

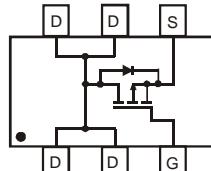
## Features

- Low  $R_{DS(ON)}$ :
  - 80 mΩ @  $V_{GS} = -4.5V$
  - 110 mΩ @  $V_{GS} = -2.7V$
  - 130 mΩ @  $V_{GS} = -2.5V$
- Low Input/Output Leakage
- Lead Free By Design/RoHS Compliant (Note 3)
- Qualified to AEC-Q101 Standards for High Reliability
- "Green" Device (Note 4)



TOP VIEW

SOT-26

TOP VIEW  
Internal Schematic

## Mechanical Data

- Case: SOT-26
- Case Material – Molded Plastic. UL Flammability Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- 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)

## Maximum Ratings

$@T_A = 25^\circ\text{C}$  unless otherwise specified

Characteristic	Symbol	Value	Unit
Drain-Source Voltage	$V_{DSS}$	-20	V
Gate-Source Voltage	$V_{GSS}$	$\pm 12$	V
Drain Current (Note 1) Continuous $T_A = 25^\circ\text{C}$ $T_A = 70^\circ\text{C}$	$I_D$	-3.4 -2.7	A
Pulsed Drain Current (Note 2)	$I_{DM}$	-12	A
Body-Diode Continuous Current (Note 1)	$I_S$	2.0	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 with 2 oz. Copper and test pulse width  $t \leq 10\text{s}$ .
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](http://www.diodes.com/products/lead_free/index.php).

Electrical Characteristics @ $T_A = 25^\circ\text{C}$  unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
<b>STATIC PARAMETERS</b>						
Drain-Source Breakdown Voltage	$\text{BV}_{\text{DSS}}$	-20	—	—	V	$I_D = -250\mu\text{A}$ , $V_{GS} = 0\text{V}$
Zero Gate Voltage Drain Current $T_J = 25^\circ\text{C}$	$I_{\text{DSS}}$	—	—	-1	$\mu\text{A}$	$V_{DS} = -20\text{V}$ , $V_{GS} = 0\text{V}$
Gate-Body Leakage Current	$I_{\text{GSS}}$	—	—	$\pm 100$	nA	$V_{DS} = 0\text{V}$ , $V_{GS} = \pm 12\text{V}$
Gate Threshold Voltage	$V_{GS(\text{th})}$	-0.6	—	-1.25	V	$V_{DS} = V_{GS}$ , $I_D = -250\mu\text{A}$
On State Drain Current (Note 5)	$I_{\text{D}(\text{ON})}$	-15	—	—	A	$V_{GS} = -4.5\text{V}$ , $V_{DS} = -5\text{V}$
Static Drain-Source On-Resistance (Note 5)	$R_{\text{DS}(\text{ON})}$	—	51 82 94	80 110 130	$\text{m}\Omega$	$V_{GS} = -4.5\text{V}$ , $I_D = -4.5\text{A}$ $V_{GS} = -2.7\text{V}$ , $I_D = -3.8\text{A}$ $V_{GS} = -2.5\text{V}$ , $I_D = -3.7\text{A}$
Forward Transconductance (Note 5)	$g_{\text{FS}}$	—	6.3	—	S	$V_{DS} = -10\text{V}$ , $I_D = -4.5\text{A}$
Diode Forward Voltage (Note 5)	$V_{\text{SD}}$	—	0.79	-1.26	V	$I_S = -1.7\text{A}$ , $V_{GS} = 0\text{V}$
Maximum Body-Diode Continuous Current (Note 1)	$I_S$	—	—	1.7	A	—
<b>DYNAMIC PARAMETERS (Note 6)</b>						
Total Gate Charge	$Q_g$	—	7.3	—	nC	$V_{GS} = -4.5\text{V}$ , $V_{DS} = -10\text{V}$ , $I_D = 4.5\text{A}$
Gate-Source Charge	$Q_{\text{gs}}$	—	2.0	—	nC	$V_{GS} = -4.5\text{V}$ , $V_{DS} = -10\text{V}$ , $I_D = 4.5\text{A}$
Gate-Drain Charge	$Q_{\text{gd}}$	—	1.9	—	nC	$V_{GS} = -4.5\text{V}$ , $V_{DS} = -10\text{V}$ , $I_D = 4.5\text{A}$
Turn-On Delay Time	$t_{\text{D}(\text{on})}$	—	12	—	ns	—
Turn-On Rise Time	$t_r$	—	20	—	ns	$V_{DS} = -10\text{V}$ , $V_{GS} = -4.5\text{V}$ ,
Turn-Off Delay Time	$t_{\text{D}(\text{off})}$	—	38	—	ns	$R_L = 10\Omega$ , $R_G = 6\Omega$
Turn-Off Fall Time	$t_f$	—	41	—	ns	—
Input Capacitance	$C_{\text{iss}}$	—	443	—	pF	$V_{DS} = -16\text{V}$ , $V_{GS} = 0\text{V}$
Output Capacitance	$C_{\text{oss}}$	—	125	—	pF	$f = 1.0\text{MHz}$
Reverse Transfer Capacitance	$C_{\text{rss}}$	—	98	—	pF	—

Notes: 5. Test pulse width  $t = 300\mu\text{s}$ .

