

Product Summary

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

Description and Applications

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

- Load switches
- 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)**
- For automotive applications requiring specific change control (i.e. parts qualified to AEC-Q100/101/104/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please [contact us](mailto:contact_us@diodes.com) or your local Diodes representative. <https://www.diodes.com/quality/product-definitions/>

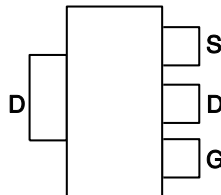
Mechanical Data

- Package: SOT223
- Package 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
- Weight: 0.112 grams (Approximate)

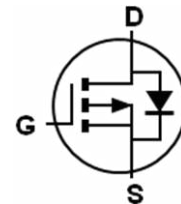
SOT223 (Type DN)



Top View



Top View
Pin Out



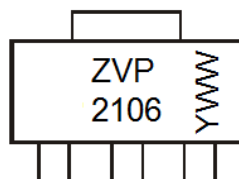
Equivalent Circuit

Ordering Information (Note 4)

Part Number	Package	Packing	
		Qty.	Carrier
ZVP2106GTA	SOT223 (Type DN)	1,000	Tape & Reel

- Notes:
1. EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant. All applicable RoHS exemptions applied.
 2. See <https://www.diodes.com/quality/lead-free/> 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 <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

Marking Information



ZVP2106 = Product Type Marking Code
 YWW = Date Code Marking
 Y or \bar{Y} = Year (ex: 2 = 2022)
 WW or $\bar{W}W$ = Week (01 to 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_{GS}	± 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.)

