

Product Summary

$V_{(BR)DSS}$	Max $R_{DS(on)}$	Max I_D $T_A = +25^\circ\text{C}$
240V	4.3Ω @ $V_{GS} = 2.5\text{V}$	500mA

Description and Applications

- Earth Recall and Dialing Switches
- Electronic Hook Switches
- Battery Powered Equipment
- Telecoms and High Voltage DC-DC Convertors

Features and Benefits

- 240 Volt BVDS
- Extremely Low $R_{DS(on)}$ =4.3Ω
- Low Threshold and Fast Switching
- **Lead-Free Finish; RoHS Compliant (Notes 1& 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

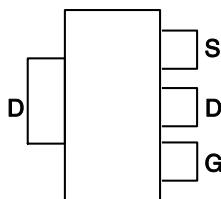
Mechanical Data

- 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 Leadframe; Solderable per MIL-STD-202, Method 208 @3
- Weight: 0.112 grams (Approximate)

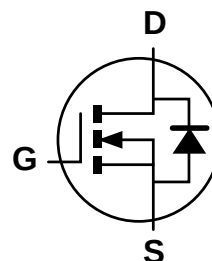
SOT223



Top View



Pin Out Top-view



Equivalent Circuit

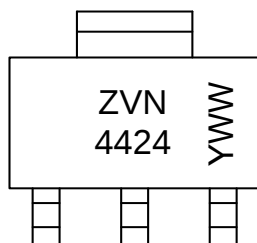
Ordering Information (Note 4)

Part Number	Compliance	Case	Packaging
ZVN4424GTA	Standard	SOT223	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

SOT223



ZVN 4424 = Product Type Marking Code
 YWW = Date Code Marking
 Y or $\bar{Y}$ = Last Digit of Year (ex: 5= 2015)
 WW or $\bar{WW}$ = Week Code (01-53)

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

Characteristic	Symbol	Value	Unit
Drain-Source Voltage	V _{DSS}	240	V
Gate-Source Voltage	V _{GS}	±40	V
Continuous Drain Current	I _D	500	mA
Pulsed Drain Current	I _{DM}	1.5	A

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

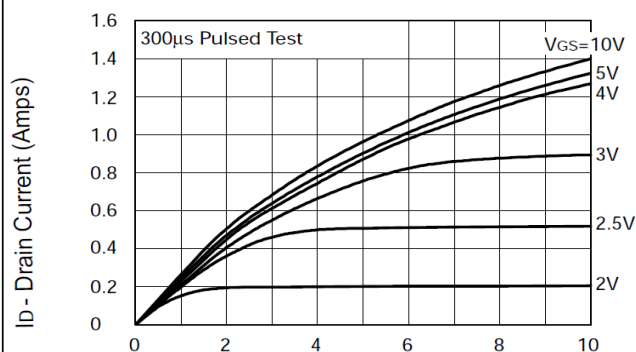
Characteristic	Symbol	Value	Unit
Power Dissipation at T _A = +25°C	P _{tot}	2.5	W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

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

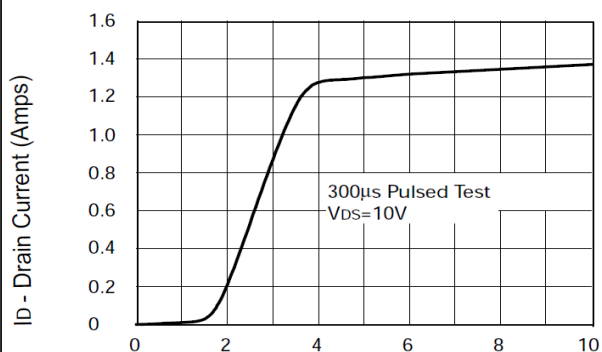
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	240	—	—	V	I _D = 1mA, V _{GS} = 0V
Zero Gate Voltage Drain Current	I _{DSS}	—	—	10 100	µA	V _{DS} = 240V, V _{GS} = 0V V _{DS} = 190V, V _{GS} = 0V, T = +125°C
Gate-Body Leakage	I _{GSS}	—	—	100	nA	V _{GS} = ±40V, V _{DS} = 0V
Gate-Source Threshold Voltage	V _{GS(th)}	0.8	1.3	1.8	V	I _D = 1mA, V _{DS} = V _{GS}
ON CHARACTERISTICS						
On-State Drain Current (Note 5)	I _{D(on)}	0.8	1.4	—	A	V _{DS} = 10V, V _{GS} = 10V
Static Drain-Source On-State Resistance (Note 5)	R _{DS(on)}	—	4	5.5	Ω	V _{GS} = 10V, I _D = 500mA
		—	4.3	6		V _{GS} = 2.5V, I _D = 500mA
Forward Transconductance (Notes 5 & 6)	g _{fs}	0.4	0.75	—	S	V _{DS} = 10V, I _D = 0.5A
DYNAMIC CHARACTERISTICS						
Input Capacitance (Note 6)	C _{iss}	—	110	200	pF	V _{DS} = 25 V, V _{GS} = 0V f = 1MHz
Output Capacitance (Note 6)	C _{oss}	—	15	25	pF	
Reverse Transfer Capacitance (Note 6)	C _{rss}	—	3.5	15	pF	
Turn-On Delay Time (Notes 6 & 7)	t _{d(on)}	—	2.5	5	ns	V _{DD} ≈ 50V, V _{GEN} = 10V I _D = 0.25A
Turn-On Rise Time (Notes 6 & 7)	t _r	—	5	8	ns	
Turn-Off Delay Time (Notes 6 & 7)	t _{d(off)}	—	40	60	Ns	
Turn-Off Fall Time (Notes 6 & 7)	t _f	—	16	25	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.

