

### Features

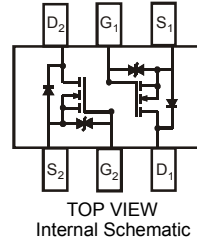
- Dual N-Channel MOSFET
- Low On-Resistance
- Low Gate Threshold Voltage
- Low Input Capacitance
- Fast Switching Speed
- Low Input/Output Leakage
- Ultra-Small Surface Mount Package
- **Lead Free By Design/RoHS Compliant (Note 2)**
- **ESD Protected Up To 2kV**
- **"Green" Device (Note 4)**

### 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
- Terminal Connections: See Diagram
- Terminals: Finish - Matte Tin annealed over Alloy 42 leadframe. Solderable per MIL-STD-202, Method 208
- Marking Information: See Page 3
- Ordering Information: See Page 3
- Weight: 0.006 grams (approximate)



SOT-563


 TOP VIEW  
Internal Schematic

### Maximum Ratings @<sub>T<sub>A</sub></sub> = 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)		Continuous	305
		Pulsed (Note 3)	800
	$I_D$		mA

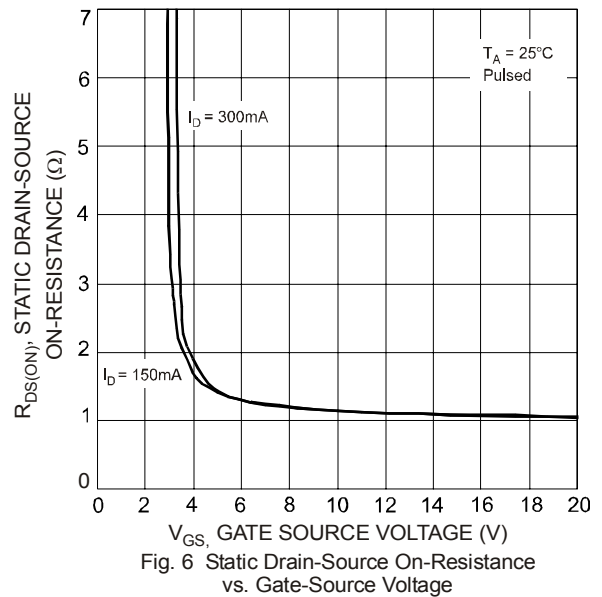
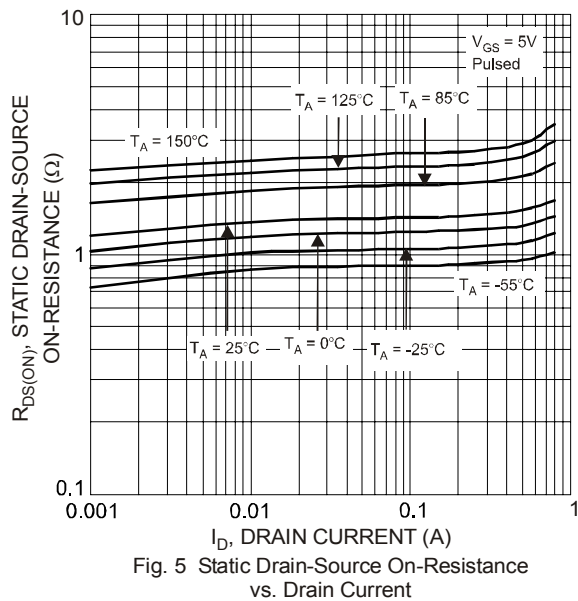
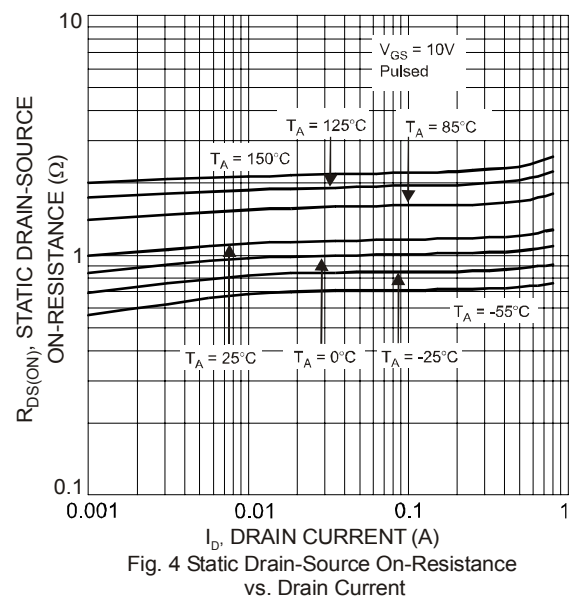
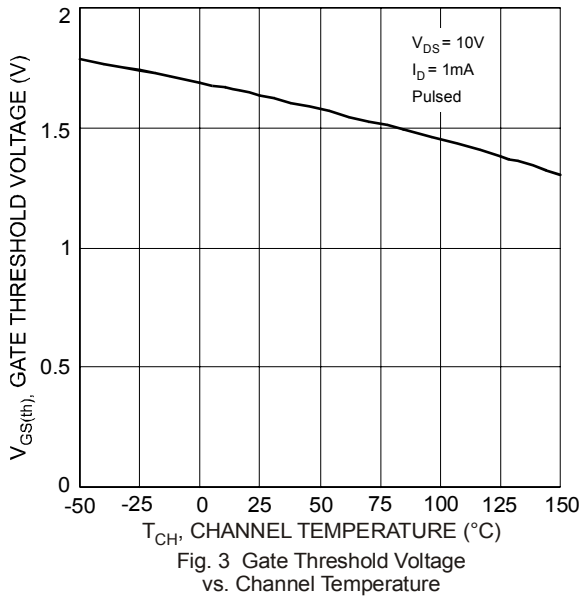
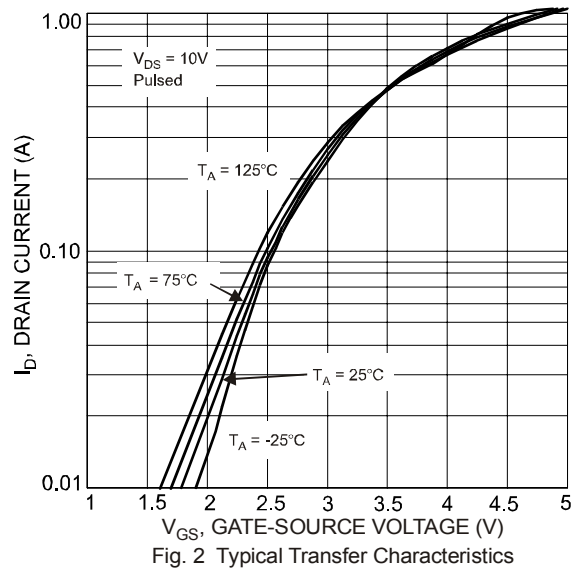
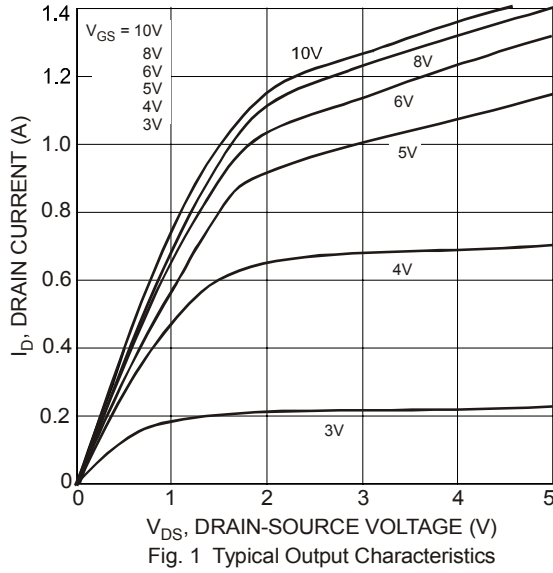
### Thermal Characteristics @<sub>T<sub>A</sub></sub> = 25°C unless otherwise specified

