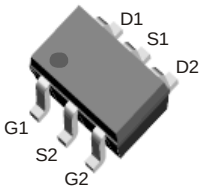
DUAL P-CHANNEL ENHANCEMENT MODE FIELD EFFECT TRANSISTOR

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 $V_{GS(th)}$ ≤ 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**

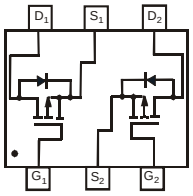
Mechanical Data

- 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)



TOP VIEW

SOT-26



TOP VIEW
Internal Schematic

Maximum Ratings @T_A = 25°C unless otherwise specified

Characteristic		Symbol	Value	Units
Drain-Source Voltage		V_{DSS}	-20	V
Gate-Source Voltage		V_{GSS}	±12	V
Drain Current (Note 1)	T_A = 25°C T_A = 70°C	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	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +150	°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.

Electrical Characteristics @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 4)						
Drain-Source Breakdown Voltage	BV_{DSS}	-20	—	—	V	V_{GS} = 0V, I_D = -250μA
Zero Gate Voltage Drain Current T_J = 25°C T_J = 125°C	I_{DSS}	—	—	-1.0 -5.0	μA	V_{DS} = -20V, V_{GS} = 0V
Gate-Source Leakage	I_{GSS}	—	—	±100	nA	V_{GS} = ±12V, V_{DS} = 0V
ON CHARACTERISTICS (Note 4)						
Gate Threshold Voltage	$V_{GS(th)}$	-0.45	—	-1.0	V	V_{DS} = V_{GS}, I_D = -250μA
Static Drain-Source On-Resistance	$R_{DS\ (ON)}$	—	92 134 180	150 200 240	mΩ	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
DYNAMIC CHARACTERISTICS						
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 = 6Ω, R_L = 10Ω
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.

