

Features

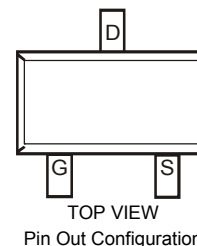
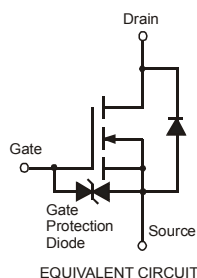
- Low On-Resistance: $R_{DS(ON)}$
- Low Gate Threshold Voltage
- Low Input Capacitance
- Fast Switching Speed
- Low Input/Output Leakage
- **ESD Protected Gate**
- **Totally Lead-Free & Fully RoHS compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

Mechanical Data

- Case: SOT323
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- Terminals: Finish — Matte Tin annealed over Alloy 42 leadframe. Solderable per MIL-STD-202, Method 208 **e3**
- Terminal Connections: See Diagram
- Weight: 0.006 grams (approximate)



SOT323

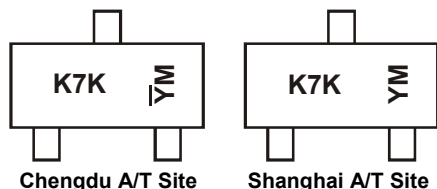


Ordering Information (Note 4)

Part Number	Case	Packaging
DMN601WK-7	SOT323	3000/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



K7K = Product Type Marking Code
 YM = Date Code Marking for SAT (Shanghai Assembly/ Test site)
 ȲM = Date Code Marking for CAT (Chengdu Assembly/ Test site)
 Y or Ȳ = Year (ex: A = 2013)
 M = Month (ex: 9 = September)

Date Code Key

Year	2012	2013	2014	2015	2016	2017	2018
Code	Z	A	B	C	D	E	F

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	Units
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current (Note 5)	I_D	300	mA
		800	

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

Characteristic	Symbol	Value	Units
Total Power Dissipation (Note 5)	P_D	200	mW
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	625	$^\circ\text{C/W}$
Operating and Storage Temperature Range	T_J, T_{STG}	-65 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}	60	—	—	V	$V_{GS} = 0V, I_D = 10\mu\text{A}$
Zero Gate Voltage Drain Current	I_{DSS}	—	—	1.0	μA	$V_{DS} = 60V, V_{GS} = 0V$
Gate-Source Leakage	I_{GSS}	—	—	± 10	μA	$V_{GS} = \pm 20V, V_{DS} = 0V$
ON CHARACTERISTICS (Note 7)						
Gate Threshold Voltage	$V_{GS(th)}$	1.0	1.6	2.5	V	$V_{DS} = 10V, I_D = 1\text{mA}$
Static Drain-Source On-Resistance	$R_{DS(on)}$	—	—	2.0	Ω	$V_{GS} = 10V, I_D = 0.5\text{A}$
		—	—	3.0		$V_{GS} = 4.5V, I_D = 0.2\text{A}$
Forward Transfer Admittance	$ Y_{fs} $	80	—	—	ms	$V_{DS} = 10V, I_D = 0.2\text{A}$
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:
5. Device mounted on FR-4 PCB.
 6. Pulse width $\leq 10\mu\text{s}$, Duty Cycle $\leq 1\%$.
 7. Short duration pulse test used to minimize self-heating effect.
 8. Guaranteed by design. Not subject to production testing.

