

Features

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

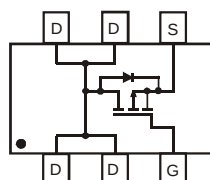
Mechanical Data

- Case: SOT-26
- Case Material – Molded Plastic, "Green" Molding Compound. UL Flammability Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- 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 @ $T_A = 25^\circ C$ unless otherwise specified

Characteristic	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current (Note 1) Continuous ($V_{GS} = -10V$)	I_D	-5	A
		-4.2	
Pulsed Drain Current (Note 2)	I_{DM}	-13	A

Thermal Characteristics

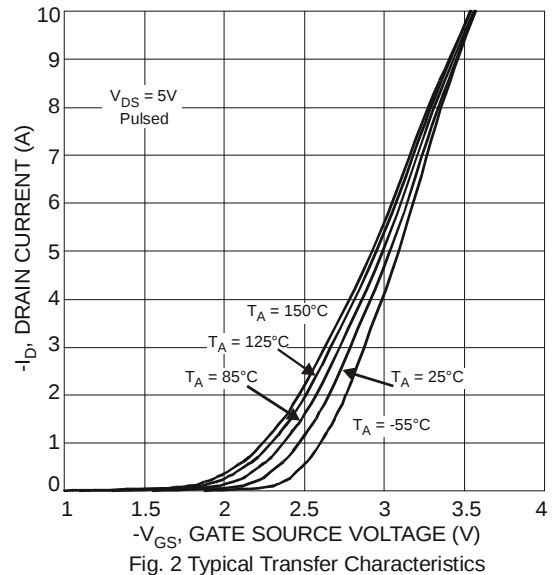
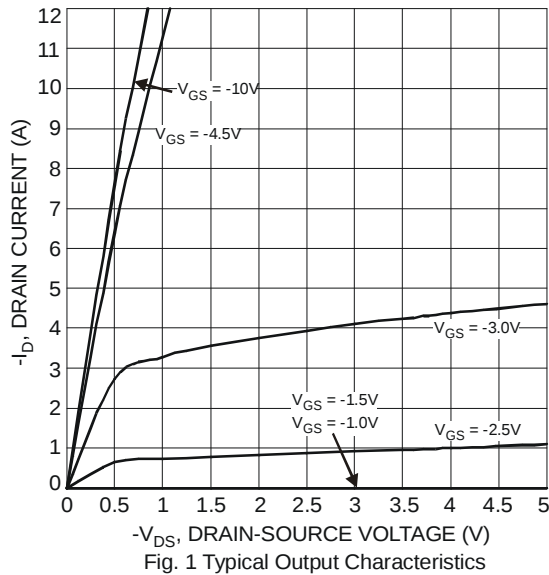
Characteristic	Symbol	Value	Unit
Total Power Dissipation (Note 1)	P_D	1.25	W
Thermal Resistance, Junction to Ambient (Note 1); Steady-State	$R_{\theta JA}$	100	$^\circ C/W$
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	$^\circ C$

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

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 = -5A V _{GS} = -4.5V, I _D = -4.2A
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	—	10.1	—	nC	V _{DS} = -15V, V _{GS} = -4.5V, I _D = -6A
	Q _G	—	21.1	—	nC	
Gate-Source Charge	Q _{GS}	—	2.8	—	nC	V _{DS} = -15V, V _{GS} = -10V, I _D = -6A
Gate-Drain Charge	Q _{GD}	—	3.2	—	nC	
Gate Resistance	R _g	—	13.15	—	Ω	V _{DS} = 0V, V _{GS} = 0V, f = 1MHz
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.



