



Product Summary

BV _{DSS}	R _{DS(ON)} Max	I _D Max @ T _A = +25°C
	2.4Ω @ V _{GS} = -10V	-400mA
-30V	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)}) yet maintain superior switching performance, making it ideal for high efficiency power management applications.

Applications

- Load switches
- Portable applications
- Power management functions

30V P-CHANNEL ENHANCEMENT MODE MOSFET

Features

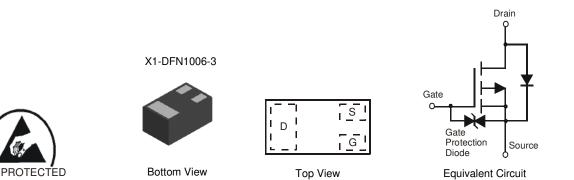
- Low On-Resistance
- Ultra-Small Surfaced Mount Package
- **ESD** Protected Gate
- Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)
- Halogen and Antimony Free. "Green" Device (Note 3)
- For automotive applications requiring specific change control (i.e.: parts qualified to AEC-Q100/101/104/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please refer to the related automotive grade (Q-suffix) part. A listing can be found at

https://www.diodes.com/products/automotive/automotiveproducts/.

This part is qualified to JEDEC standards (as references in AEC-Q) for High Reliability. https://www.diodes.com/guality/product-definitions/

Mechanical Data

- Package: X1-DFN1006-3
- Package 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 NiPdAu over Copper Leadframe. Solderable per MIL-STD-202, Method 208 @4
- Weight: 0.001 grams (Approximate)



Ordering Information (Note 4)

Part Number	Backago	Marking	Reel Size (inches)	Packing	
Fart Nulliber	Package	Warking	neel Size (inches)	Qty.	Carrier
DMP32D4SFB-7B	X1-DFN1006-3	XP	7	10,000	Reel

1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant. Notes:

2. See https://www.diodes.com/quality/lead-free/ 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 https://www.diodes.com/design/support/packaging/diodes-packaging/.





Marking Information



XP = Product Type Marking Code

Top View Bar Denotes Gate and Source Side

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

Character	istic		Symbol	Value	Unit
Drain-Source Voltage			V _{DSS}	-30	V
Gate-Source Voltage			Vgss	±20	V
Continuous Drain Current (Note 5)	$V_{GS} = -10V$	T _A = +25°C T _A = +70°C	ID	-400 -300	mA
Continuous Drain Current (Note 6)	$V_{GS} = -10V$	T _A = +25°C T _A = +70°C	ID	-500 -400	mA
Pulsed Drain Current (Note 5)			ldм	-1	A
Maximum Body Diode Continuous Current			ls	-800	mA

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

Characteristic		Symbol	Value	Unit	
Tetal Dower Dissinction	(Note 5)	D-	0.5	w	
Total Power Dissipation	(Note 6)	PD	1.2		
Thermal Resistance, Junction to Ambient	(Note 5)	D	273	°C/W	
Thermal Resistance, Junction to Ambient	(Note 6)	Reja	105		
Operating and Storage Temperature Range		TJ, TSTG	-55 to +150	°C	

 Device mounted on FR-4 PC board, with minimum recommended pad layout, single sided.
Device mounted on FR-4 substrate PC board, 2oz copper, with 1inch square copper pad layout. Notes:



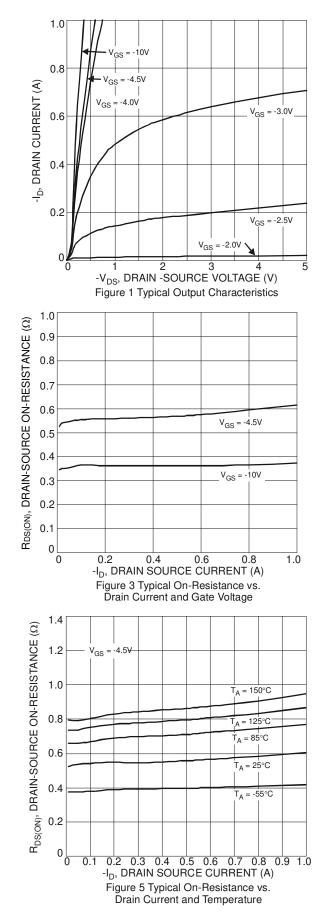
Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