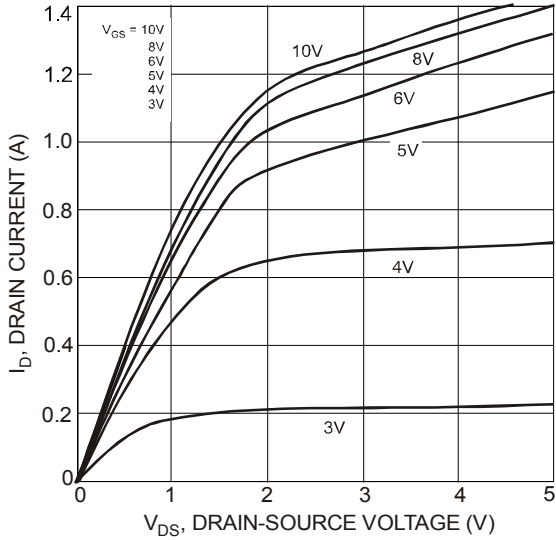


Fig. 1 Typical Output Characteristics

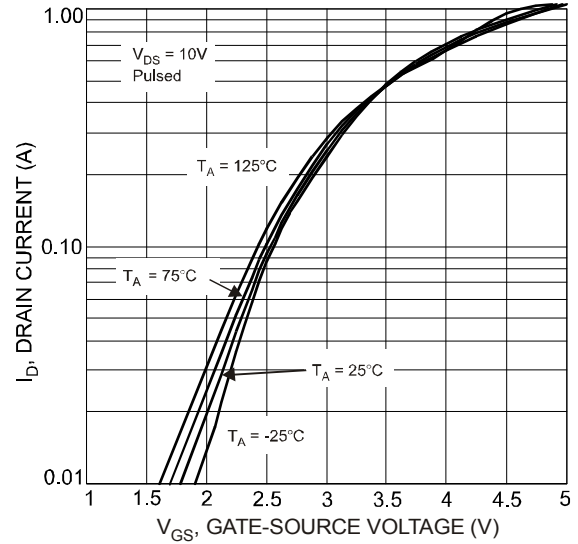


Fig. 2 Typical Transfer Characteristics

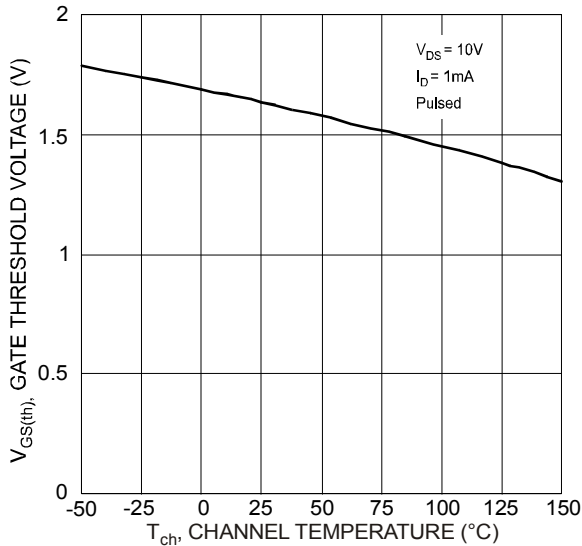


Fig. 3 Gate Threshold Voltage vs. Channel Temperature

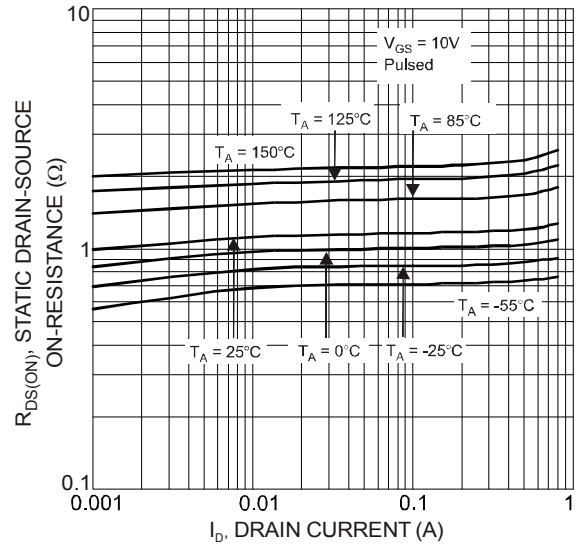


Fig. 4 Static Drain-Source On-Resistance vs. Drain Current

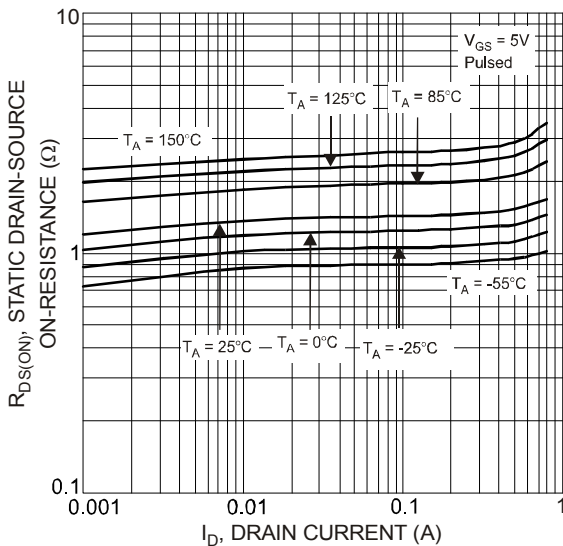


Fig. 5 Static Drain-Source On-Resistance vs. Drain Current

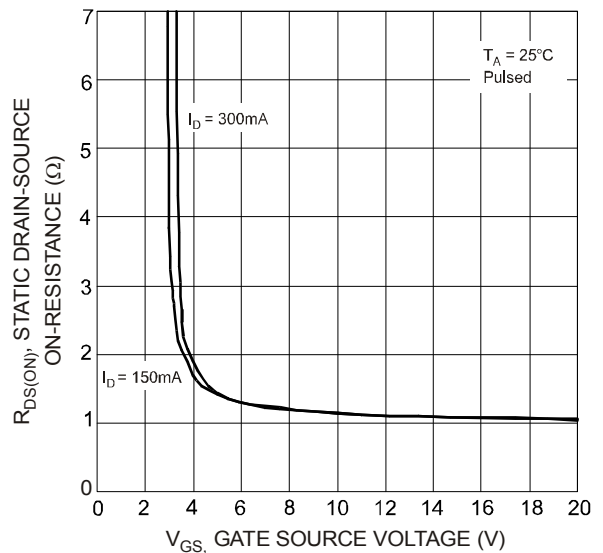


