

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)}$	I_D $T_A = +25^\circ\text{C}$
-60V	5Ω @ $V_{GS} = -10\text{V}$	-450mA

Description

This MOSFET has been designed to minimize the on-state resistance and yet maintain superior switching performance, making it ideal for high efficiency power management applications.

Applications

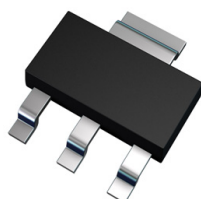
- Load Switch
- DC-DC Converters

Features and Benefits

- Low On-Resistance
- Fast Switching Speed
- **Lead-Free Finish; RoHS compliant (Note 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

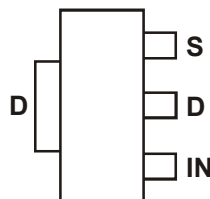
Mechanical Data

- Case: SOT223
- Case Material: Molded Plastic, "Green" Molding Compound.
UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish
- Weight: 0.112 grams (approximate)



Top View

SOT223



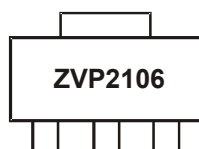
Top view
Pin Out

Ordering Information (Note 4)

Product	Case	Quantity per reel
ZVP2106GTA	SOT223	1,000

- Note:
1. EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. All applicable RoHS exemptions applied.
 2. See http://www.diodes.com/quality/lead_free.html for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
 3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
 4. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

Marking Information



ZVP2106 = Product type Marking Code

Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Units
Drain-Source Voltage	V _{DS}	-60	V
Gate Source Voltage	V _{GS}	±20	V
Continuous Drain Current	I _D	-450	mA
Pulsed Drain Current	I _{DM}	-4	A

Thermal Characteristics (@T_A = +25°C, unless otherwise specified.)

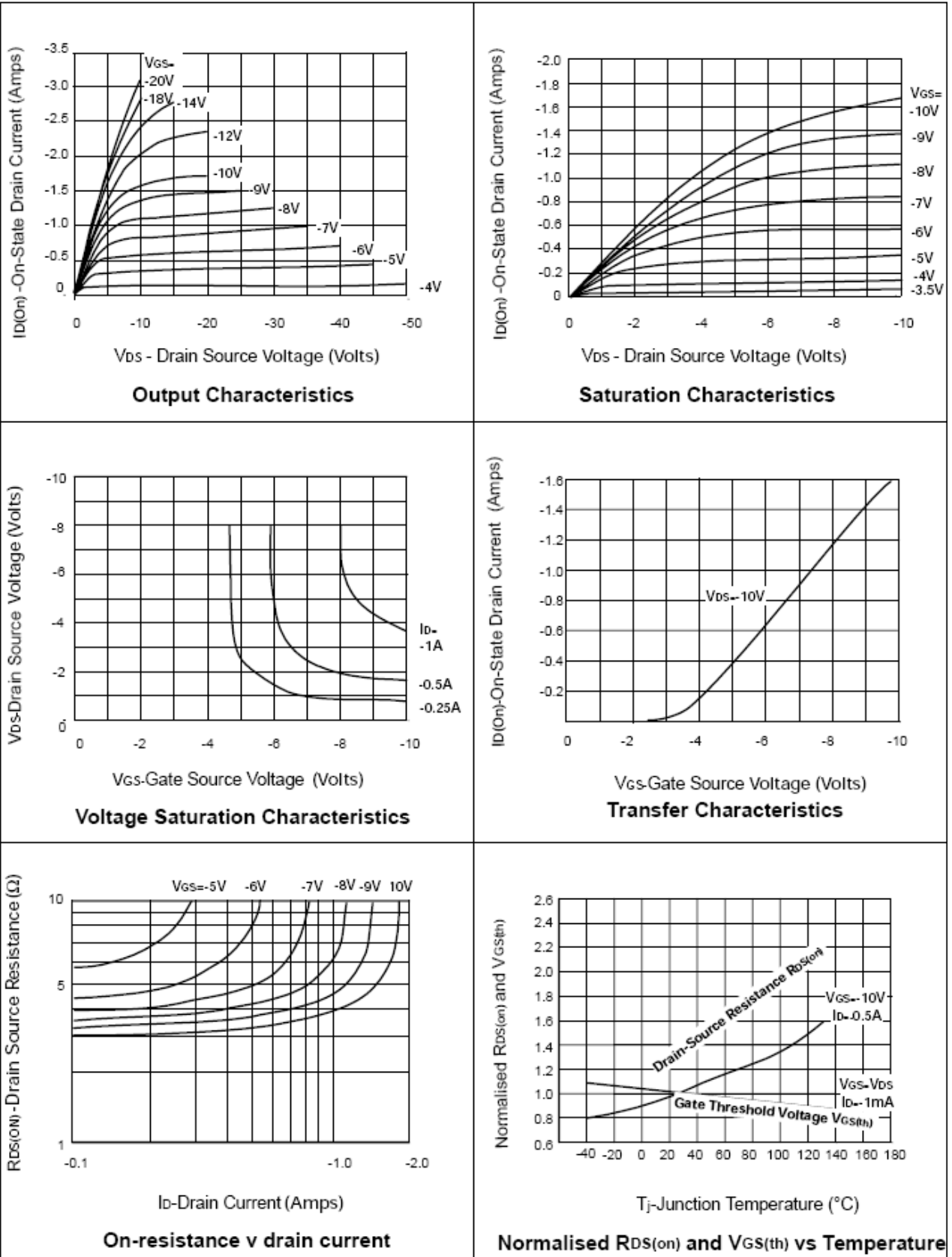
Characteristic	Symbol	Value	Units
Power Dissipation	P _{TOT}	2	W
Storage Temperature Range	T _{STG}	-55 to +150	°C

