

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)}$ Max	I_D Max @ $T_A = +25^\circ C$
-30V	2.4Ω @ $V_{GS} = -10V$	-400mA
	4Ω @ $V_{GS} = -4.5V$	-300mA
	16Ω @ $V_{GS} = -2.5V$	-50mA

Description

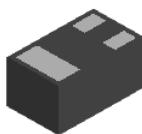
This MOSFET has been designed to minimize the on-state resistance ($R_{DS(on)}$) and yet maintain superior switching performance, making it ideal for high efficiency power management applications.

Applications

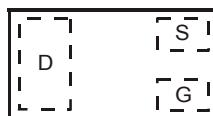
- Load Switch
- Portable Applications
- Power Management Functions



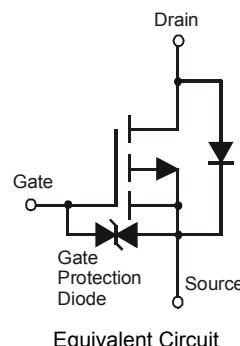
X1-DFN1006-3



Bottom View



Top View



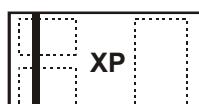
Ordering Information (Note 4)

Product	Marking	Reel size (inches)	Quantity per reel
DMP32D4SFB-7B	XP	7	10,000

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



Top View
Bar Denotes Gate and Source Side

XP = Product Type Marking Code

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

Characteristic			Symbol	Value	Unit
Drain-Source Voltage			V_{DSS}	-30	V
Gate-Source Voltage			V_{GSS}	± 20	V
Continuous Drain Current (Note 5)	$V_{GS} = -10\text{V}$	$T_A = +25^\circ\text{C}$ $T_A = +70^\circ\text{C}$	I_D	-400 -300	mA
Continuous Drain Current (Note 6)	$V_{GS} = -10\text{V}$	$T_A = +25^\circ\text{C}$ $T_A = +70^\circ\text{C}$	I_D	-500 -400	mA
Pulsed Drain Current (Note 5)			I_{DM}	-1	A
Maximum Body Diode continuous Current			I_S	-800	mA

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

Characteristic		Symbol	Value	Units
Total Power Dissipation	(Note 5)	P_D	0.5	W
	(Note 6)		1.2	
Thermal Resistance, Junction to Ambient	(Note 5)	$R_{\theta JA}$	273	°C/W
	(Note 6)		105	
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
OFF CHARACTERISTICS (Note 7)						
Drain-Source Breakdown Voltage	BV_{DSS}	-30	-	-	V	$V_{GS} = 0\text{V}, I_D = -1\text{mA}$
Zero Gate Voltage Drain Current $T_J = +25^\circ\text{C}$	I_{DS}	-	-	-1	μA	$V_{DS} = -30\text{V}, V_{GS} = 0\text{V}$
Gate-Source Leakage	I_{GSS}	-	-	± 10	μA	$V_{GS} = \pm 16\text{V}, V_{DS} = 0\text{V}$
ON CHARACTERISTICS (Note 7)						
Gate Threshold Voltage	$V_{GS(\text{th})}$	-1.3	-	-2.3	V	$V_{DS} = V_{GS}, I_D = -250\mu\text{A}$
Static Drain-Source On-Resistance	$R_{DS(\text{ON})}$	-	-	2.4	Ω	$V_{GS} = -10\text{V}, I_D = -200\text{mA}$
				4		$V_{GS} = -4.5\text{V}, I_D = -200\text{mA}$
				16		$V_{GS} = -2.5\text{V}, I_D = -10\text{mA}$
Forward Transfer Admittance	$ Y_{fs} $	-	6	-	S	$V_{DS} = -10\text{V}, I_D = -400\text{mA}$
Diode Forward Voltage	V_{SD}	-	0.8	1.2	V	$V_{GS} = 0\text{V}, I_S = -300\text{mA}$
DYNAMIC CHARACTERISTICS (Note 8)						
Input Capacitance	C_{iss}	-	51	-	pF	$V_{DS} = -15\text{V}, V_{GS} = 0\text{V}, f = 1.0\text{MHz}$
Output Capacitance	C_{oss}	-	11	-	pF	
Reverse Transfer Capacitance	C_{rss}	-	9	-	pF	
Total Gate Charge	Q_g	-	0.6	-	nC	$V_{GS} = -4.5\text{V}$
Total Gate Charge	Q_g	-	1.3	-	nC	$V_{GS} = -10\text{V}, I_D = -200\text{mA}$
Gate-Source Charge	Q_{gs}	-	0.2	-	nC	
Gate-Drain Charge	Q_{gd}	-	0.2	-	nC	
Turn-On Delay Time	$t_{D(\text{on})}$	-	3.6	-	ns	$V_{DS} = -15\text{V}, I_D = -500\text{mA}$
Turn-On Rise Time	t_r	-	8.5	-	ns	
Turn-Off Delay Time	$t_{D(\text{off})}$	-	31.3	-	ns	
Turn-Off Fall Time	t_f	-	20.2	-	ns	

