P-CHANNEL ENHANCEMENT MODE FIELD EFFECT TRANSISTOR

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NEW PRODUCT

Features

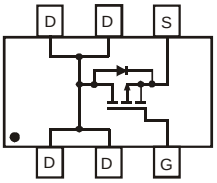
- Low $R_{DS(ON)}$:
  - 45mΩ @V_{GS} = -10V
  - 65mΩ @V_{GS} = -4.5V
- Low Input/Output Leakage
- **Lead Free By Design/RoHS Compliant (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**
- **"Green" Device (Note 4)**

Mechanical Data

- Case: SOT-26, Molded Plastic
- Case Material - UL Flammability Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- Terminals: Finish - Matte Tin annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208
- Terminal Connections: See Diagram
- Marking Information: See Page 4
- Ordering Information: See page 4
- 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
Drain Current (Note 1) Continuous	T_A = 25°C T_A = 70°C	I_D	-4.3 -3.7	A
Pulsed Drain Current (Note 2)		I_{DM}	-13	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Total Power Dissipation (Note 1)	P_D	1.25	W
Thermal Resistance, Junction to Ambient (Note 1); Steady-State	$R_{\theta JA}$	100	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°C

Notes:
1. Device mounted on 1"x1", FR-4 PC board on 0.1in.^{2} pads on 2 oz. Copper pads and test pulse width t ≤10s.
2. Repetitive Rating, pulse width limited by junction temperature.
3. No purposefully added lead.
4. Diodes Inc's "Green" policy can be found on our website at http://www.diodes.com/products/lead_free/index.php.

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Electrical Characteristics @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
STATIC PARAMETERS						
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	μA	V_{GS} = 0V, V_{DS} = -30V
Gate-Body Leakage Current	I_{GSS}	—	—	±100 ±800	nA	V_{GS} = ±20V, V_{DS} = 0V V_{GS} = ±25V, V_{DS} = 0V
Gate Threshold Voltage	$V_{GS(th)}$	-1.0	—	-2.1	V	V_{GS} = V_{DS}, I_D = -250μA
Static Drain-Source On-Resistance (Note 5)	$R_{DS\ (ON)}$	—	— —	45 65	mΩ	V_{GS} = -10V, I_D = -4.3A V_{GS} = -4.5V, I_D = -3.7A
Forward Transconductance (Note 5)	g_{FS}	—	8	—	S	V_{DS} = -10V, I_D = -4.3A
Diode Forward Voltage (Note 5)	V_{SD}	—	—	-1.2	V	V_{GS} = 0V, I_S = -1.7A
DYNAMIC PARAMETERS (Note 6)						
Input Capacitance	C_{iss}	—	722	—	pF	V_{GS} = 0V, V_{DS} = -25V, f = 1.0MHz
Output Capacitance	C_{oss}	—	114	—	pF	
Reverse Transfer Capacitance	C_{rss}	—	92	—	pF	
Gate Resistance	R_G	—	3.3	—	Ω	V_{DS} = 0V, V_{GS} = 0V f = 1.0MHz
SWITCHING CHARACTERISTICS						
Total Gate Charge	Q_G	—	6.8	—	nC	V_{DS} = -15V, V_{GS} = -4.5V, I_D = -6A
	Q_G	—	13.7	—	nC	V_{DS} = -15V, V_{GS} = -10V, I_D = -6A
Gate-Source Charge	Q_{GS}	—	1.6	—		
Gate-Drain Charge	Q_{GD}	—	4.2	—		
Turn-On Delay Time	$t_{d(on)}$	—	6.4	—	ns	V_{DS} = -15V, V_{GS} = -10V, I_D = -1A, R_G = 6.0Ω
Rise Time	t_r	—	5.3	—		
Turn-Off Delay Time	$t_{d(off)}$	—	26.5	—		
Fall Time	t_f	—	14.7	—		

Notes: 5. Test pulse width t = 300μs.
6. Guaranteed by design. Not subject to production testing.

