

SOT223 N-CHANNEL ENHANCEMENT MODE VERTICAL DMOS FET
Features and Benefits

- $BV_{DSS}=60V$
- $R_{DS(ON)} = 0.33\Omega$
- Repetitive Avalanche Rating
- **Lead-Free Finish; RoHS Compliant (Notes 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)

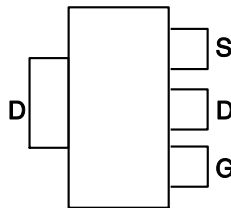
Applications

- DC-DC Converters
- Solenoids / Relay Driver for Automotive
- Stepper Motor Drivers

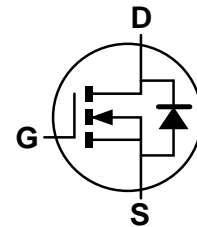
SOT223



Top View



Pin Out - Top



Equivalent Circuit

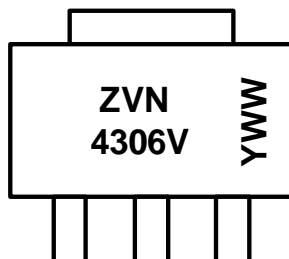
Ordering Information (Note 4)

Part Number	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
ZVN4306GVTA	ZVN4306V	7	8	1,000

- Notes:
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

SOT223



ZVN4306V = Product Type Marking Code
 YWW = Date Code Marking
 Y or \bar{Y} = Last Digit of Year (ex: 5= 2015)
 WW or $\bar{W}W$ = Week Code (01~53)

ABSOLUTE MAXIMUM RATINGS (@T_A = +25°C, unless otherwise stated.)

Characteristic	Symbol	Value	Unit
Drain-Source Voltage	V _{DS}	60	V
Gate-Source Voltage	V _{GS}	±20	V
Continuous Drain Current	I _D	2.1	A
Pulsed Drain Current	I _{DM}	15	A
Power Dissipation	P _{tot}	3	W
Avalanche Current-Repetitive	I _{AR}	1	A
Avalanche Energy-Repetitive	E _{AR}	25	mJ
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

ELECTRICAL CHARACTERISTICS (@T_A = +25°C, unless otherwise stated.)