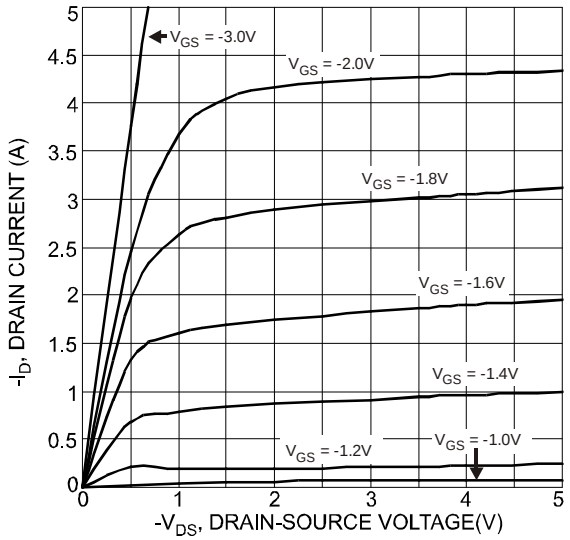


Fig.1 Typical Output Characteristics

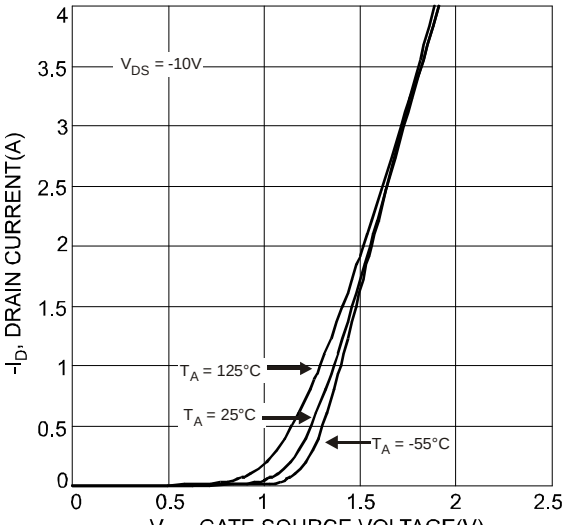


Fig. 2 Typical Transfer Characteristics

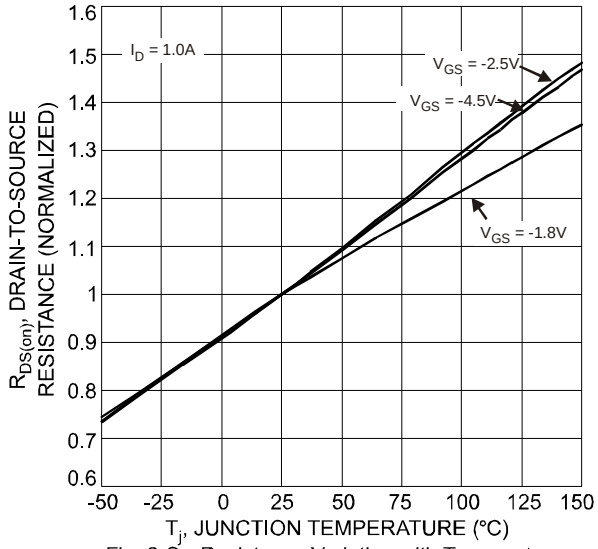


Fig. 3 On-Resistance Variation with Temperature

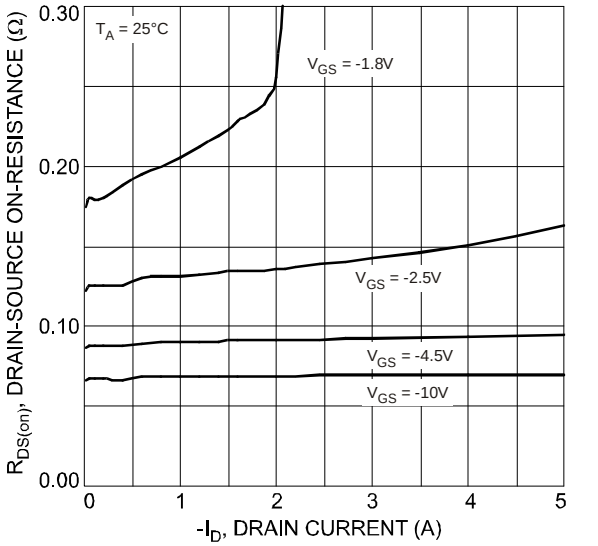


Fig. 4 On-Resistance vs Drain Current and Gate Voltage

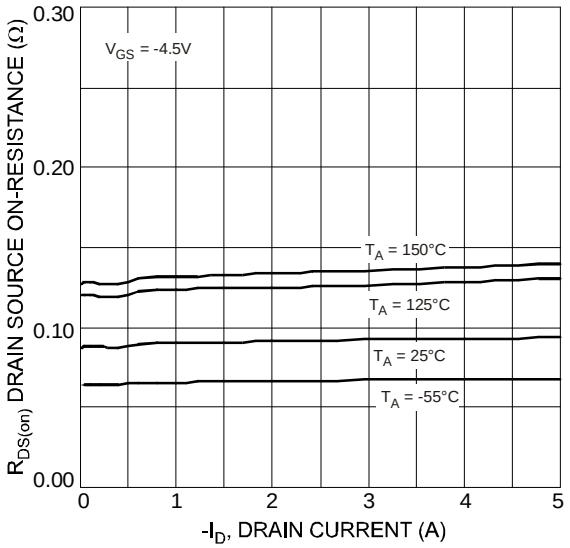


Fig. 5 Drain-Source On-Resistance
Vs. Drain Current and Temperature

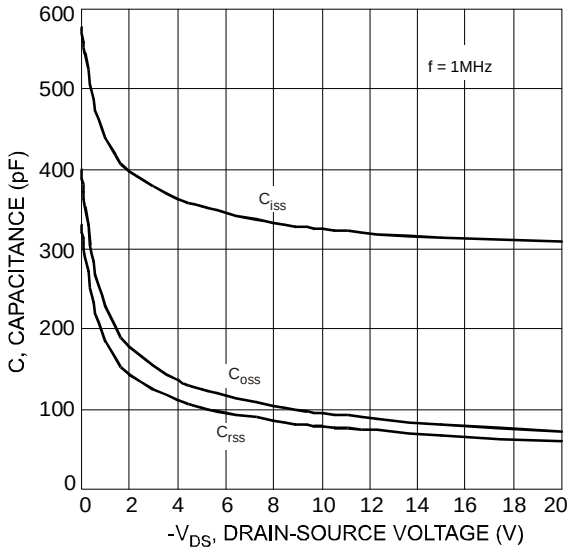


Fig. 6: Typical Capacitance

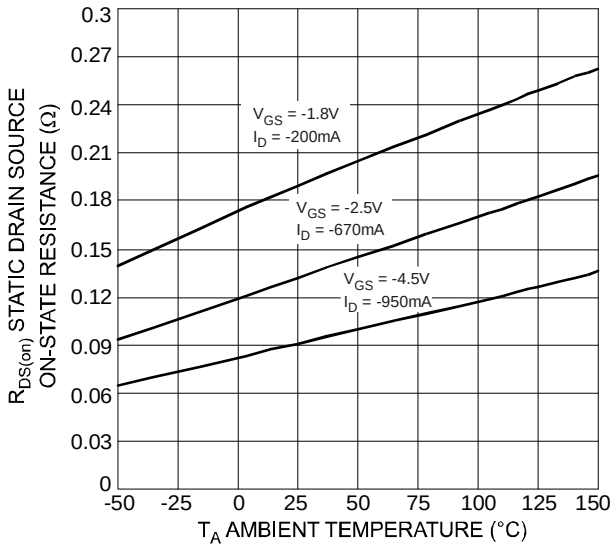


Fig. 7 Static Drain-Source On-State Resistance
vs Ambient Temperature

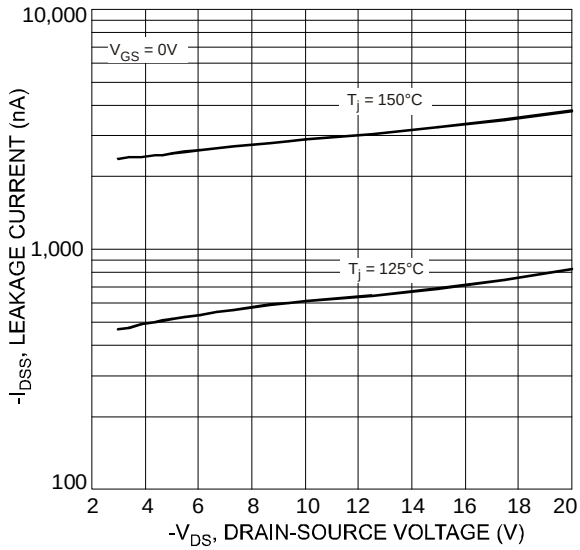


