



DUAL N-CHANNEL ENHANCEMENT MODE MOSFET

Product Summary

BV _{DSS}	Rds(on)	I _D T _A = +25°C
30V	4.2Ω @ $V_{GS} = 4.5V$	200mA
307	2.8Ω @ V _{GS} = 10V	260mA

Description

This new generation MOSFET has been designed to minimize the on-state resistance (RDS(ON)) yet maintain superior switching performance, making it ideal for high efficiency power management applications.

Applications

- DC-DC Converters
- Power Management Functions
- Battery Operated Systems and Solid-State Relays
- Drivers: Relays, Solenoids, Lamps, Hammers, Displays, Memories, Transistors, etc.

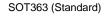
Features

- Dual N-Channel MOSFET
- Low On-Resistance
- Low Input Capacitance
- Fast Switching Speed
- Small Surface 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-Q100/101/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please contact us or your local Diodes representative.

https://www.diodes.com/quality/product-definitions/

Mechanical Data

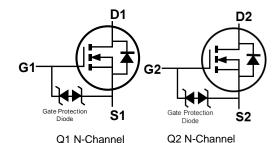
- Case: SOT363
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish Annealed over Alloy 42 Leadframe (Lead Free Plating). Solderable per MIL-STD-202, Method 208 (3)
- Terminal Connections: See Diagram
- Weight: 0.006 grams (Approximate)

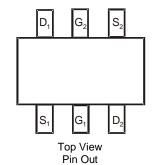






Top View





June 2021

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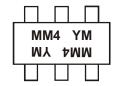
Ordering Information (Note 4)

Part Number	Case	Packaging
DMN63D8LDW-7	SOT363 (Standard)	3000/Tape & Reel
DMN63D8LDW-13	SOT363 (Standard)	10000/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. For packaging details, go to our website at https://www.diodes.com/design/support/packaging/diodes-packaging/.

Marking Information



MM4 = Product Type Marking Code YM = Date Code Marking Y = Year (ex: I = 2021) M = Month (ex: 9 = September)

Date Code Key

Year	2012		2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Code	Z		ı	J	K	L	М	N	0	Р	R	S
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	0	N	D



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

Characteristic			Symbol	Value	Unit
Drain-Source Voltage	VDSS	30	V		
Gate-Source Voltage			Vgss	±20	V
Continuous Drain Current (Note 5) VGS = 10V	Steady State	$T_A = +25$ °C $T_A = +70$ °C	ΙD	220 170	mA
Continuous Drain Current (Note 6) V _{GS} = 10V	Steady State	T _A = +25°C T _A = +70°C	ΙD	260 210	mA
Pulsed Drain Current (10μs Pulse, Duty Cycle = 1%)	I _{DM}	800	mA		

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

Characteristic		Symbol	Value	Unit	
Total Power Dissipation	(Note 5)	(Note 5)		mW	
Total Power Dissipation	(Note 6)	P _D	400	IIIVV	
Thermal Resistance, Junction to Ambient	(Note 5)	D	435		
Thermal Resistance, Junction to Ambient	(Note 6)	$R_{\theta JA}$	330	°C/W	
Thermal Resistance, Junction to Case	R _θ JC	139			
Operating and Storage Temperature Range		TJ, TSTG	-55 to +150	°C	

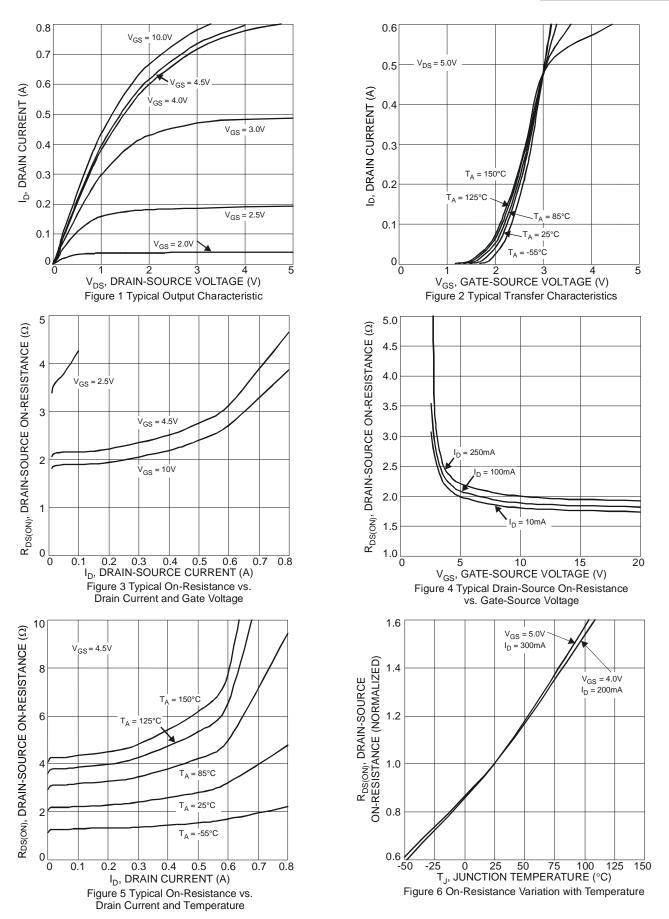
Electrical Characteristics (@ $T_A = +25$ °C, unless otherwise specified.)

Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition	
OFF CHARACTERISTICS (Note 7)		ı	71				
Drain-Source Breakdown Voltage	BV _{DSS}	30		_	V	$V_{GS} = 0V, I_D = 250\mu A$	
Zero Gate Voltage Drain Current	IDSS			1.0	μA	V _{DS} = 30V, V _{GS} = 0V	
Gate-Body Leakage	Igss			±10.0	μΑ	$V_{GS} = \pm 20V$, $V_{DS} = 0V$	
ON CHARACTERISTICS (Note 7)							
Gate Threshold Voltage	Vgs(TH)	0.8		1.5	V	$V_{DS} = V_{GS}$, $I_D = 250 \mu A$	
				2.8		$V_{GS} = 10.0V, I_{D} = 250mA$	
				3.8		$V_{GS} = 5V, I_{D} = 250mA$	
Static Drain-Source On-Resistance	RDS(ON)			4.2	Ω	$V_{GS} = 4.5V, I_D = 250mA$	
				4.5		/ _{GS} = 4.0V, I _D = 250mA	
			_	13		$V_{GS} = 2.5V, I_D = 10mA$	
Forward Transconductance	grs	80	_	_	mS	V _{DS} = 10V, I _D = 0.115A	
Diode Forward Voltage	VsD	_	8.0	1.2	V	V _{GS} = 0V, I _S = 115mA	
DYNAMIC CHARACTERISTICS (Note 8)							
Input Capacitance	Ciss		22.0	_			
Output Capacitance	Coss		3.2	_	pF	$V_{DS} = 25V, V_{GS} = 0V, f = 1.0MHz$	
Reverse Transfer Capacitance	Crss		2.0	_			
Gate Resistance	Rg		79.9	_	Ω	$V_{DS} = 0V$, $V_{GS} = 0V$, $f = 1.0MHz$	
Total Gate Charge (V _{GS} = 10V)	Qg		0.87	_			
Total Gate Charge (V _{GS} = 4.5V)	Qg		0.43	_	nC	V _{DS} = 30V, I _D = 150mA	
Gate-Source Charge	Qgs	_	0.11	_	nc	VDS = 30V, ID = 150IIIA	
Gate-Drain Charge	Qgd	_	0.11	_			
Turn-On Delay Time	tD(ON)	_	3.3	_			
Turn-On Rise Time	t _R	_	3.2	_		$V_{DD} = 30V, I_D = 0.115A, V_{GEN} = 10V,$	
Turn-Off Delay Time	tD(OFF)	_	12.0	_	ns	$R_{GEN} = 25\Omega$	
Turn-Off Fall Time	t _F	_	6.3	_			

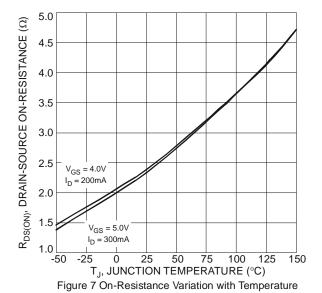
Notes:

- 5. Device mounted on FR-4 PC board, with minimum recommended pad layout, single sided.
- 6. Device mounted on FR-4 substrate PC board, 2oz copper, with 1inch square copper pad layout.
- 7. Short duration pulse test used to minimize self-heating effect. 8. Guaranteed by design. Not subject to production testing.









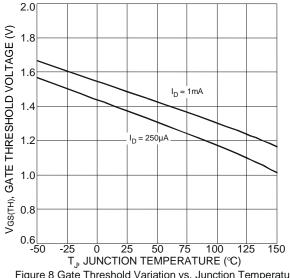
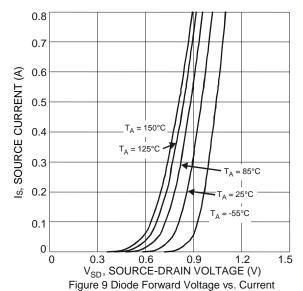


Figure 8 Gate Threshold Variation vs. Junction Temperature

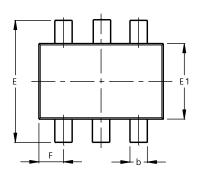


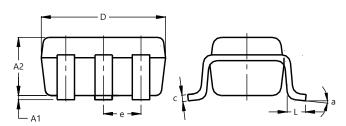


Package Outline Dimensions

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

SOT363 (Standard)



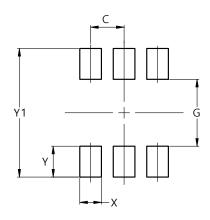


SOT363 (Standard)							
Dim	Min	Max	Тур				
A1	0.00	0.10	0.05				
A2	0.80	1.00	0.90				
Ь	0.10	0.35	0.225				
C	0.08	0.22	0.15				
D	1.80	2.20	2.00				
Е	2.00	2.45	2.225				
E1	1.15	1.35	1.25				
е			0.65				
F	0.25	0.45	0.35				
L	0.25	0.46	0.355				
а	0°	8°					
All Dimensions in mm							

Suggested Pad Layout

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

SOT363 (Standard)



Dimensions	Value (in mm)				
С	0.650				
G	1.300				
Х	0.420				
Y	0.600				
Y1	2.500				



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