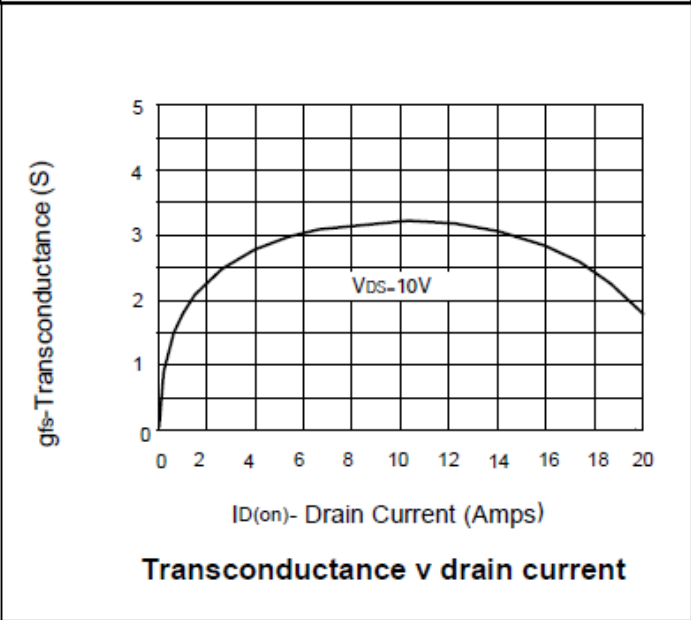
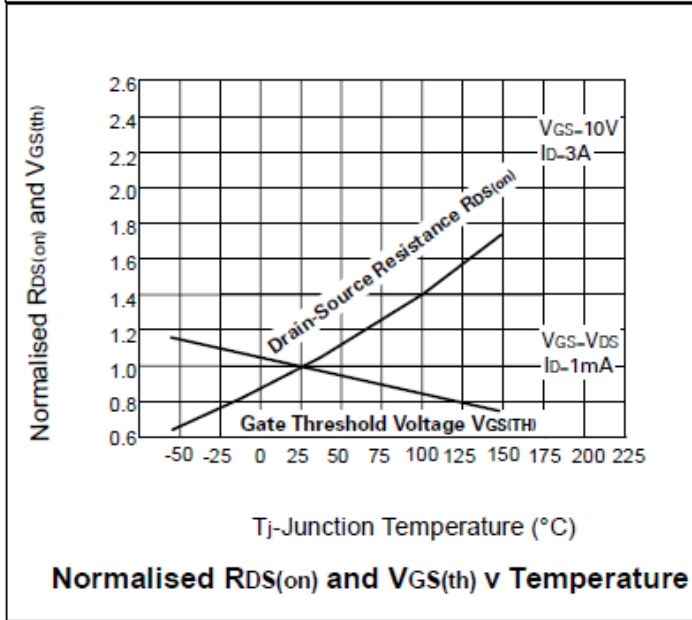
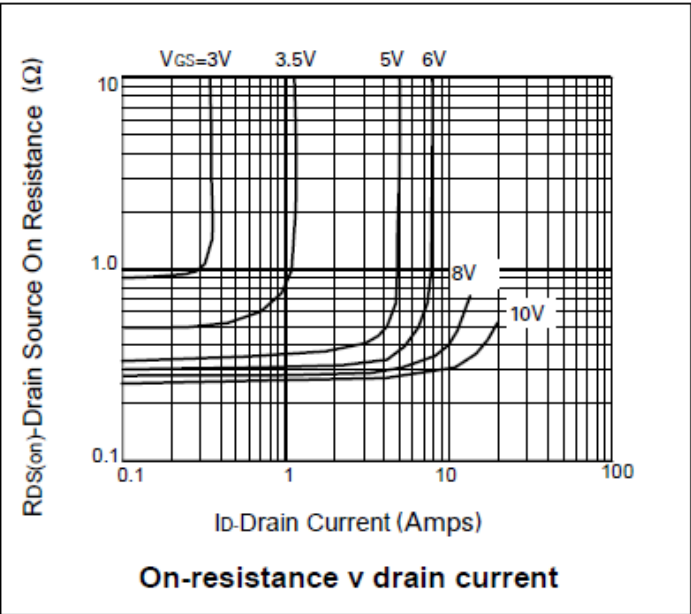
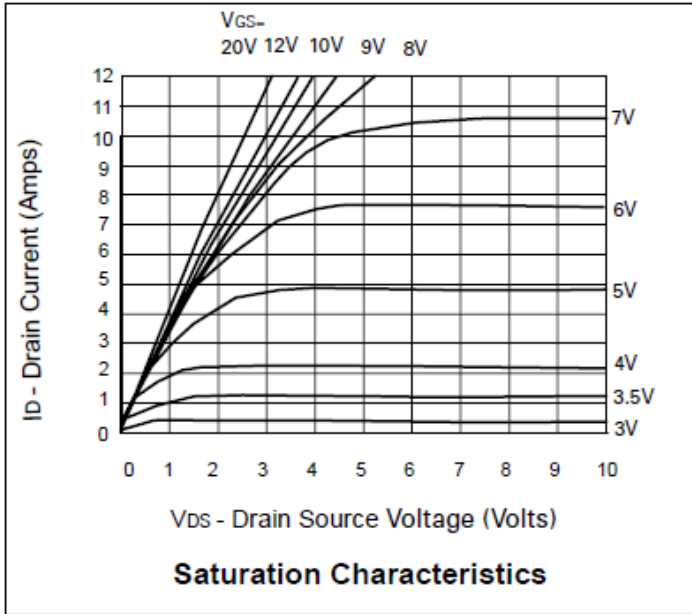
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	60	-	-	V	V _{GS} = 0V, I _D = 1mA
Zero Gate Voltage Drain Current	I _{DSS}	-	-	10 100	μA μA	V _{DS} = 60V, V _{GS} = 0V V _{DS} = 48V, V _{GS} = 0V, T = +125°C (Note 6)
Gate-Body Leakage	I _{GSS}	-	-	20	nA	V _{GS} = ±20V, V _{DS} = 0V
On-State Drain Current (Note 5)	I _{D(ON)}	12	-	-	A	V _{GS} = 10V, V _{DS} = 10V
ON CHARACTERISTICS						
Gate-Source Threshold Voltage	V _{GS(TH)}	1.3	-	3	V	V _{DS} = V _{GS} , I _D = 1mA
Static Drain-Source On-State Resistance (Note 5)	R _{DS(ON)}	-	0.22	0.33	Ω	V _{GS} = 10V, I _D = 3A
		-	0.32	0.45	Ω	V _{GS} = 5V, I _D = 1.5A
Forward Transconductance (Notes 5 & 6)	g _{fs}	0.7	-	-	S	V _{DS} = 25V, I _D = 3A
DYNAMIC CHARACTERISTICS						
Input Capacitance (Note 6)	C _{iss}	-	-	350	pF	V _{DS} = 25V, V _{GS} = 0V, f = 1.0MHz
Common Source Output Capacitance (Note 6)	C _{oss}	-	-	140	pF	
Reverse Transfer Capacitance (Note 6)	C _{rss}	-	-	30	pF	
Turn-On Delay Time (Notes 6 & 7)	t _{D(ON)}	-	-	8	ns	V _{DD} ≈ 25V, V _{GEN} = 10V, I _D = 3A
Rise Time (Notes 6 & 7)	t _R	-	-	25	ns	
Turn-Off Delay Time (Notes 6 & 7)	t _{D(OFF)}	-	-	30	ns	
Fall Time (Notes 6 & 7)	t _F	-	-	16	ns	

