

Product Summary

$V_{(BR)DSS}$	$R_{DS(ON)}$	Package	I_D $T_A = +25^\circ C$
60V	6Ω @ $V_{GS} = 5V$	SOT363	90mA
	5Ω @ $V_{GS} = 10V$		115mA

Description

This new generation MOSFET has been 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

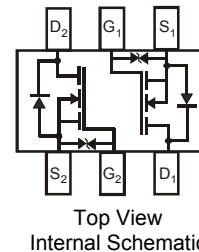
- Load Switch

Features and Benefits

- Dual N-Channel MOSFET
- Low On-Resistance
- Low Gate Threshold Voltage
- Low Input Capacitance
- Fast Switching Speed
- Small Surface Mount Package
- ESD Protected Gate, 1KV (HBM)
- Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- Halogen and Antimony Free. "Green" Device (Note 3)**
- Qualified to AEC-Q101 Standards for High Reliability**

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 (e3)
- Terminal Connections: See Diagram
- Weight: 0.006 grams (approximate)

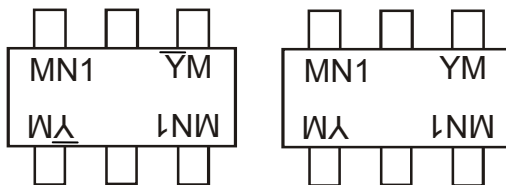


Ordering Information (Note 4)

Part Number	Case	Packaging
DMN66D0LDW-7	SOT363	3,000/Tape & Reel

- Notes:
- No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 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.
 - Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
 - For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

Marking Information



MN1= Product Type Marking Code
 YM = Date Code Marking for SAT (Shanghai Assembly/ Test site)
 YM = Date Code Marking for CAT (Chengdu Assembly/ Test site)
 Y or \bar{Y} = Year (ex: A = 2013)
 M = Month (ex: 9 = September)

Date Code Key

Year	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	
Code	U	V	W	X	Y	Z	A	B	C	D	E	
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

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

Characteristic	Symbol	Value	Units
Drain-Source Voltage	V_{DSS}	60	V
Gate-Source Voltage (Note 5)	V_{GSS}	± 20	V
Drain Current (Note 5)	I_D	Continuous	115
		Continuous @ $+100^\circ\text{C}$	73
		Pulsed	800

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

Characteristic	Symbol	Value	Units
Total Power Dissipation	P_D	250	mW
Derating above $T_A = +25^\circ\text{C}$ (Note 5)		1.6	mW/ $^\circ\text{C}$
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	500	$^\circ\text{C}/\text{W}$
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	$^\circ\text{C}$

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition	
OFF CHARACTERISTICS (Note 6)							
Drain-Source Breakdown Voltage	BV_{DSS}	60	70	—	V	$V_{GS} = 0\text{V}, I_D = 10\mu\text{A}$	
Zero Gate Voltage Drain Current	I_{DSS}	—	—	1.0 500	μA	@ $T_C = +25^\circ\text{C}$ @ $T_C = +125^\circ\text{C}$ $V_{DS} = 60\text{V}, V_{GS} = 0\text{V}$	
Gate-Body Leakage	I_{GSS}	—	—	± 5	μA	$V_{GS} = \pm 20\text{V}, V_{DS} = 0\text{V}$	
ON CHARACTERISTICS (Note 6)							
Gate Threshold Voltage	$V_{GS(th)}$	1.2	—	2.0	V	$V_{DS} = V_{GS}, I_D = 250\mu\text{A}$	
Static Drain-Source On-Resistance	$R_{DS(on)}$	@ $T_J = +25^\circ\text{C}$	—	3.5	6	Ω	$V_{GS} = 5.0\text{V}, I_D = 0.115\text{A}$
		@ $T_J = +125^\circ\text{C}$	—	3.0	5		$V_{GS} = 10\text{V}, I_D = 0.115\text{A}$
Forward Transconductance	g_{FS}	80	V_{SD}	—	mS	$V_{DS} = 10\text{V}, I_D = 0.115$	
Diode Forward Voltage	V_{SD}	—	0.8	1.2	V	$V_{GS} = 0\text{V}, I_S = 115\text{mA}$	
DYNAMIC CHARACTERISTICS							
Input Capacitance	C_{iss}	—	23	—	pF	$V_{DS} = 25\text{V}, V_{GS} = 0\text{V}, f = 1.0\text{MHz}$	
Output Capacitance	C_{oss}	—	3.4	—	pF		
Reverse Transfer Capacitance	C_{rss}	—	1.4	—	pF		
SWITCHING CHARACTERISTICS							
Turn-On Delay Time	$t_{D(ON)}$	—	10	—	ns	$V_{DD} = 30\text{V}, I_D = 0.115\text{A}, R_L = 150\Omega,$ $V_{GEN} = 10\text{V}, R_{GEN} = 25\Omega$	
Turn-Off Delay Time	$t_{D(OFF)}$	—	33	—	ns		

- Notes:
- Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch; pad layout as shown on Diodes Inc. suggested pad layout document AP02001, which can be found on our website at <http://www.diodes.com>.
 - Short duration pulse test used to minimize self-heating effect.

