENT



ESD protected up to 2kV

Maximum Ratings @ T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Units
Drain-Source Voltage	V _{DSS}	60	V
Gate-Source Voltage	V _{GSS}	±20	V
Drain Current (Note 1)	I _D	305	mA
		800	
Total Power Dissipation (Note 1)	P _d	250	mW
Thermal Resistance, Junction to Ambient	R _{θJA}	500	°C/W
Operating and Storage Temperature Range	T _j , T _{STG}	-65 to +150	°C

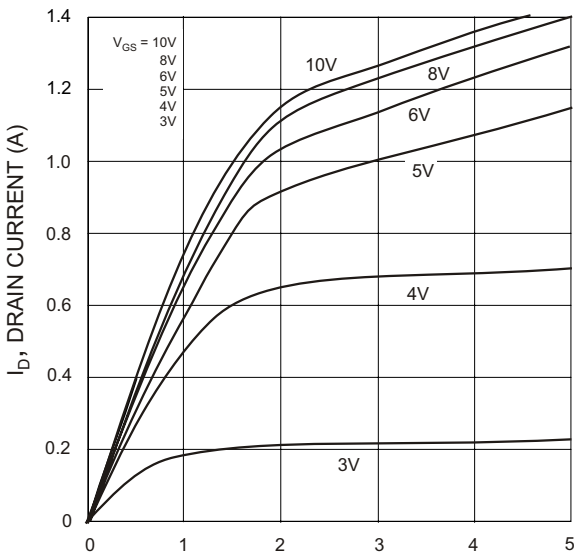
- Note:
1. Device mounted on FR-4 PCB.
 2. No purposefully added lead.
 3. Pulse width ≤ 10μs, Duty Cycle ≤ 1%.
 4. Diodes Inc.'s "Green" policy can be found on our website at http://www.diodes.com/products/lead_free/index.php.



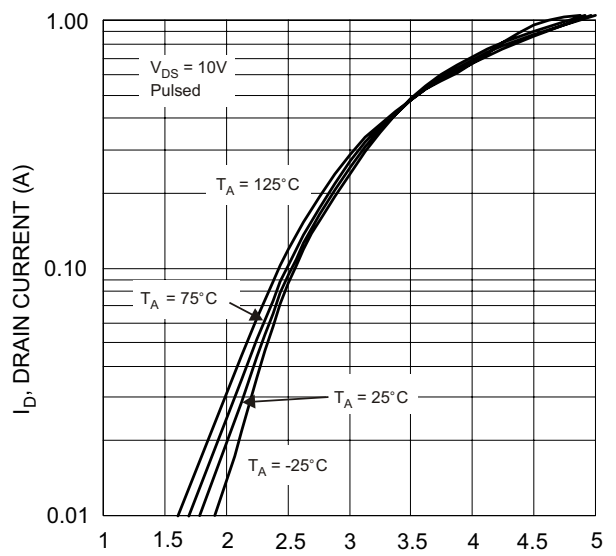
Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 5)						
Drain-Source Breakdown Voltage	BV_{DSS}	60	—	—	V	$V_{GS} = 0V, I_D = 10\mu A$
Zero Gate Voltage Drain Current	I_{DSS}	—	—	250	nA	$V_{DS} = 50V, V_{GS} = 0V$
Gate-Source Leakage	I_{GSS}	—	—	± 200	nA	$V_{GS} = \pm 10V, V_{DS} = 0V$
		—	—	± 50		$V_{GS} = \pm 5V, V_{DS} = 0V$
ON CHARACTERISTICS (Note 5)						
Gate Threshold Voltage	$V_{GS(th)}$	1.0	1.6	2.5	V	$V_{DS} = V_{GS}, I_D = 250\mu A$
Static Drain-Source On-Resistance	$R_{DS(on)}$	—	—	2.0	Ω	$V_{GS} = 10V, I_D = 0.5A$
		—	—	3.0		$V_{GS} = 4.5V, I_D = 200mA$
Forward Transfer Admittance	$ Y_{fs} $	—	284	—	ms	$V_{DS} = 10V, I_D = 0.2A$
Diode Forward Voltage (Note 5)	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	

