



DMT3006LFVQ

30V N-CHANNEL ENHANCEMENT MODE MOSFET PowerDI3333-8 (Type UX)

Product Summary

BV _{DSS}	R _{DS(ON)} Max	I _D Max T _C = +25°C		
30V	$7m\Omega$ @ $V_{GS} = 10V$	60A		
30 V	$11m\Omega @ V_{GS} = 4.5V$	004		

Description

This MOSFET is 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

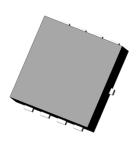
- Power Management Functions
- Analog Switch

Features

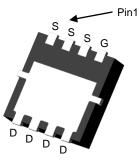
- Low R_{DS(ON)} Ensures On-State Losses are Minimized
- 100% Unclamped Inductive Switching (Test in Production) Ensures More Reliable and Robust End Application
- Small Form Factor Thermally Efficient Package Enables Higher Density End Products
- Occupies just 33% of the Board Area Occupied by SO-8 Enabling Smaller End Product
- Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)
- Halogen and Antimony Free. "Green" Device (Note 3)
- Qualified to AEC-Q101 Standards for High Reliability
- PPAP Capable (Note 4)

Mechanical Data

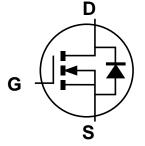
- Case: PowerDI[®]3333-8 (Type UX)
- Case Material: Molded Plastic, "Green" Molding Compound.
 UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections Indicator: See Diagram
- Terminals: Finish Matte Tin Annealed over Copper Leadframe.
 Solderable per MIL-STD-202, Method 208 [®]
- Weight: 0.03 grams (Approximate)







Bottom View



Equivalent Circuit

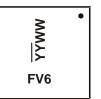
Ordering Information (Note 5)

Part Number	Case	Packaging
DMT3006LFVQ-7	PowerDI3333-8 (Type UX)	2,000/Tape & Reel
DMT3006LFVQ-13	PowerDI3333-8 (Type UX)	3,000/Tape & Reel

Notes:

- 1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
- 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. Automotive products are AEC-Q101 qualified and are PPAP capable. Refer to https://www.diodes.com/quality/.
- 5. For packaging details, go to our website at https://www.diodes.com/design/support/packaging/diodes-packaging/

Marking Information



FV6 = Product Type Marking Code

YYWW = Date Code Marking

YY = Last Two Digits of Year (ex: 18 = 2018)

WW = Week Code (01 to 53)



Maximum Ratings (@T_A = +25°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, V _{GS} = 10V (Note 8)	Steady State	$T_C = +25$ °C $T_C = +70$ °C	Ι _D	60 45	А
Maximum Body Diode Forward Current (Note 8)	Is	2	Α		
Pulsed Drain Current (380µs Pulse, Duty Cycle = 1%	I _{DM}	90	Α		
Pulsed Drain Body Diode Forward Current (380µs Pulse, Duty Cycle = 1%)			I _{SM}	90	Α
Avalanche Current (L = 0.1mH) (Note 9)			I _{AS}	24	Α
Avalanche Energy (L = 0.1mH) (Note 9)			E _{AS}	29	mJ

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

Characteristic		Symbol	Value	Unit
Total Power Dissipation (Note 6)		P_{D}	1.0	W
Thermal Resistance, Junction to Ambient (Note 6)	Steady State	$R_{\theta JA}$	130	°C/W
Total Power Dissipation (Note 7)		P_{D}	2.0	W
Thermal Resistance, Junction to Ambient (Note 7)	Steady State	$R_{\theta JA}$	63	°C/W
Thermal Resistance, Junction to Case (Note 8)		$R_{ heta JC}$	2.9	C/VV
Operating and Storage Temperature Range		$T_{J_i} T_{STG}$	-55 to +150	°C

