



N-CHANNEL ENHANCEMENT MODE MOSFET

Product Summary

BV _{DSS}	R _{DS(ON)} Max	I _D T _A = +25°C
30V	$69m\Omega @ V_{GS} = 8V$	3.2A
307	$80m\Omega @ V_{GS} = 4.5V$	3.0A

Description

This new generation MOSFET is designed to minimize the footprint in handheld and mobile application. It can be used to replace many small signals MOSFET with as really small footprint.

Applications

- Battery Management
- Load Switch
- Battery Protection
- Handheld and Mobile Application

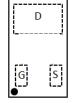
Features and Benefits

- Low Q_g & Q_{gd}
- Small Footprint
- Low Profile 0.30mm Height
- Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)
- Halogen and Antimony Free. "Green" Device (Note 3)

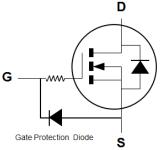
Mechanical Data

- Case: X2-DSN1006-3
- Terminal Connections: See Diagram Below
- Terminals: Finish Matte Tin Annealed Over Copper Pillar (8)





Top View



Equivalent Circuit

Ordering Information (Note 4)

Part Number	Case	Packaging
DMN3110LCP3-7	X2-DSN1006-3	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



C = Product Type Marking Code YM = Date Code Marking Y or \overline{Y} = Year (ex: D = 2016) M or \overline{M} = Month (ex: 9 = September)

Date Code Key

-												
Year	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Code	В	С	D	Е	F	G	Н	ı	J	K	L	М
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code		_	_		-	_	-	_				_



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

Characteristic	Symbol	Value	Unit		
Drain-Source Voltage	V_{DSS}	30	V		
Gate-Source Voltage			V _{GSS}	12	V
Continuous Drain Current (Note 5) V _{GS} = 8V	Steady State	$T_A = +25$ °C $T_A = +70$ °C	I _D	3.2 2.5	Α
Continuous Drain Current (Note 5) V _{GS} = 4.5V	I _D	3.0 2.4	Α		
Pulsed Drain Current (Note 6)	I _{DM}	15	Α		

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 7)	P _D	0.5	W
Thermal Resistance, Junction to Ambient @T _A = +25°C (Note 7)	R _{θJA}	250	°C/W
Power Dissipation (Note 5)	P _D	1.38	W
Thermal Resistance, Junction to Ambient @T _A = +25°C (Note 5)	R _{θJA}	90	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

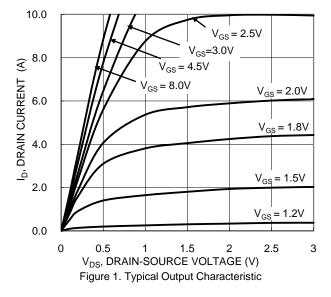
Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

