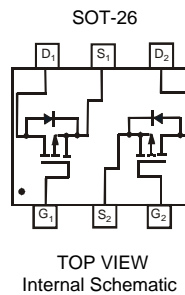
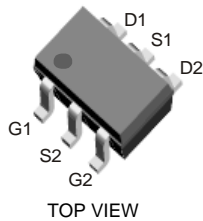


**DUAL P-CHANNEL ENHANCEMENT MODE FIELD EFFECT TRANSISTOR**
**Features**

- Dual P-Channel MOSFET
- Low On-Resistance
  - 150 mΩ @  $V_{GS} = -4.5V$
  - 200 mΩ @  $V_{GS} = -2.5V$
  - 240 mΩ @  $V_{GS} = -1.8V$
- Very Low Gate Threshold Voltage  $V_{GS(th)} \leq 1V$
- Low Input Capacitance
- Fast Switching Speed
- Low Input/Output Leakage
- **Lead Free By Design/RoHS Compliant (Note 2)**
- **"Green" Device (Note 3)**
- **Qualified to AEC-Q101 standards for High Reliability**

**Mechanical Data**

- Case: SOT-26
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals Connections: See Diagram
- Terminals: Finish — Matte Tin annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208
- Marking Information: See Page 4
- Ordering Information: See Page 4
- Weight: 0.015 grams (approximate)


**Maximum Ratings** @ $T_A = 25^\circ C$  unless otherwise specified

Characteristic	Symbol	Value	Units
Drain-Source Voltage	$V_{DSS}$	-20	V
Gate-Source Voltage	$V_{GSS}$	$\pm 12$	V
Drain Current (Note 1)	$I_D$	-2.0 -1.5	A
Pulsed Drain Current	$I_{DM}$	-7	A

**Thermal Characteristics**

Characteristic	Symbol	Value	Units
Total Power Dissipation (Note 1)	$P_D$	600	mW
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	208	$^\circ C/W$
Operating and Storage Temperature Range	$T_J, T_{STG}$	-65 to +150	$^\circ C$

- Notes:
1. Device mounted on FR-4 PCB.
  2. No purposefully added lead.
  3. 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>OFF CHARACTERISTICS (Note 4)</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	-20	—	—	V	$V_{GS} = 0V, I_D = -250\mu A$
Zero Gate Voltage Drain Current	$I_{DSS}$	—	—	-1.0 -5.0	$\mu A$	$T_J = 25^\circ\text{C}$ $T_J = 125^\circ\text{C}$ $V_{DS} = -20V, V_{GS} = 0V$
Gate-Source Leakage	$I_{GSS}$	—	—	$\pm 100$	nA	$V_{GS} = \pm 12V, V_{DS} = 0V$
<b>ON CHARACTERISTICS (Note 4)</b>						
Gate Threshold Voltage	$V_{GS(th)}$	-0.45	—	-1.0	V	$V_{DS} = V_{GS}, I_D = -250\mu A$
Static Drain-Source On-Resistance	$R_{DS(on)}$	—	92 134 180	150 200 240	m $\Omega$	$V_{GS} = -4.5V, I_D = -2.0A$ $V_{GS} = -2.5V, I_D = -1.5A$ $V_{GS} = -1.8V, I_D = -0.5A$
Forward Transconductance	$g_{FS}$	—	3.1	—	S	$V_{DS} = -10V, I_D = -810mA$
Diode Forward Voltage (Note 4)	$V_{SD}$	—	—	-0.9	V	$V_{GS} = 0V, I_S = -0.5A$
<b>DYNAMIC CHARACTERISTICS</b>						
Input Capacitance	$C_{iss}$	—	320	—	pF	$V_{DS} = -16V, V_{GS} = 0V$ $f = 1.0MHz$
Output Capacitance	$C_{oss}$	—	80	—	pF	
Reverse Transfer Capacitance	$C_{rss}$	—	60	—	pF	
Turn-On Delay Time	$t_{D(on)}$	—	11.51	—	ns	$V_{DS} = -10V, V_{GS} = -4.5V$ $R_G = 6\Omega, R_L = 10\Omega$
Turn-On Rise Time	$t_r$	—	12.09	—	ns	
Turn-Off Delay Time	$t_{D(off)}$	—	55.34	—	ns	
Turn-Off Fall Time	$t_f$	—	27.54	—	ns	

Notes: 4. Short duration pulse test used to minimize self-heating effect.