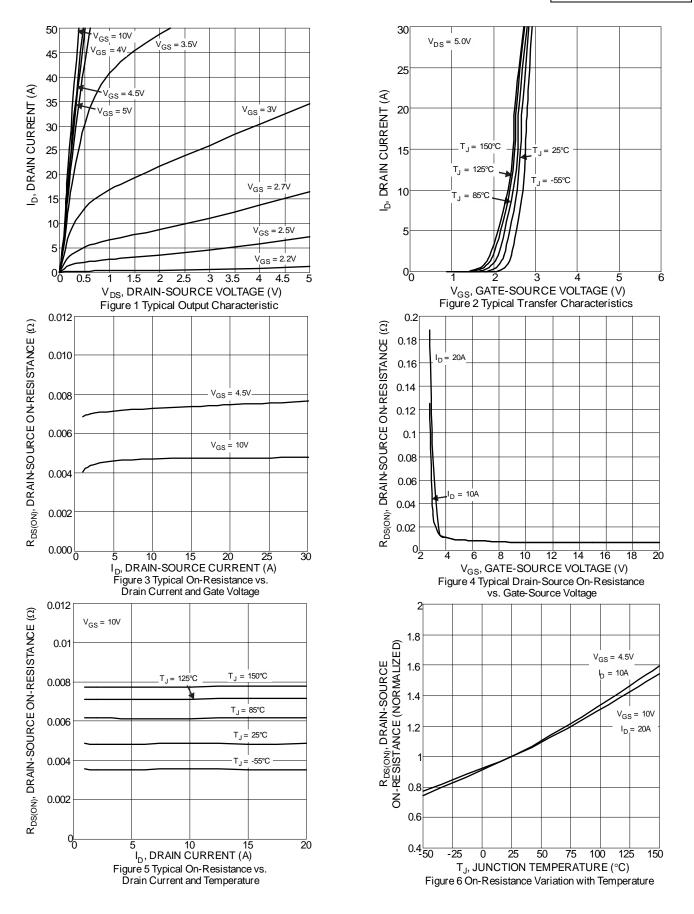
Electrical Characteristics (@ $T_A = +25$ °C, unless otherwise specified.)

Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition	
OFF CHARACTERISTICS (Note 10)							
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}	_	_	1	μΑ	$V_{DS} = 24V, V_{GS} = 0V$	
Gate-Source Leakage	I _{GSS}	_	_	±100	nA	$V_{GS} = +20V, V_{DS} = 0V$ $V_{GS} = -16V, V_{DS} = 0V$	
ON CHARACTERISTICS (Note 10)							
Gate Threshold Voltage	V _{GS(TH)}	1.0		3.0	٧	$V_{DS} = V_{GS}$, $I_D = 250\mu A$	
Static Drain-Source On-Resistance	Dagger		5.6	7	mΩ	$V_{GS} = 10V, I_D = 9.0A$	
Static Dialii-Source Off-Resistance	R _{DS(ON)}		8.0	11	11122	$V_{GS} = 4.5V, I_D = 8.5A$	
Diode Forward Voltage	V_{SD}	_	0.70	1.2	٧	$V_{GS} = 0V, I_{S} = 1A$	
DYNAMIC CHARACTERISTICS (Note 11)							
Input Capacitance	C _{iss}	_	1,155	_		V _{DS} = 15V, V _{GS} = 0V, f = 1.0MHz	
Output Capacitance	Coss	_	456		pF		
Reverse Transfer Capacitance	C _{rss}	_	72	_			
Gate Resistance	R_g	_	1.6	_	Ω	$V_{DS} = 0V, V_{GS} = 0V, f = 1.0MHz$	
Total Gate Charge (V _{GS} = 4.5V)	Q_g	_	8.4	_			
Total Gate Charge (V _{GS} = 10V)	Q_g	_	16.7	_	nC	V _{DD} = 15V. I _D = 9A	
Gate-Source Charge	Q_{gs}	_	2.2		IIC	V _{DD} = 15V, I _D = 9A	
Gate-Drain Charge	Q_{gd}	_	3.5	_			
Turn-On Delay Time	t _{D(ON)}	_	3.5	_			
Turn-On Rise Time	t _R	_	5.5	_		$V_{DD} = 15V, V_{GS} = 10V,$ $R_G = 3\Omega, I_D = 9A$	
Turn-Off Delay Time	t _{D(OFF)}	_	13.5	_	ns		
Turn-Off Fall Time	t _F	_	4.6	_			
Reverse Recovery Time	t _{RR}	_	19.3	_	ns	1 4 5 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	
Reverse Recovery Charge	Q _{RR}	_	8.6	_	nC	$I_F = 1.5A$, di/dt = 100A/ μ s	

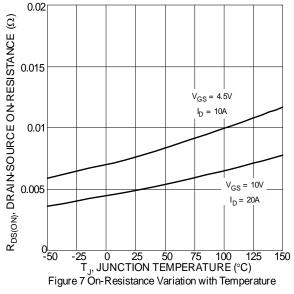
Notes:

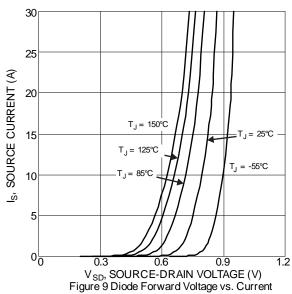
- 6. Device mounted on FR-4 PC board, with minimum recommended pad layout, single sided.
- 7. Device mounted on FR-4 substrate PC board, 2oz copper, with thermal bias to bottom layer 1inch square copper plate.
- 8. Thermal resistance from junction to soldering point (on the exposed drain pad).
- 9. IAS and EAS ratings are based on low frequency and duty cycles to keep $T_J = +25$ °C.
- 10. Short duration pulse test used to minimize self-heating effect.
- 11. Guaranteed by design. Not subject to product testing.

