

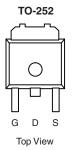
D16NF06L-VB Datasheet N-Channel 60-V (D-S) MOSFET

PRODUCT SUMMARY				
V _{DS} (V)	$r_{DS(on)}\left(\Omega\right)$	I _D (A) ^a		
60	0.025 at V _{GS} = 10 V	45		
00	$0.030 \text{ at V}_{GS} = 4.5 \text{ V}$	40		

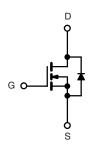
FEATURES

- Trench Power MOSFET
- 175 °C Junction Temperature





Drain Connected to Tab



N-Channel MOSFET

ABSOLUTE MAXIMUM RATINGS $T_C = 25$ °C, unless otherwise noted						
Parameter		Symbol	Limit	Unit		
Gate-Source Voltage		V _{GS}	± 20	V		
Continuous Drain Current (T _{.I} = 175 °C) ^b	T _C = 25 °C	L	45			
Continuous Drain Current (1 _J = 175 °C) ²	T _C = 100 °C	I _D	35			
Pulsed Drain Current	I _{DM}	100	A			
Continuous Source Current (Diode Conduction)	I _S	23]			
Avalanche Current		I _{AS}	20			
Single Avalanche Energy (Duty Cycle ≤ 1 %)	L = 0.1 mH	E _{AS}	20	mJ		
Maximum Daway Dissination	T _C = 25 °C	D ₋	100	w		
Maximum Power Dissipation	T _A = 25 °C	P _D	3 ^a]		
Operating Junction and Storage Temperature Range		T _J , T _{stg}	- 55 to 175	°C		

THERMAL RESISTANCE RATINGS						
Parameter		Symbol	Typical	Maximum	Unit	
Maximum Junction-to-Ambient ^a	t ≤ 10 sec	- R _{thJA}	18	22	°C/W	
waximum Junction-to-Ambient*	Steady State		40	50		
Maximum Junction-to-Case		R_{thJC}	3.2	4		

Notes:

a. Surface Mounted on 1" x 1" FR4 board, $t \le 10$ sec.

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Parameter	Symbol	Test Conditions	Min	Typ ^a	Max	Unit	
Static							
Drain-Source Breakdown Voltage	V _{(BR)DSS}	$V_{GS} = 0 \text{ V}, I_D = 250 \mu\text{A}$	60			V	
Gate Threshold Voltage	V _{GS(th)}	$V_{DS} = V_{GS}, I_D = 250 \mu A$	1.0	2.0	3.0		
Gate-Body Leakage	I _{GSS}	$V_{DS} = 0 \text{ V}, V_{GS} = \pm 20 \text{ V}$			± 100	nA	
		V _{DS} = 60 V, V _{GS} = 0 V			1		
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 60 V, V _{GS} = 0 V, T _J = 125 °C	V, T _J = 125 °C		50	μΑ	
		V _{DS} = 60 V, V _{GS} = 0 V, T _J = 175 °C			250	1	
On-State Drain Current ^b	I _{D(on)}	V _{DS} = 5 V, V _{GS} = 10 V	50			Α	
		V _{GS} = 10 V, I _D = 15 A		0.025			
5 h	_	V _{GS} = 10 V, I _D = 15 A, T _J = 125 °C		0.055			
Drain-Source On-State Resistance ^b	r _{DS(on)}	V _{GS} = 10 V, I _D = 15 A, T _J = 175 °C	0.069			Ω	
		V _{GS} = 4.5 V, I _D = 10 A		0.030			
Forward Transconductance ^b	9 _{fs}	V _{DS} = 15 V, I _D = 15 A		20		S	
Dynamic ^a							
Input Capacitance	C _{iss}			1500		pF	
Output Capacitance	C _{oss}	$V_{GS} = 0 \text{ V}, V_{DS} = 25 \text{ V}, f = 1 \text{ MHz}$		140			
Reverse Transfer Capacitance	C _{rss}			60			
Total Gate Charge ^c	Q_g			11	17	nC	
Gate-Source Charge ^c	Q _{gs}	$V_{DS} = 30 \text{ V}, V_{GS} = 10 \text{ V}, I_D = 23 \text{ A}$		3			
Gate-Drain Charge ^c	Q_{gd}			3		1	
Turn-On Delay Time ^c	t _{d(on)}			8	15		
Rise Time ^c	t _r	V_{DD} = 30 V, R_L = 1.3 Ω		15	25	ns	
Turn-Off Delay Time ^c	t _{d(off)}	$I_D\cong 23$ A, $V_{GEN}=10$ V, $R_g=2.5~\Omega$		30	45		
Fall Time ^c	t _f			25	40		
Source-Drain Diode Ratings and Cha	aracteristics	(T _C = 25 °C)					
Pulsed Current	I _{SM}			50	Α		
Diode Forward Voltage	V_{SD}	$I_F = 15 \text{ A}, V_{GS} = 0 \text{ V}$		1.0	1.5	V	
Reverse Recovery Time	t _{rr}	$I_F = 15 \text{ A}, \text{ di/dt} = 100 \text{ A/}\mu\text{s}$		30	60	ns	

