

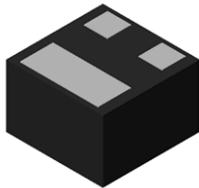
## Product Summary

$V_{(BR)DSS}$	$R_{DS(ON)} \text{ max}$	$I_D \text{ max}$ $T_A = +25^\circ\text{C}$
-30V	5Ω @ $V_{GS} = -4.5\text{V}$	-0.2A
	6Ω @ $V_{GS} = -2.5\text{V}$	
	7Ω @ $V_{GS} = -1.8\text{V}$	
	10Ω @ $V_{GS} = -1.5\text{V}$	

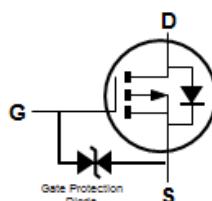
## Description and Applications

This MOSFET has been designed to minimize the on-state resistance ( $R_{DS(ON)}$ ) and yet maintain superior switching performance, making it ideal for high efficiency power management applications.

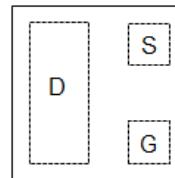
- General Purpose Interfacing Switch
- Power Management Functions
- Analog Switch



Bottom View



Equivalent Circuit

Top View  
Package Pin Configuration

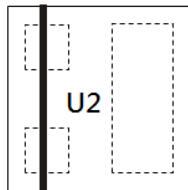
## Ordering Information (Note 4)

Part Number	Case	Packaging
DMP32D9UFZ-7B	X2-DFN0606-3	10K/Tape & Reel

Notes:

- No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
- See [http://www.diodes.com/quality/lead\\_free.html](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.
- Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
- For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

## Marking Information



U2 = Product Type Marking Code

Top View  
Bar Denotes Gate  
and Source Side

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

Characteristic			Symbol	Value	Units
Drain-Source Voltage			$V_{DSS}$	-30	V
Gate-Source Voltage			$V_{GSS}$	$\pm 10$	V
Continuous Drain Current (Note 5) $V_{GS} = -4.5\text{V}$	Steady State	$T_A = +25^\circ\text{C}$	$I_D$	-200	mA
				-100	
Pulsed Drain Current (Note 6)			$I_{DM}$	-500	mA

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

Characteristic		Symbol	Value	Units
Total Power Dissipation (Note 5)	Steady State	$P_D$	390	mW
Thermal Resistance, Junction to Ambient (Note 5)	Steady State	$R_{\theta JA}$	322	°C/W
Operating and Storage Temperature Range		$T_J, T_{STG}$	-55 to +150	°C

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
<b>OFF CHARACTERISTICS (Note 7)</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	-30	—	—	V	$V_{GS} = 0\text{V}, I_D = -250\mu\text{A}$
Zero Gate Voltage Drain Current @ $T_C = +25^\circ\text{C}$	$I_{DSS}$	—	—	100	nA	$V_{DS} = -24\text{V}, V_{GS} = 0\text{V}$
Gate-Source Leakage	$I_{GSS}$	—	—	$\pm 10$	$\mu\text{A}$	$V_{GS} = \pm 10\text{V}, V_{DS} = 0\text{V}$
<b>ON CHARACTERISTICS (Note 7)</b>						
Gate Threshold Voltage	$V_{GS(\text{th})}$	-0.4	—	-1.0	V	$V_{DS} = V_{GS}, I_D = -250\mu\text{A}$
Static Drain-Source On-Resistance	$R_{DS(\text{ON})}$	—	—	5	$\Omega$	$V_{GS} = -4.5\text{V}, I_D = -100\text{mA}$
		—	—	6		$V_{GS} = -2.5\text{V}, I_D = -50\text{mA}$
		—	—	7		$V_{GS} = -1.8\text{V}, I_D = -20\text{mA}$
		—	—	10		$V_{GS} = -1.5\text{V}, I_D = -10\text{mA}$
		—	6	—		$V_{GS} = -1.2\text{V}, I_D = -1\text{mA}$
Diode Forward Voltage	$V_{SD}$	—	-0.75	-1.0	V	$V_{GS} = 0\text{V}, I_S = -10\text{mA}$
<b>DYNAMIC CHARACTERISTICS (Note 8)</b>						
Input Capacitance	$C_{iss}$	—	22.5	—	pF	$V_{DS} = -15\text{V}, V_{GS} = 0\text{V}, f = 1.0\text{MHz}$
Output Capacitance	$C_{oss}$	—	2.9	—	pF	
Reverse Transfer Capacitance	$C_{rss}$	—	2.1	—	pF	
Total Gate Charge	$Q_g$	—	0.35	—	nC	$V_{GS} = -4.5\text{V}, V_{DS} = -15\text{V}, I_D = -200\text{mA}$
Gate-Source Charge	$Q_{gs}$	—	0.06	—	nC	
Gate-Drain Charge	$Q_{gd}$	—	0.09	—	nC	
Turn-On Delay Time	$t_{D(\text{on})}$	—	3.1	—	ns	$V_{DD} = -10\text{V}, V_{GS} = -4.5\text{V}, R_G = 6\Omega, I_D = -200\text{mA}$
Turn-On Rise Time	$t_r$	—	2.3	—	ns	
Turn-Off Delay Time	$t_{D(\text{off})}$	—	19.9	—	ns	
Turn-Off Fall Time	$t_f$	—	10.5	—	ns	

