

## Product Summary

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

## Description

This MOSFET is 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

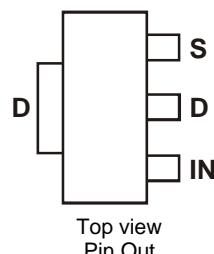
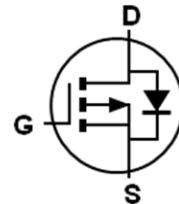
- Low On-Resistance
- Fast Switching Speed
- **Lead-Free Finish; RoHS compliant (Note 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- Qualified to AEC-Q101 Standards for High Reliability

## 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


 Top view  
Pin Out


Equivalent Circuit

## Ordering Information (Note 4)

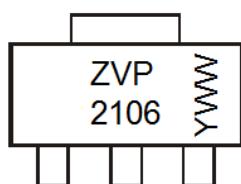
Product	Case	Quantity per reel
ZVP2106GTA	SOT223	1,000

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](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

SOT223



ZVP2106 = Product Type Marking Code  
 YWW = Date Code Marking  
 Y or  $\bar{Y}$  = Year (ex: 5 = 2015)  
 WW or  $\bar{WW}$  = Week (01 - 53)

**Maximum Ratings** (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

Characteristic	Symbol	Value	Units
Drain-Source Voltage	$V_{DS}$	-60	V
Gate Source Voltage	$V_{GSS}$	$\pm 20$	V
Continuous Drain Current	$I_D$	-450	mA
Pulsed Drain Current	$I_{DM}$	-4	A

**Thermal Characteristics** (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

Characteristic	Symbol	Value	Units
Power Dissipation	$P_{TOT}$	2	W
Storage Temperature Range	$T_{STG}$	-55 to +150	°C

