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USE DMG6402LVT

Lead-free Green

DMG6402LDM

N-CHANNEL ENHANCEMENT MODE MOSFET

Features

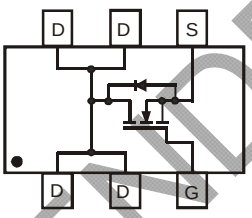
- Low $R_{DS(ON)}$
- Low Input Capacitance
- Fast Switching Speed
- Low Input/Output Leakage
- **Lead Free By Design/RoHS Compliant (Note 1)**
- **Qualified to AEC-Q101 Standards for High Reliability**
- **"Green" Device (Note 2)**

Mechanical Data

- Case: SOT-26
- Case Material - Molded Plastic. UL Flammability Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin Solderable per MIL-STD-202, Method 208
- Terminal Connections: See Diagram
- Marking Information: See Page 2
- Ordering Information: See page 2
- Weight: 0.008 grams (approximate)

SOT-26

TOP VIEW



TOP VIEW
Internal Schematic

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 (Note 3)	Steady State	T_A = 25°C T_A = 70°C	I_D	5.3 4.2	A
Pulsed Drain Current (Note 4)			I_{DM}	31	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Total Power Dissipation (Note 3)	P_D	1.12	W
Thermal Resistance, Junction to Ambient T_A = 25°C (Note 3)	$R_{\theta JA}$	111	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°C

Notes:
1. No purposefully added lead.
2. Diodes Inc's "Green" policy can be found on our website at http://www.diodes.com/products/lead_free/index.php.
3. Device mounted on FR-4 PCB, with minimum recommended pad layout.
4. Repetitive Rating, pulse width limited by junction temperature.

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Electrical Characteristics @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 5)						
Drain-Source Breakdown Voltage	BV_{DSS}	30	-	-	V	V_{GS} = 0V, I_D = 250μA
Zero Gate Voltage Drain Current T_J = 25°C	I_{DSS}	-	-	1.0	μA	V_{DS} = 30V, V_{GS} = 0V
Gate-Source Leakage	I_{GSS}	-	-	±100	nA	V_{GS} = ±20V, V_{DS} = 0V
ON CHARACTERISTICS (Note 5)						
Gate Threshold Voltage	$V_{GS(th)}$	1.0	1.5	2.0	V	V_{DS} = V_{GS}, I_D = 250μA
Static Drain-Source On-Resistance	$R_{DS\ (ON)}$	-	22 32	27 40	mΩ	V_{GS} = 10V, I_D = 7A V_{GS} = 4.5V, I_D = 5.6A
Forward Transfer Admittance	$\|Y_{fs}\|$	-	10	-	S	V_{DS} = 5V, I_D = 7A
Diode Forward Voltage	V_{SD}	-	0.75	1.0	V	V_{GS} = 0V, I_S = 1A
DYNAMIC CHARACTERISTICS (Note 6)						
Input Capacitance	C_{iss}	-	404	-	pF	V_{DS} =15V, V_{GS} = 0V, f = 1.0MHz
Output Capacitance	C_{oss}	-	52	-	pF	
Reverse Transfer Capacitance	C_{rss}	-	45	-	pF	
Gate Resistance	R_g	-	1.51	-	Ω	V_{DS} =0V, V_{GS} = 0V, f = 1MHz
Total Gate Charge	Q_g	-	9.2	-	nC	V_{GS} =10V, V_{DS} = 15V, ID =5.8A
Gate-Source Charge	Q_{gs}	-	1.2	-	nC	
Gate-Drain Charge	Q_{gd}	-	1.8	-	nC	
Turn-On Delay Time	$t_{D(on)}$	-	3.41	-	ns	V_{DD} = 15V, V_{GS} = 10V, R_L = 2.6Ω, R_G = 3Ω
Turn-On Rise Time	t_r	-	6.18	-	ns	
Turn-Off Delay Time	$t_{D(off)}$	-	13.92	-	ns	
Turn-Off Fall Time	t_f	-	2.84	-	ns	

Notes: 5. Short duration pulse test used to minimize self-heating effect.
6. Guaranteed by design. Not subject to production testing.

