



DMT3006LDK

Product Summary

V _{DSS}	R _{DS(ON)} Max	I _D Max T _C = +25°C
30V	6.5mΩ @ V _{GS} = 10V	46.2A
	$10m\Omega @ V_{GS} = 4.5V$	37.0A

Description

This MOSFET is 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

- Backlighting
- Power Management Functions
- DC-DC Converters

N-CHANNEL ENHANCEMENT MODE MOSFET

Features and Benefits

- Low On-Resistance
- Low Input Capacitance
- Fast Switching Speed
- Low Input/Output Leakage
- Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)
- Halogen and Antimony Free. "Green" Device (Note 3)

Mechanical Data

- Case: V-DFN3030-8 (Type Q)
- 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 NiPdAu over Copper Leadframe. Solderable per MIL-STD-202, Method 208 @
- Weight: 0.0172 grams (Approximate)

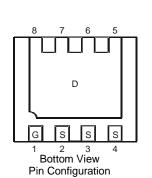


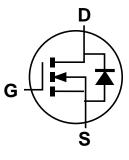
V-DFN3030-8 (Type Q)



Top View

Bottom View





Equivalent Circuit

Ordering Information (Note 4)

	Part Number	Case	Packaging	
DMT3006LDK-7		V-DFN3030-8 (Type Q)	3,000/Tape & Reel	
Notor: 1 No purposaly added load Fully FLI Directive 2002/05/FC (PoHS) & 2011/65/FLI (PoHS 2) compliant				

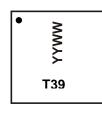
 See http://www.diodes.com/quality/lead_free.html for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.

Allogen- 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

V-DFN3030-8 (Type Q)



T39 = Product Marking Code YYWW = Date Code Marking YY = Last Two Digits of Year (ex: 17 for 2017) WW = Week Code (01 to 53)



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

Characteristic Drain-Source Voltage Gate-Source Voltage		Symbol	Value	Unit V
		V _{DSS}	30	
		V _{GSS}	±20	V
Continuous Drain Current V _{GS} = 10V	$T_A = +25^{\circ}C$ $T_A = +70^{\circ}C$ (Note 6)	I _D	17.1 13.7	A
	$T_{C} = +25^{\circ}C$ $T_{C} = +70^{\circ}C$	ID	46.2 37.0	A
Maximum Continuous Body Diode Forward Current (Note 6)	Is	2	A	
Pulsed Drain Current (10µS Pulse, Duty Cycle = 1%)		I _{DM}	80	A
Avalanche Current (Note 7) L = 0.1mH		I _{AS}	25	А
Avalanche Energy (Note 7) L = 0.1mH		E _{AS}	31	mJ

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

Characteristic		Symbol	Value	Unit
Total Power Dissipation (Note 5)		PD	1.1	W
Thermal Resistance, Junction to Ambient (Note 5)	Steady State	$R_{ hetaJA}$	116	°C/W
Total Power Dissipation (Note 6)		PD	2.8	W
Thermal Resistance, Junction to Ambient (Note 6)	Steady State	$R_{ ext{ heta}JA}$	44	8C AA/
Thermal Resistance, Junction to Case	•	R _{0JC}	6	°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}	_	—	1	μA	$V_{DS} = 24V, V_{GS} = 0V$	
Gate-Source Leakage	I _{GSS}	—	—	±100	nA	$V_{GS} = +20V, V_{DS} = 0V$ $V_{GS} = -16V, V_{DS} = 0V$	
ON CHARACTERISTICS (Note 8)							
Gate Threshold Voltage	V _{GS(TH)}	1.0	_	3.0	V	$V_{DS} = V_{GS}, I_{D} = 250 \mu A$	
Static Drain-Source On-Resistance		_	5.5	6.5	mΩ	$V_{GS} = 10V, I_D = 12A$	
	Rds(on)	_	7.5	10	11122	V _{GS} = 4.5V, I _D = 12A	
Diode Forward Voltage	V _{SD}	_	_	1.0	V	$V_{GS} = 0V, I_S = 2A$	
DYNAMIC CHARACTERISTICS (Note 9)							
Input Capacitance	C _{iss}	_	1,155	—		$V_{DS} = 15V, V_{GS} = 0V,$ f = 1.0MHz	
Output Capacitance	Coss	_	456	—	pF		
Reverse Transfer Capacitance	Crss	_	72	—			
Gate Resistance	Rg	_	1.6	—	Ω	$V_{DS} = 0V, V_{GS} = 0V, f = 1.0MHz$	
Total Gate Charge (V _{GS} = 10V)	Qg	_	16.7	—		V _{DD} = 15V, I _D = 9A	
Total Gate Charge (V _{GS} = 4.5V)	Qg	_	8.4	—	nC		
Gate-Source Charge	Q _{gs}	_	2.2	—	nc		
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	tF	_	4.6	—			
Body Diode Reverse Recovery Time	t _{RR}	_	19.3	_	ns		
Body Diode Reverse Recovery Charge	Q _{RR}	_	8.6	—	nC	I _F = 1.5A, di/dt = 100A/µs	

