P-CHANNEL ENHANCEMENT MODE FIELD EFFECT TRANSISTOR

Features

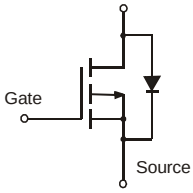
- Low On-Resistance:
  $R_{DS(ON)}$ < 122mΩ @ V_{GS} = -10V, I_D = -2.7A
  $R_{DS(ON)}$ < 190mΩ @ V_{GS} = -4.5V, I_D = -2.0A
- Low Gate Threshold Voltage
- Low Input Capacitance
- Fast Switching Speed
- Low Input/Output Leakage
- **Lead, Halogen and Antimony Free, RoHS Compliant "Green" Device (Notes 2, 4 and 6)**
- **Qualified to AEC-Q101 Standards for High Reliability**

Mechanical Data

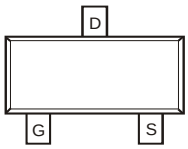
- Case: SOT-23
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish — Matte Tin annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208
- Terminal Connections: See Diagram
- Marking Information: See Page 3
- Ordering Information: See Page 3
- Weight: 0.008 grams (approximate)

SOT-23

TOP VIEW



EQUIVALENT CIRCUIT



TOP VIEW

Maximum Ratings @T_A = 25°C unless otherwise specified

Characteristic			Symbol	Value	Units
Drain-Source Voltage			V_{DSS}	-30	V
Gate-Source Voltage			V_{GSS}	±20	V
Drain Current (Note 1) V_{GS} = -10V	Steady State	T_A = 25°C T_A = 70°C	I_D	-2.7 -2	A
Pulsed Drain Current (Note 3)			I_{DM}	-8	A

Thermal Characteristics

Characteristic	Symbol	Value	Units
Total Power Dissipation (Note 1)	P_D	1.08	W
Thermal Resistance, Junction to Ambient @T_A = 25°C (Note 1)	$R_{\theta JA}$	115	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°C

Electrical Characteristics @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 5)						
Drain-Source Breakdown Voltage	BV_{DSS}	-30	—	—	V	V_{GS} = 0V, I_D = -250μA
Zero Gate Voltage Drain Current	I_{DSS}	—	—	-800	nA	V_{DS} = -30V, V_{GS} = 0V
Gate-Source Leakage	I_{GSS}	—	—	±80 ±800	nA	V_{GS} = ±12V, V_{DS} = 0V V_{GS} = ±15V, V_{DS} = 0V
ON CHARACTERISTICS (Note 5)						
Gate Threshold Voltage	$V_{GS(th)}$	-1.3	-1.8	-2.1	V	V_{DS} = V_{GS}, I_D = -250μA
Static Drain-Source On-Resistance	$R_{DS\ (ON)}$	—	97 165	122 190	mΩ	V_{GS} = -10V, I_D = -2.7A V_{GS} = -4.5V, I_D = -2.0A
Forward Transfer Admittance	$\|Y_{fs}\|$	—	3.6	—	S	V_{DS} = -5V, I_D = -2.7A
Diode Forward Voltage (Note 5)	V_{SD}	—	—	-1.26	V	V_{GS} = 0V, I_S = -2.7A
DYNAMIC CHARACTERISTICS						
Input Capacitance	C_{iss}	—	227	—	pF	V_{DS} = -10V, V_{GS} = 0V f = 1.0MHz
Output Capacitance	C_{oss}	—	64	—	pF	
Reverse Transfer Capacitance	C_{rss}	—	36	—	pF	

Notes:
1. Device mounted on FR-4 PCB. t ≤5 sec.
2. No purposefully added lead. Halogen and Antimony Free.
3. Pulse width ≤10μS, Duty Cycle ≤1%.
4. Diodes Inc.'s "Green" policy can be found on our website at http://www.diodes.com/products/lead_free/index.php.
5. Short duration pulse test used to minimize self-heating effect.
6. Product manufactured with Green Molding Compound and does not contain Halogens or Sb_2O_3 Fire Retardants.