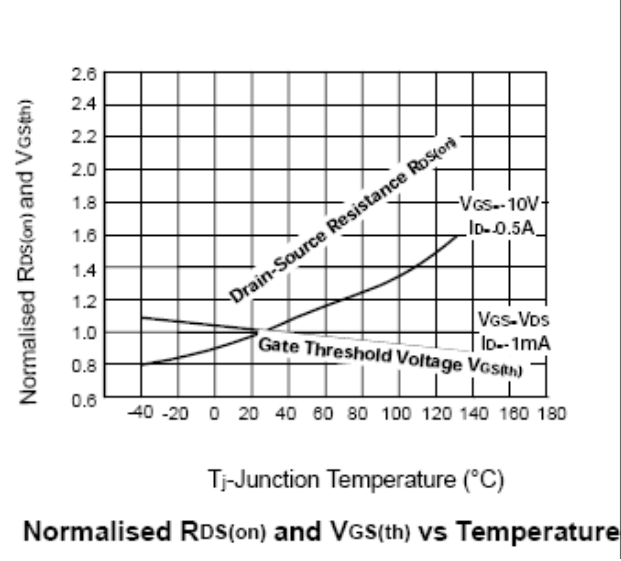
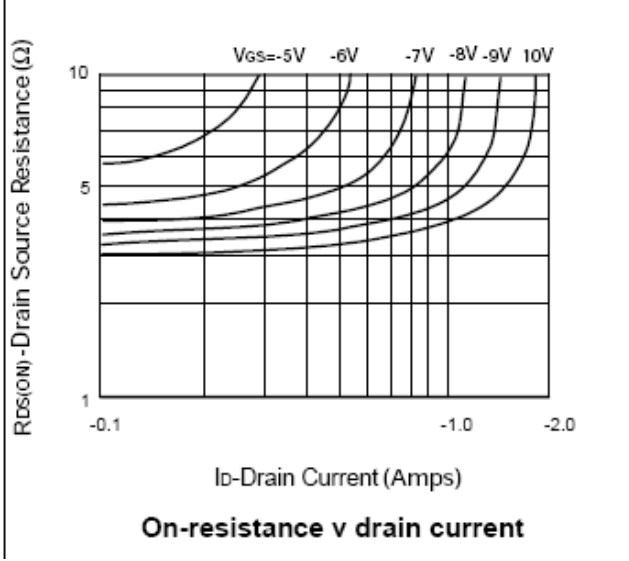
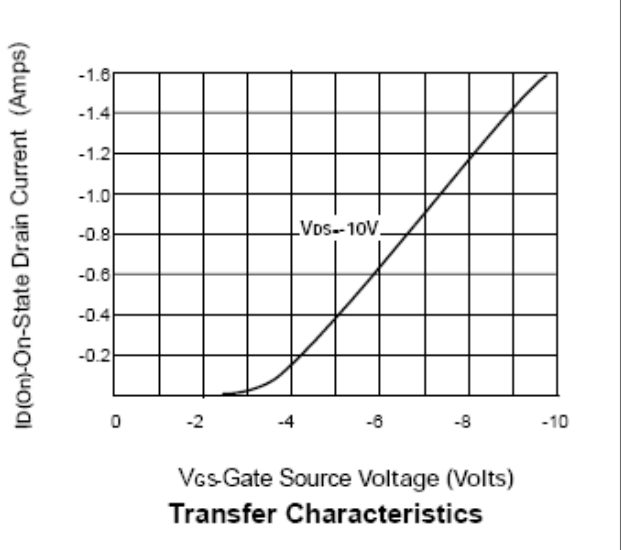
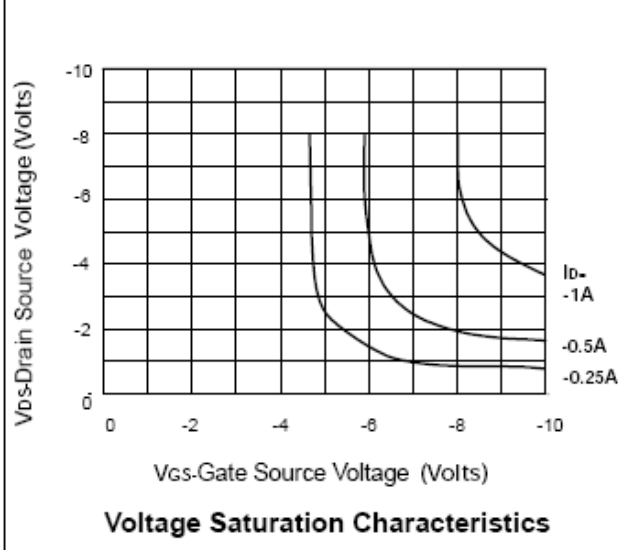
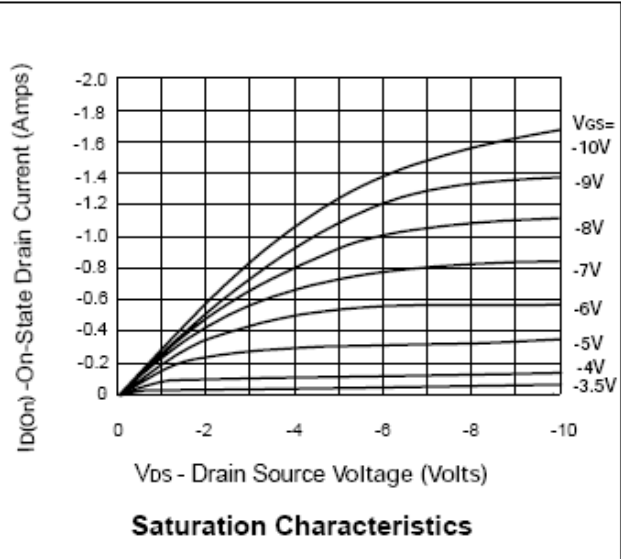
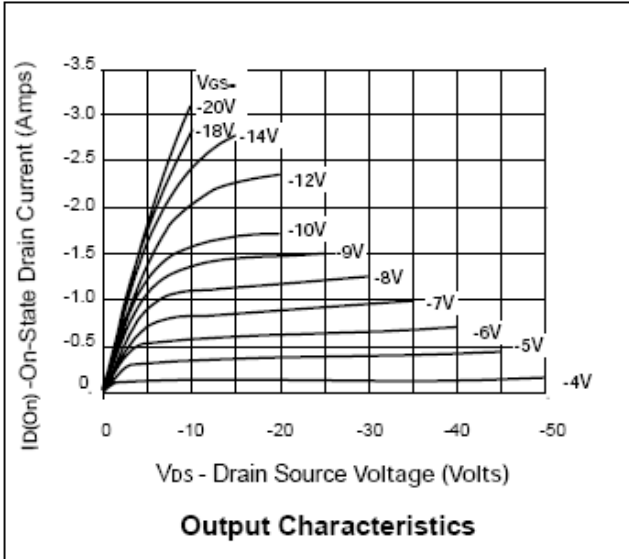
Characteristic	Symbol	Value	Units
Power Dissipation	P_{TOT}	2	W
Storage Temperature Range	T_{STG}	-55 to +150	$^\circ\text{C}$