Fig. 6 Static Drain-Source On-Resistance vs. Gate-Source Voltage

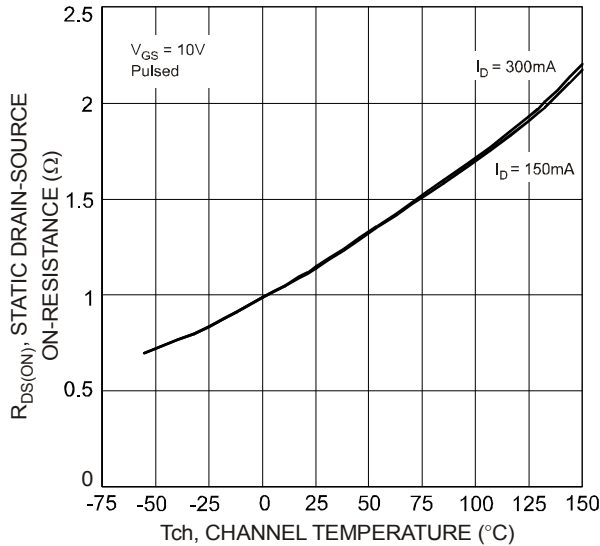


Fig. 7 Static Drain-Source On-State Resistance vs. Channel Temperature

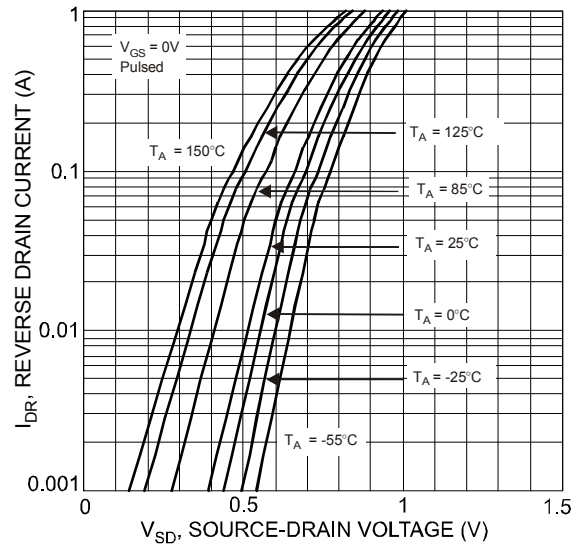


Fig. 8 Reverse Drain Current vs. Source-Drain Voltage

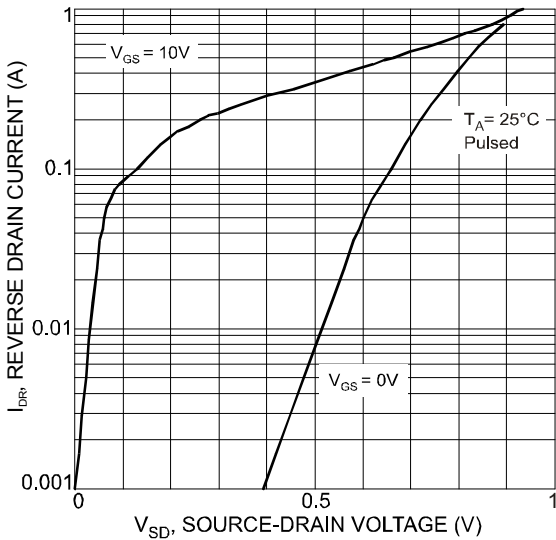


Fig. 9 Reverse Drain Current vs. Source-Drain Voltage

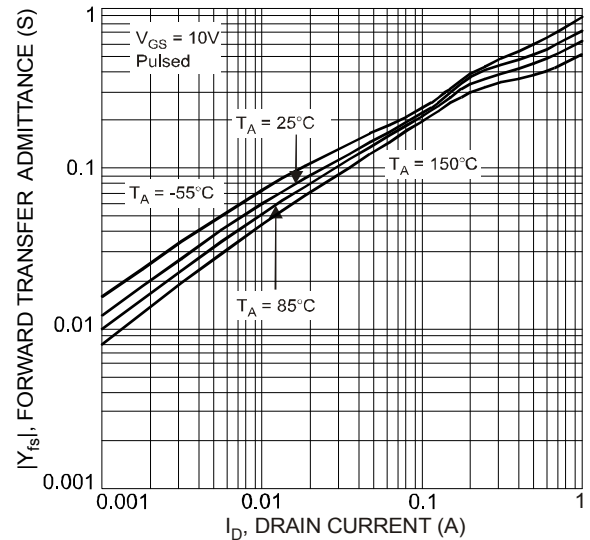
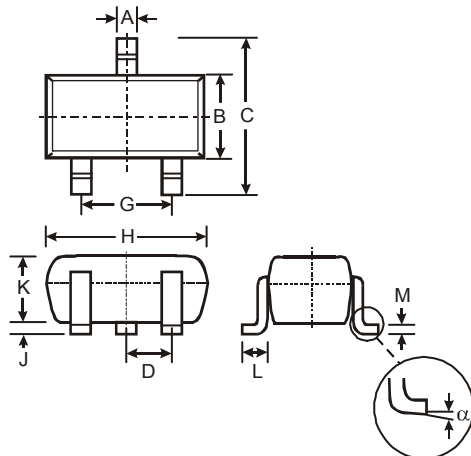


Fig.10 Forward Transfer Admittance vs. Drain Current

Package Outline Dimensions

Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for the latest version.

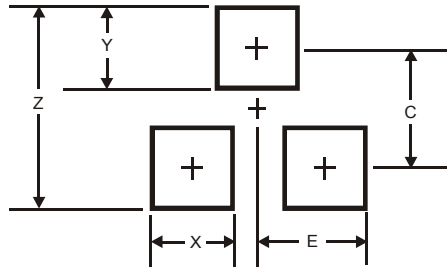


SOT323			
Dim	Min	Max	Typ
A	0.25	0.40	0.30
B	1.15	1.35	1.30
C	2.00	2.20	2.10
D	-	-	0.65
G	1.20	1.40	1.30
H	1.80	2.20	2.15
J	0.0	0.10	0.05
K	0.90	1.00	1.00
L	0.25	0.40	0.30
M	0.10	0.18	0.11
α	0°	8°	-

All Dimensions in mm

Suggested Pad Layout

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



Dimensions	Value (in mm)
Z	2.8
X	0.7
Y	0.9
C	1.9
E	1.0

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