Notes: 5. Device mounted on FR-4 PC board, with minimum recommended pad layout, single sided.

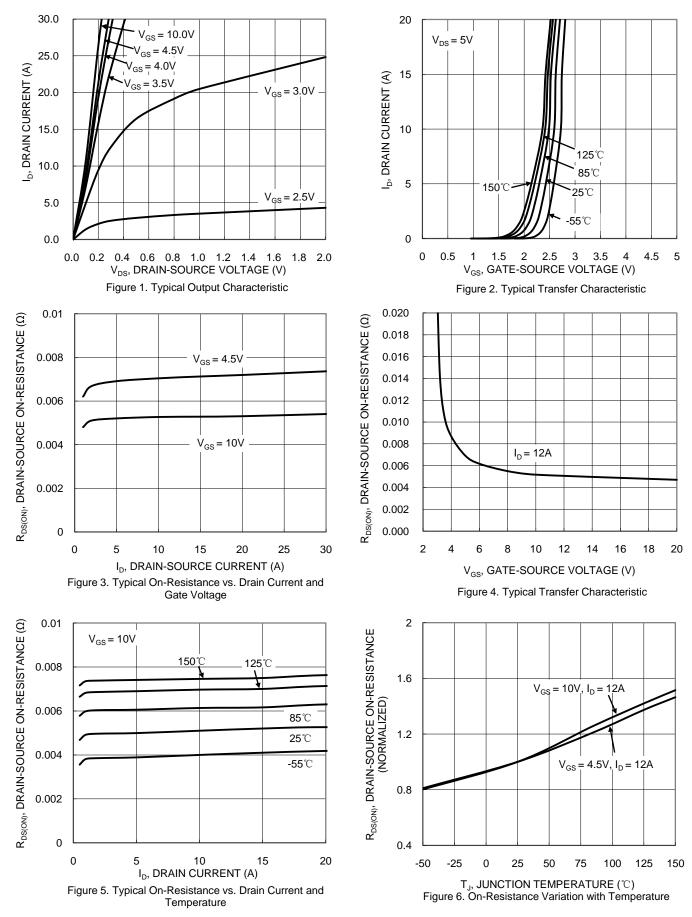
6. Device mounted on 4.75 inches by 4.5 inches FR-4 substrate PC board, 2oz copper, with thermal bias to bottom layer 1-inch square copper plate.

7. I_{AS} and E_{AS} ratings are based on low frequency and duty cycles to keep T_J = +25°C.

8. Short duration pulse test used to minimize self-heating effect.9. Guaranteed by design. Not subject to product testing.