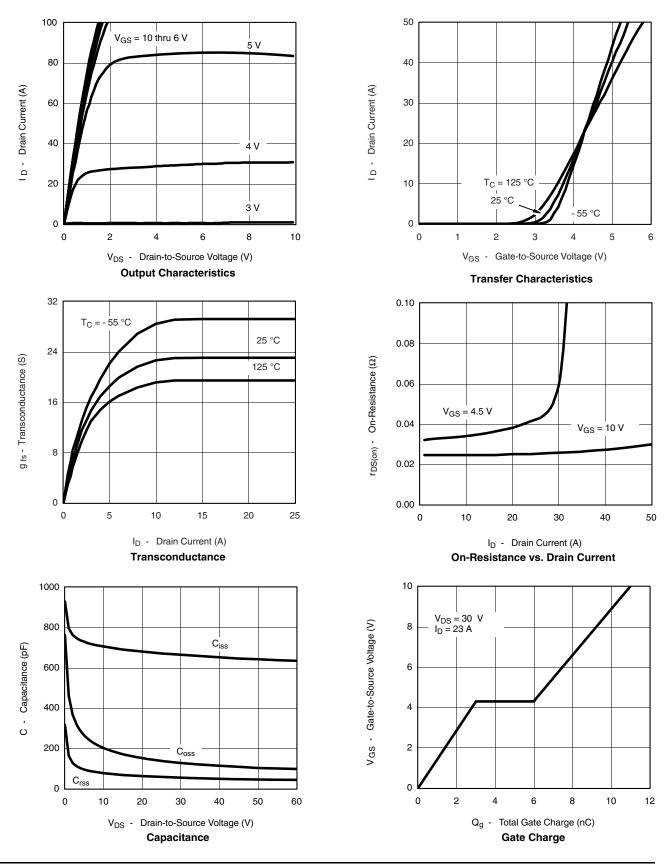
Notes:

- a. For design aid only; not subject to production testing.
- b. Pulse test; pulse width \leq 300 μ s, duty cycle \leq 2 %.
- c. Independent of operating temperature.

Stresses beyond those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

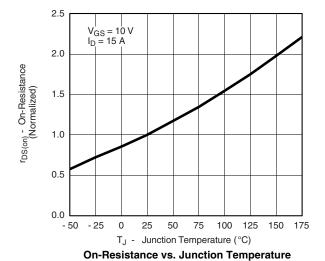


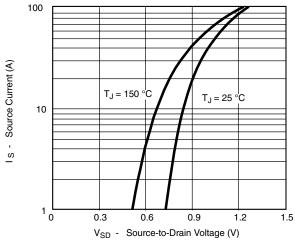
TYPICAL CHARACTERISTICS 25 °C unless noted





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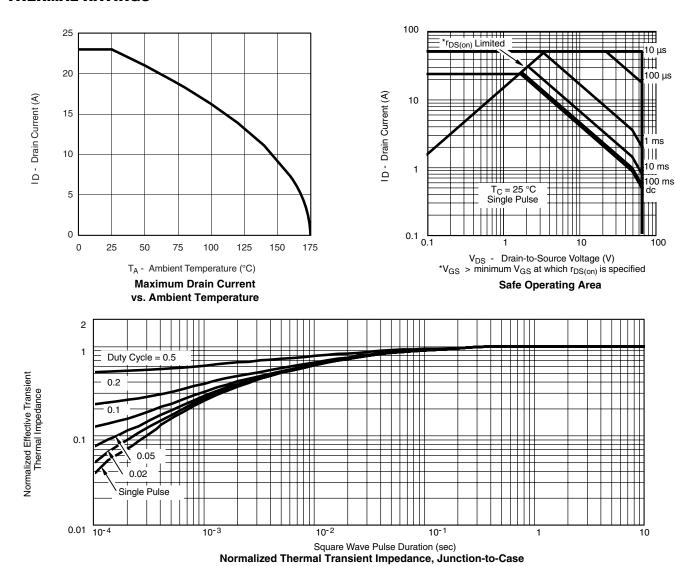




Source-Drain Diode Forward Voltage



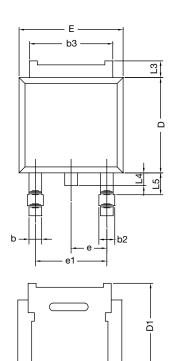
THERMAL RATINGS

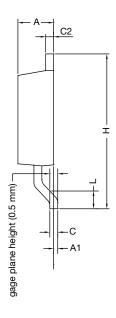


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TO-252AA CASE OUTLINE





	MILLIM	IETERS	INC	HES		
DIM.	MIN.	MAX.	MIN.	MAX.		
Α	2.18	2.38	0.086	0.094		
A1	-	0.127	-	0.005		
b	0.64	0.88	0.025	0.035		
b2	0.76	1.14	0.030	0.045		
b3	4.95	5.46	0.195	0.215		
С	0.46	0.61	0.018	0.024		
C2	0.46	0.89	0.018	0.035		
D	5.97	6.22	0.235	0.245		
D1	5.21	-	0.205	-		
E	6.35	6.73	0.250	0.265		
E1	4.32	=	0.170	-		
Н	9.40	10.41	0.370	0.410		
е	2.28	BSC	0.090	BSC		
e1	4.56 BSC		0.180 BSC			
L	1.40	1.78	0.055	0.070		
L3	0.89	1.27	0.035	0.050		
L4	=	1.02	-	0.040		
L5	1.14	1.52	0.045	0.060		
ECN: X12-0247-Rev. M, 24-Dec-12						

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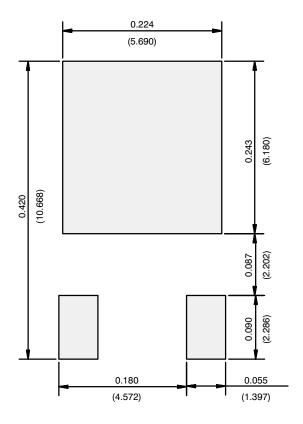
DWG: 5347

Note

• Dimension L3 is for reference only.



RECOMMENDED MINIMUM PADS FOR DPAK (TO-252)



Recommended Minimum Pads Dimensions in Inches/(mm)



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