

Product Summary

BV _{DSS}	Rds(on)	ID TA = +25°C
450V	50Ω @ V _{GS} = 10V	140mA

Description and Applications

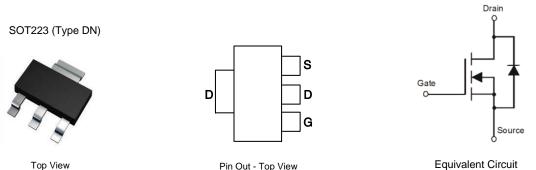
This MOSFET is designed to minimize the on-state resistance yet maintain superior switching performance, making it ideal for high efficiency power management applications.

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-Q100/101/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please <u>contact us</u> or your local Diodes representative. https://www.diodes.com/guality/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 (3)
- Weight: 0.112 grams (Approximate)



Ordering Information (Note 4)

Top View

Part Number	Backaga	Pac	Packing		
Fait Nulliber	Package	Qty.	Carrier		
ZVN0545GTA	SOT223 (Type DN)	1,000	Tape & Reel		

Pin Out - Top View

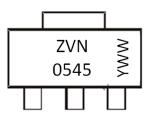
1. EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant. All applicable RoHS exemptions applied. 2. See https://www.diodes.com/quality/lead-free/ for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.

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

Notes:



ZVN0545 = Product Type Marking Code YWW = Date Code Marking Y or \overline{Y} = Last Digit of Year (ex. 1 = 2021) WW or $\overline{W}W$ = Week Code (01 to 53)



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

Characteristic		Symbol	Value	Unit
Drain-Source Voltage		VDSS	450	V
Gate-Source Voltage		Vgss	±20	V
Continuous Drain Current V _{GS} = 10V	T _A = +25°C	lo	140	mA
Pulsed Drain Current		Ідм	600	mA

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

Characteristic		Symbol	Value	Unit
Total Power Dissipation	T _A = +25°C	PD	2	W
Operating and Storage Temperature Range		TJ, TSTG	-55 to +150	°C

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

Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition	
OFF CHARACTERISTICS							
Drain-Source Breakdown Voltage	BVDSS	450		_	V	$V_{GS} = 0V, I_D = 1mA$	
Zana Oala Maltana Dasia Ormani	Inco			10	μA	$V_{DS} = 450V, V_{GS} = 0V$	
Zero Gate Voltage Drain Current	IDSS	—	—	400	μA	V _{DS} =405V, V _{GS} =0V, T=+125°C (Note 6)	
Gate-Source Leakage	IGSS	_		±20	nA	$V_{GS} = \pm 20V, V_{DS} = 0V$	
ON CHARACTERISTICS							
Gate Threshold Voltage	Vgs(th)	1	—	3	V	$V_{DS} = V_{GS}, I_D = 1mA$	
Static Drain-Source On-State Resistance (Note 5)	RDS(ON)		_	50	Ω	$V_{GS} = 10V, I_{D} = 100mA$	
On-State Drain Current (Note 5)	ID(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	Ciss		_	70	pF		
Output Capacitance	Coss	_		10	pF	$V_{DS} = 25V, V_{GS} = 0V, f = 1MHz$	
Reverse Transfer Capacitance	Crss		_	4	pF	1	
Turn-On Delay Time (Note 7)	t _{D(ON)}	_		7	ns		
Turn-On Rise Time (Note 7)	tR	_		7	ns		
Turn-Off Delay Time (Note 7)	tD(OFF)			16	ns	V _{DD} = 25V, I _D =100mA	
Turn-Off Fall Time (Note 7)	tF		—	10	ns	1	

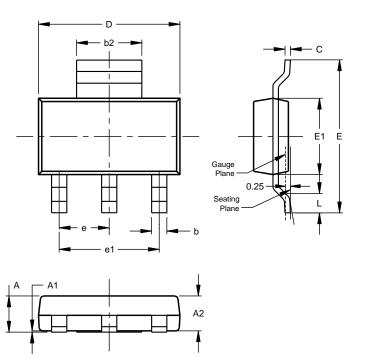
Notes: 5. Measured under pulsed conditions. Width=300 μ s. Duty cycle ≤ 2%.

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.



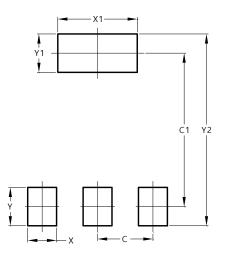
SOT223 (Type DN)					
Dim	Min	Max	Тур		
Α		1.70			
A1	0.01	0.15			
A2	1.50	1.68	1.60		
b	0.60	0.80	0.70		
b2	2.90	3.10			
с	0.20	0.32			
D	6.30	6.70			
ш	6.70	7.30			
E1	3.30	3.70			
e			2.30		
e1			4.60		
L	0.85				
All Dimensions in mm					

Suggested Pad Layout

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

SOT223 (Type DN)

SOT223 (Type DN)



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

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