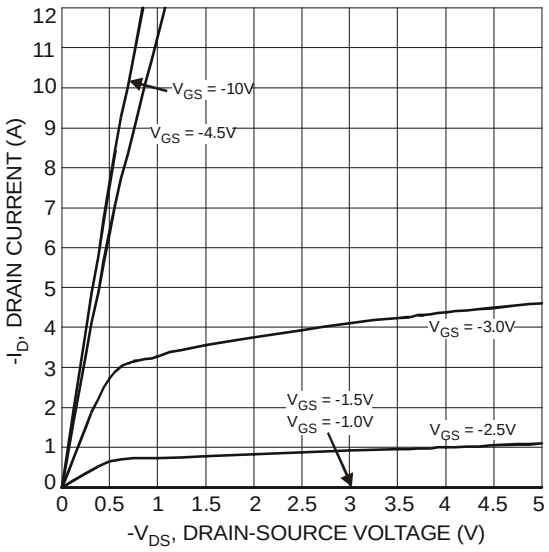

Fig. 1 Typical Output Characteristics

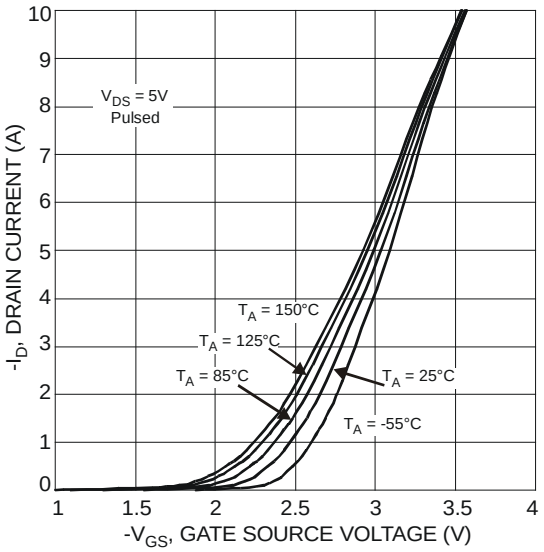

Fig. 2 Typical Transfer Characteristics

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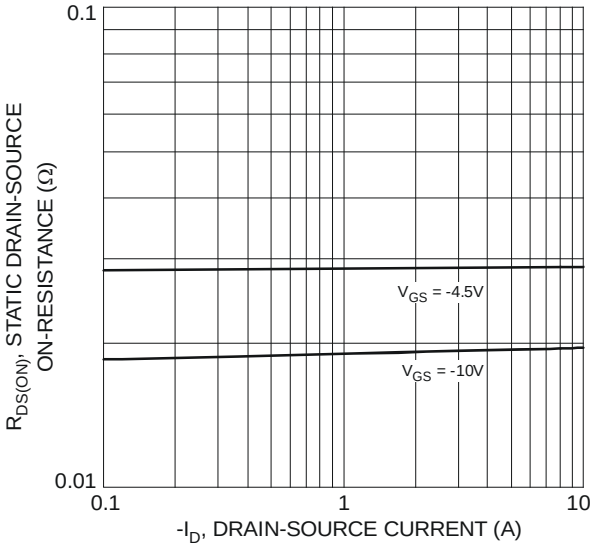