Characteristic	Symbol	Value	Units
Total Power Dissipation (Note 1)	$P_d$	250	mW
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	500	°C/W
Operating and Storage Temperature Range	$T_j, T_{STG}$	-65 to +150	°C

### Electrical Characteristics @<sub>T<sub>A</sub></sub> = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
<b>OFF CHARACTERISTICS (Note 5)</b>						
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	$I_{GSS}$	—	—	±500	nA	$V_{GS} = \pm 10V, V_{DS} = 0V$
		—	—	±100		$V_{GS} = \pm 5V, V_{DS} = 0V$
<b>ON CHARACTERISTICS (Note 5)</b>						
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 3.0	$\Omega$	$V_{GS} = 10V, I_D = 0.5A$ $V_{GS} = 4.5V, I_D = 200mA$
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	$V_{GS} = 0V, I_S = 115mA$
<b>DYNAMIC CHARACTERISTICS</b>						
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:
1. Device mounted on FR-4 PCB.
  2. No purposefully added lead.
  3. Pulse width  $\leq 10\mu s$ , Duty Cycle  $\leq 1\%$ .
  4. Diodes Inc.'s "Green" policy can be found on our website at [http://www.diodes.com/products/lead\\_free/index.php](http://www.diodes.com/products/lead_free/index.php).
  5. Short duration pulse test used to minimize self-heating effect.