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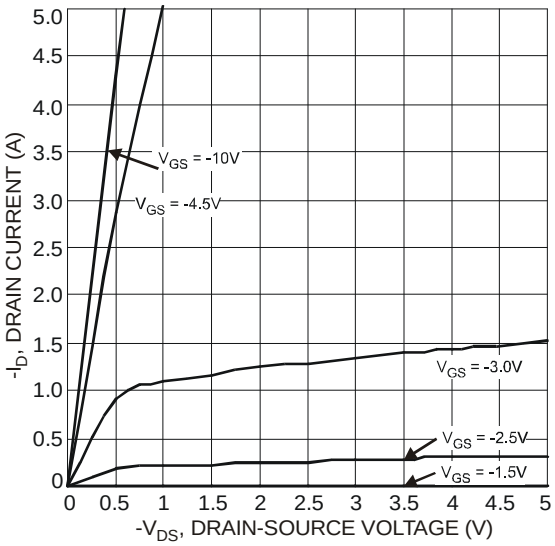

Fig. 1 Typical Output Characteristics

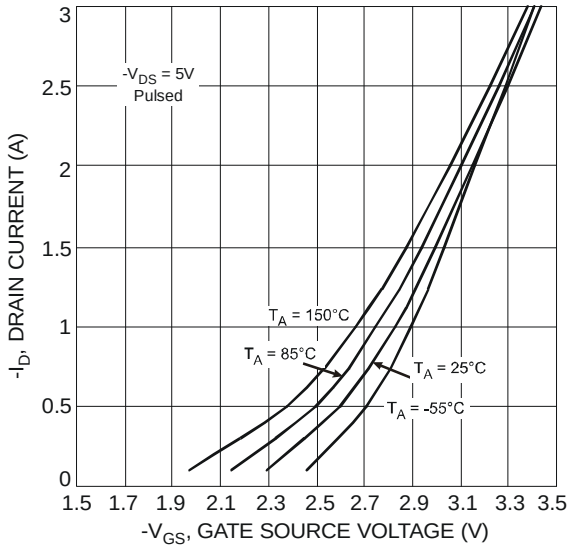

Fig. 2 Typical Transfer Characteristics

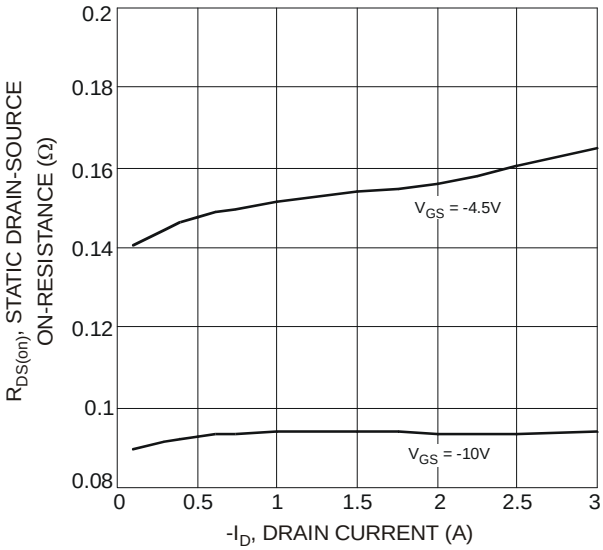

Fig. 3 On-Resistance vs. Drain Current and Gate Voltage

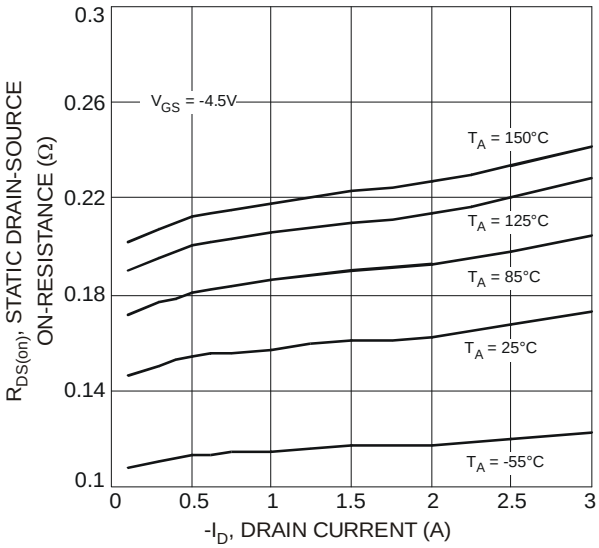

