

SOT223 N-CHANNEL ENHANCEMENT MODE VERTICAL DMOS FET

Product Summary

BV_{DSS}	R_{DS(ON)}	I_D T_A = +25°C
450V	50Ω @ V _{GS} = 10V	140mA

Features and Benefits

- Lead-Free Finish; RoHS Compliant (Notes 1 & 2)
- Halogen and Antimony Free. "Green" Device (Note 3)
- Qualified to AEC-Q101 Standards for High Reliability

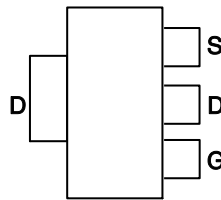
Mechanical Data

- Case: SOT223
- Case Material: Molded Plastic, "Green" Molding Compound.
UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals Connections: See Diagram Below
- Terminals: Finish - Matte Tin Annealed over Copper Lead Frame.
Solderable per MIL-STD-202, Method 208 (e3)
- Weight: 0.112 grams (Approximate)

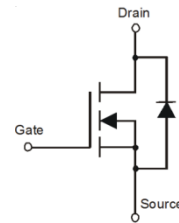
SOT223



Top View



Pin Out - Top View



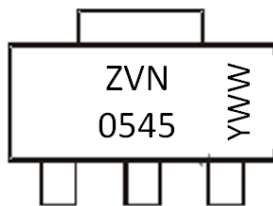
Equivalent Circuit

Ordering Information (Note 4)

Part Number	Marking	Reel Size (inches)	Tape Width (mm)	Quantity Per Reel
ZVN0545GTA	ZVN0545	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



ZVN0545 =Product Type Marking Code
 YWW = Date Code Marking
 Y or Y = Last Digit of Year (ex: 5 = 2015)
 WW or WW = Week Code (01 to 53)

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

Characteristic	Symbol	Value	Unit
Drain-Source Voltage	V _{DSS}	450	V
Gate-Source Voltage	V _{GSS}	±20	V
Continuous Drain Current V _{GS} = 10V	I _D	140	mA
Pulsed Drain Current	I _{DM}	600	mA

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

Characteristic	Symbol	Value	Unit
Total Power Dissipation	P _D	2	W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

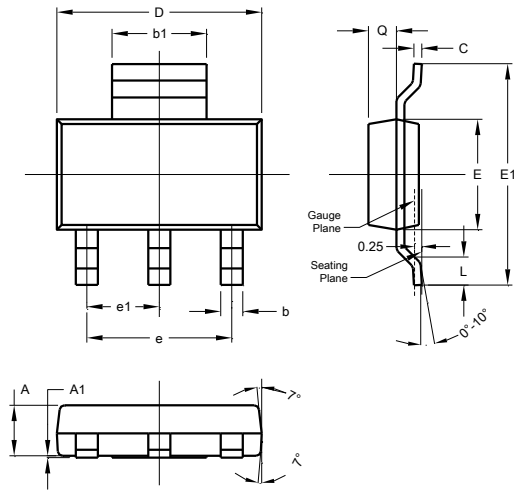
Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	450	–	–	V	V _{GS} = 0V, I _D = 1mA
Zero Gate Voltage Drain Current	I _{DSS}	–	–	10	µA	V _{DS} = 450V, V _{GS} = 0V
Gate-Source Leakage	I _{GSS}	–	–	±20	nA	V _{GS} = ±20V, V _{DS} = 0V
ON CHARACTERISTICS						
Gate Threshold Voltage	V _{GS(TH)}	1	–	3	V	V _{DS} = V _{GS} , I _D = 1mA
Static Drain-Source On-State Resistance (Note 5)	R _{DS(ON)}	–	–	50	Ω	V _{GS} = 10V, I _D = 100mA
On-State Drain Current (Note 5)	I _{D(ON)}	150	–	–	mA	V _{DS} = 25V, V _{GS} = 10V
Forward Transconductance (Notes 5 and 6)	g _{fs}	100	–	–	mS	V _{DS} = 25V, I _D = 100mA
DYNAMIC CHARACTERISTICS (Note 6)						
Input Capacitance	C _{iSS}	–	–	70	pF	V _{DS} = 25V, V _{GS} = 0V, f = 1MHz
Output Capacitance	C _{oss}	–	–	10	pF	
Reverse Transfer Capacitance	C _{rSS}	–	–	4	pF	
Turn-On Delay Time (Note 7)	t _{D(ON)}	–	–	7	ns	V _{DD} = 25V, I _D = 100mA
Turn-On Rise Time (Note 7)	t _R	–	–	7	ns	
Turn-Off Delay Time (Note 7)	t _{D(OFF)}	–	–	16	ns	
Turn-Off Fall Time (Note 7)	t _F	–	–	10	ns	

- 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.

Package Outline Dimensions

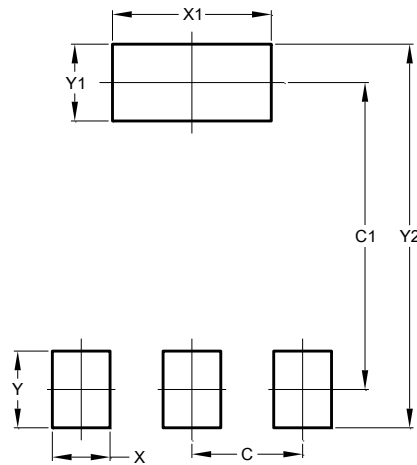
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for the latest version.



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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