

Product Summary

BV_{DSS}	$R_{DS(ON)}$	I_D $T_A = +25^\circ C$
450V	50Ω @ $V_{GS} = 10V$	140mA

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.

Features and Benefits

- Lead-Free Finish; RoHS Compliant (Notes 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](#) or your local Diodes representative. <https://www.diodes.com/quality/product-definitions/>

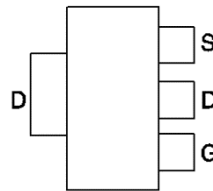
Mechanical Data

- Package: SOT223
- Package Material: Molded Plastic, 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)

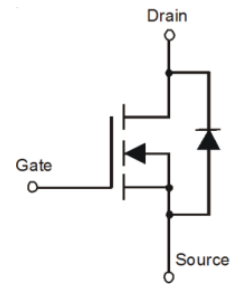
SOT223 (Type DN)



Top View



Pinout - Top View



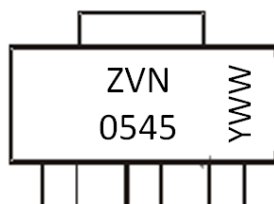
Equivalent Circuit

Ordering Information (Note 4)

Orderable Part Number	Package	Packing	
		Qty.	Carrier
ZVN0545GTA	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



ZVN0545 = Product Type Marking Code
 YWW = Date Code Marking
 Y or Y = Last Digit of Year (ex: 4 = 2024)
 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}	—	—	10 400	μA μA	V _{DS} = 450V, V _{GS} = 0V V _{DS} = 405V, V _{GS} = 0V, T = +125°C (Note 6)
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%.

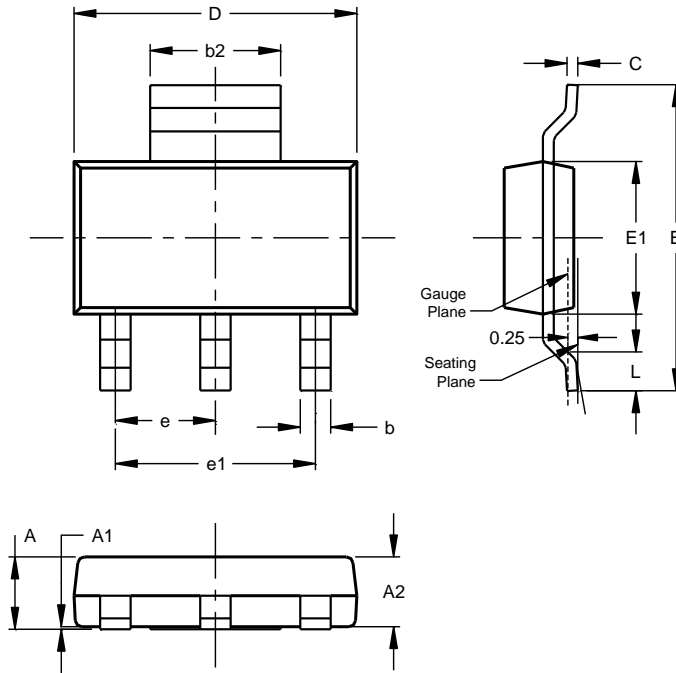
6. Sample test.

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

Package Outline Dimensions

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

SOT223 (Type DN)

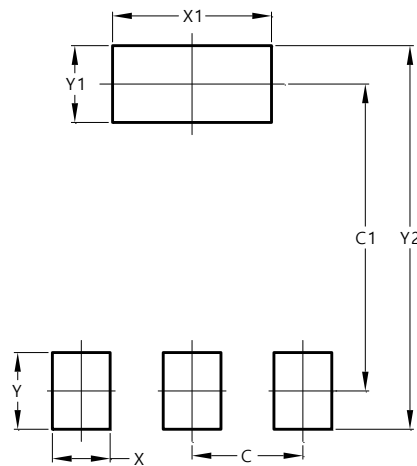


SOT223 (Type DN)			
Dim	Min	Max	Typ
A	--	1.70	--
A1	0.01	0.15	--
A2	1.50	1.68	1.60
b	0.60	0.80	0.70
b2	2.90	3.10	--
c	0.20	0.32	--
D	6.30	6.70	--
E	6.70	7.30	--
E1	3.30	3.70	--
e	--	--	2.30
e1	--	--	4.60
L	0.85	--	--
All Dimensions in mm			

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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