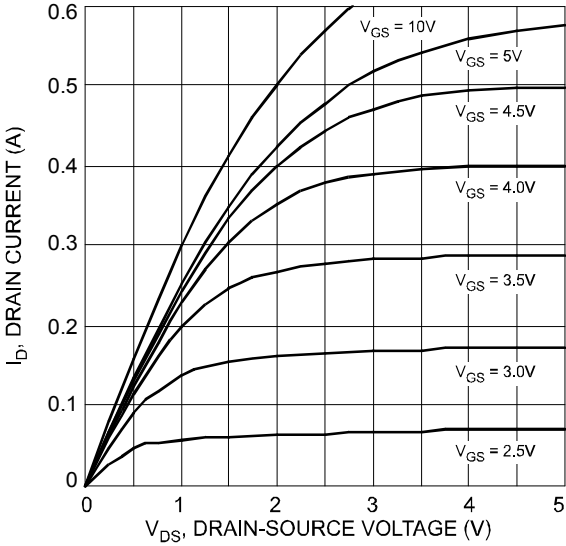


Fig. 1 Typical Output Characteristic

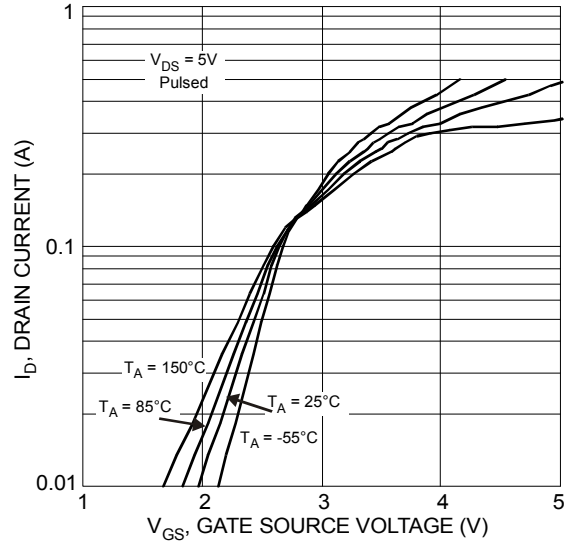


Fig. 2 Typical Transfer Characteristics

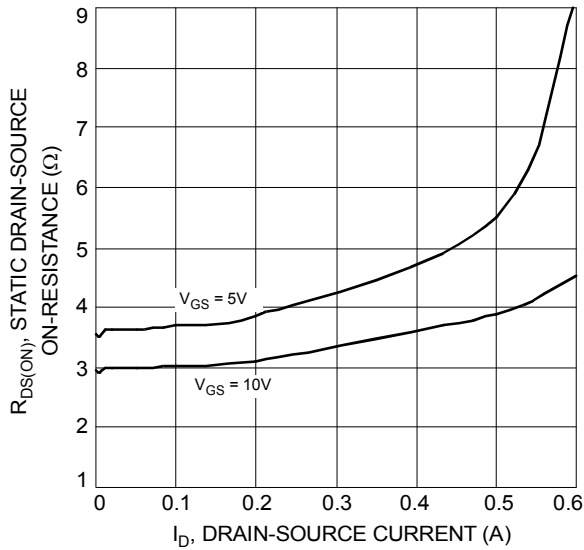


Fig. 3 On-Resistance vs. Drain Current & Gate Voltage

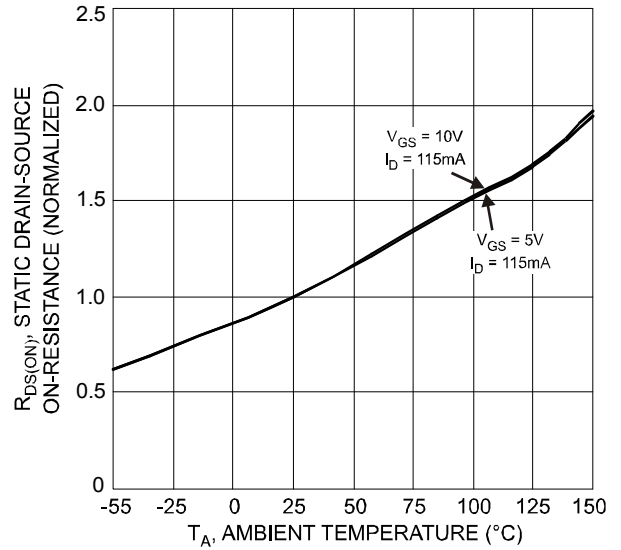


Fig. 4 Normalized Static Drain-Source On-Resistance vs. Ambient Temperature

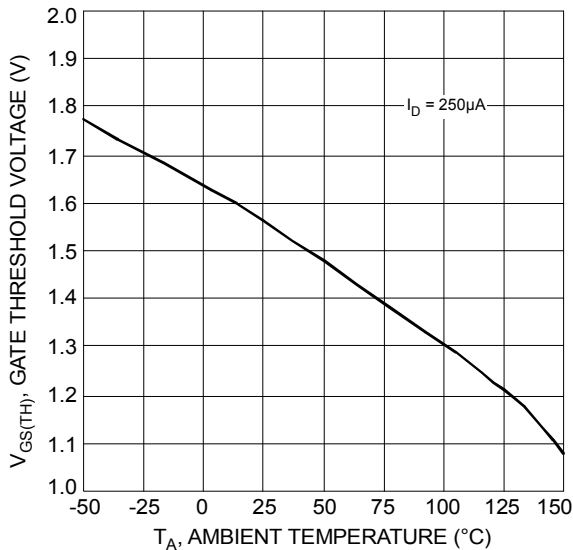


Fig. 5 Gate Threshold Variation vs. Ambient Temperature

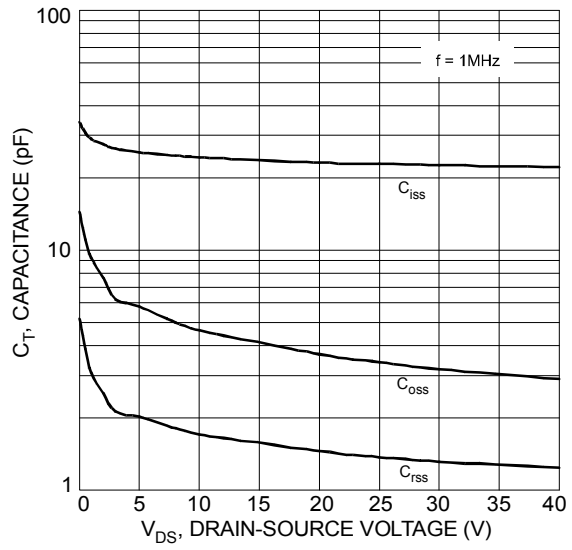


Fig. 6 Typical Total Capacitance

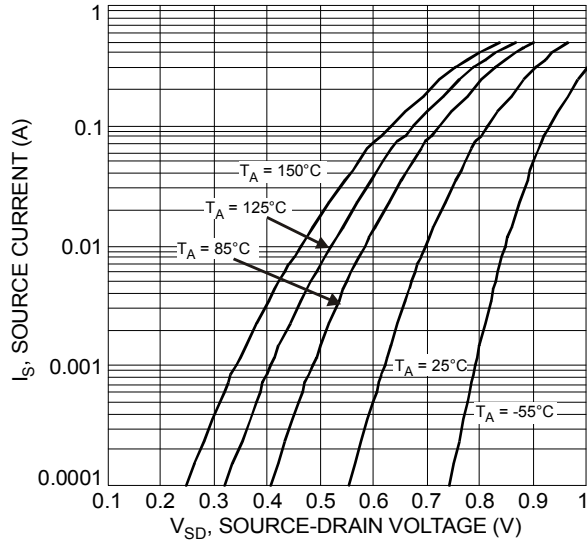
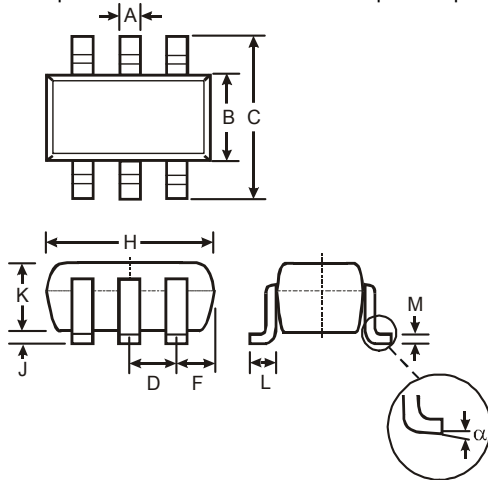


Fig. 7 Reverse Drain Current vs. Source-Drain Voltage

Package Outline Dimensions

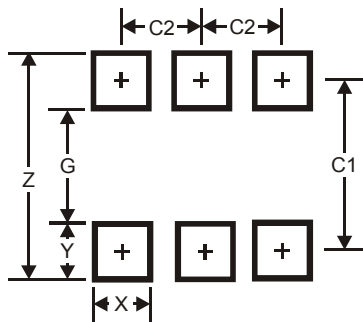
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for the latest version.



SOT363		
Dim	Min	Max
A	0.10	0.30
B	1.15	1.35
C	2.00	2.20
D	0.65 Typ	
F	0.40	0.45
H	1.80	2.20
J	0	0.10
K	0.90	1.00
L	0.25	0.40
M	0.10	0.22
α	0°	8°
All Dimensions in mm		

Suggested Pad Layout

Please see AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> for the latest version.



Dimensions	Value (in mm)
Z	2.5
G	1.3
X	0.42
Y	0.6
C1	1.9
C2	0.65

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