**Electrical Characteristics** (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

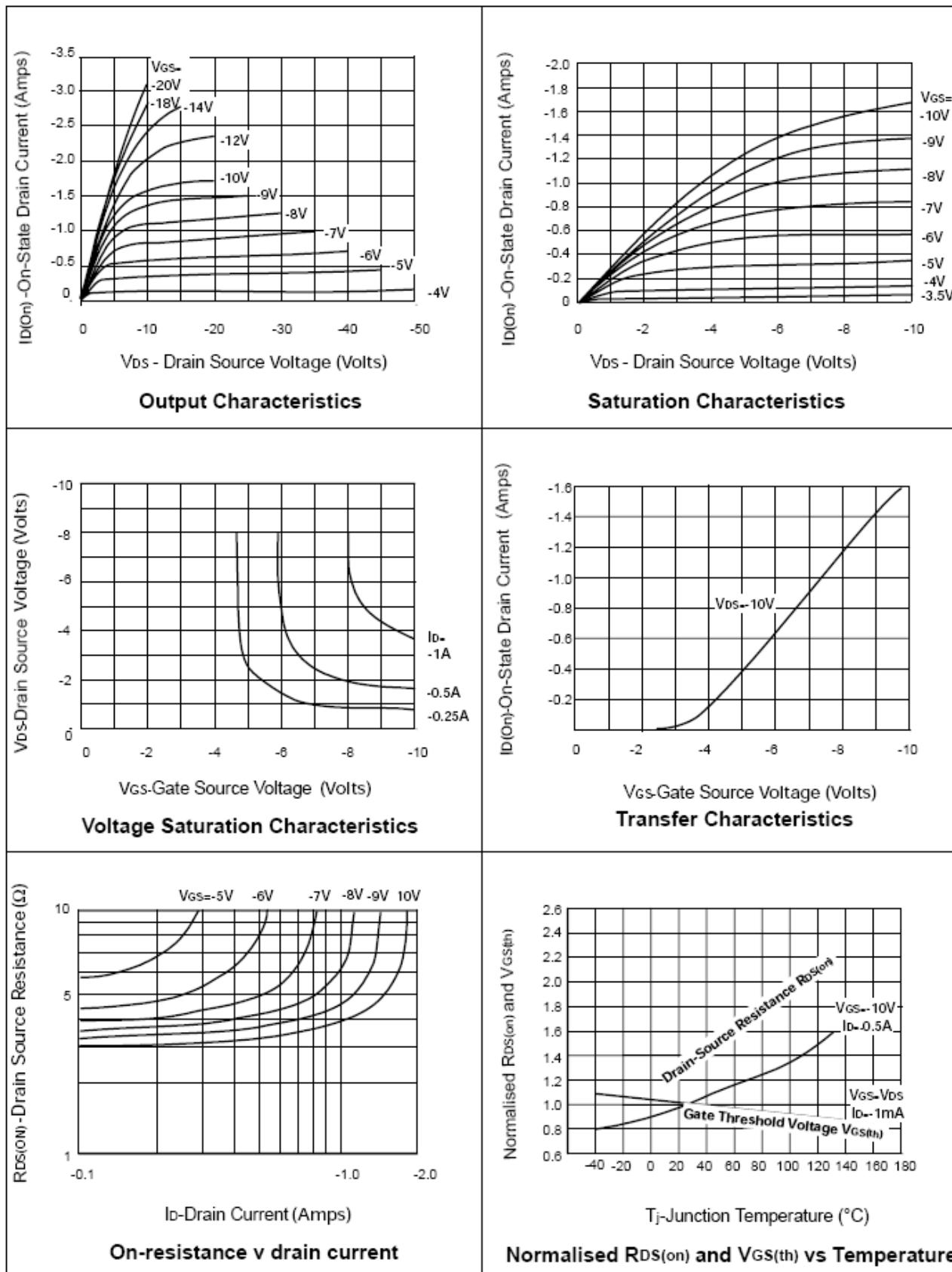
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
<b>Static Characteristics</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	-60	—	—	V	$I_D = -1\text{mA}$ , $V_{GS} = 0\text{V}$
Gate-Source Threshold Voltage	$V_{GS(\text{th})}$	-1.5	—	-3.5	V	$I_D = -1\text{mA}$ , $V_{DS} = V_{GS}$
Gate-Body Leakage	$I_{GSS}$	—	—	20	nA	$V_{GS} = \pm 20\text{V}$ , $V_{DS} = 0\text{V}$
Zero Gate Voltage Drain Current	$I_{DSS}$	—	—	-0.5	$\mu\text{A}$	$V_{DS} = -60\text{V}$ , $V_{GS} = 0\text{V}$
On-State Drain Current (Note 5)	$I_{D(\text{on})}$	-1	—	—	A	$V_{DS} = -18\text{V}$ , $V_{GS} = -10\text{V}$
Static Drain-Source On-State Resistance (Note 5)	$R_{DS(\text{on})}$	—	—	5	$\Omega$	$V_{GS} = -10\text{V}$ , $I_D = -500\text{mA}$
Forward Transconductance (Notes 5 & 6)	$g_{fS}$	150	—	—	$\text{mS}$	$V_{DS} = -18\text{V}$ , $I_D = -500\text{mA}$
<b>Dynamic Characteristics (Note 6)</b>						
Input Capacitance	$C_{iss}$	—	—	100	pF	$V_{DS} = -18\text{V}$ , $V_{GS} = 0\text{V}$ , $f = 1\text{MHz}$
Common Source Output Capacitance	$C_{oss}$	—	—	60		
Reverse Transfer Capacitance	$C_{rss}$	—	—	20		
Turn-On Delay Time (Note 7)	$t_{d(\text{on})}$	—	—	7	ns	$V_{DD} = -18\text{V}$ , $I_D = -500\text{mA}$
Rise Time (Note 7)	$t_r$	—	—	5		
Turn-Off Delay Time (Note 7)	$t_{d(\text{off})}$	—	—	12		
Fall Time (Note 7)	$t_f$	—	—	15		

Notes: 5. Measured under pulsed conditions. Width=300 $\mu\text{s}$ . Duty cycle  $\leq 2\%$ .