Fig. 3 On-Resistance vs. Drain Current & Gate Voltage

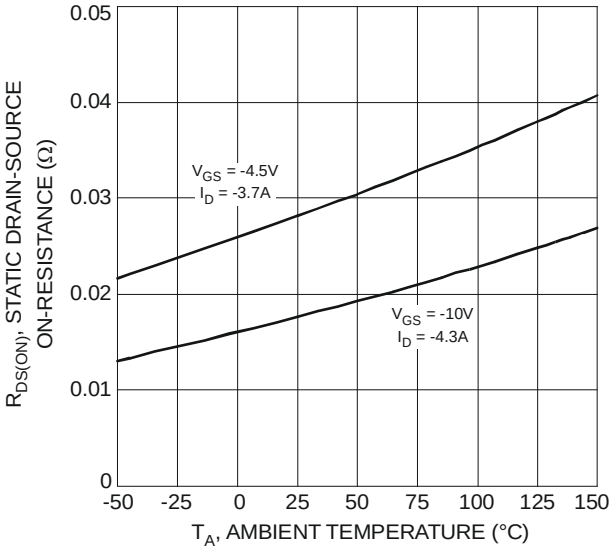

Fig. 4 Static Drain-Source On-Resistance vs. Ambient Temperature

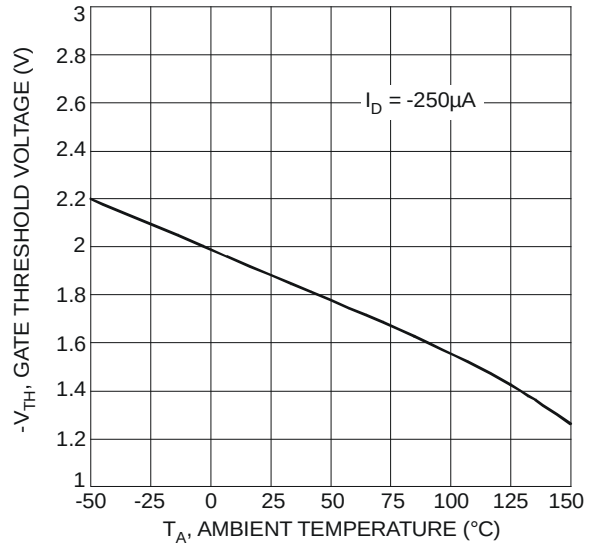

Fig. 5 Gate Threshold Variation vs. Ambient Temperature

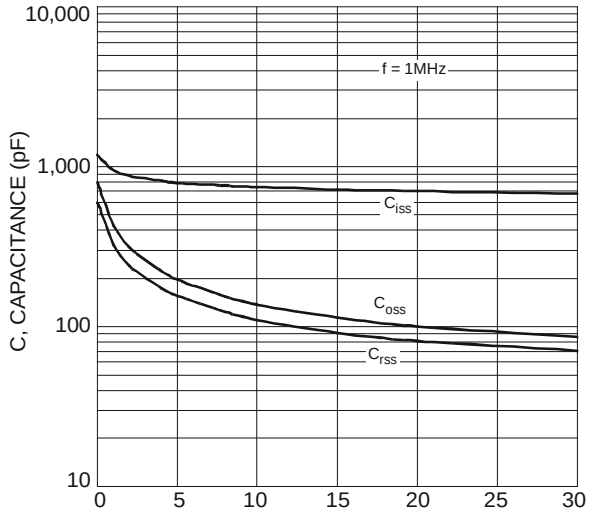

Fig. 6 Typical Total Capacitance

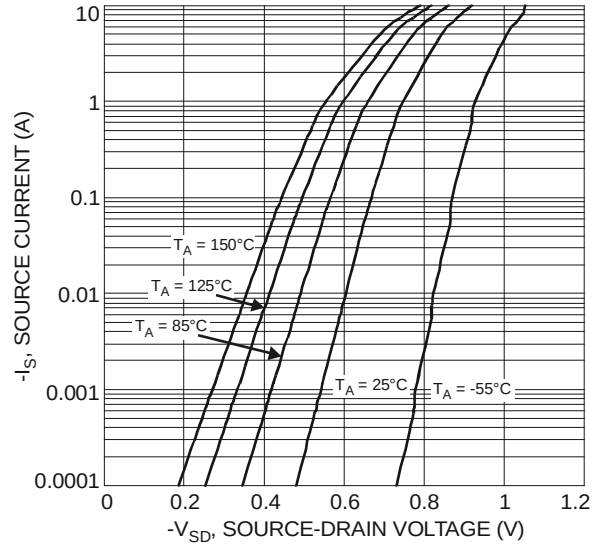

Fig. 7 Reverse Drain Current vs. Source-Drain Voltage

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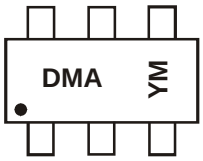
Ordering Information (Note 7)

Part Number	Case	Packaging
DMP3056LDM-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



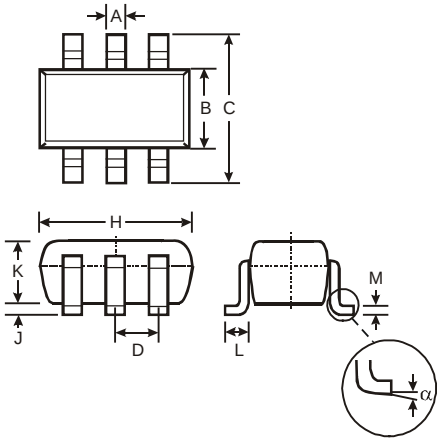
DMA = Product Type Marking Code
YM = Date Code Marking
Y = Year (ex: V = 2008)
M = Month (ex: 9 = September)

Date Code Key

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

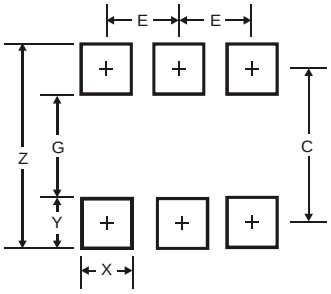
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

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