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

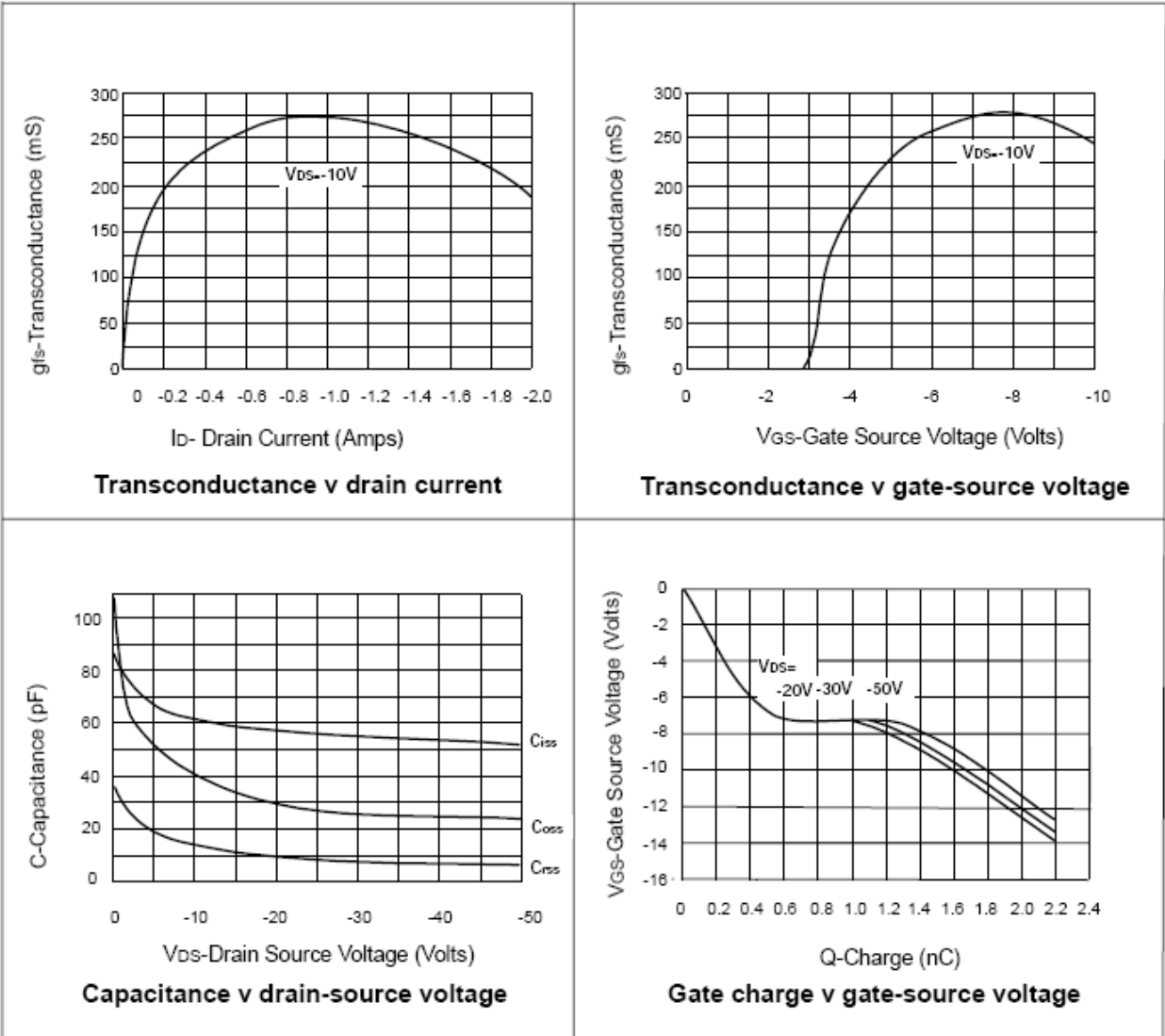
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Static Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	-60	—	—	V	$I_D = -1\text{mA}$, $V_{GS} = 0\text{V}$
Gate-Source Threshold Voltage	$V_{GS(th)}$	-1.5	—	-3.5	V	$I_D = -1\text{mA}$, $V_{DS} = V_{GS}$
Gate-Body Leakage	I_{GSS}	—	—	20	nA	$V_{GS} = \pm 20\text{V}$, $V_{DS} = 0\text{V}$
Zero Gate Voltage Drain Current	I_{DSS}	—	—	-0.5	μA	$V_{DS} = -60\text{V}$, $V_{GS} = 0\text{V}$
				-100	μA	$V_{DS} = -48\text{V}$, $V_{GS} = 0\text{V}$, $T = +125^\circ\text{C}$ (Note 6)
On-State Drain Current (Note 5)	$I_{D(on)}$	-1	—	—	A	$V_{DS} = -18\text{V}$, $V_{GS} = -10\text{V}$
Static Drain-Source On-State Resistance (Note 5)	$R_{DS(on)}$	—	—	5	Ω	$V_{GS} = -10\text{V}$, $I_D = -500\text{mA}$
Forward Transconductance (Notes 5 & 6)	g_{fs}	150	—	—	mS	$V_{DS} = -18\text{V}$, $I_D = -500\text{mA}$
Dynamic Characteristics (Note 6)						
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)	$t_{d(on)}$	—	—	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)	$t_{d(off)}$	—	—	12		
Fall Time (Note 7)	t_f	—	—	15		

