

## Features

- Low On-Resistance:  
 $R_{DS(ON)} < 100m\Omega$  @  $V_{GS} = -4.5V$ ,  $I_D = -2.7A$   
 $R_{DS(ON)} < 215m\Omega$  @  $V_{GS} = -2.5V$ ,  $I_D = -2.0A$
- Low Gate Threshold Voltage
- Low Input Capacitance
- Fast Switching Speed
- Low Input/Output Leakage
- **Lead Free By Design/RoHS Compliant (Note 2)**
- **"Green" Device (Note 4)**
- **Qualified to AEC-Q101 Standards for High Reliability**

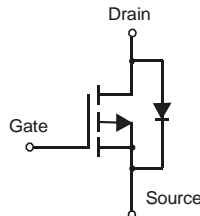
## Mechanical Data

- Case: SOT-23
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- 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)

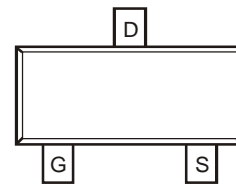
SOT-23



TOP VIEW



EQUIVALENT CIRCUIT



TOP VIEW

## Maximum Ratings @ $T_A = 25^\circ\text{C}$ 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)	Steady State	$T_A = 25^\circ\text{C}$	$I_D$	-2.7	A
		$T_A = 70^\circ\text{C}$		-2	
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 @ $T_A = 25^\circ\text{C}$ (Note 1)	$R_{\theta JA}$	115	$^\circ\text{C/W}$
Operating and Storage Temperature Range	$T_J, T_{STG}$	-55 to +150	$^\circ\text{C}$

- Notes:
1. Device mounted on FR-4 PCB.  $t \leq 5$  sec.
  2. No purposefully added lead.
  3. Pulse width  $\leq 10\mu\text{s}$ , Duty Cycle  $\leq 1\%$ .
  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>OFF CHARACTERISTICS (Note 5)</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	-20	—	—	V	$V_{GS} = 0V, I_D = -250\mu A$
Zero Gate Voltage Drain Current	$I_{DSS}$	—	—	-800	nA	$V_{DS} = -20V, V_{GS} = 0V$
On-State Drain Current	$I_{D(ON)}$	-6	—	—	A	$V_{DS} \leq -5V, V_{GS} = -4.5V$
		-3	—	—		$V_{DS} \leq -5V, V_{GS} = -2.5V$
Gate-Source Leakage	$I_{GSS}$	—	—	$\pm 80$	nA	$V_{GS} = \pm 12V, V_{DS} = 0V$
<b>ON CHARACTERISTICS (Note 5)</b>						
Gate Threshold Voltage	$V_{GS(th)}$	-0.45	—	-1.25	V	$V_{DS} = V_{GS}, I_D = -250\mu A$
Static Drain-Source On-Resistance	$R_{DS(ON)}$	—	80	100	$m\Omega$	$V_{GS} = -4.5V, I_D = -2.7A$
		—	165	215		$V_{GS} = -2.5V, I_D = -2.0A$
Forward Transfer Admittance	$ Y_{fs} $	—	4	—	S	$V_{DS} = -5V, V_{GS} = -2.7A$
Diode Forward Voltage (Note 5)	$V_{SD}$	—	—	-1.26	V	$V_{GS} = 0V, I_S = -2.7A$
<b>DYNAMIC CHARACTERISTICS</b>						
Input Capacitance	$C_{iss}$	—	250	—	pF	$V_{DS} = -10V, V_{GS} = 0V$ $f = 1.0\text{MHz}$
Output Capacitance	$C_{oss}$	—	88	—	pF	
Reverse Transfer Capacitance	$C_{rss}$	—	58	—	pF	
Gate Resistance	$R_g$	—	12	16	$\Omega$	$V_{GS} = 0V, V_{DS} = 0V, f = 1\text{MHz}$
Total Gate Charge	$Q_g$	—	4.3	5.3	nC	$V_{GS} = -4.5V, V_{DS} = -10V,$ $I_D = -2.7A$
Gate-Source Charge	$Q_{gs}$	—	0.9	—		
Gate-Drain Charge	$Q_{gd}$	—	2.1	—		

Notes: 5. Short duration pulse test used to minimize self-heating effect.