6. Guaranteed by design. Not subject to production testing.

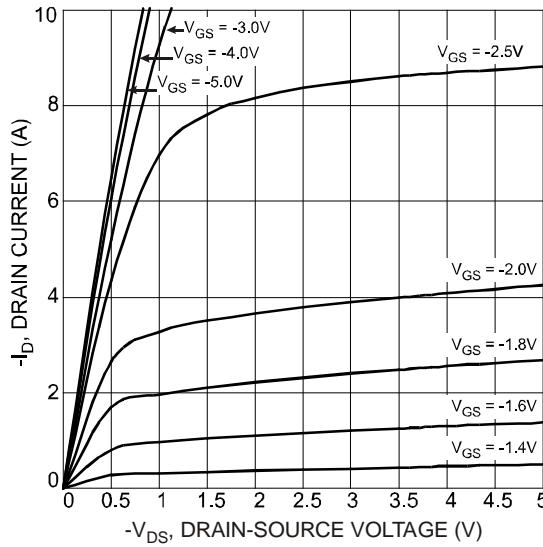


Fig. 1 Typical Output Characteristics

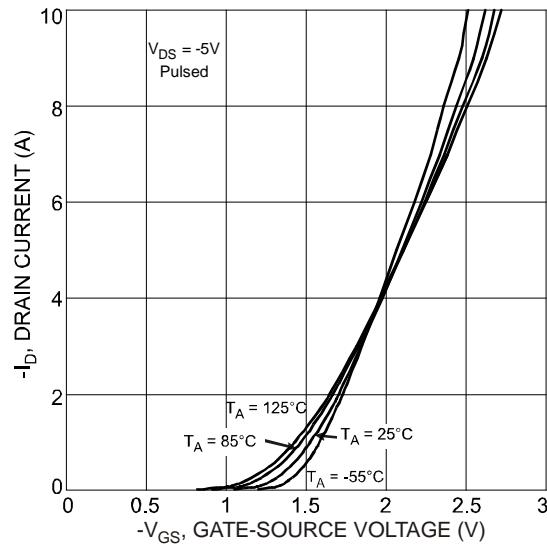


Fig. 2 Typical Transfer Characteristics

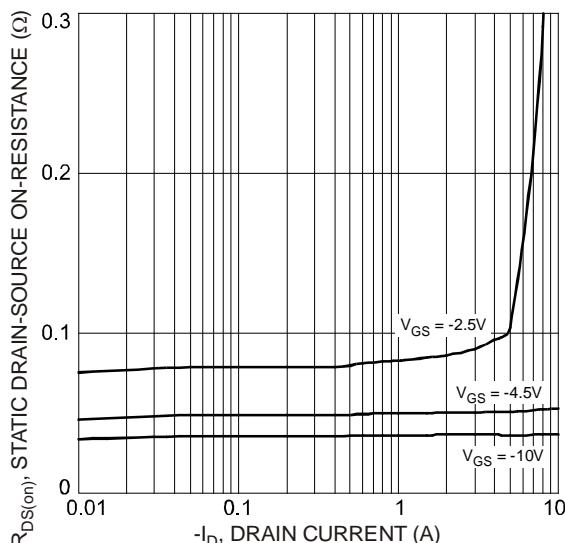


Fig. 3 On-Resistance vs. Drain Current and Gate Voltage

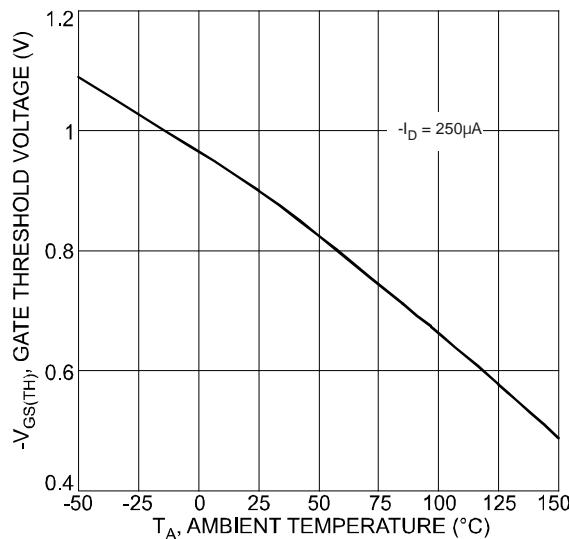


Fig. 5 Gate Threshold Voltage vs. Ambient Temperature

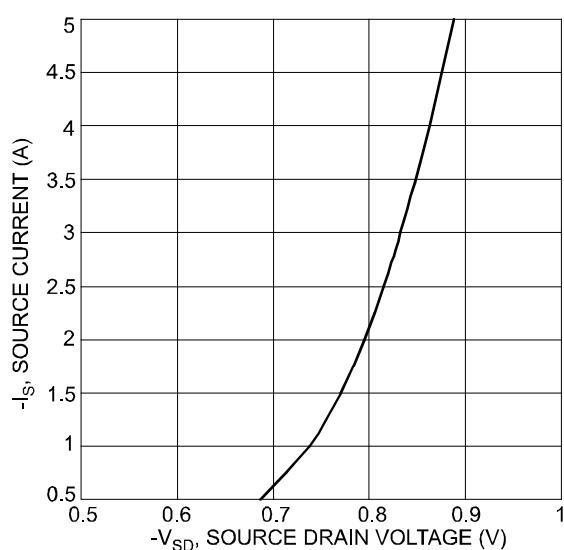


Fig. 7 Reverse Drain Current vs. Source-Drain Voltage

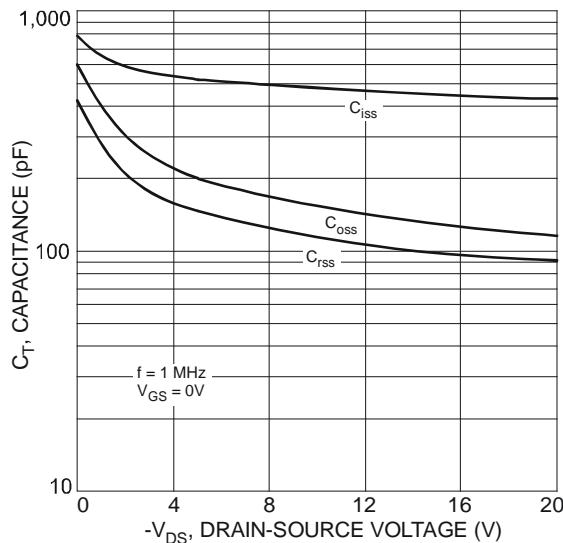


Fig. 4 Typical Total Capacitance

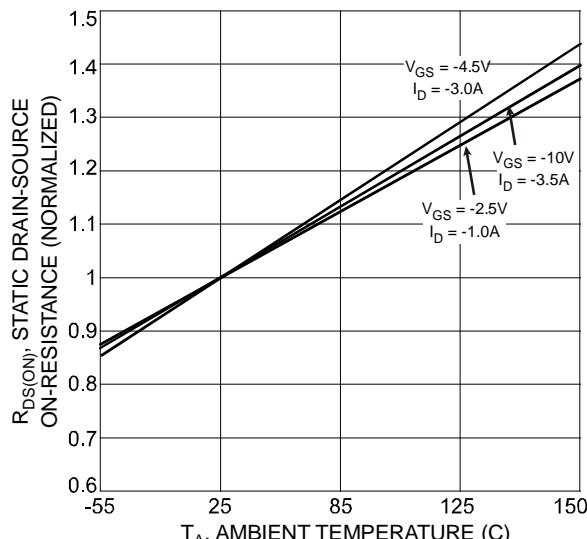


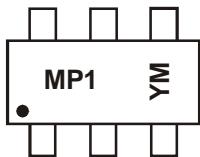