Notes:

5. Device mounted on FR-4 PC board, with minimum recommended pad layout, single sided.
6. Device mounted on FR-4 substrate PC board, 2oz copper, with 1inch square copper pad layout
7. Short duration pulse test used to minimize self-heating effect.
8. Guaranteed by design. Not subject to production testing.

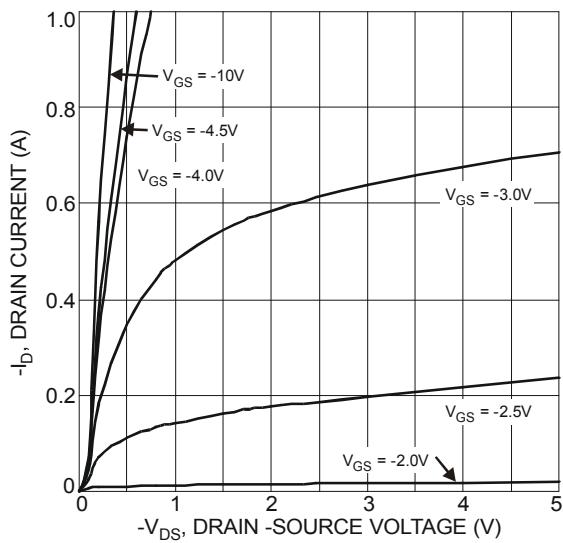