Fig. 4 On-Resistance vs. Drain Current and Gate Voltage

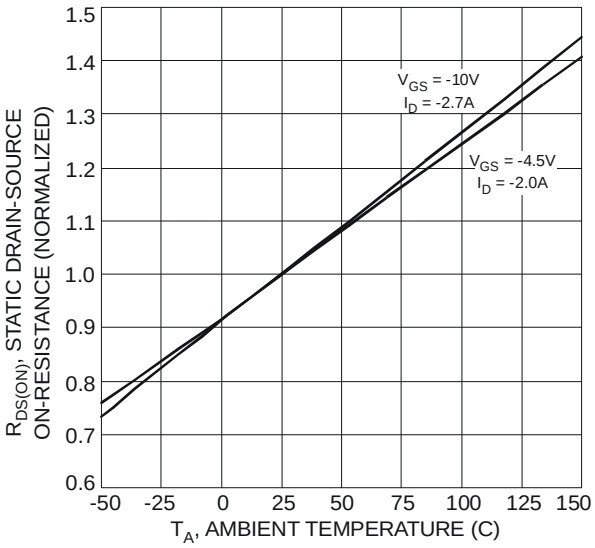

Fig. 5 Normalized Static Drain-Source On-Resistance vs. Ambient Temperature

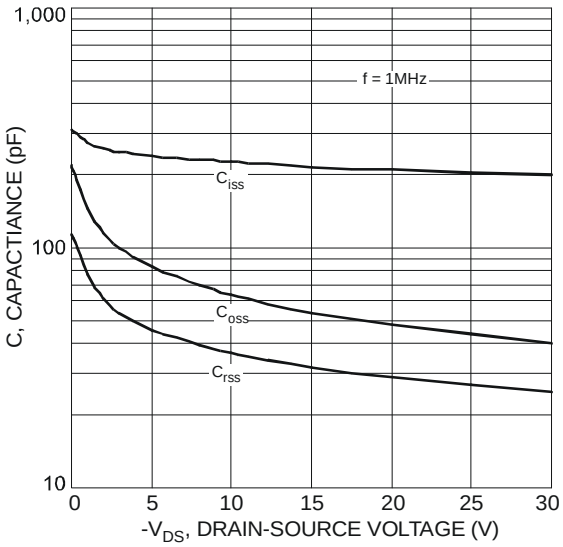

Fig. 6 Typical Capacitance

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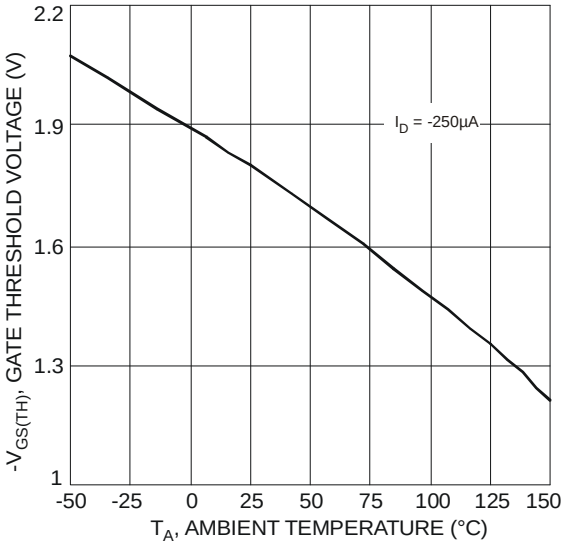