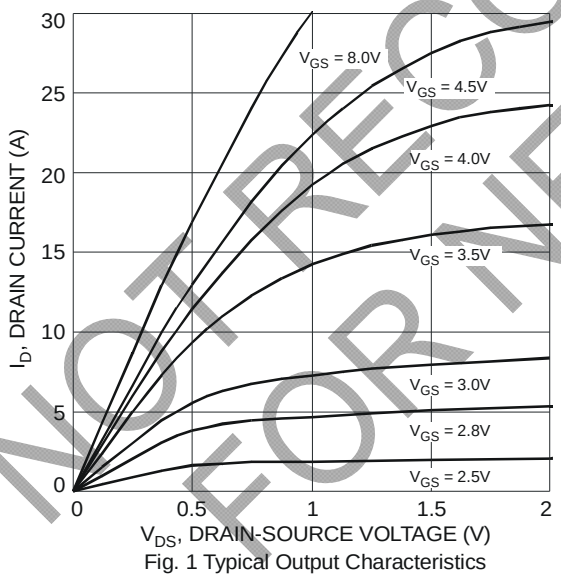

Fig. 1 Typical Output Characteristics

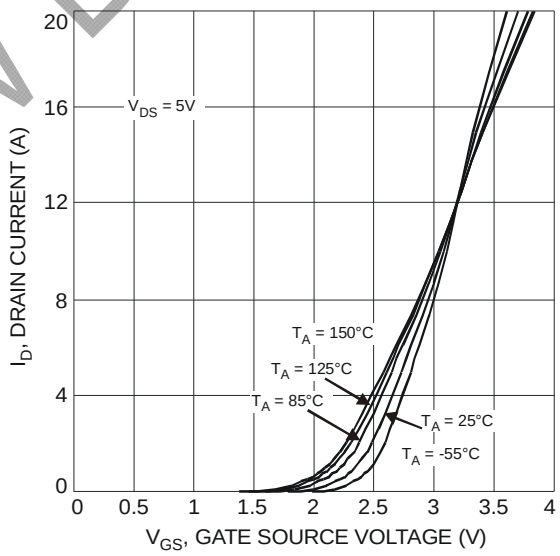

Fig. 2 Typical Transfer Characteristics

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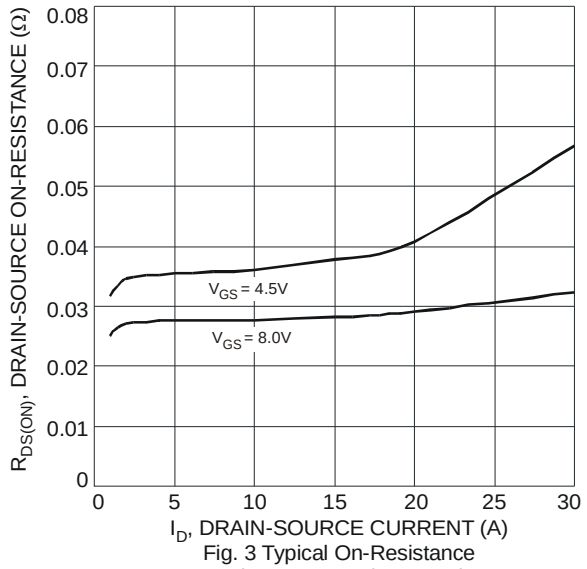