Figure 1 Typical Output Characteristics

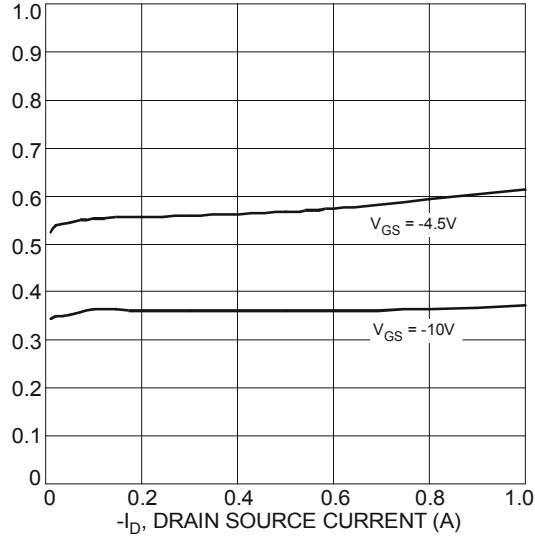


Figure 3 Typical On-Resistance vs.
Drain Current and Gate Voltage

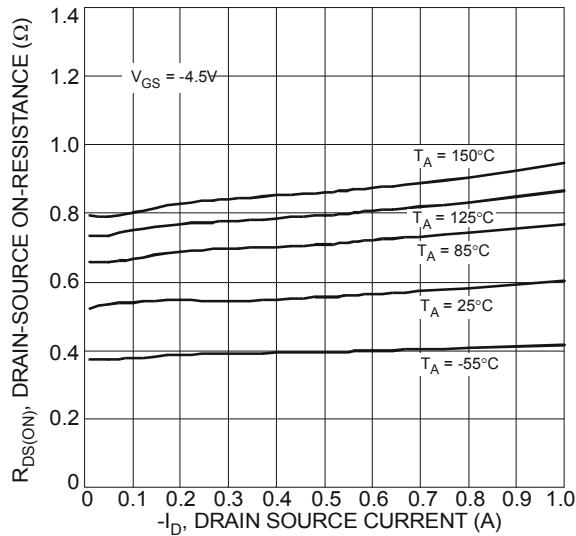


Figure 5 Typical On-Resistance vs.
Drain Current and Temperature

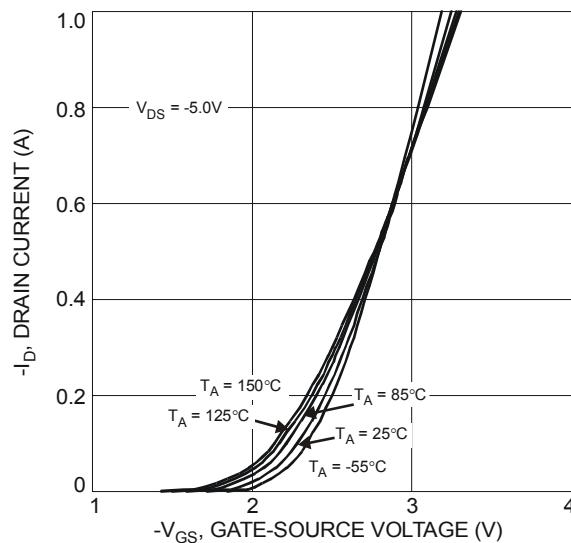


Figure 2 Typical Transfer Characteristics