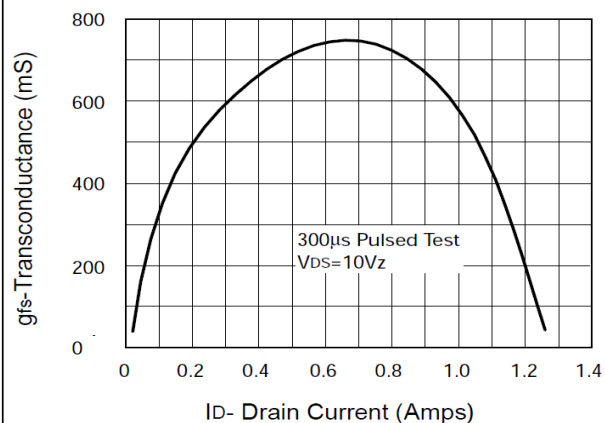
Typical characteristics



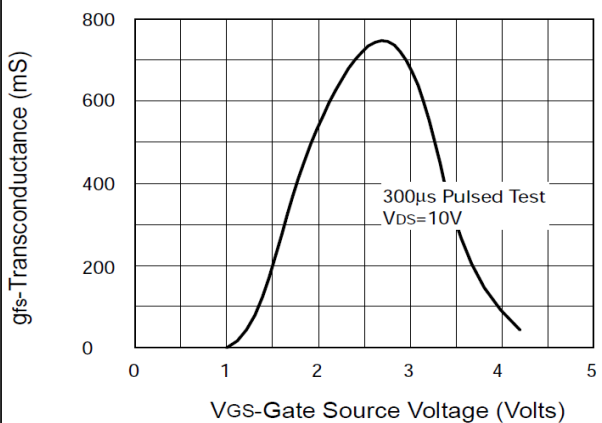
Saturation Characteristics



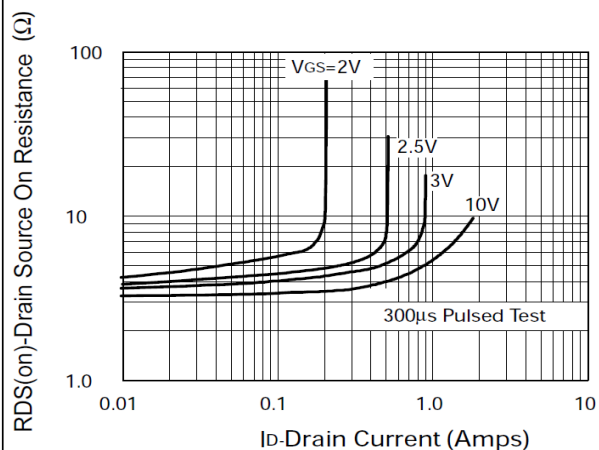
Transfer Characteristics



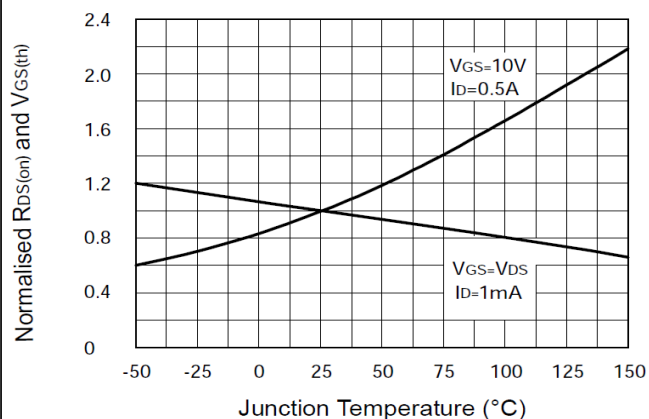
Transconductance v drain current



Transconductance v gate-source voltage

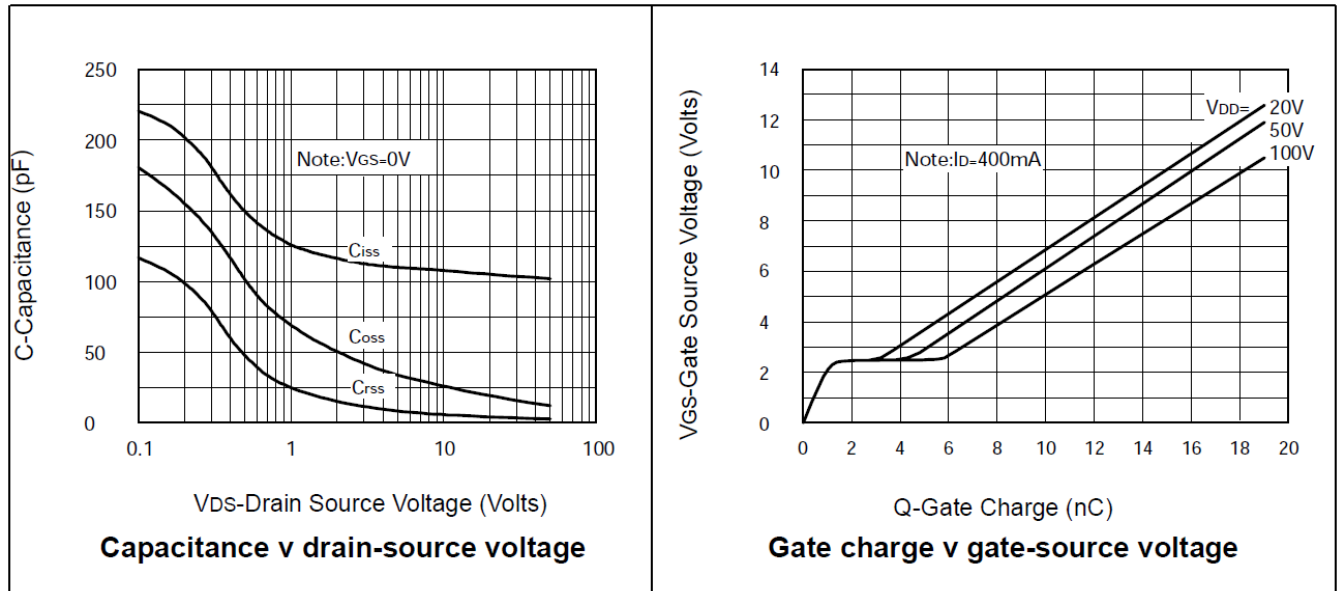


On-resistance vs Drain Current