Fig. 3 Typical On-Resistance
vs. Drain Current and Gate Voltage

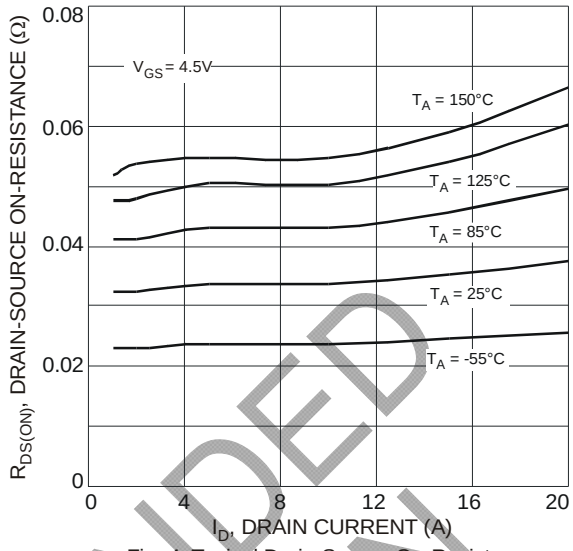

Fig. 4 Typical Drain-Source On-Resistance
vs. Drain Current and Temperature

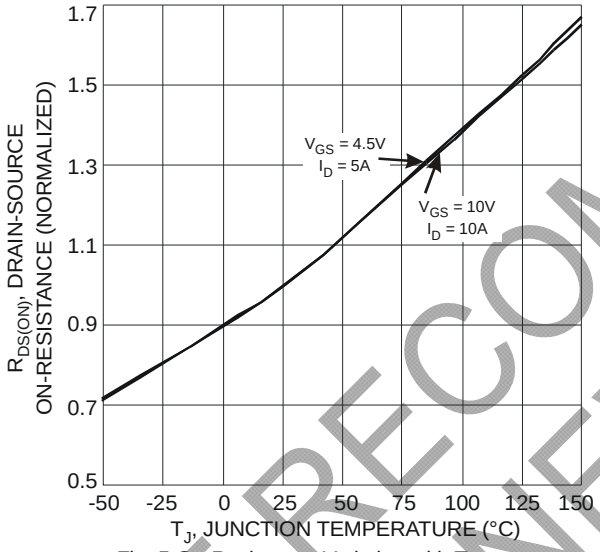

Fig. 5 On-Resistance Variation with Temperature

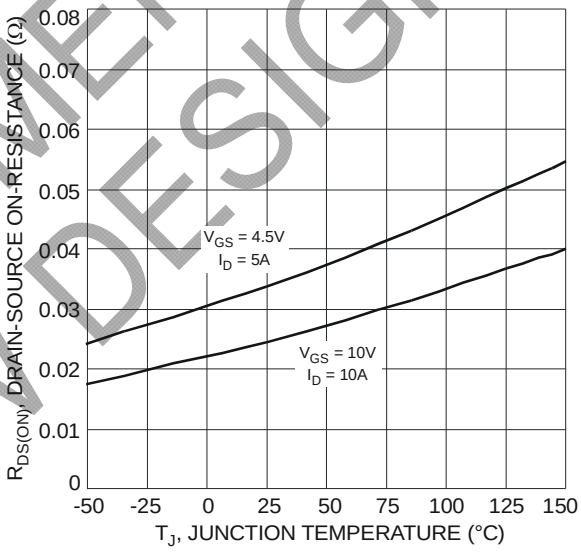