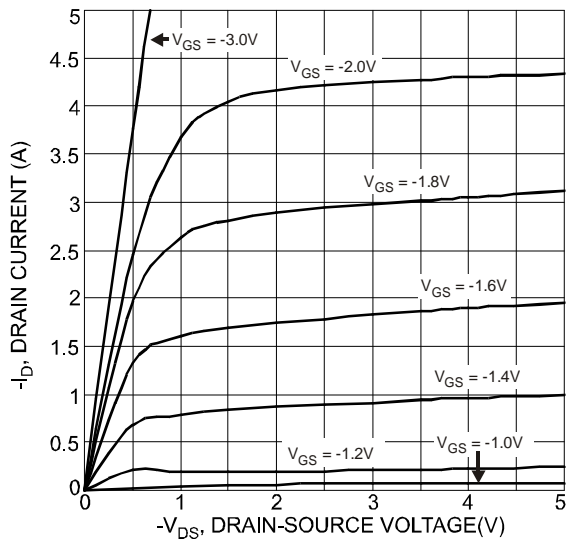


Fig.1 Typical Output Characteristics

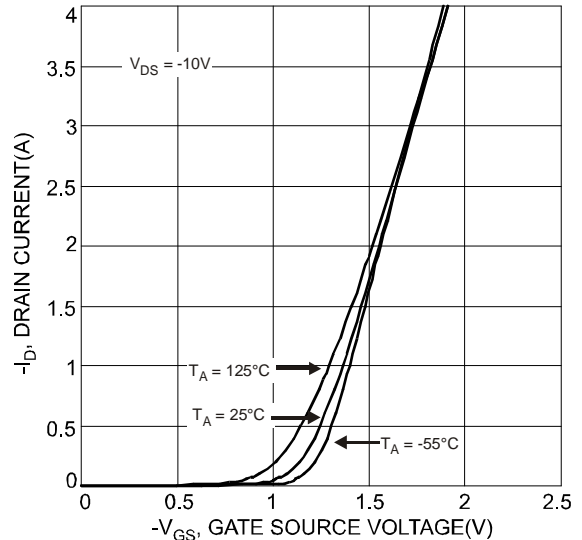


Fig. 2 Typical Transfer Characteristics

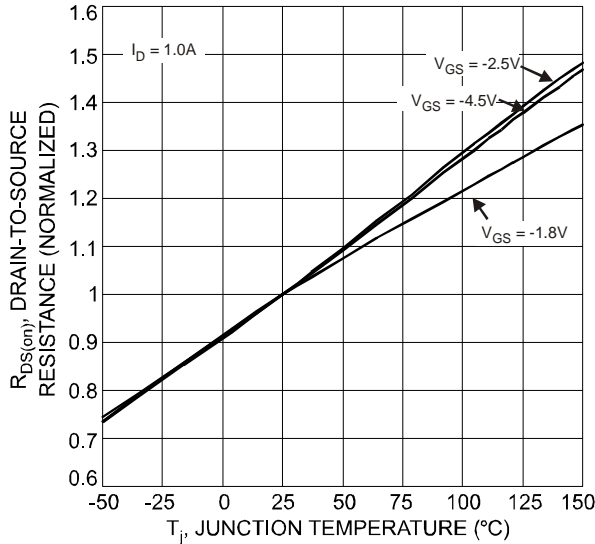


Fig. 3 On-Resistance Variation with Temperature

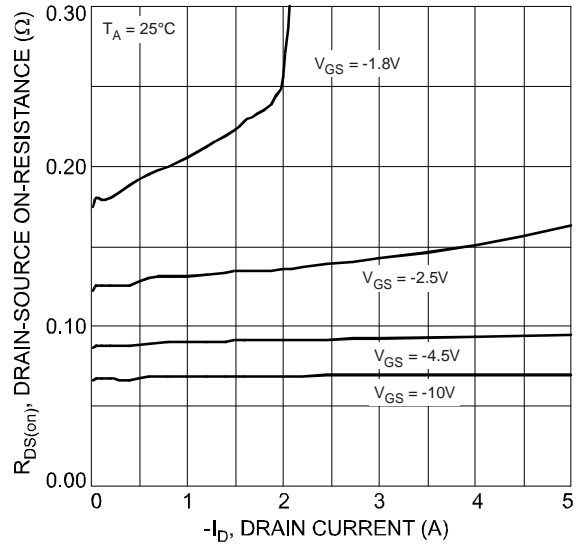


Fig. 4 On-Resistance vs Drain Current and Gate Voltage

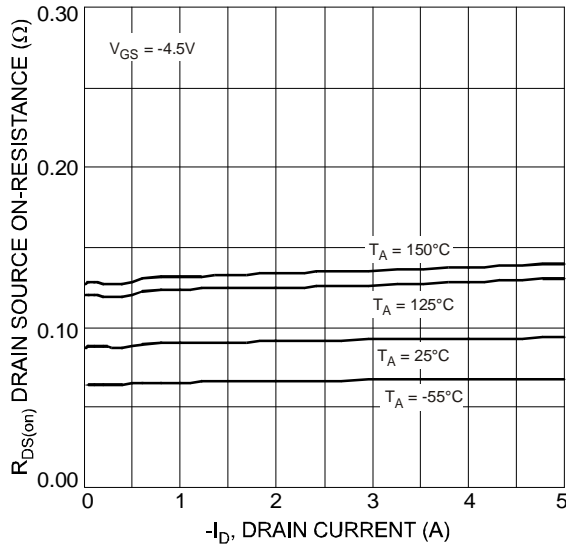


Fig. 5 Drain-Source On-Resistance Vs. Drain Current and Temperature

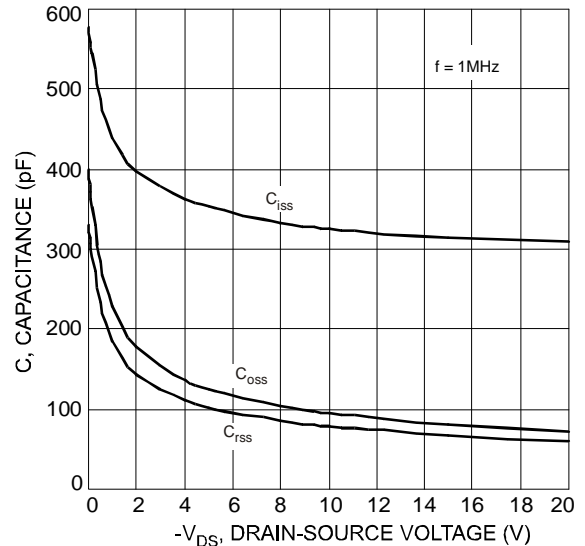


Fig. 6: Typical Capacitance

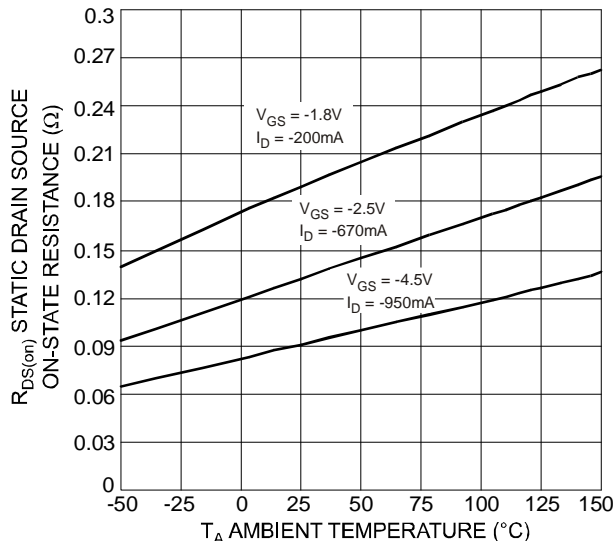