Notes:

5. Device mounted on FR-4 PCB, with minimum recommended pad layout.
6. Device mounted on minimum recommended pad layout test board, 10 $\mu\text{s}$  pulse duty cycle = 1%.
7. Short duration pulse test used to minimize self-heating effect.
8. Guaranteed by design. Not subject to product testing.

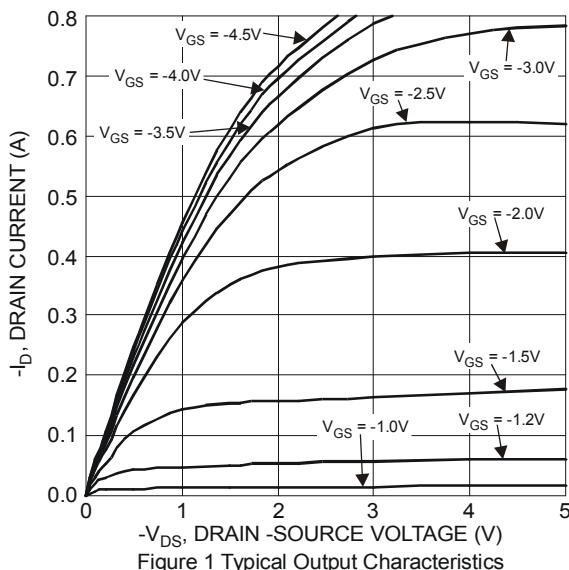


Figure 1 Typical Output Characteristics

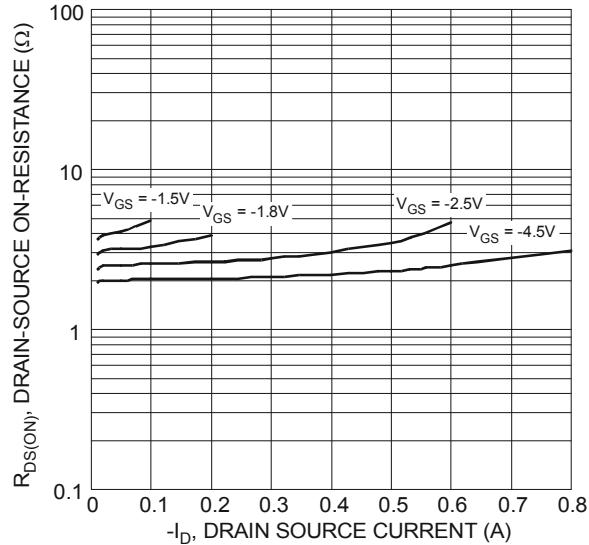
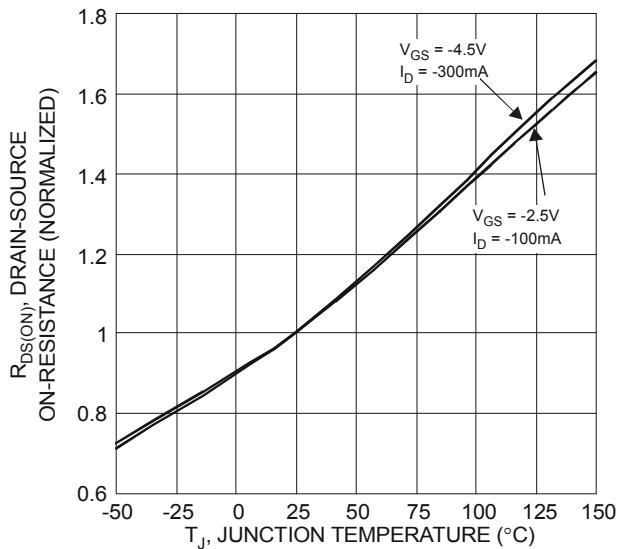
Figure 3 Typical On-Resistance vs.  
Drain Current and Gate Voltage