DRAIN-SOURCE DIODE CHARACTERISTICS

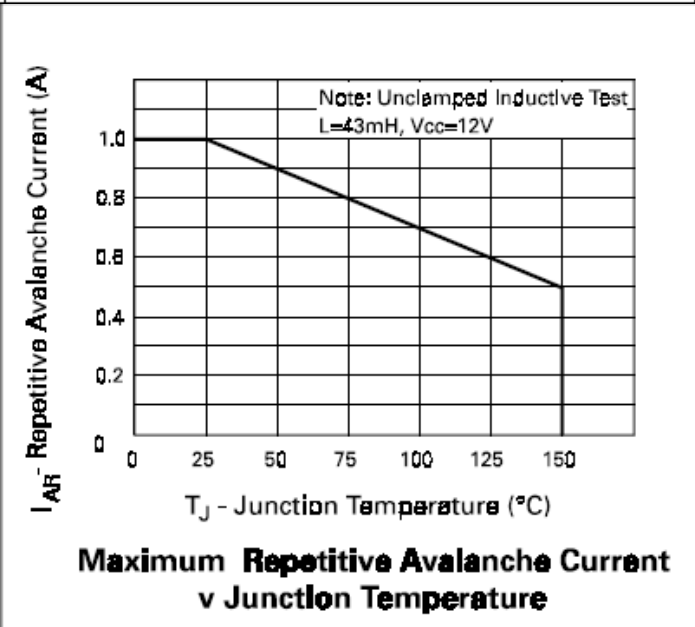
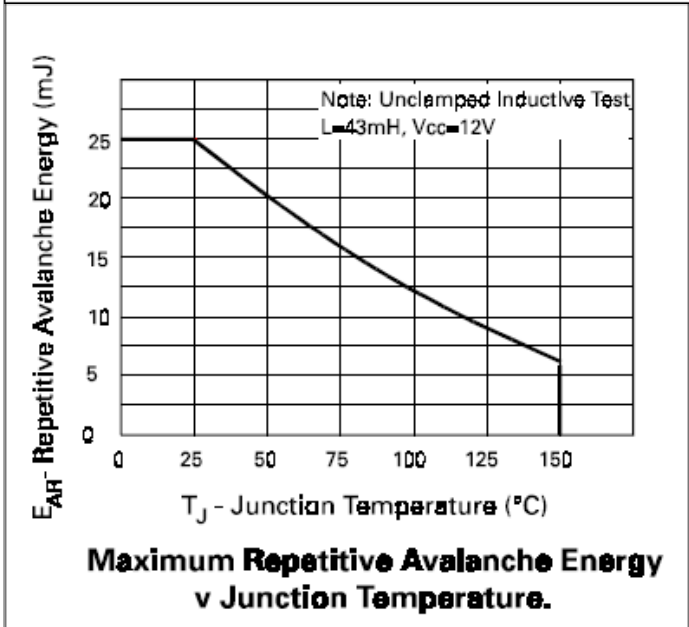
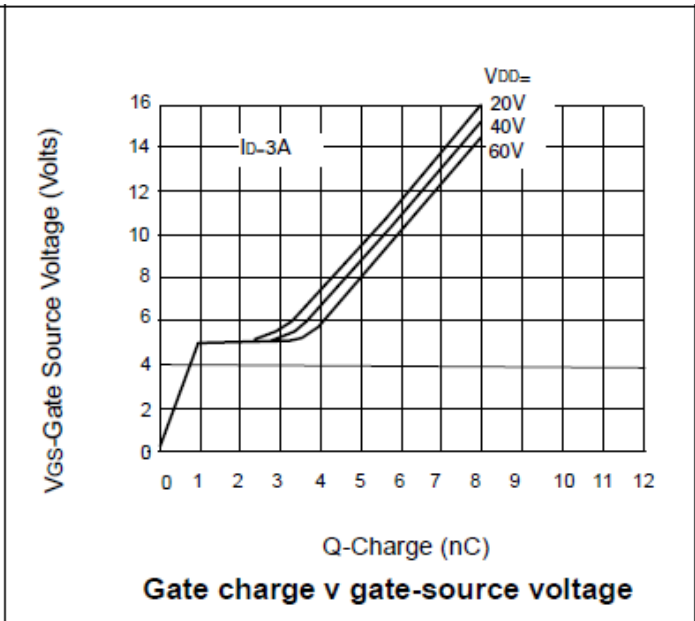
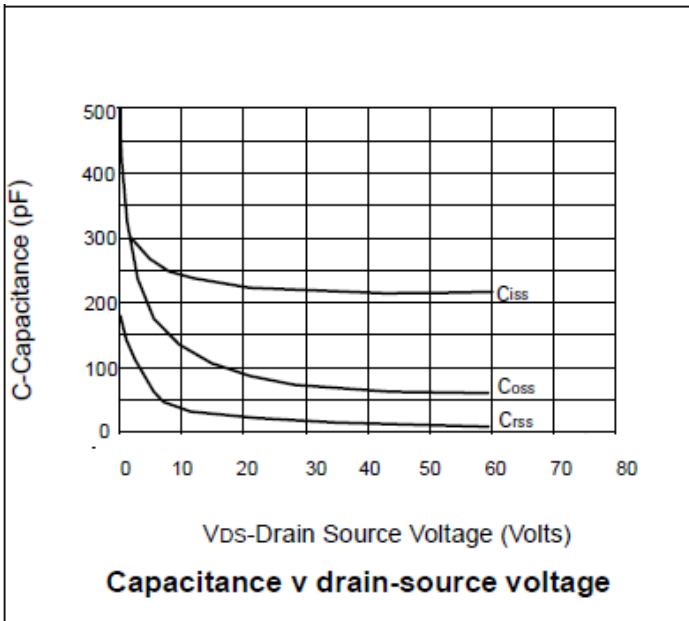
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Diode Forward Voltage (Note 5)	V _{SD}	-	0.82	-	V	I _S = 0.32A, V _{GS} = 0
Reverse Recovery Time	T _{RR}	-	112	-	ns	I _F = 0.32A, V _{GS} = 0, I _R = 0.1A