Fig. 7 Static Drain-Source On-State Resistance vs Ambient Temperature

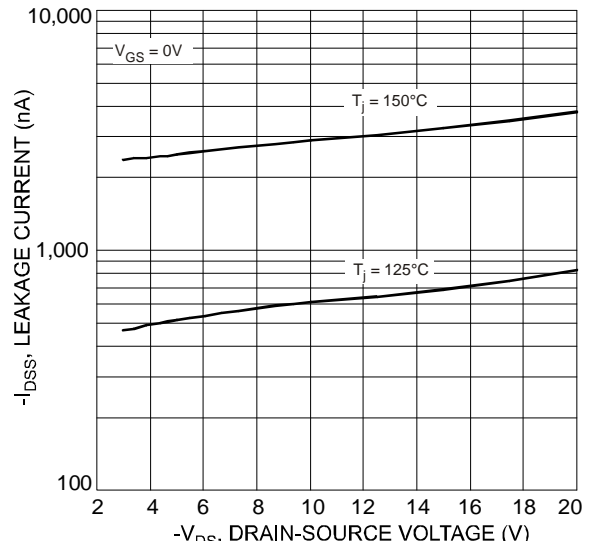


Fig. 8 Drain-Source Leakage Current vs Voltage

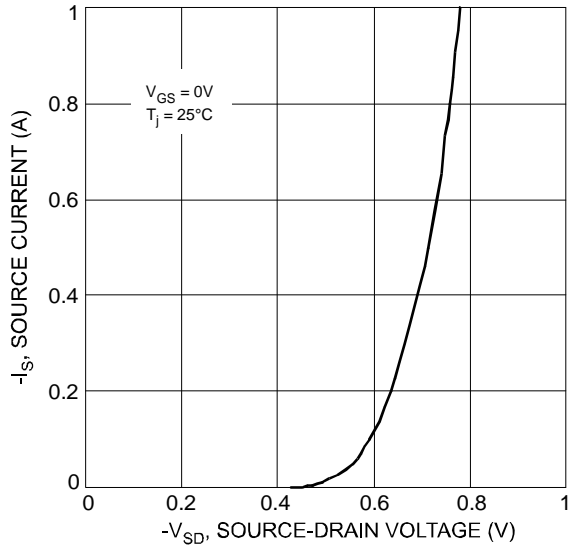


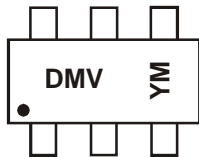
Fig. 9 Diode Forward Voltage vs. Current

**Ordering Information** (Note 5)

Part Number	Case	Packaging
DMP2240UDM-7	SOT-26	3000/Tape & Reel

Notes: 5. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

**Marking Information**



DMV = Marking Code  
 YM = Date Code Marking  
 Y = Year (ex: U = 2007)  
 M = Month (ex: 9 = September)

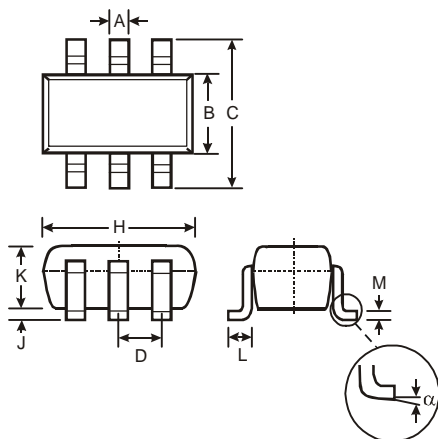
Date Code Key

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

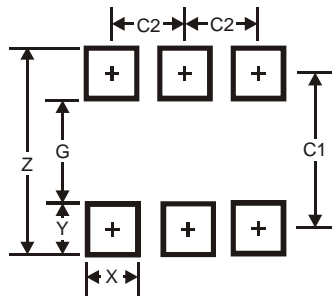
**Package Outline Dimensions**



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
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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B. A critical component is any component in a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or to affect its safety or effectiveness.

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