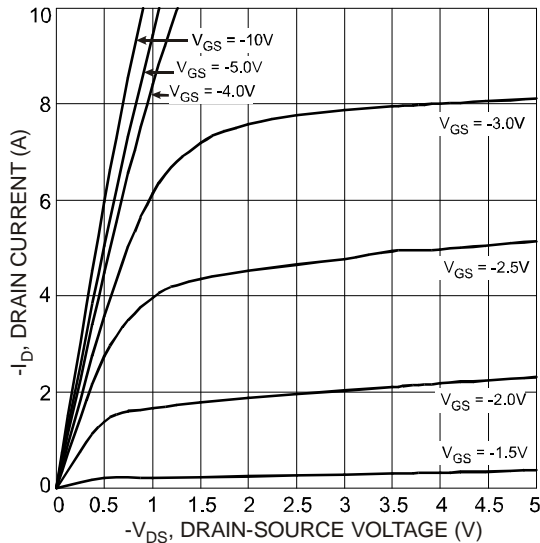


Fig. 1 Typical Output Characteristics

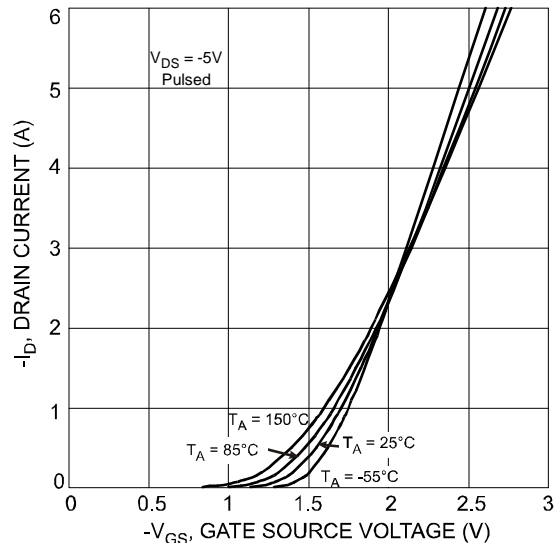


Fig. 2 Typical Transfer Characteristics

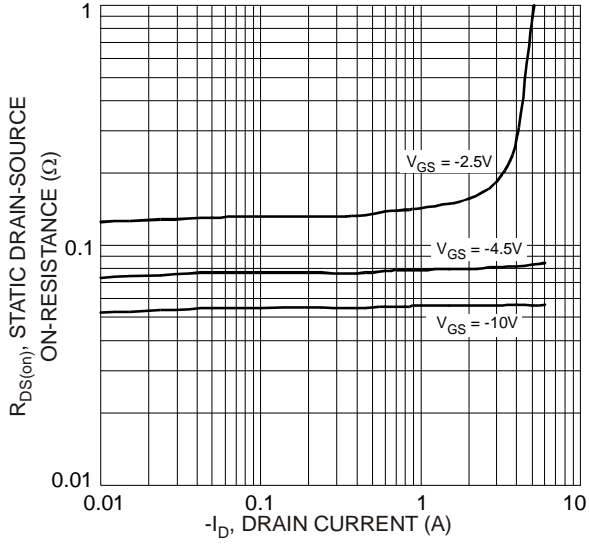


Fig. 3 On-Resistance vs. Drain Current and Gate Voltage

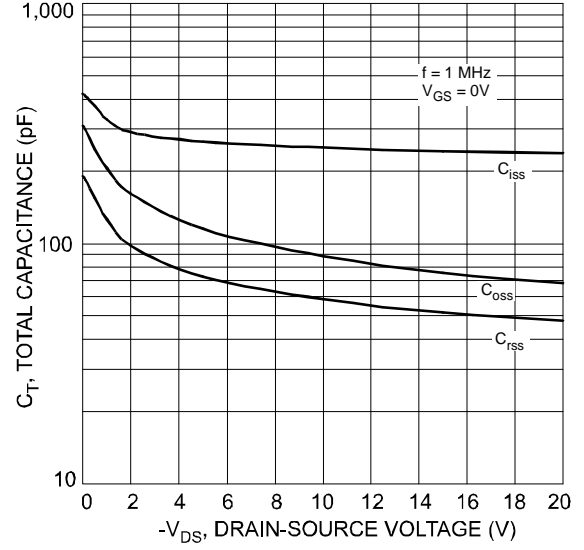


Fig. 4 Typical Total Capacitance

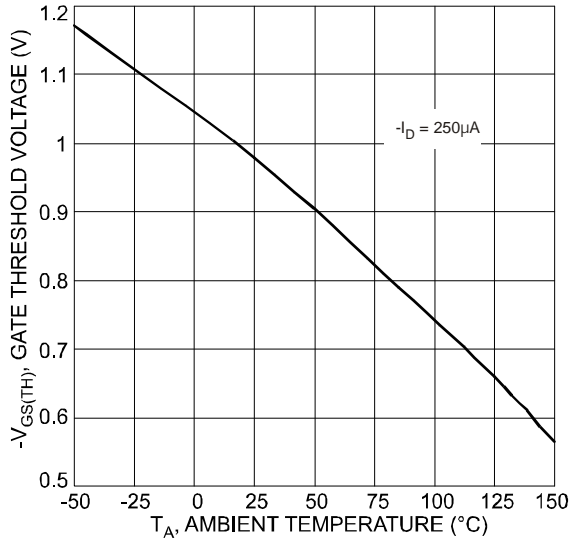


Fig. 5 Gate Threshold Voltage vs. Ambient Temperature

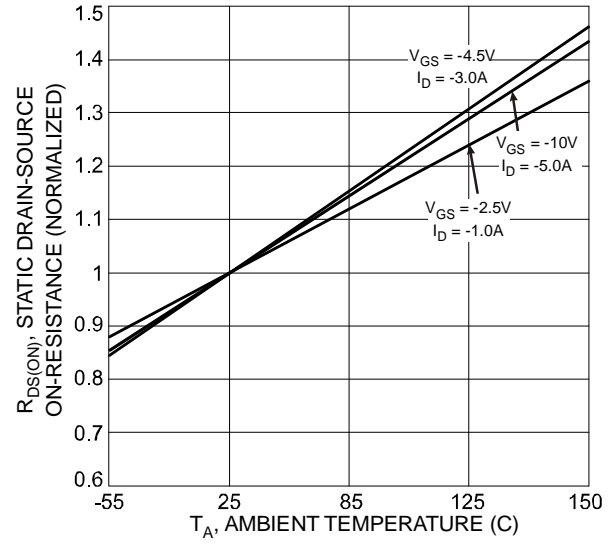


Fig. 6 Normalized Static Drain-Source On-Resistance vs. Ambient Temperature

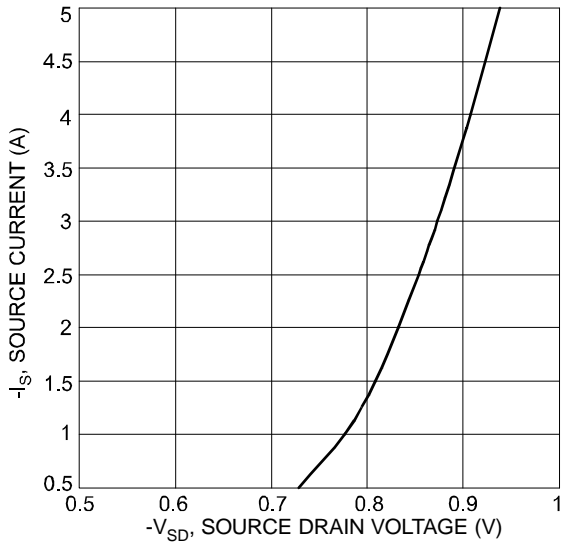


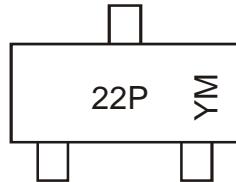
Fig. 7 Reverse Drain Current vs. Source-Drain Voltage

