

Product Summary

BV _{DSS}	R _{D(SON)}	I _D T _A = +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-Q100/101/104/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please [contact us](#) or your local Diodes representative. <https://www.diodes.com/quality/product-definitions/>

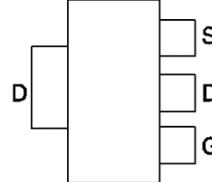
Mechanical Data

- 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 (3)
- Weight: 0.112 grams (Approximate)

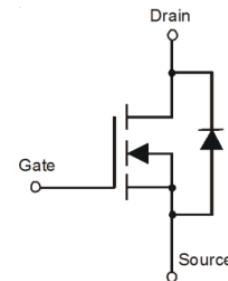
SOT223 (Type DN)



Top View



Pinout - Top View



Equivalent Circuit

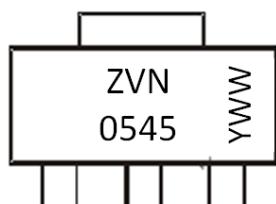
Ordering Information (Note 4)

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

Characteristic	Symbol	Value	Unit
Drain-Source Voltage	V_{DSS}	450	V
Gate-Source Voltage	V_{GSS}	± 20	V
Continuous Drain Current $V_{GS} = 10\text{V}$	$T_A = +25^\circ\text{C}$	I_D	140
Pulsed Drain Current	I_{DM}	600	mA

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	450	—	—	V	$V_{GS} = 0\text{V}, I_D = 1\text{mA}$
Zero Gate Voltage Drain Current	I_{DSS}	—	—	10	μA	$V_{DS} = 450\text{V}, V_{GS} = 0\text{V}$
		—	—	400	μA	$V_{DS} = 405\text{V}, V_{GS} = 0\text{V}, T = +125^\circ\text{C}$ (Note 6)
Gate-Source Leakage	I_{GS}	—	—	± 20	nA	$V_{GS} = \pm 20\text{V}, V_{DS} = 0\text{V}$
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(TH)}$	1	—	3	V	$V_{DS} = V_{GS}, I_D = 1\text{mA}$
Static Drain-Source On-State Resistance (Note 5)	$R_{DS(ON)}$	—	—	50	Ω	$V_{GS} = 10\text{V}, I_D = 100\text{mA}$
On-State Drain Current (Note 5)	$I_{D(ON)}$	150	—	—	mA	$V_{DS} = 25\text{V}, V_{GS} = 10\text{V}$
Forward Transconductance (Notes 5 and 6)	g_{fs}	100	—	—	mS	$V_{DS} = 25\text{V}, I_D = 100\text{mA}$
DYNAMIC CHARACTERISTICS (Note 6)						
Input Capacitance	C_{iss}	—	—	70	pF	$V_{DS} = 25\text{V}, V_{GS} = 0\text{V}, f = 1\text{MHz}$
Output Capacitance	C_{oss}	—	—	10	pF	
Reverse Transfer Capacitance	C_{rss}	—	—	4	pF	
Turn-On Delay Time (Note 7)	$t_{D(ON)}$	—	—	7	ns	
Turn-On Rise Time (Note 7)	t_R	—	—	7	ns	$V_{DD} = 25\text{V}, I_D = 100\text{mA}$
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=300 μs . Duty cycle $\leq 2\%$.

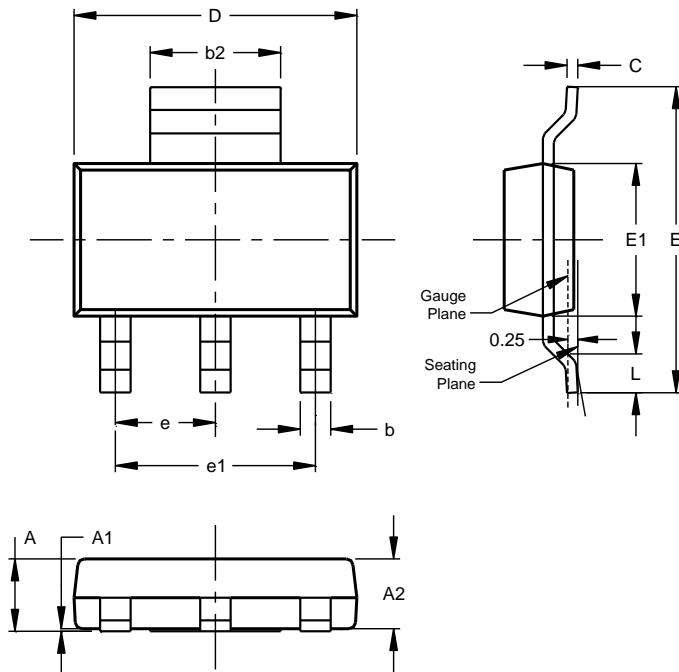
6. Sample test.

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

Package Outline Dimensions

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

SOT223 (Type DN)



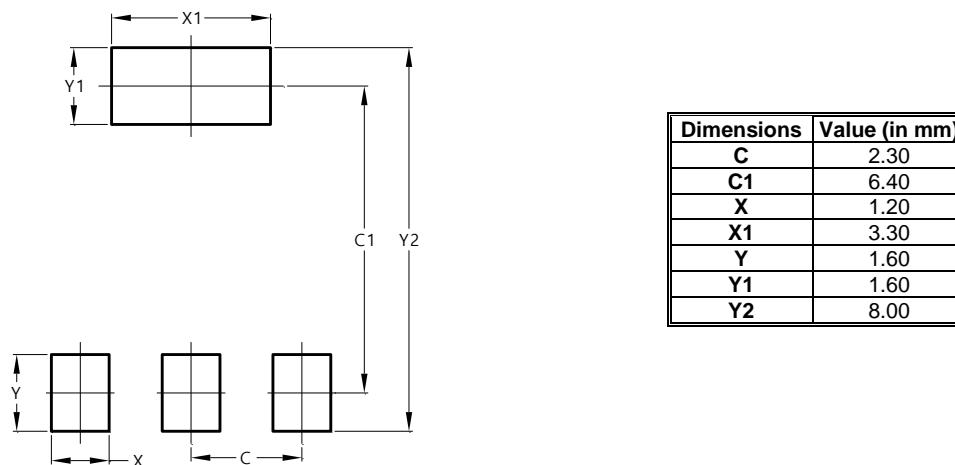
SOT223 (Type DN)			
Dim	Min	Max	Typ
A	--	1.70	--
A1	0.01	0.15	--
A2	1.50	1.68	1.60
b	0.60	0.80	0.70
b2	2.90	3.10	--
c	0.20	0.32	--
D	6.30	6.70	--
E	6.70	7.30	--
E1	3.30	3.70	--
e	--	--	2.30
e1	--	--	4.60
L	0.85	--	--

All Dimensions in mm

Suggested Pad Layout

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

SOT223 (Type DN)



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