Figure 5 On-Resistance Variation with Temperature

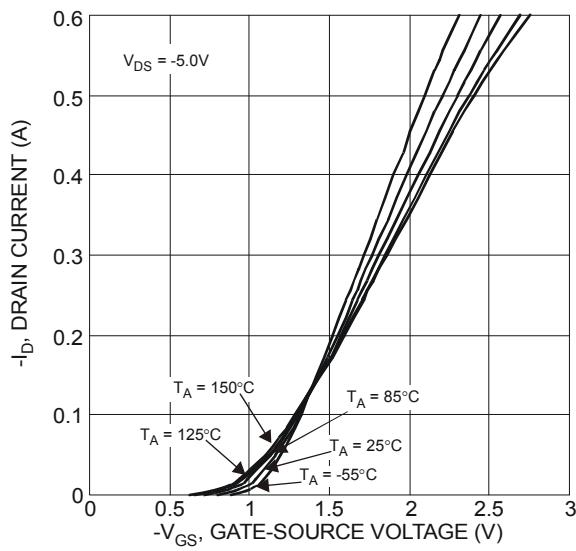


Figure 2 Typical Transfer Characteristics

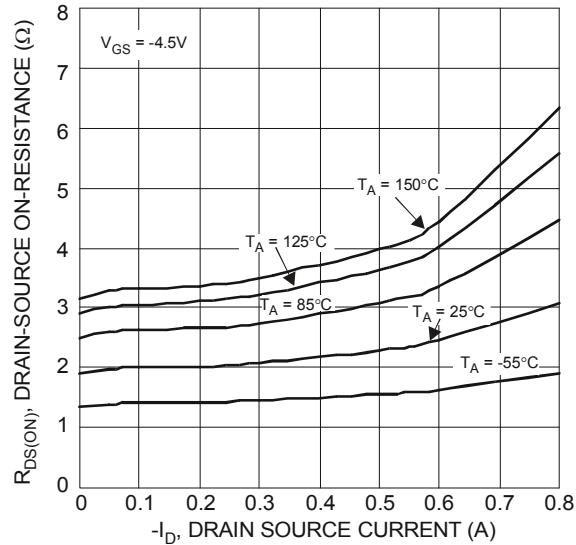
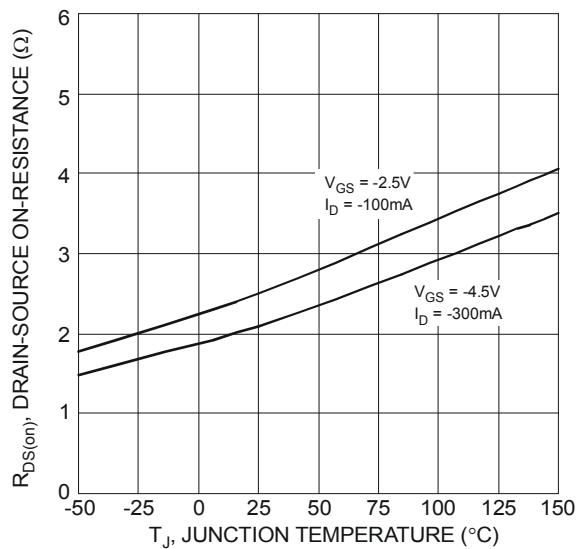
Figure 4 Typical On-Resistance vs.  
Drain Current and Temperature