- 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. Spice parameter data is available upon request for this device.

TYPICAL CHARACTERISTICS

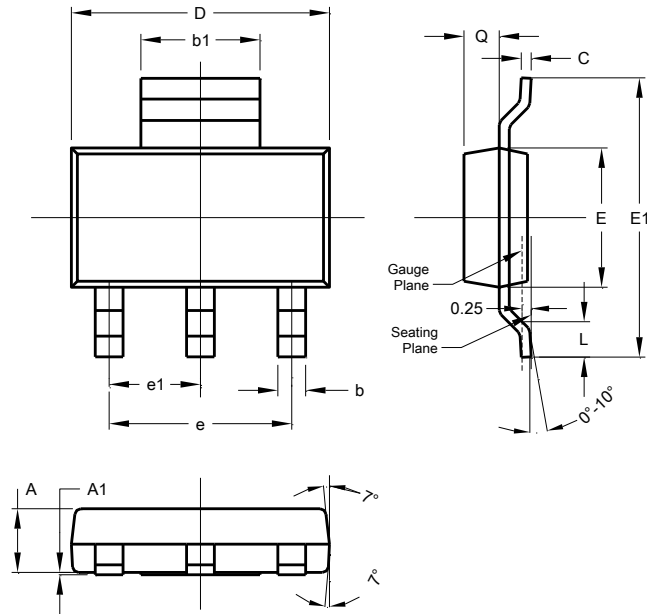


TYPICAL CHARACTERISTICS



Package Outline Dimensions

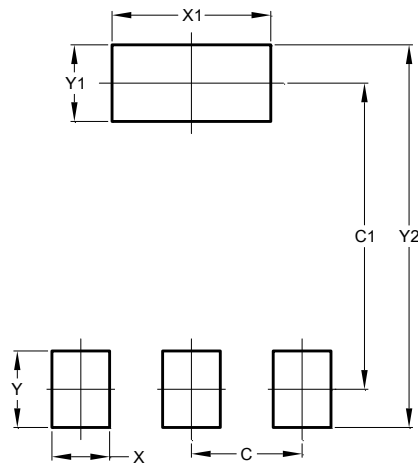
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for the latest version.



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)
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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