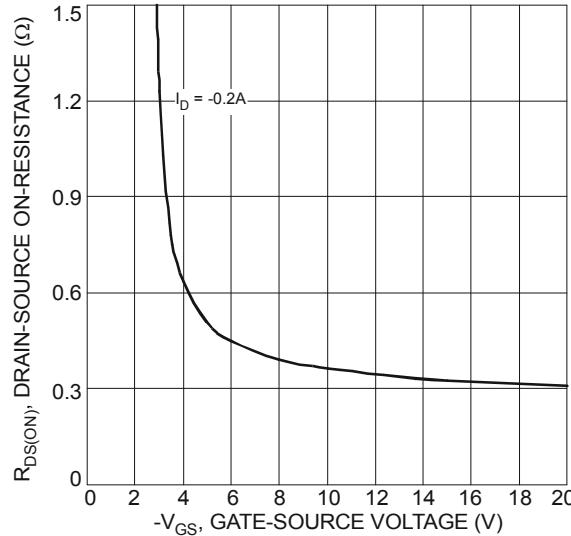


Figure 4 Typical Drain-Source On-Resistance
vs. Gate-Source Voltage

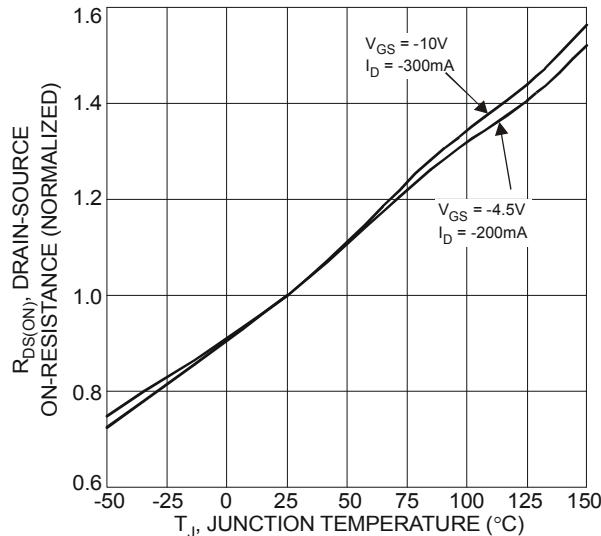
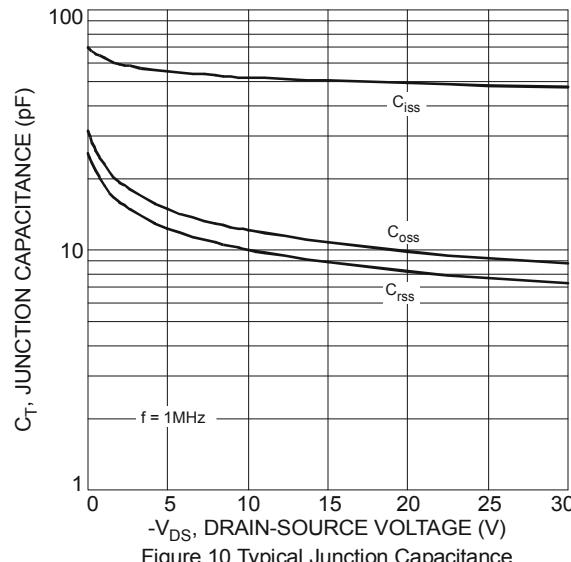
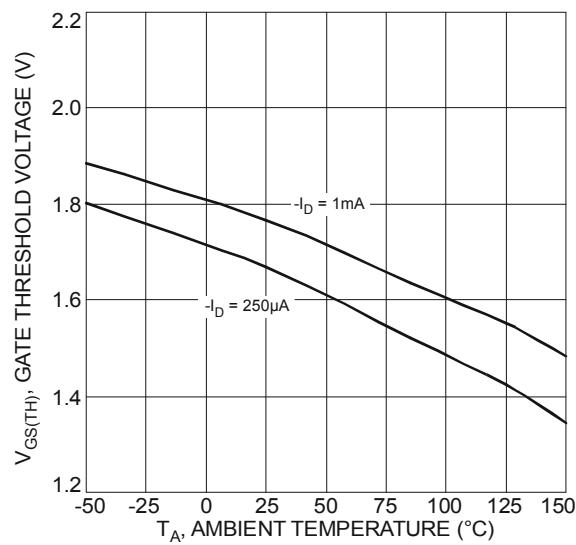
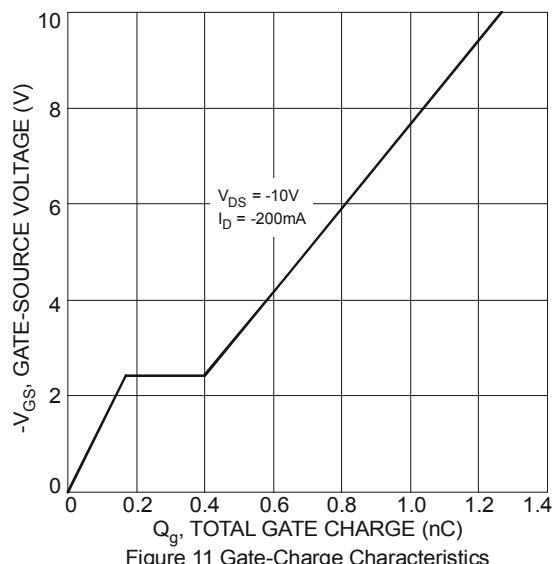
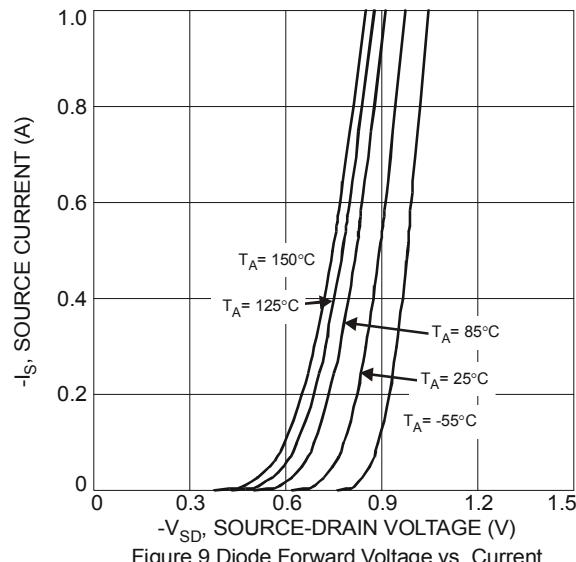
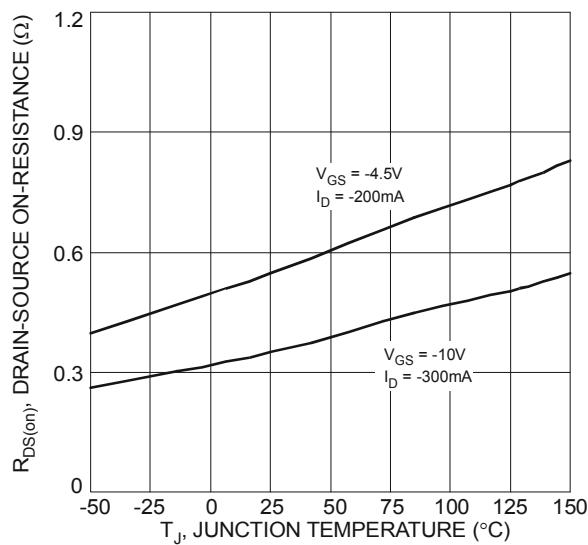