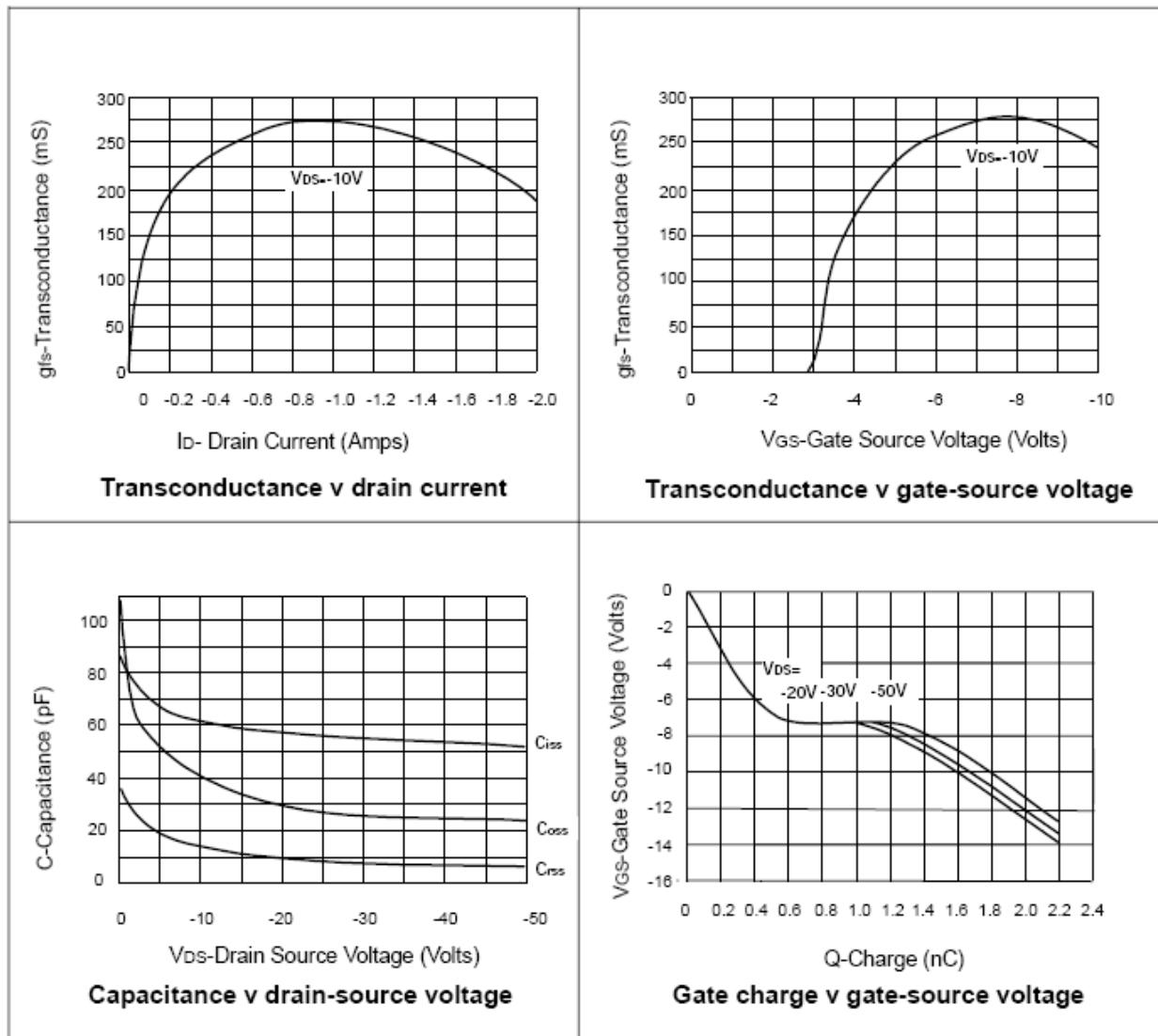
6. Sample Test

7. Switching times measured with 50 $\Omega$  source impedance and <5ns rise time on a pulse generator.

## Typical Characteristics

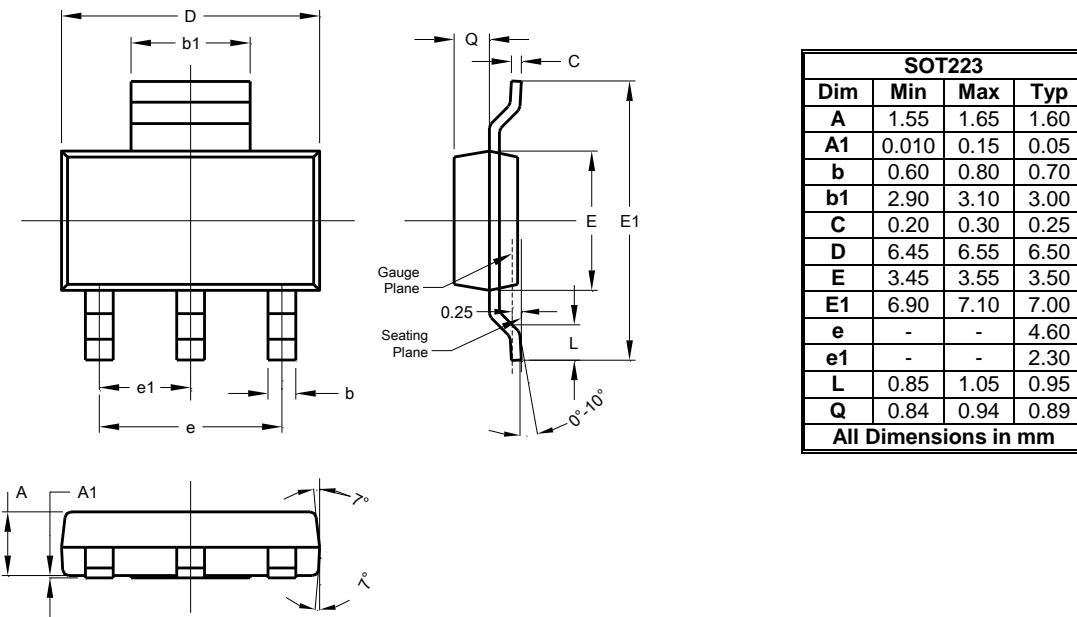