Fig. 7 Gate Threshold Voltage vs. Ambient Temperature

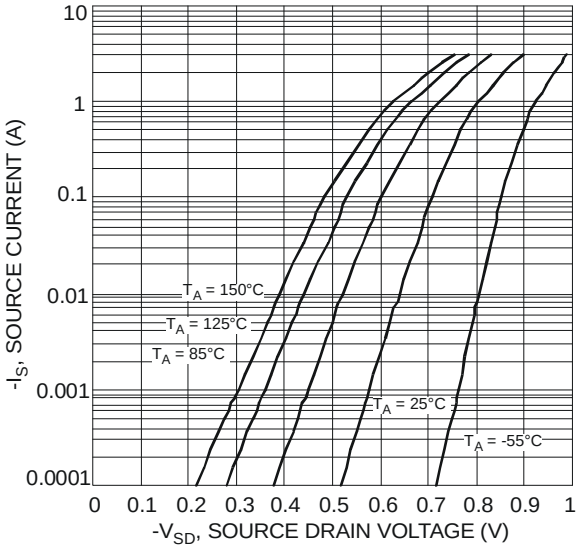


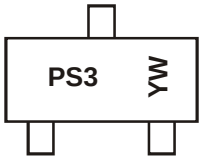
Fig. 8 Reverse Drain Current vs. Source-Drain Voltage

Ordering Information (Note 7)

Part Number	Case	Packaging
DMP3160L-7	SOT-23	3000/Tape & Reel

Notes: 7. For packaging details, go to our website at http://www.diodes.com/datasheets/ap02007.pdf.

Marking Information



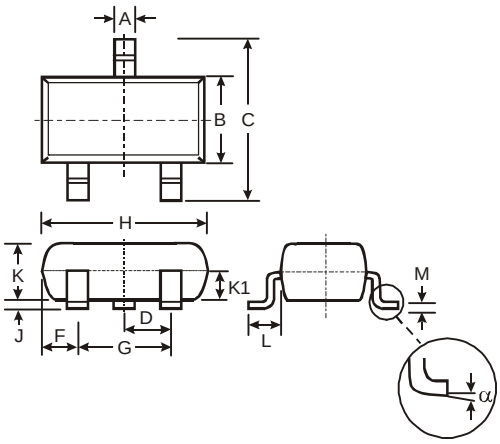
PS3 = Product Type Marking Code
YM = Date Code Marking
Y = Year (ex: U = 2007)
M = Month (ex: 9 = September)

Date Code Key

Year	2007	2008	2009	2010	2011	2012	2013	2014	2015
Code	U	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-23			
Dim	Min	Max	Typ
A	0.37	0.51	0.40
B	1.20	1.40	1.30
C	2.30	2.50	2.40
D	0.89	1.03	0.915
F	0.45	0.60	0.535
G	1.78	2.05	1.83
H	2.80	3.00	2.90
J	0.013	0.10	0.05
K	0.903	1.10	1.00
K1	-	-	0.400
L	0.45	0.61	0.55
M	0.085	0.18	0.11
α	0°	8°	-
All Dimensions in mm			

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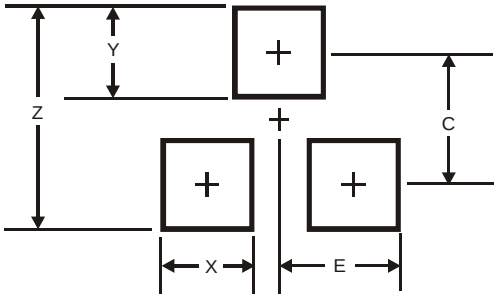
Suggested Pad Layout



Dimensions	Value (in mm)
Z	2.9
X	0.8
Y	0.9
C	2.0
E	1.35

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