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

Typical Characteristics



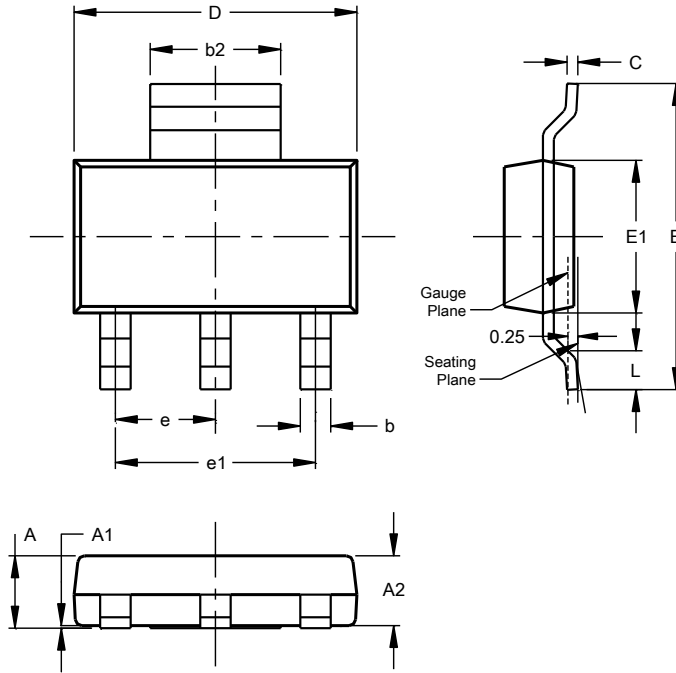
Typical Characteristics (continued)



Package Outline Dimensions

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

SOT223 (Type DN)

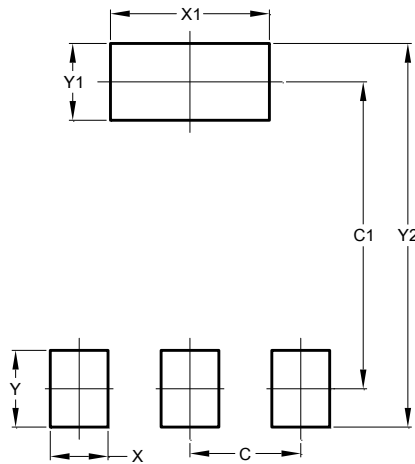


SOT223 (Type DN)			
Dim	Min	Max	Typ
A	--	1.70	--
A1	0.01	0.15	--
A2	1.50	1.68	1.60
b	0.60	0.80	0.70
b2	2.90	3.10	--
c	0.20	0.32	--
D	6.30	6.70	--
E	6.70	7.30	--
E1	3.30	3.70	--
e	--	--	2.30
e1	--	--	4.60
L	0.85	--	--
All Dimensions in mm			

Suggested Pad Layout

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

SOT223 (Type DN)



Dimensions	Value (in mm)
C	2.30
C1	6.40
X	1.20
X1	3.30
Y	1.60
Y1	1.60
Y2	8.00

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