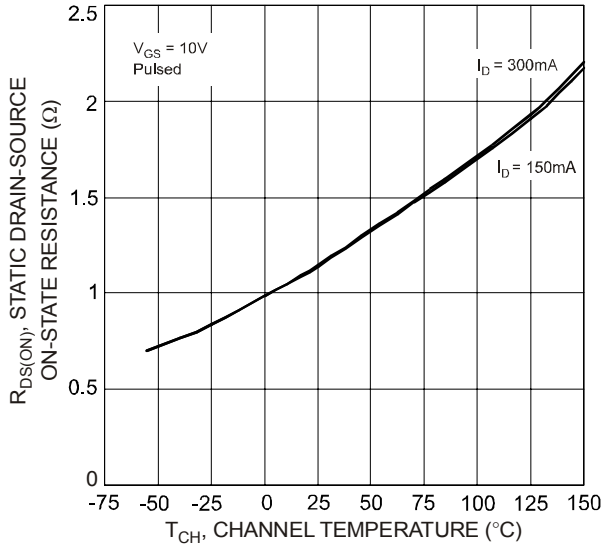


Fig. 7 Static Drain-Source On-State Resistance vs. Channel Temperature

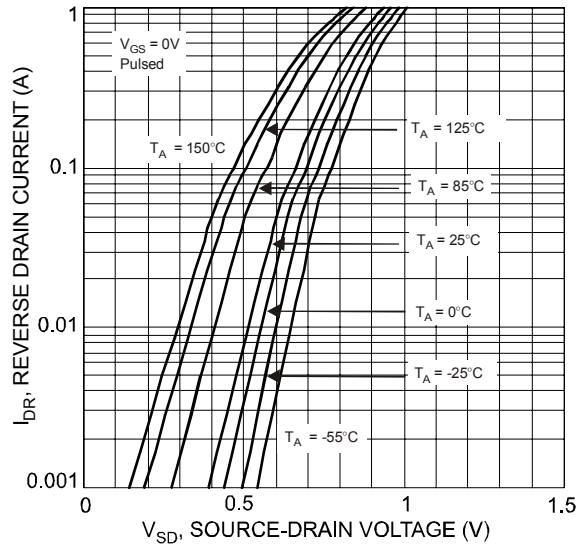


Fig. 8 Reverse Drain Current vs. Source-Drain Voltage

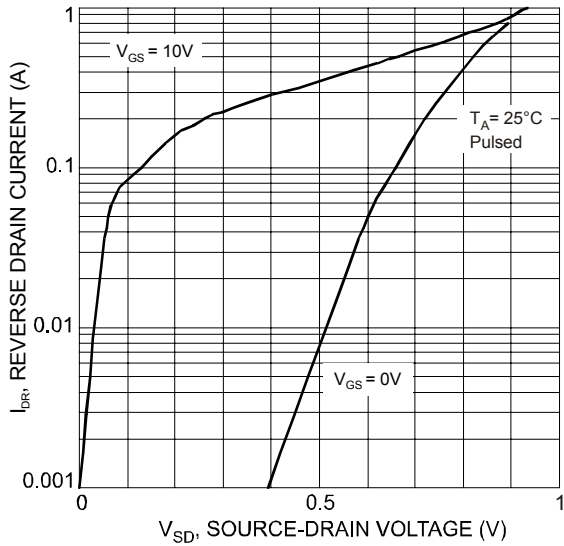


Fig. 9 Reverse Drain Current vs. Source-Drain Voltage

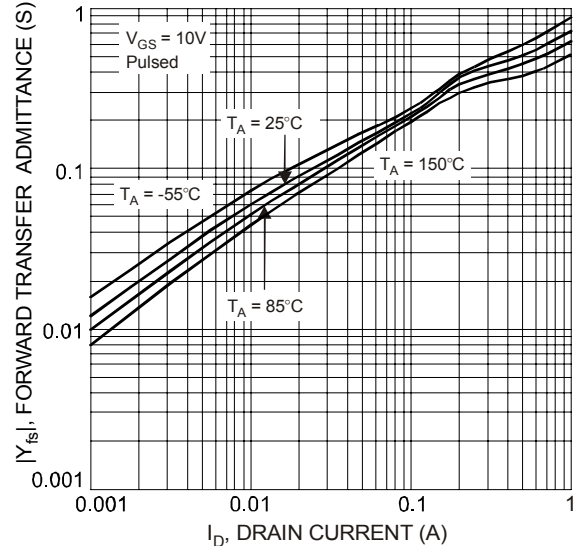


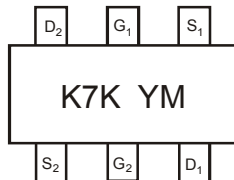
Fig. 10 Forward Transfer Admittance vs. Drain Current

**Ordering Information** (Note 6)

<b>Part Number</b> DMN601VK-7	<b>Case</b> SOT-563	<b>Packaging</b> 3000/Tape & Reel
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Notes: 6. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

**Marking Information**



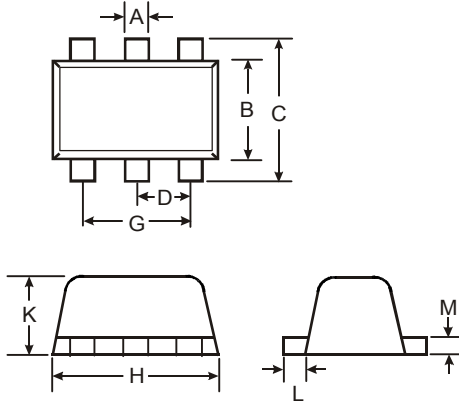
K7K = Marking Code  
YM = Date Code Marking  
Y = Year ex: S = 2005  
M = Month ex: 9 = September

Date Code Key

<b>Year</b>	2005	2006	2007	2008	2009	2010	2011	2012
<b>Code</b>	S	T	U	V	W	X	Y	Z

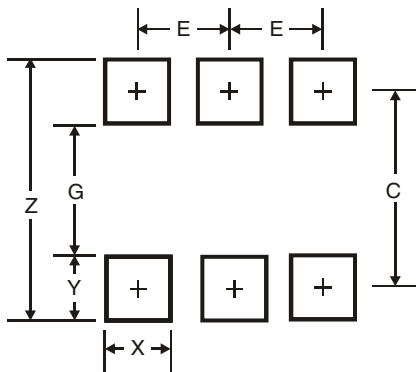
<b>Month</b>	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>Code</b>	1	2	3	4	5	6	7	8	9	O	N	D

**Package Outline Dimensions**



SOT-563			
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
C	1.7
E	0.5

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