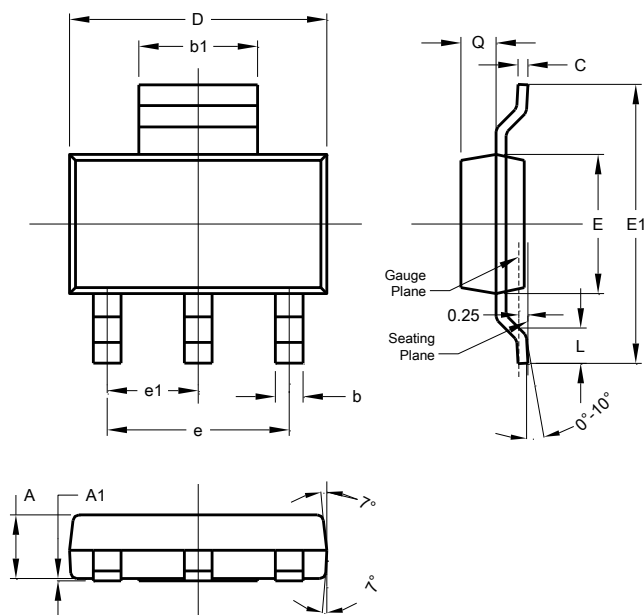
Normalised $R_{DS(on)}$ and $V_{GS(th)}$ vs Temperature

Typical Characteristics (cont.)



Package Outline Dimensions

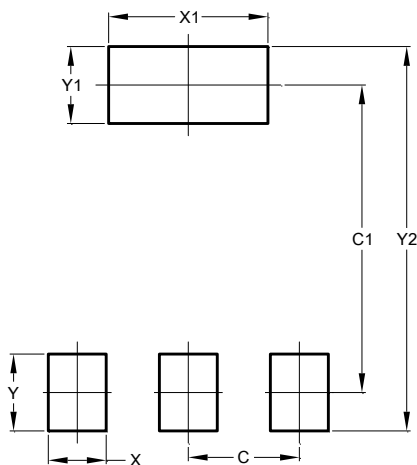
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for the latest version.



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
C2	8.00

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