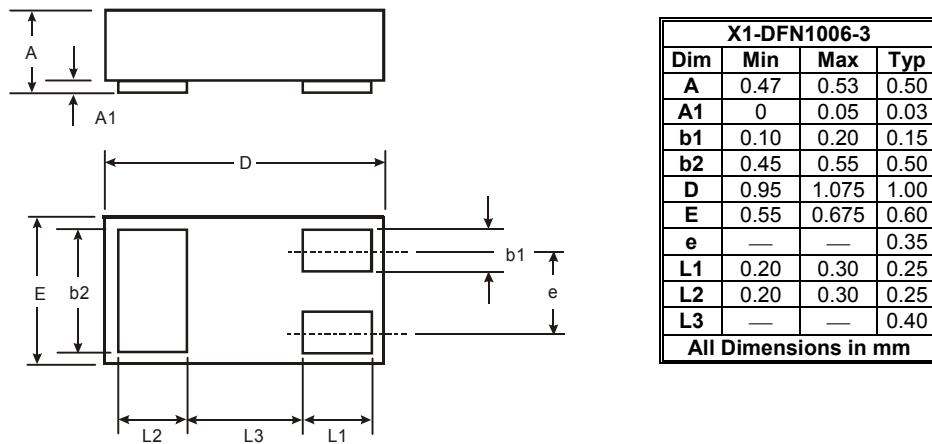


Figure 6 On-Resistance Variation with Temperature



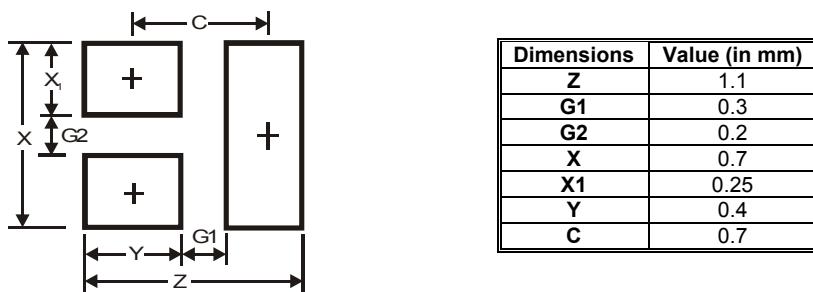
Package Outline Dimensions

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



Suggested Pad Layout

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



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