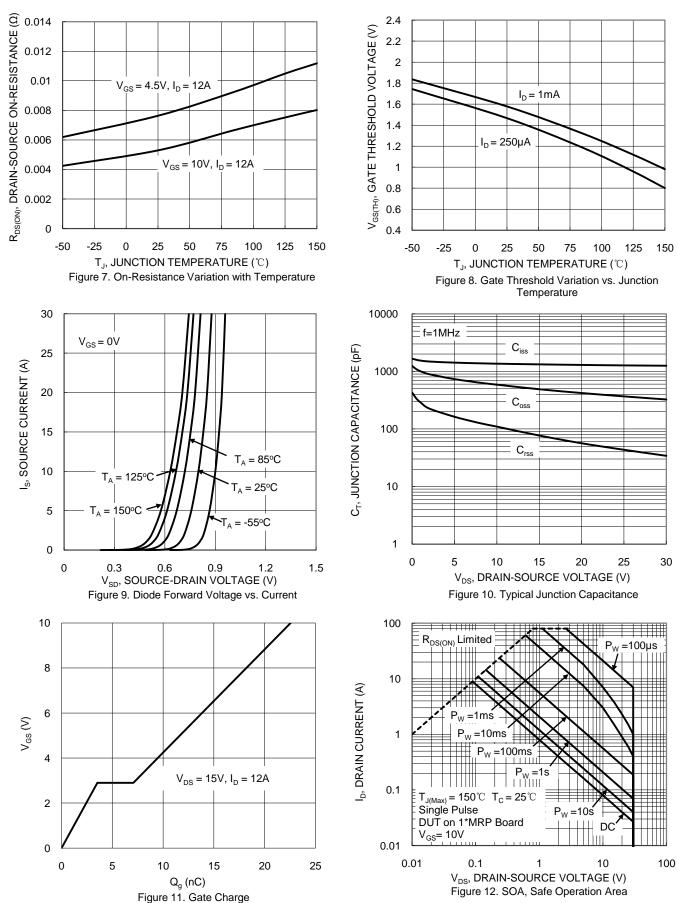


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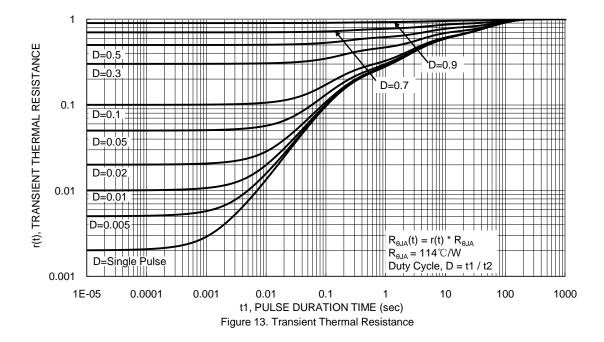
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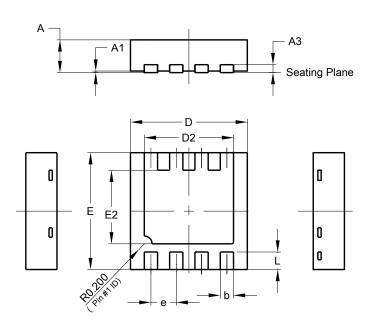






Package Outline Dimensions

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

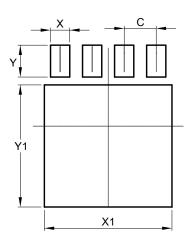


1							
V-DFN3030-8							
	(Type Q)						
Dim	Min	Max	Тур				
Α	0.77	0.83	0.80				
A1	0.00	0.05	0.02				
A3	-		0.203				
b	0.29	0.39	0.34				
D	2.95	3.05	3.00				
D2	2.19	2.39	2.29				
E	2.95	3.05	3.00				
E2	1.64	1.84	1.74				
e			0.65				
L	0.40	0.50	0.45				
All Dimensions in mm							

Suggested Pad Layout

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

V-DFN3030-8 (Type Q)



Dimensions	Value (in mm)		
С	0.650		
Х	0.390		
X1	2.590		
Y	0.650		
Y1	2.490		

V-DFN3030-8 (Type Q)



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