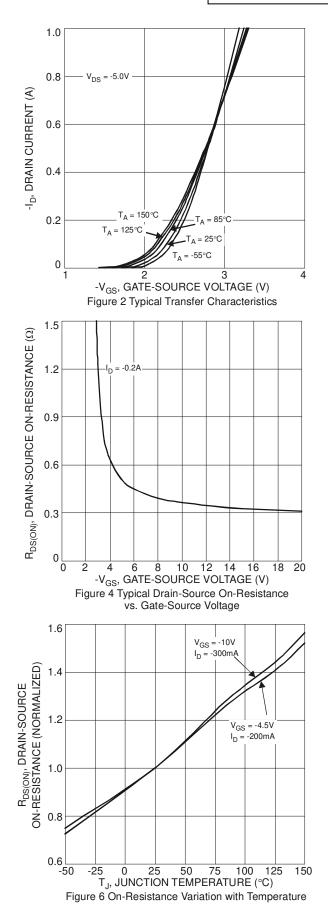
	-			-		-		
Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition		
OFF CHARACTERISTICS (Note 7)								
Drain-Source Breakdown Voltage	BVDSS	-30		—	V	$V_{GS} = 0V, I_D = -1mA$		
Zero Gate Voltage Drain Current TJ = +25°C	IDSS			-1	μΑ	$V_{DS} = -30V$, $V_{GS} = 0V$		
Gate-Source Leakage	IGSS			±10	μΑ	$V_{GS} = \pm 16V, V_{DS} = 0V$		
ON CHARACTERISTICS (Note 7)	ON CHARACTERISTICS (Note 7)							
Gate Threshold Voltage	VGS(TH)	-1.3		-2.3	V	$V_{DS} = V_{GS}, I_D = -250 \mu A$		
				2.4		$V_{GS} = -10V, I_{D} = -200mA$		
Static Drain-Source On-Resistance	RDS(ON)			4	Ω	$V_{GS} = -4.5V, I_{D} = -200mA$		
				16		$V_{GS} = -2.5V, I_D = -10mA$		
Forward Transfer Admittance	Y _{fs}	—	6	—	S	$V_{DS} = -10V, I_{D} = -400mA$		
Diode Forward Voltage	V _{SD}		-0.8	-1.2	V	$V_{GS} = 0V, I_{S} = -300mA$		
DYNAMIC CHARACTERISTICS (Note 8)	-					÷		
Input Capacitance	Ciss		51	-	pF			
Output Capacitance	Coss	_	11	—	pF	V _{DS} = -15V, V _{GS} = 0V, f = 1.0MHz		
Reverse Transfer Capacitance	Crss	—	9	_	pF	1 = 1.000112		
Total Gate Charge	Qg		0.6	-	nC	V _{GS} = -4.5V		
Total Gate Charge	Qg	—	1.3	—	nC	V _{DS} = -10V,		
Gate-Source Charge	Qgs		0.2	-	nC	V _{GS} = -10V I _D = -200mA		
Gate-Drain Charge	Qgd	_	0.2	—	nC			
Turn-On Delay Time	tD(on)		3.6	_	ns			
Turn-On Rise Time	tr	—	8.5	—	ns	V _{DS} = -15V, I _D = -500mA V _{GS} = -10V, R _G = 1Ω		
Turn-Off Delay Time	tD(off)		31.3	_	ns			
Turn-Off Fall Time	tf	—	20.2	—	ns			

 Short duration pulse test used to minimize self-heating effect.
Guaranteed by design. Not subject to production testing. Notes:

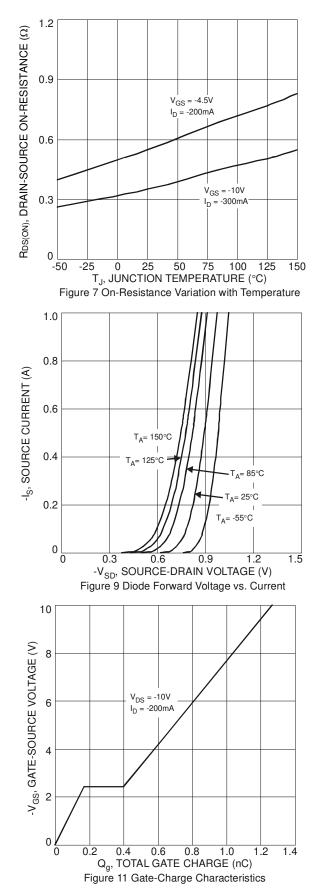


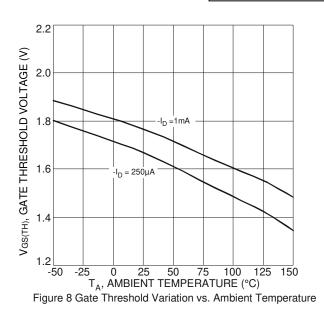
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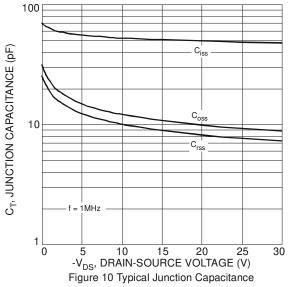








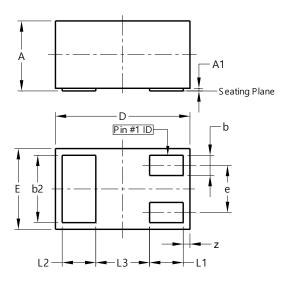






Package Outline Dimensions

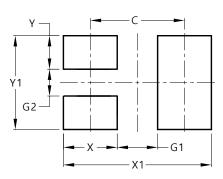
Please see http://www.diodes.com/package-outlines.html for the latest version.



Х	X1-DFN1006-3						
Dim	Min	Max	Тур				
Α	0.47	0.53	0.50				
A1	0.00	0.05	0.03				
b	0.10	0.20	0.15				
b2	0.45	0.55	0.50				
D	0.95	1.075	1.00				
Е	0.55	0.675	0.60				
е	1	-	0.35				
L1	0.20	0.30	0.25				
L2	0.20	0.30	0.25				
L3	-	-	0.40				
z	0.02	0.08	0.05				
All D	All Dimensions in mm						

Suggested Pad Layout

Please see http://www.diodes.com/package-outlines.html for the latest version.



X1-DFN1006-3

X1-DFN1006-3

Dimensions	Value (in mm)
С	0.70
G1	0.30
G2	0.20
Х	0.40
X1	1.10
Y	0.25
Y1	0.70

Please see http://www.diodes.com/pac

DMP32D4SFB Document number: DS36161 Rev. 3 - 2



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