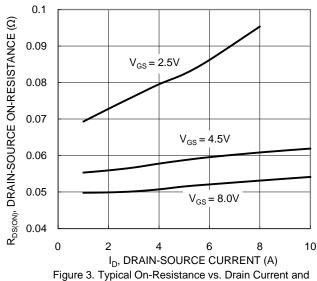
Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition	
OFF CHARACTERISTICS (Note 8)			•		•	•	
Drain-Source Breakdown Voltage	BV _{DSS}	30	_		V	$V_{GS} = 0V, I_D = 250\mu A$	
Zero Gate Voltage Drain Current T _J = +25°C	I _{DSS}	_	_	100	nA	$V_{DS} = 24V, V_{GS} = 0V$	
Gate-Source Leakage	I _{GSS}	_	_	50	nA	$V_{GS} = 10V$, $V_{DS} = 0V$	
ON CHARACTERISTICS (Note 8)							
Gate Threshold Voltage	V _{GS(TH)}	0.65	8.0	1.1	V	$V_{DS} = V_{GS}$, $I_D = 250\mu A$	
		l	52	69		$V_{GS} = 8V, I_{D} = 0.5A$	
Static Drain-Source On-Resistance	Dagger	l	59	80	mΩ	$V_{GS} = 4.5V, I_D = 0.5A$	
Static Dialif-Source Off-Nesistance	R _{DS(ON)}	l	76	110	11152	$V_{GS} = 2.5V, I_D = 0.5A$	
		1	110	160		$V_{GS} = 1.8V, I_D = 0.5A$	
Forward Transfer Admittance	Y _{fs}	_	3.3	_	S	$V_{DS} = 15V, I_D = 0.5A$	
Diode Forward Voltage	V_{SD}	_	0.7	0.9	V	$V_{GS} = 0V, I_{S} = 0.5A$	
Reverse Recovery Charge	Q_{RR}	_	1.7	_	nC	$V_{DD} = 15V, I_F = 0.5A,$ di/dt =300A/µs	
Reverse Recovery Time	t _{RR}	_	5.2	_	ns		
DYNAMIC CHARACTERISTICS (Note 9)			•	•	•	•	
Input Capacitance	C _{iss}	1	110	150		V _{DS} = 15V, V _{GS} = 0V, f = 1.0MHz	
Output Capacitance	Coss	_	71	99	pF		
Reverse Transfer Capacitance	C _{rss}	_	4.3	10		1 – 1.00112	
Series Gate Resistance	R_g	_	21	_	Ω	f=1MHz,V _{GS} =0V, V _{DS} =0V	
Total Gate Charge	Qg	_	1,090	1,520			
Gate-Source Charge	Q_{gs}	_	130	_	200	$V_{GS} = 4.5V, V_{DS} = 15V,$	
Gate-Drain Charge	Q_{gd}	_	130	_	рС	I _D =0.5A	
Gate Charge at V _{TH}	Q _{g(TH)}	_	110	_			
Turn-On Delay Time	t _{D(ON)}	_	4.8	7			
Turn-On Rise Time	t _R	_	2.8	_		$V_{DS} = 15V, V_{GS} = 4.5V,$	
Turn-Off Delay Time	t _{D(OFF)}	_	16.5	20	ns	$R_g = 2\Omega, I_D = 0.5A$	
Turn-Off Fall Time	t _F	_	9.5	_			

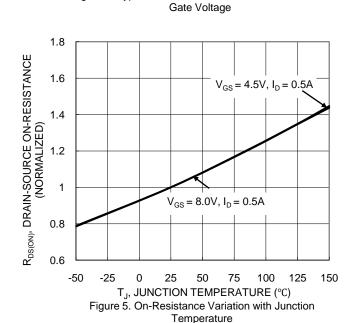
Notes:

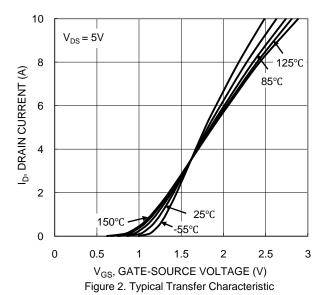
- 5. Device mounted on FR-4 material with 1inch² (6.45cm²), 2oz. (0.071mm thick) Cu.
- Repetitive rating, pulse width limited by junction temperature.
 Device mounted on FR-4 PCB with minimum recommended pad layout, single sided.
- Short duration pulse test used to minimize self-heating effect.
 Guaranteed by design. Not subject to production testing.