**Typical Characteristics (cont.)**



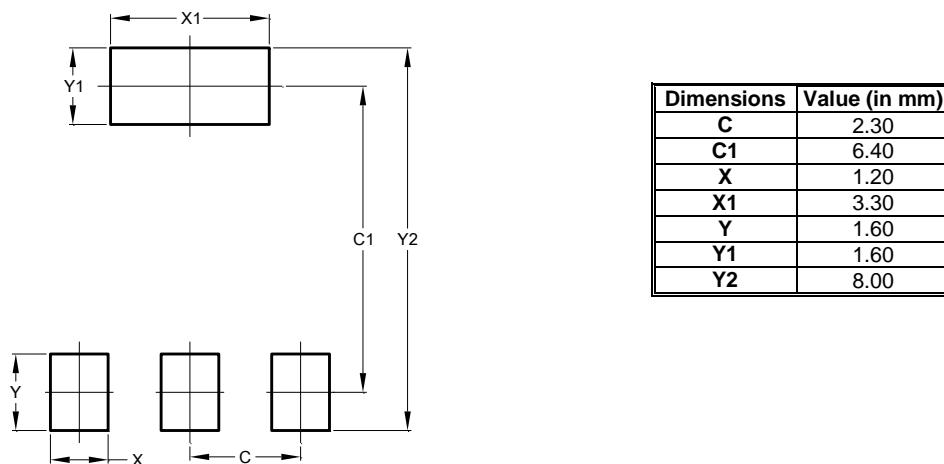
## Package Outline Dimensions

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



## Suggested Pad Layout

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



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