**Ordering Information** (Note 6)

Part Number	Case	Packaging
DMP2215L-7	SOT-23	3000/Tape & Reel

Notes: 6. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

**Marking Information**



22P = Product Type Marking Code  
 YM = Date Code Marking  
 Y = Year (ex: U = 2007)  
 M = Month (ex: 9 = September)

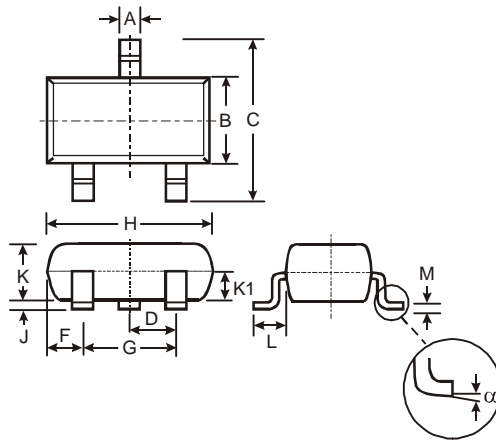
Date Code Key

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

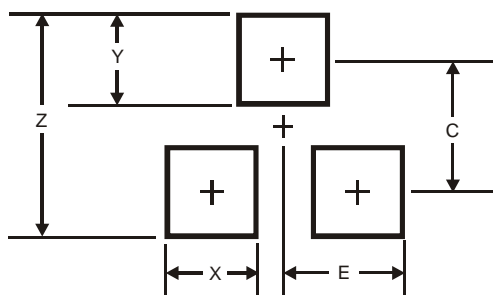
**Package Outline Dimensions**



SOT-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

**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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