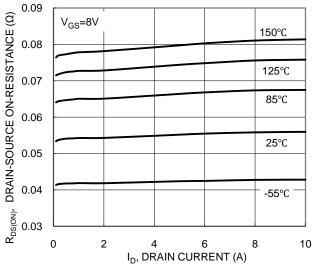


Figure 4. Typical On-Resistance vs. Drain Current and Junction Temperature

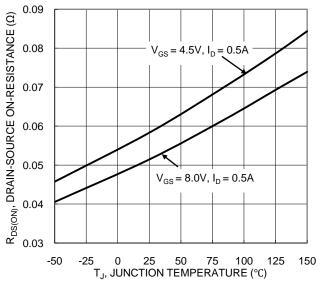
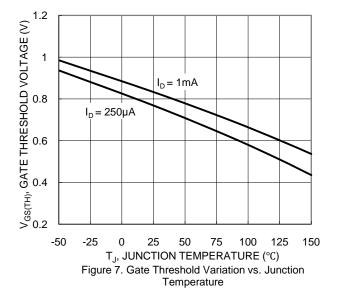
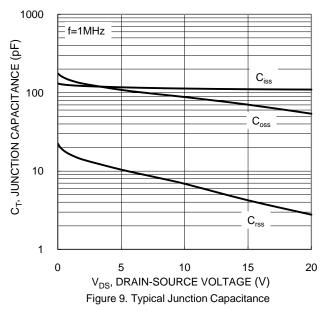
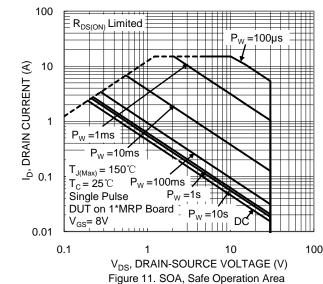


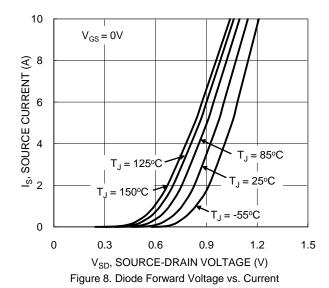
Figure 6. On-Resistance Variation with Junction Temperature

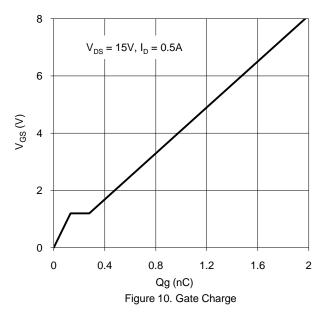












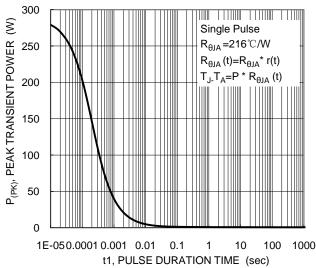


Figure 12. Single Pulse Maximum Power Dissipation



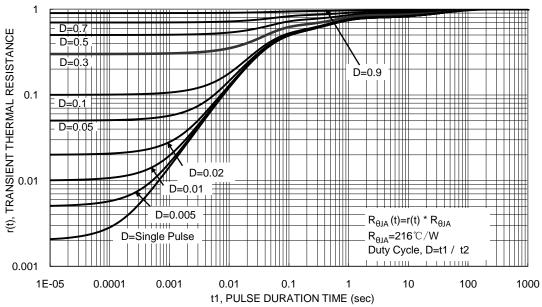


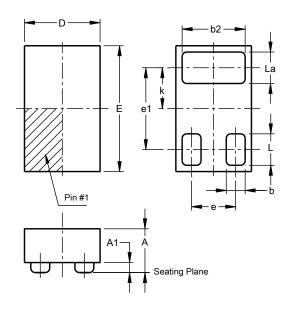
Figure 13. Transient Thermal Resistance



Package Outline Dimensions

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

X2-DSN1006-3

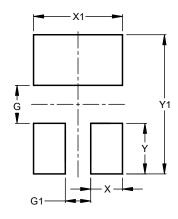


X2-DSN1006-3						
Dim	Min	Max	Тур			
Α	-	0.348	0.32			
A 1			0.08			
b	0.14	0.16	0.15			
b2	0.49	0.51	0.50			
D	0.56	0.64	0.60			
Е	0.96	1.04	1.00			
е			0.35			
e1			0.65			
k			0.325			
L	0.21	0.29	0.25			
La	0.21	0.29	0.25			
All Dimensions in mm						

Suggested Pad Layout

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

X2-DSN1006-3



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



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многоканальный

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