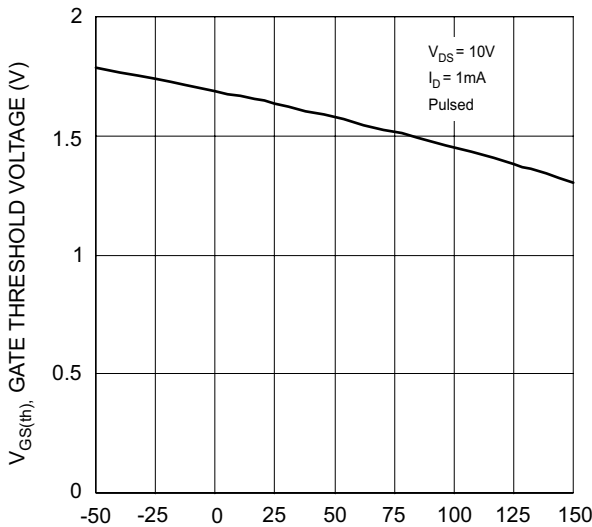
Notes: 5. Short duration test pulse used to minimize self-heating effect.



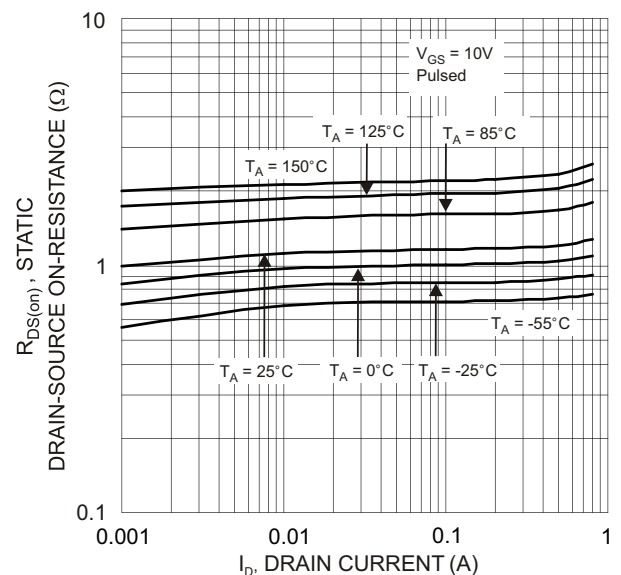
V_{DS} , DRAIN-SOURCE VOLTAGE (V)
Fig. 1 Typical Output Characteristics



V_{GS} , GATE-SOURCE VOLTAGE (V)
Fig. 2 Typical Transfer Characteristics



T_{ch} , CHANNEL TEMPERATURE ($^\circ\text{C}$)
Fig. 3 Gate Threshold Voltage vs. Channel Temperature



$R_{DS(on)}$, STATIC DRAIN-SOURCE ON-RESISTANCE (Ω)
 I_D , DRAIN CURRENT (A)
Fig. 4 Static Drain-Source On-Resistance vs. Drain Current

