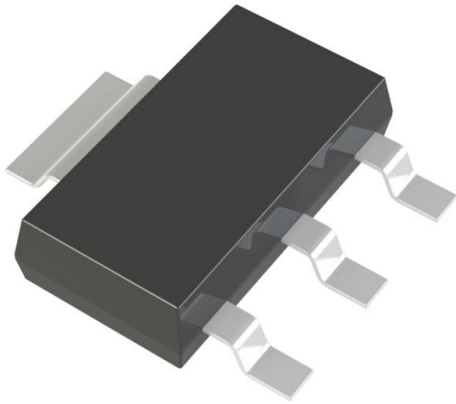


ZVN0545GTA Datasheet

www.digi-electronics.com



<https://www.DiGi-Electronics.com>

DiGi Electronics Part Number	ZVN0545GTA-DG
Manufacturer	Diodes Incorporated
Manufacturer Product Number	ZVN0545GTA
Description	MOSFET N-CH 450V 140MA SOT223
Detailed Description	N-Channel 450 V 140mA (Ta) 2W (Ta) Surface Mount SOT-223-3



Tel: +00 852-30501935

RFQ Email: Info@DiGi-Electronics.com

DiGi is a global authorized distributor of electronic components.

Purchase and inquiry

Manufacturer Product Number:

ZVN0545GTA

Series:

-

FET Type:

N-Channel

Drain to Source Voltage (Vdss):

450 V

Drive Voltage (Max Rds On, Min Rds On):

10V

Vgs(th) (Max) @ Id:

3V @ 1mA

Input Capacitance (Ciss) (Max) @ Vds:

70 pF @ 25 V

Power Dissipation (Max):

2W (Ta)

Mounting Type:

Surface Mount

Package / Case:

TO-261-4, TO-261AA

Manufacturer:

Diodes Incorporated

Product Status:

Active

Technology:

MOSFET (Metal Oxide)

Current - Continuous Drain (Id) @ 25°C:

140mA (Ta)

Rds On (Max) @ Id, Vgs:

50Ohm @ 100mA, 10V

Vgs (Max):

±20V

FET Feature:

-

Operating Temperature:

-55°C ~ 150°C (TJ)

Supplier Device Package:

SOT-223-3

Base Product Number:

ZVN0545

Environmental & Export classification

RoHS Status:

ROHS3 Compliant

REACH Status:

REACH Unaffected

HTSUS:

8541.29.0095

Moisture Sensitivity Level (MSL):

1 (Unlimited)

ECCN:

EAR99



ZVN0545G

SOT223 N-CHANNEL ENHANCEMENT MODE VERTICAL DMOS FET

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/>

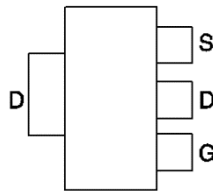
Mechanical Data

- 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)

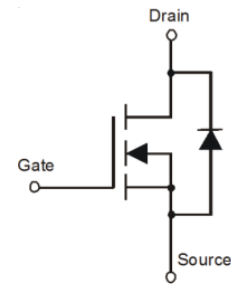
SOT223 (Type DN)



Top View



Pinout - Top View



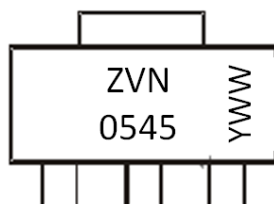
Equivalent Circuit

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)



ZVN0545G

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 $V_{GS} = 10\text{V}$	I_D	140	mA
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	$^\circ\text{C}$

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}	—	—	10 400	μA μA	$V_{DS} = 450\text{V}, V_{GS} = 0\text{V}$ $V_{DS} = 405\text{V}, V_{GS} = 0\text{V}, T = +125^\circ\text{C}$ (Note 6)
Gate-Source Leakage	I_{GSS}	—	—	± 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	$V_{DD} = 25\text{V}, I_D = 100\text{mA}$
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=300 μs . Duty cycle $\leq 2\%$.

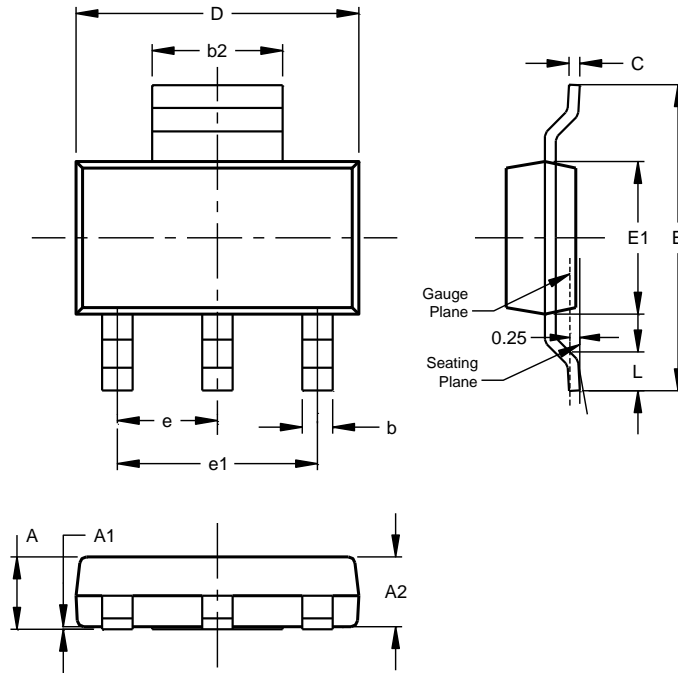
6. Sample test.

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)

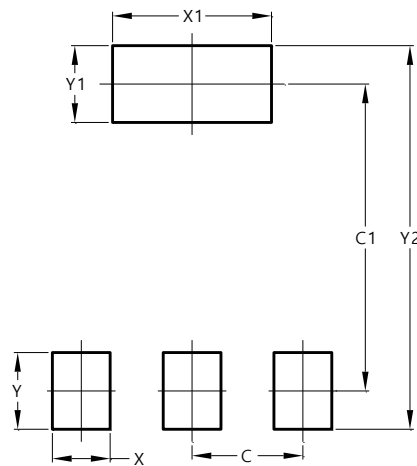


SOT223 (Type DN)			
Dim	Min	Max	Typ
A	--	1.70	--
A1	0.01	0.15	--
A2	1.50	1.68	1.60
b	0.60	0.80	0.70
b2	2.90	3.10	--
c	0.20	0.32	--
D	6.30	6.70	--
E	6.70	7.30	--
E1	3.30	3.70	--
e	--	--	2.30
e1	--	--	4.60
L	0.85	--	--
All Dimensions in mm			

Suggested Pad Layout

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

SOT223 (Type DN)



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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