Fig. 6 On-Resistance Variation with Temperature

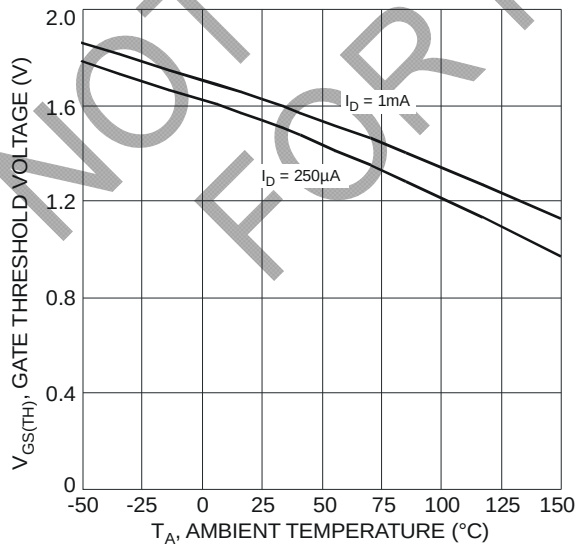

Fig. 7 Gate Threshold Variation vs. Ambient Temperature

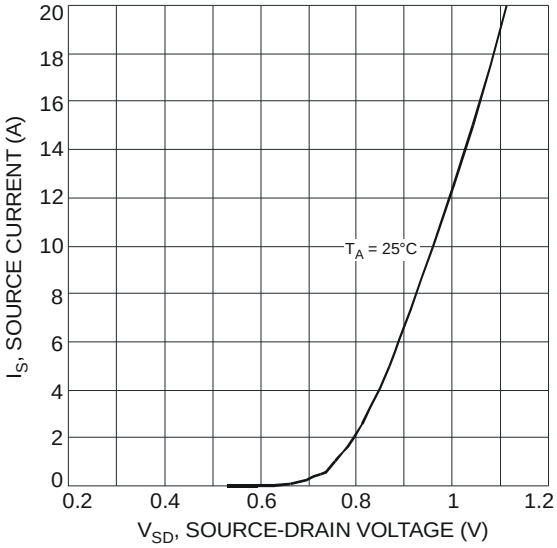

Fig. 8 Diode Forward Voltage vs. Current

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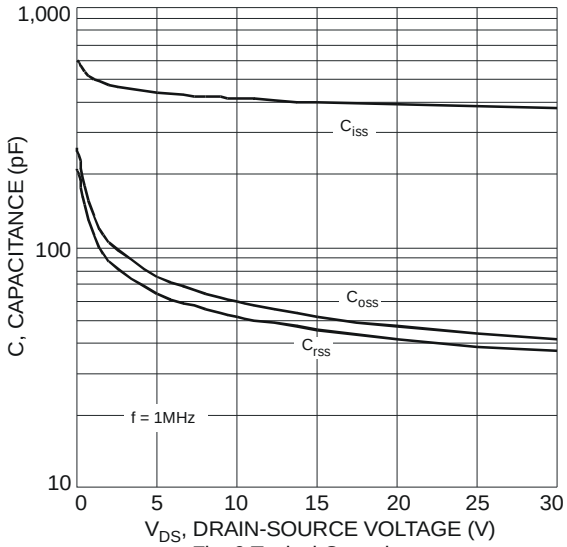