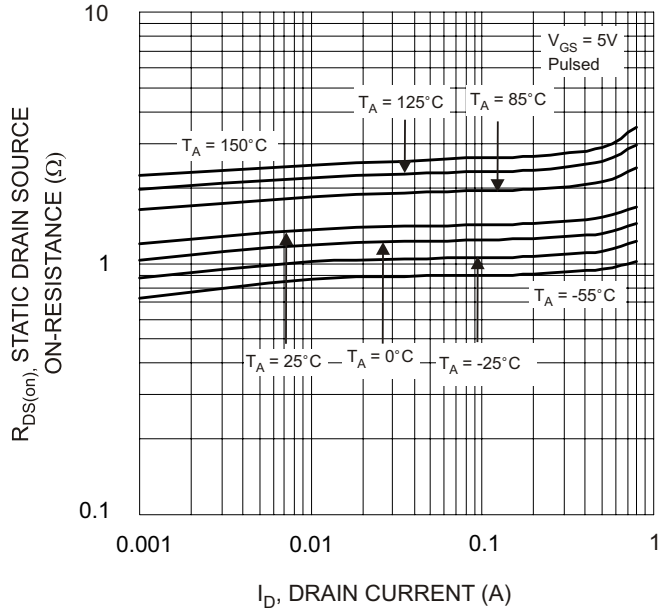


Fig. 5 Static Drain-Source On-Resistance vs. Drain Current

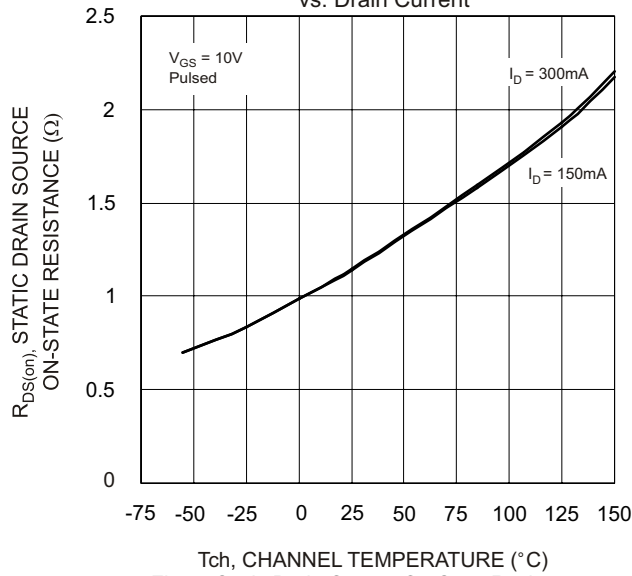


Fig. 7 Static Drain-Source On-State Resistance vs. Channel Temperature

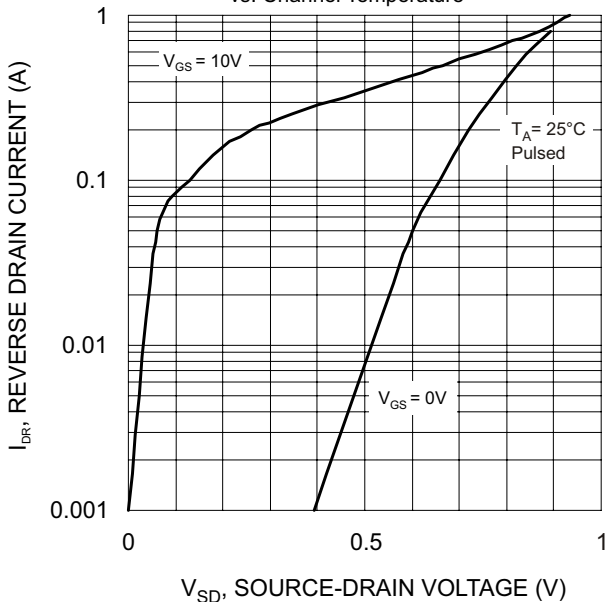


Fig. 9 Reverse Drain Current vs. Source-Drain Voltage

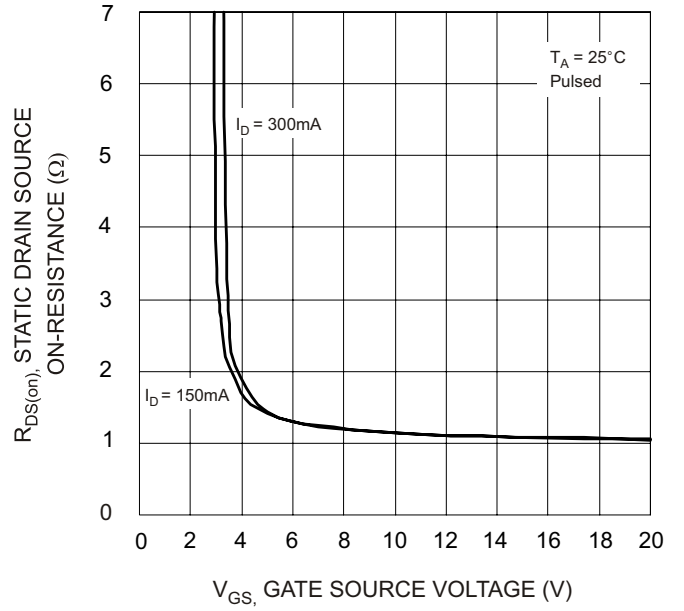


Fig. 6 Static Drain-Source On-Resistance vs. Gate-Source Voltage

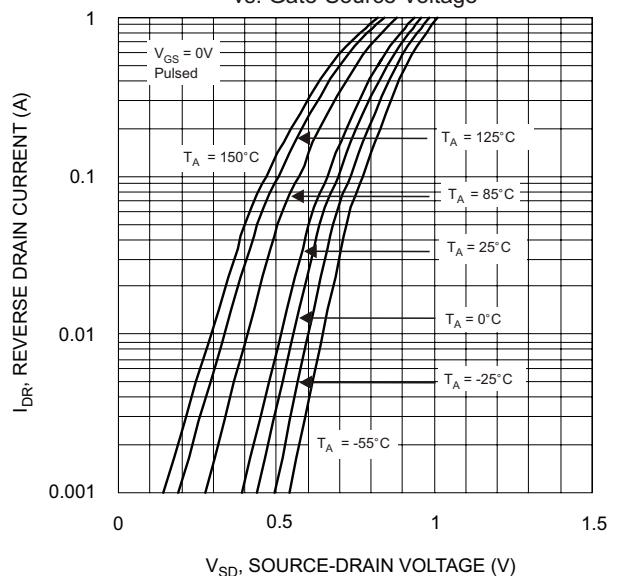


Fig. 8 Reverse Drain Current vs. Source-Drain Voltage

