



DUAL N-CHANNEL ENHANCEMENT MODE FIELD EFFECT TRANSISTOR

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
- Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)
- Halogen and Antimony Free. "Green" Device (Note 3)
- Qualified to AEC-Q101 Standards for High Reliability
- PPAP Capable (Note 4)

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)

SOT563







TOP VIEW

TOP VIEW Internal Schematic

Ordering Information (Note 5)

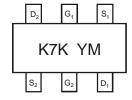
Part Number	Case	Packaging
DMN601VKQ-7	SOT563	3,000/Tape & Reel

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. Automotive products are AEC-Q101 qualified and are PPAP capable. Refer to http://www.diodes.com/product_compliance_definitions.html.
- 5. For packaging details, go to our website at http://www.diodes.com/products/packages.html.

Marking Information

SOT563



K7K = Marking Code YM = Date Code Marking Y = Year (ex: D = 2016) M = Month (ex: 9 = September)

Date Code Key

Month	2005	•••	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Code	S		С	D	Е	F	G	Н	I	J	K	L
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec



Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

Characteristic		Symbol	Value	Unit
Drain-Source Voltage		V_{DSS}	60	V
Gate-Source Voltage		V _{GSS}	±20	V
Drain Current (Note 6)	Continuous Pulsed (Note 7)	ID	305 800	mA

Thermal Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Total Power Dissipation (Note 6)	P_{D}	250	mW
Thermal Resistance, Junction to Ambient	$R_{ heta JA}$	500	°C/W
Operating and Storage Temperature Range	T_J , T_{STG}	-65 to +150	°C

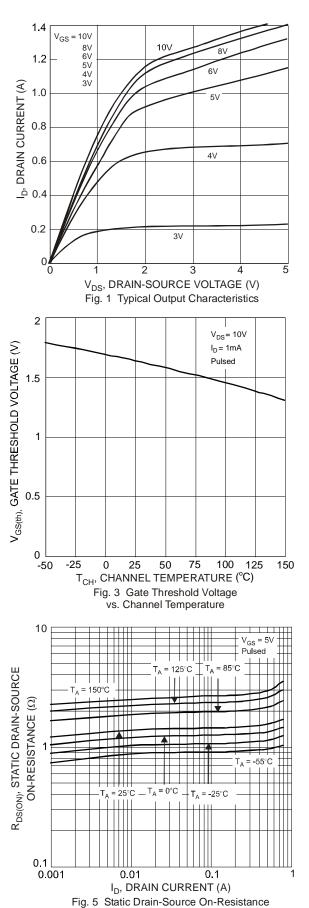
Electrical Characteristics (@T_A = +25°C unless otherwise specified.)

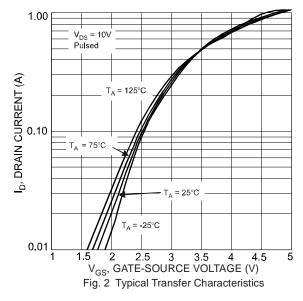
Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 8)						
Drain-Source Breakdown Voltage	BV _{DSS}	60	_		V	$V_{GS} = 0V, I_D = 10\mu A$
Zero Gate Voltage Drain Current	I _{DSS}		_	250	nA	$V_{DS} = 50V, V_{GS} = 0V$
Gate-Source Leakage	Lana		_	±500	na i	$V_{GS} = \pm 10V, V_{DS} = 0V$
Gale-Source Leakage	I _{GSS}		_	±100		$V_{GS} = \pm 5V, V_{DS} = 0V$
ON CHARACTERISTICS (Note 8)						
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	В		_	2.0	Ω	$V_{GS} = 10V, I_D = 0.5A$
Static Dialit-Source Off-Resistance	R _{DS(ON)}	_	_	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 8)	V_{SD}	0.5	_	1.4	V	$V_{GS} = 0V, I_{S} = 115mA$
DYNAMIC CHARACTERISTICS						
Input Capacitance	C _{iss}			50	рF	N/ 05N/ N/ 0N/
Output Capacitance	Coss			25	pF	$V_{DS} = 25V, V_{GS} = 0V$ f = 1.0MHz
Reverse Transfer Capacitance	C _{rss}		_	5.0	pF	1 = 1.0WI 12

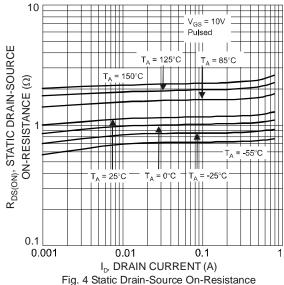
Notes:

- 6. Device mounted on FR-4 PCB.
- 7. Pulse width ${\le}10\mu s,$ Duty Cycle ${\le}1\%.$
- 8. Short duration pulse test used to minimize self-heating effect.







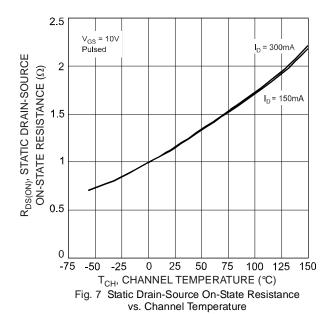


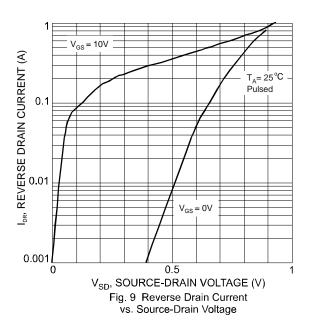
vs. Drain Current

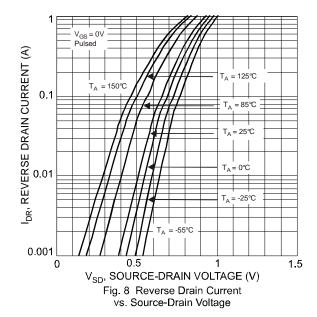
Fig. 6 Static Drain-Source On-Resistance vs. Gate-Source Voltage

vs. Drain Current









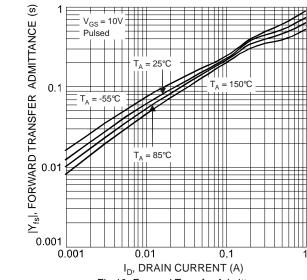
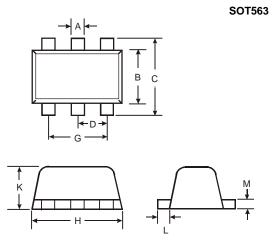


Fig.10 Forward Transfer Admittance vs. Drain Current



Package Outline Dimensions

Please see AP02001 at http://www.diodes.com/_files/datasheets/ap02001.pdf for the latest version.

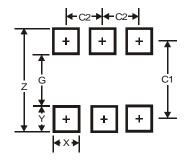


SOT563						
Dim	Min	Max	Тур			
Α	0.15	0.30	0.20			
В	1.10	1.25	1.20			
С	1.55	1.70	1.60			
D	-	-	0.50			
G	0.90	1.10	1.00			
Н	1.50	1.70	1.60			
K	0.55	0.60	0.60			
٦	0.10	0.30	0.20			
М	0.10	0.18	0.11			
All Dimensions in mm						

Suggested Pad Layout

Please see AP02001 at http://www.diodes.com/_files/datasheets/ap02001.pdf for the latest version.

SOT563



Dimensions	Value (in mm)
Z	2.2
G	1.2
Х	0.375
Υ	0.5
C1	1.7
C2	0.5



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