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

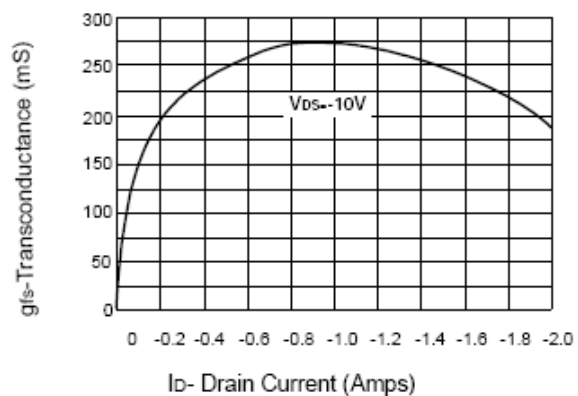
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Static Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	-60	—	—	V	I _D = -1mA, V _{GS} = 0V
Gate-Source Threshold Voltage	V _{GS(th)}	-1.5	—	-3.5	V	I _D = -1mA, V _{DS} = V _{GS}
Gate-Body Leakage	I _{GSS}	—	—	20	nA	V _{GS} = ±20V, V _{DS} = 0V
Zero Gate Voltage Drain Current	I _{DSS}	—	—	-0.5	µA	V _{DS} = -60V, V _{GS} = 0V
				-100	µA	V _{DS} = -48V, V _{GS} = 0V, T = +125°C (Note 6)
On-State Drain Current (Note 5)	I _{D(on)}	-1	—	—	A	V _{DS} = -18V, V _{GS} = -10V
Static Drain-Source On-State Resistance (Note 5)	R _{DS(on)}	—	—	5	Ω	V _{GS} = -10V, I _D = -500mA
Forward Transconductance (Note 5 & 6)	g _{fs}	150	—	—	mS	V _{DS} = -18V, I _D = -500mA
Dynamic Characteristics (Note 6)						
Input Capacitance	C _{iss}	—	—	100	pF	V _{DS} = -18V, V _{GS} = 0V, f = 1MHz
Common Source Output Capacitance	C _{oss}	—	—	60		
Reverse Transfer Capacitance	C _{rss}	—	—	20		
Turn-On Delay Time (Note 7)	t _{d(on)}	—	—	7	ns	V _{DD} = -18V, I _D = -500mA
Rise Time (Note 7)	t _r	—	—	5		
Turn-Off Delay Time (Note 7)	t _{d(off)}	—	—	12		
Fall Time (Note 7)	t _f	—	—	15		

Notes: 5. Measured under pulsed conditions. Width=300µs. Duty cycle ≤ 2%.
6. Sample test.
7. Switching times measured with 50Ω source impedance and <5ns rise time on a pulse generator.