Fig. 8 Drain-Source Leakage Current vs Voltage

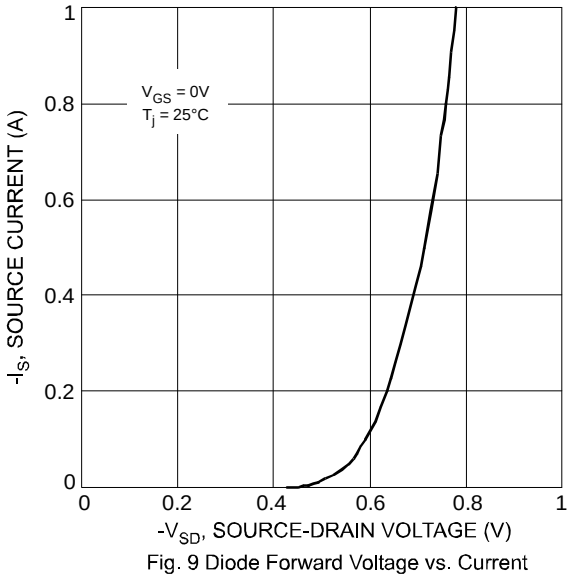


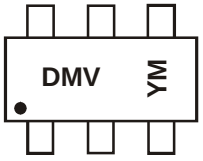
Fig. 9 Diode Forward Voltage vs. Current

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



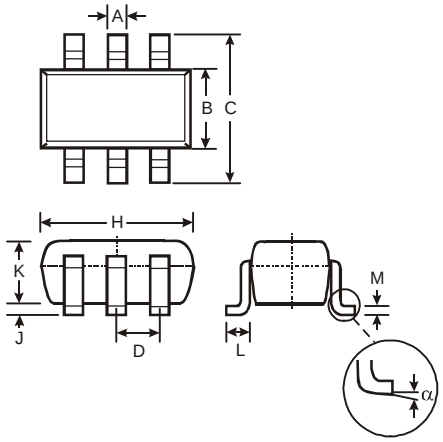
DMV = Marking Code
YM = Date Code Marking
Y = Year (ex: U = 2007)
M = Month (ex: 9 = September)

Date Code Key

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

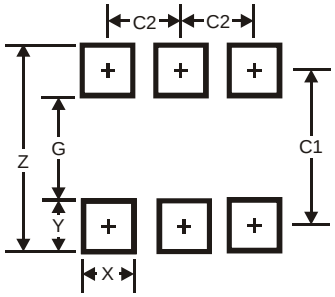
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

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

Mouser Electronics

Authorized Distributor

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DMP2240UDM-7