Fig. 9 Typical Capacitance

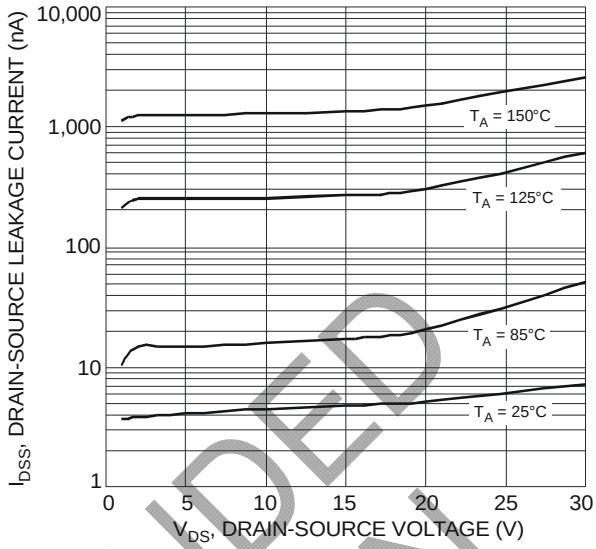


Fig. 10 Typical Drain-Source Leakage Current vs. Drain-Source Voltage

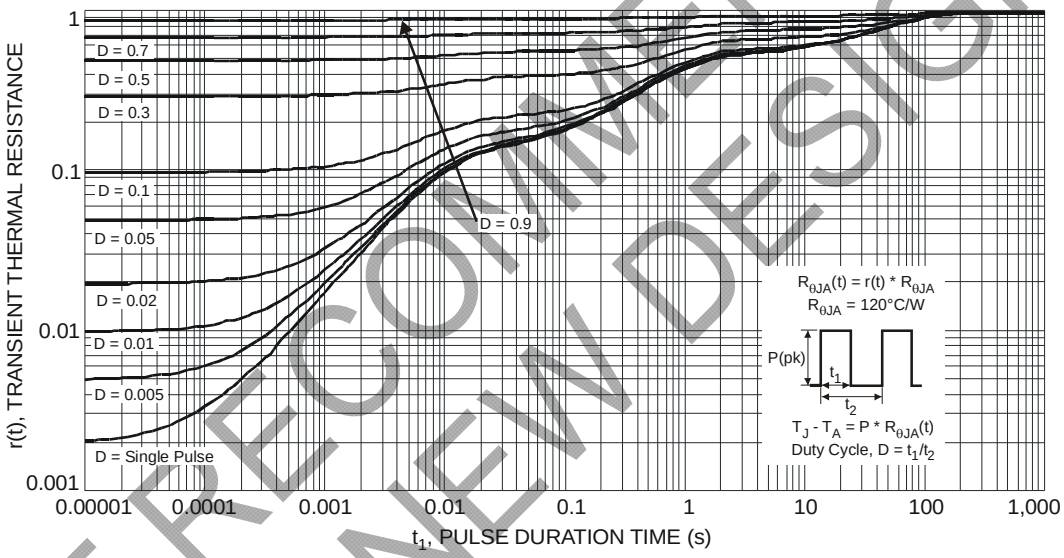


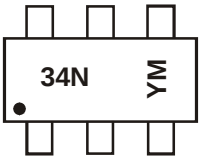
Fig. 11 Transient Thermal Response

Ordering Information (Note 7)

Part Number	Case	Packaging
DMG6402LDM-7	SOT-26	3000/Tape & Reel

Notes: 7. For packaging details, go to our website at http://www.diodes.com/datasheets/ap02007.pdf.

Marking Information



34N= Product Type Marking Code
YM = Date Code Marking
Y = Year (ex: V = 2008)
M = Month (ex: 9 = September)

Date Code Key

Year	2008	2009	2010	2011	2012	2013	2014	2015
Code	V	W	X	Y	Z	A	B	C

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

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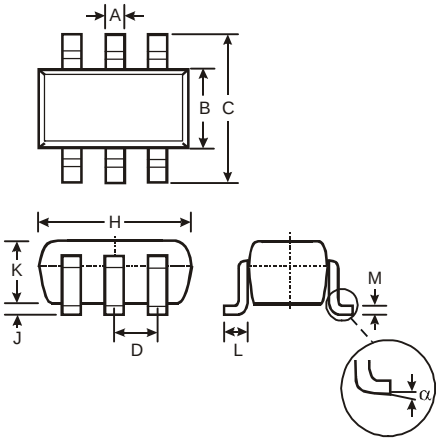
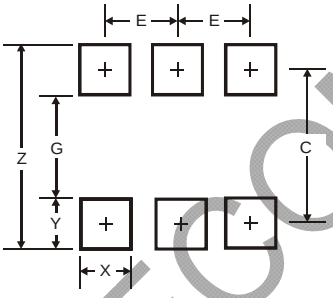
Package Outline Dimensions



SOT-26			
Dim	**Min**	**Max**	**Typ**
A	0.35	0.50	0.38
B	1.50	1.70	1.60
C	2.70	3.00	2.80
D	—	—	0.95
H	2.90	3.10	3.00
J	0.013	0.10	0.05
K	1.00	1.30	1.10
L	0.35	0.55	0.40
M	0.10	0.20	0.15
α	0°	8°	—
All Dimensions in mm			

Suggested Pad Layout



Dimensions	Value (in mm)
Z	3.20
G	1.60
X	0.55
Y	0.80
C	2.40
E	0.95

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