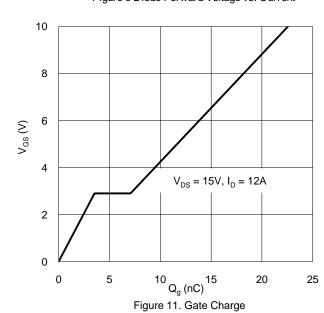












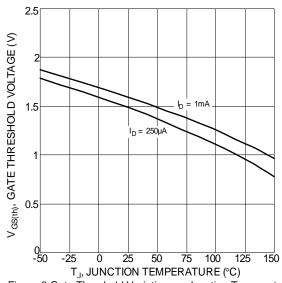
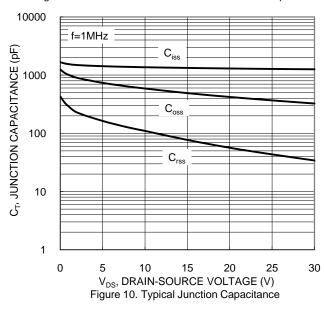
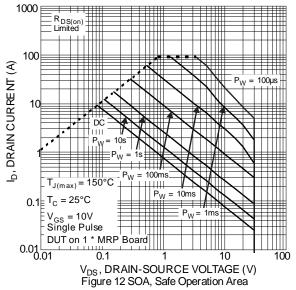
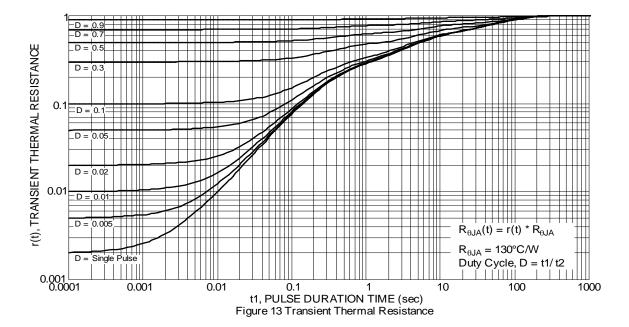


Figure 8 Gate Threshold Variation vs. Junction Temperature







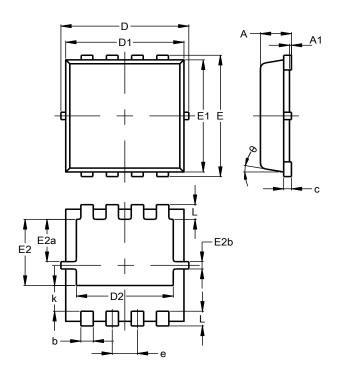




Package Outline Dimensions

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

PowerDI3333-8 (Type UX)

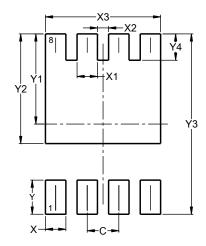


PowerDI3333-8						
(Type UX)						
Dim	Min	Max	Тур			
Α	0.75	0.85	0.80			
A1	0.00	0.05				
b	0.25	0.40	0.32			
С	0.10	0.25	0.15			
D	3.20	3.40	3.30			
D1	2.95	3.15	3.05			
D2	2.30	2.70	2.50			
Е	3.20	3.40	3.30			
E1	2.95	3.15	3.05			
E2	1.60	2.00	1.80			
E2a	0.95	1.35	1.15			
E2b	0.10	0.30	0.20			
е	0.65 BSC					
k	0.50	0.90	0.70			
L	0.30	0.50	0.40			
θ	0°	12°	10°			
All Dimensions in mm						

Suggested Pad Layout

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

PowerDI3333-8 (Type UX)



Dimensions	Value (in mm)			
С	0.650			
Х	0.420			
X1	0.420			
X2	0.230			
Х3	2.370			
Y	0.700			
Y1	1.850			
Y2	2.250			
Y3	3.700			
Y4	0.540			



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