Fig. 6 Normalized Static Drain-Source On-Resistance vs. Ambient Temperature

## Ordering Information (Note 7)

Part Number	Case	Packaging
DMP2130LDM-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



MP1 = Product Type Marking Code

YM = Date Code Marking

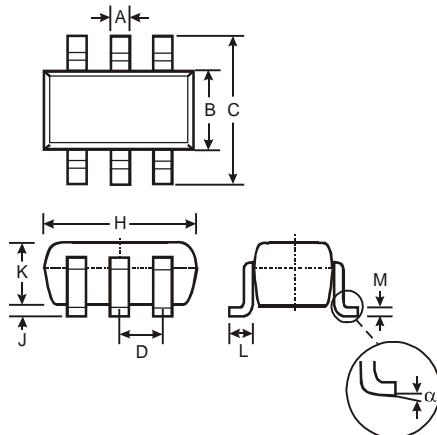
Y = Year ex: U = 2007

M = Month ex: 9 = September

### Date Code Key

Year	2007	2008	2009	2010	2011	2012						
Code	U	V	W	X	Y	Z						
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

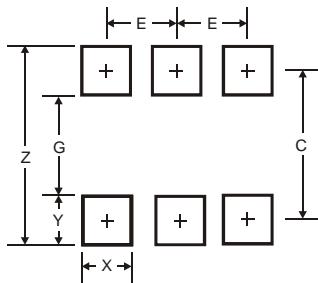
## Package Outline Dimensions



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
$\alpha$	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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