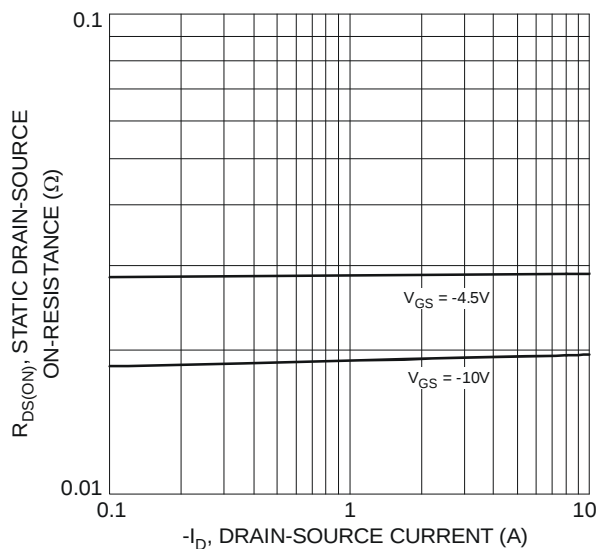


Fig. 3 On-Resistance vs. Drain Current & Gate Voltage

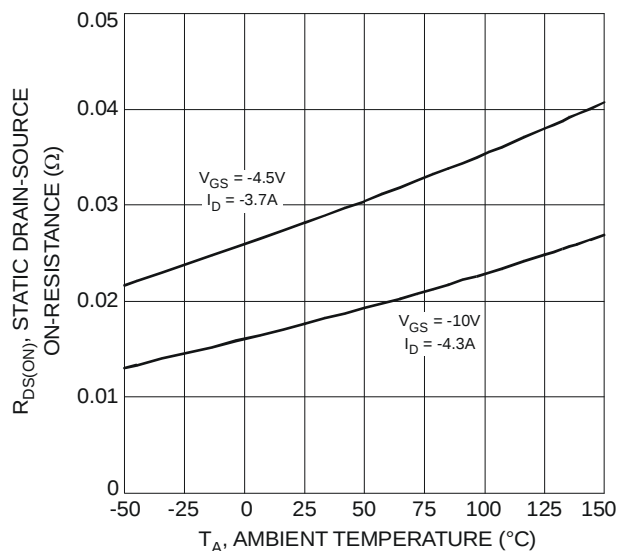


Fig. 4 Static Drain-Source On-Resistance vs. Ambient Temperature

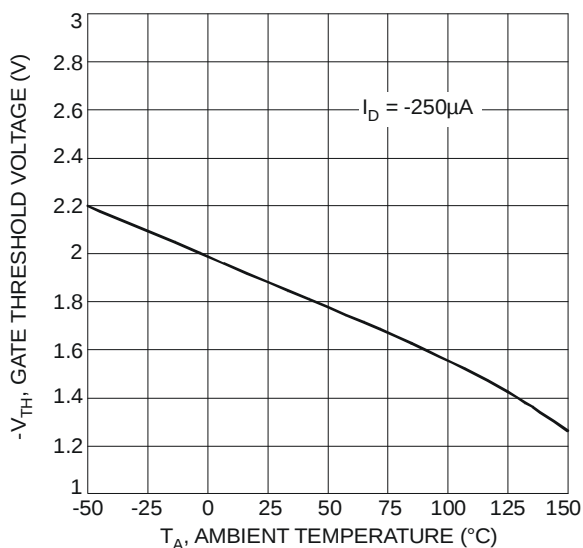


Fig. 5 Gate Threshold Variation vs. Ambient Temperature

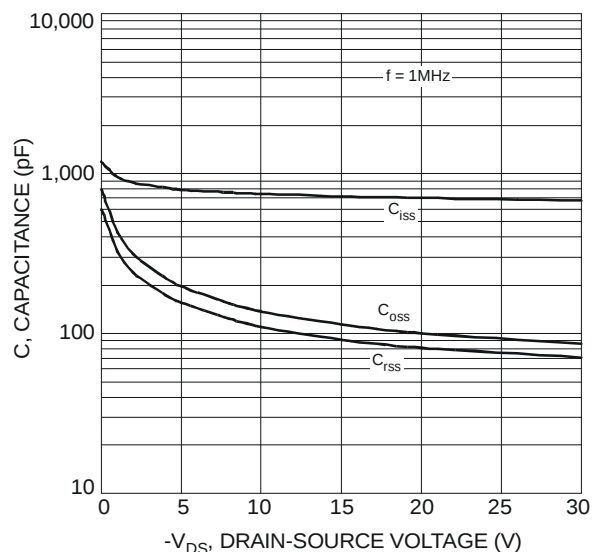


Fig. 6 Typical Total Capacitance

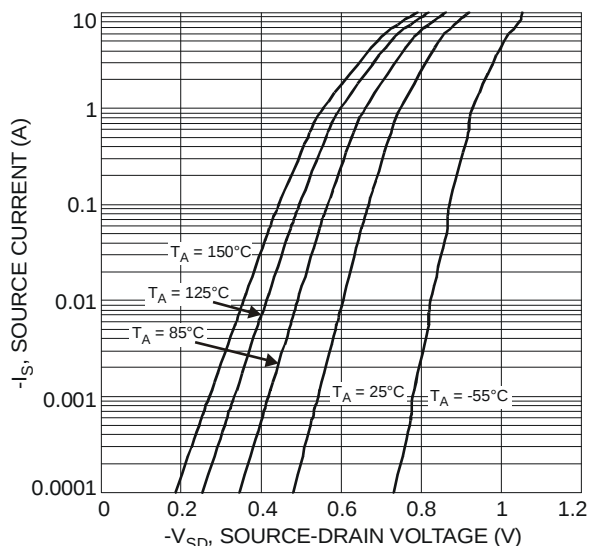


Fig. 7 Reverse Drain Current vs. Source-Drain Voltage