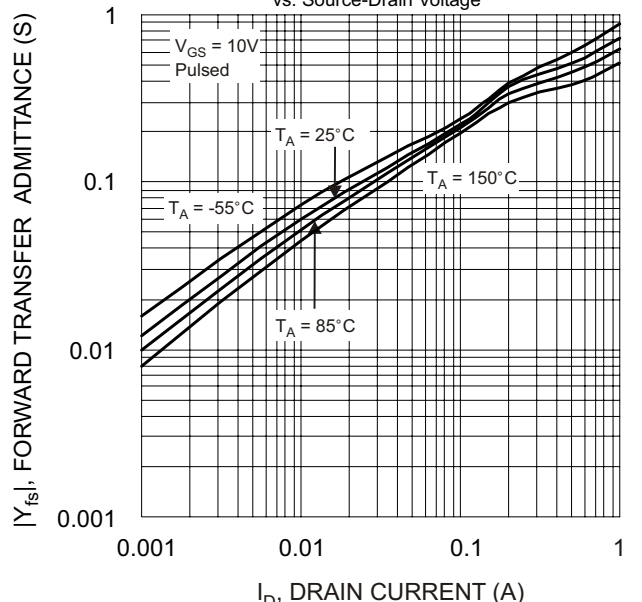


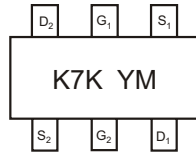
Fig. 10 Forward Transfer Admittance vs. Drain Current

Ordering Information (Note 6)

Device	Packaging	Shipping
DMN601VK-7	SOT-563	3000/Tape & Reel

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

Marking Information



K7K = Marking Code
 YM = Date Code Marking
 Y = Year ex: S = 2005
 M = Month ex: 9 = September

Date Code Key

Year	2005	2006	2007	2008	2009
Code	S	T	U	V	W

Month	Jan	Feb	March	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D