Figure 6 On-Resistance Variation with Temperature

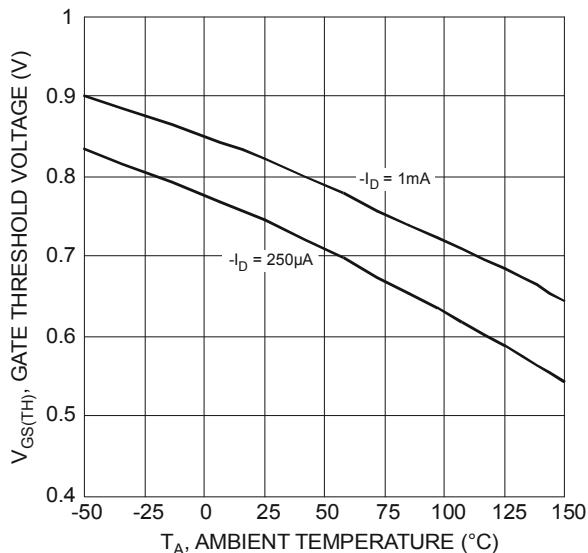


Figure 7 Gate Threshold Variation vs. Ambient Temperature

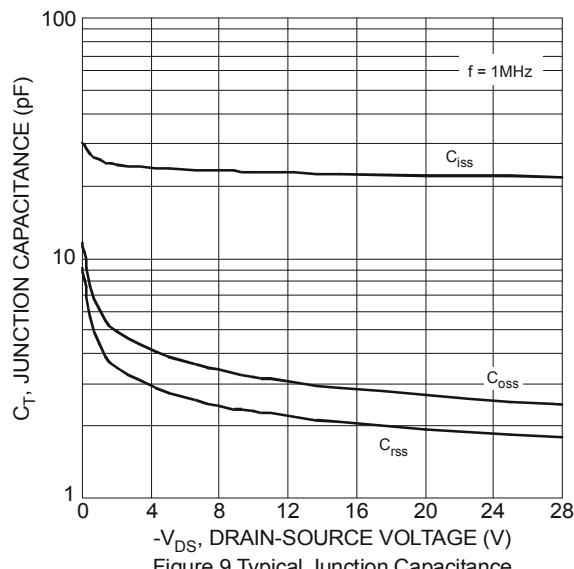


Figure 9 Typical Junction Capacitance

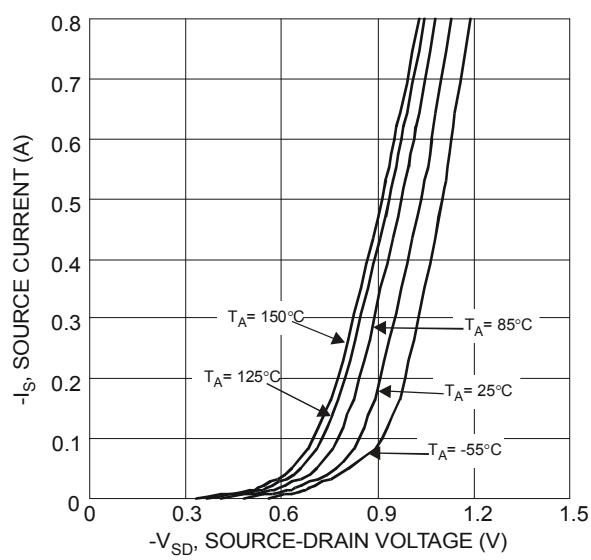


Figure 8 Diode Forward Voltage vs. Current

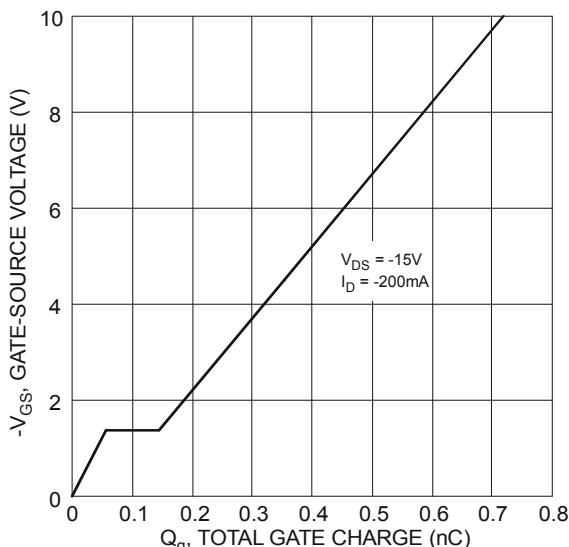


Figure 10 Gate-Charge Characteristics

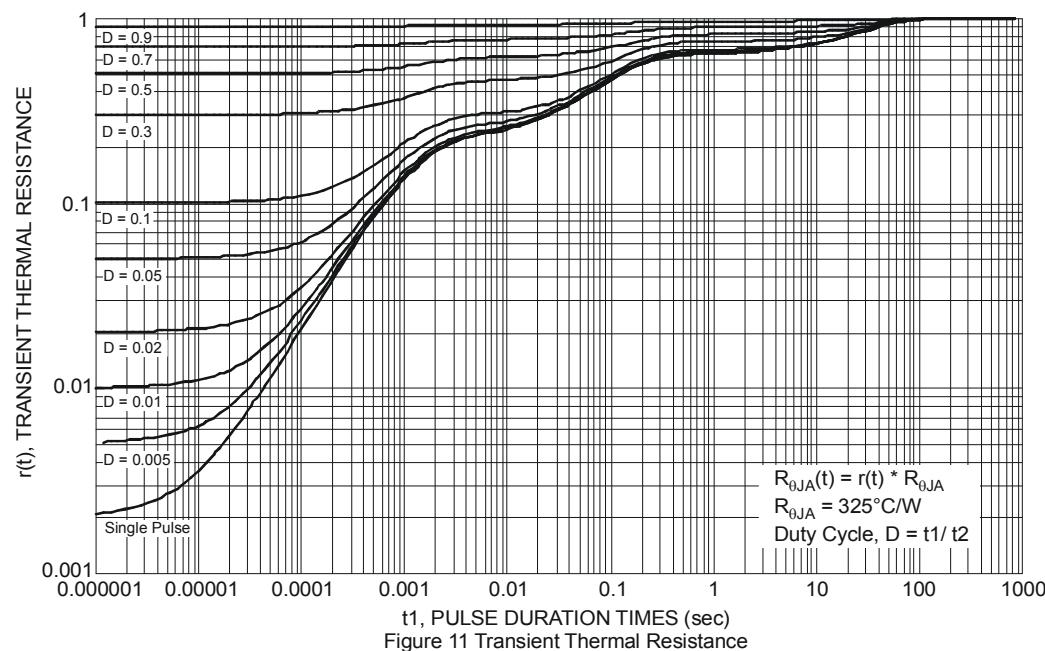
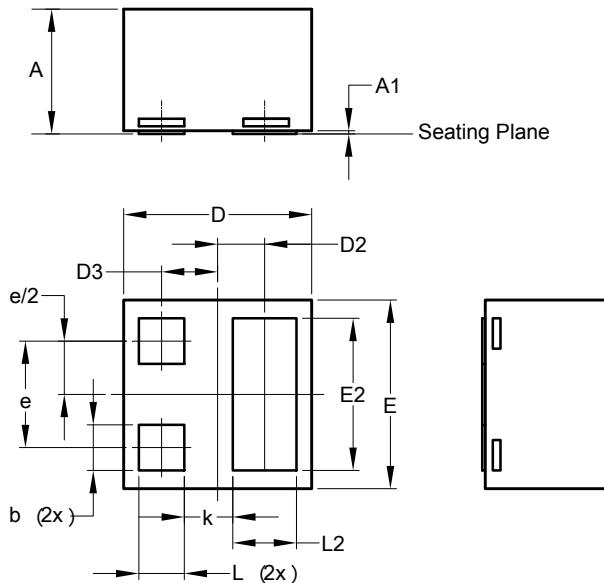


Figure 11 Transient Thermal Resistance

## Package Outline Dimensions

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

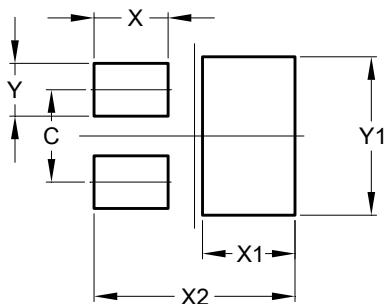


X2-DFN0606-3			
Dim	Min	Max	Typ
<b>A</b>	0.36	0.42	0.39
<b>A1</b>	0	0.05	0.02
<b>b</b>	0.10	0.20	0.15
<b>D</b>	0.57	0.67	0.62
<b>D2</b>	0.155 BSC		
<b>D3</b>	0.185 BSC		
<b>E</b>	0.57	0.67	0.62
<b>E2</b>	0.40	0.60	0.50
<b>e</b>	0.35 BSC		
<b>k</b>	0.16 REF		
<b>L</b>	0.09	0.21	0.15
<b>L2</b>	0.11	0.31	0.21

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)
<b>C</b>	0.350
<b>X</b>	0.280
<b>X1</b>	0.350
<b>X2</b>	0.760
<b>Y</b>	0.200
<b>Y1</b>	0.600

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