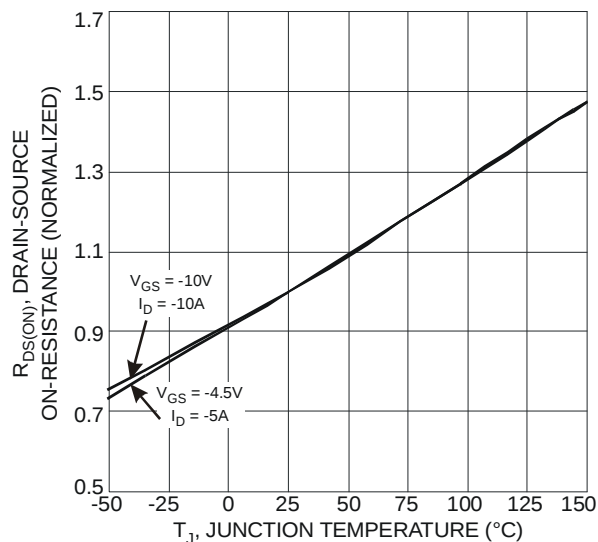


Fig. 8 On-Resistance Variation with Temperature

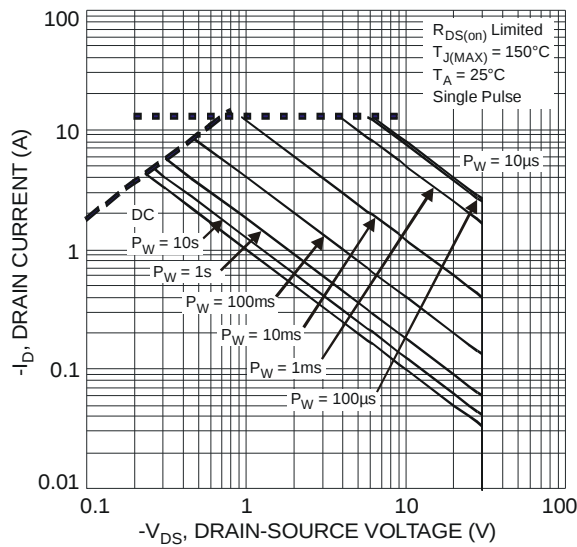


Fig. 9 Safe Operation Area

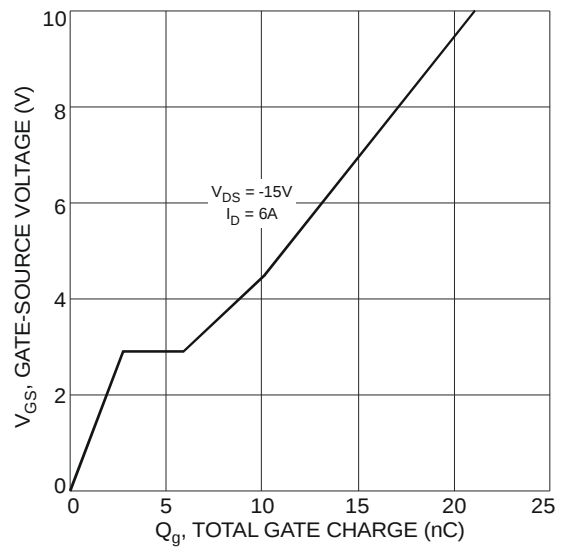


Fig. 10 Gate-Charge Characteristics

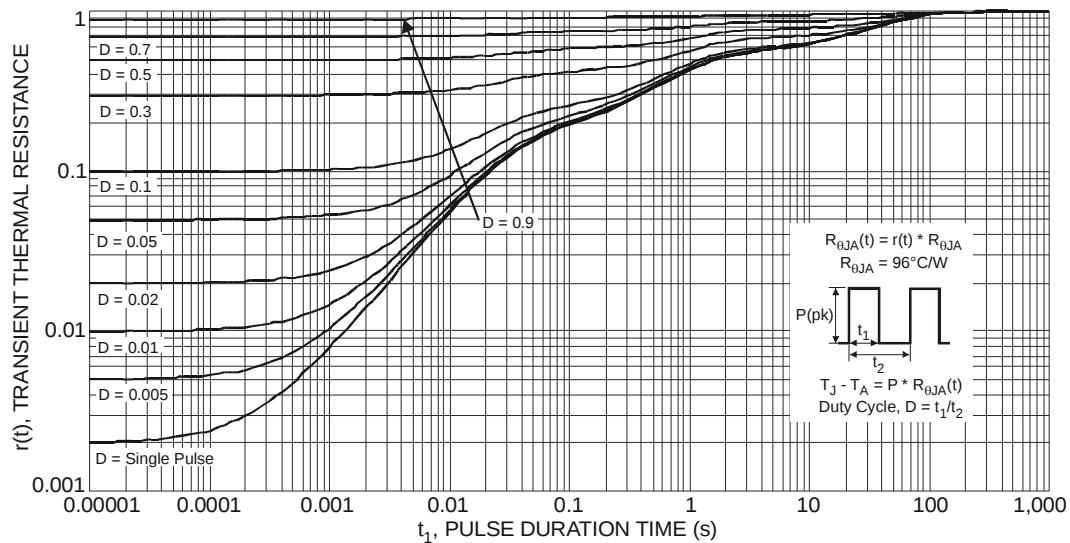


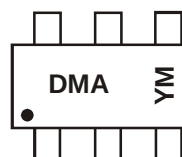
Fig. 11 Transient Thermal Response

Ordering Information (Note 7)

Part Number	Qualification	Case	Packaging
DMP3056LDM-7	Commercial	SOT-26	3000/Tape & Reel
DMP3056LDMQ-7	Automotive	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)

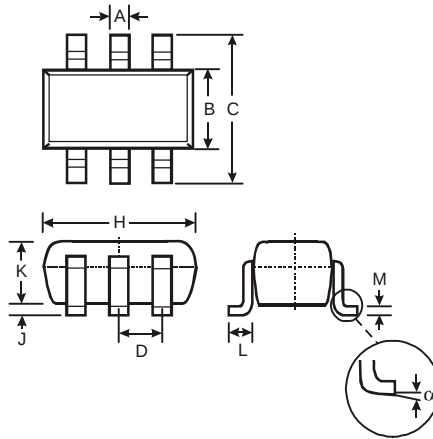
Date Code Key

Date Code Key

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

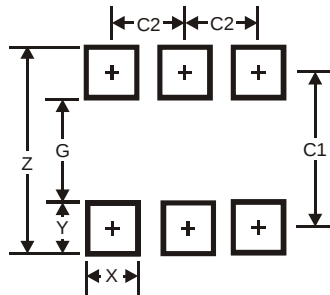
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

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
C1	2.40
C2	0.95

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