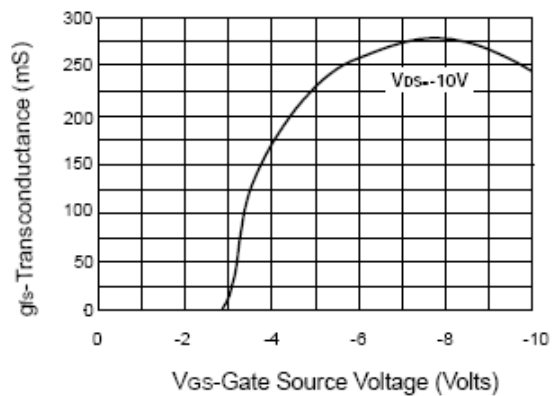
Typical Characteristics



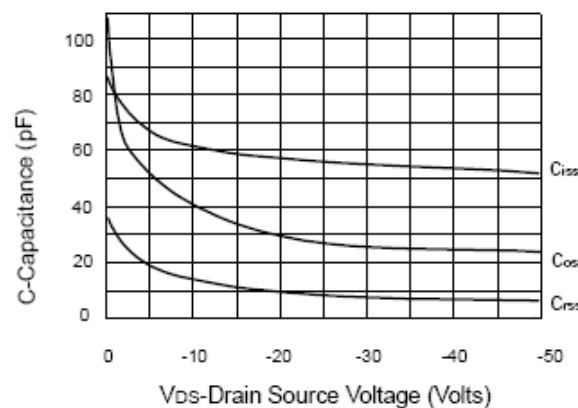
Typical Characteristics (cont.)



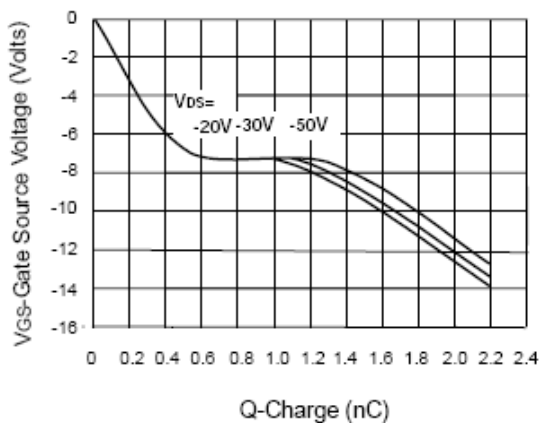
Transconductance v drain current



Transconductance v gate-source voltage



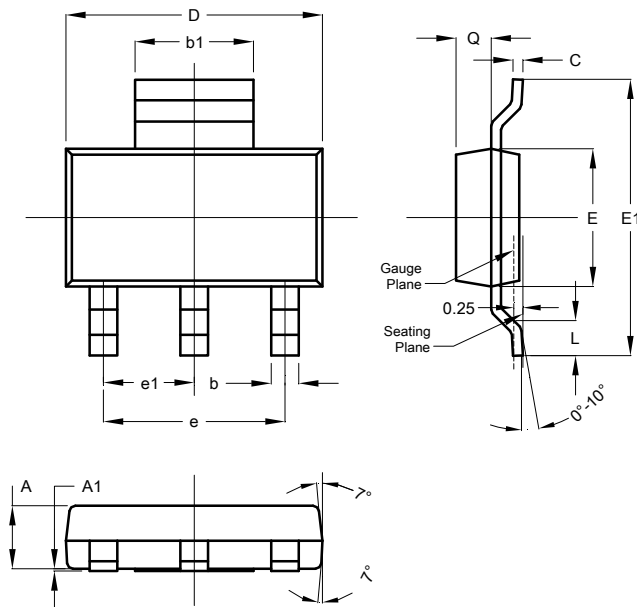
Capacitance v drain-source voltage



Gate charge v gate-source voltage

Package Outline Dimensions

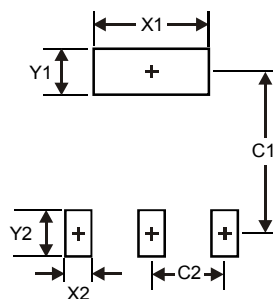
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for the latest version.



SOT223			
Dim	Min	Max	Typ
A	1.55	1.65	1.60
A1	0.010	0.15	0.05
b	0.60	0.80	0.70
b1	2.90	3.10	3.00
C	0.20	0.30	0.25
D	6.45	6.55	6.50
E	3.45	3.55	3.50
E1	6.90	7.10	7.00
e	-	-	4.60
e1	-	-	2.30
L	0.85	1.05	0.95
Q	0.84	0.94	0.89
All Dimensions in mm			

Suggested Pad Layout

Please see AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> for the latest version.



Dimensions	Value (in mm)
X1	3.3
X2	1.2
Y1	1.6
Y2	1.6
C1	6.4
C2	2.3

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