



ZVN4424A

240V N-CHANNEL ENHANCEMENT MODE VERTICAL DMOSFET

Features

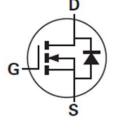
- $BV_{DSS} > 240V$
- $R_{DS(ON)} \le 6\Omega$ @ $V_{GS} = 2.5V$
- I_D = 260mA Maximum Continuous Drain Current
- Fast Switching Speed
- Low Threshold
- Lead-Free Finish; RoHS Compliant (Notes 1 & 2)
- Halogen and Antimony Free. "Green" Device (Note 3)
- Qualified to AEC-Q101 Standards for High Reliability

Mechanical Data

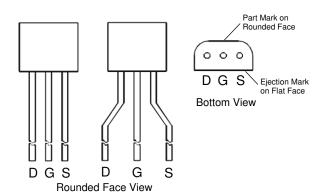
- Case: E-Line (TO92 Compatible)
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Rating 94V-0
- Terminals: Finish Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208@3
- Weight: 0.159 grams (Approximate)







Device Symbol



Ordering Information (Note 4)

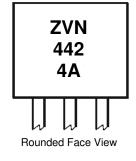
Flat Face View

Part Number	Compliance	Package	Leads	Quantity
ZVN4424A	AEC-Q101	E-Line	Straight	4,000 Loose in a Box
ZVN4424ASTZ	AEC-Q101	E-Line	Joggled	2,000 Taped per Ammo Box

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



ZVN 442 4A

= Product Type Marking Code



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

Characteristic	Symbol	Value	Unit
Drain-Source Voltage	V_{DSS}	240	V
Gate-Source Voltage	V_{GSS}	±40	V
Continuous Drain Current	I _D	260	mA
Pulsed Drain Current	I _{DM}	1.5	A

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

Characteristic	Symbol	Value	Unit	
Power Dissipation	(Note 5)	P _D	750	mW
Thermal Resistance, Junction to Ambient	(Note 5)	R _{0JA}	167	°C/W
Thermal Resistance, Junction to Lead	(Note 6)	$R_{ heta JL}$	71	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C	

Notes:

- 5. For a through-hole device mounted on the minimum recommended pad layout with 12mm lead length from the bottom of package to the single-sided FR-4 PCB; device is measured under still air conditions whilst operating in a steady-state.

 6. Thermal resistance from junction to solder-point at the seating plane (2.5mm from the bottom of package along the collector lead).

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

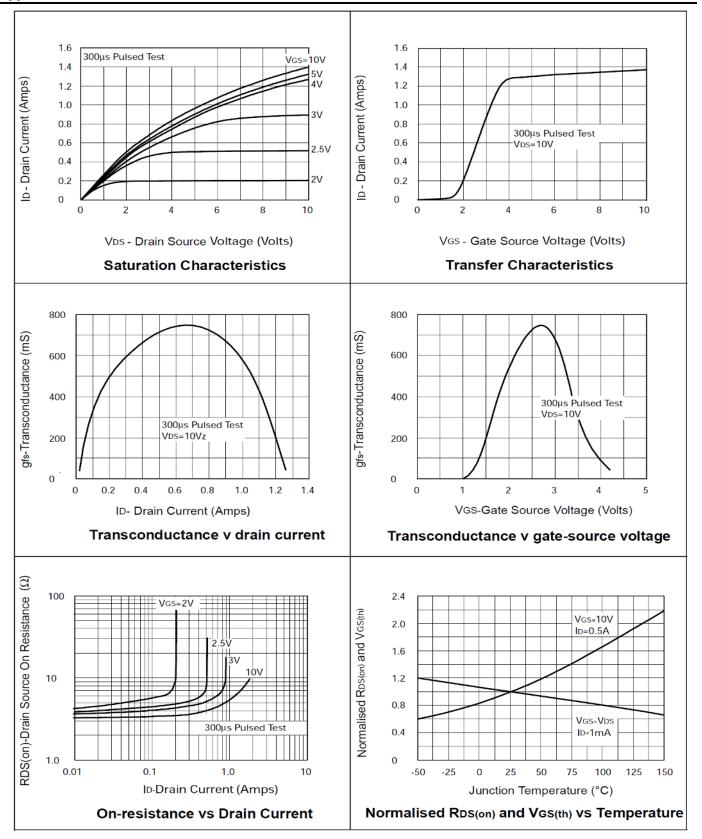
Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	240	_	_	V	$I_D = 1mA$, $V_{GS} = 0V$
Zero Gate Voltage Drain Current	I _{DSS}	_		10 100	μA	$V_{DS} = 240V, V_{GS} = 0V$ $V_{DS} = 190V, V_{GS} = 0V, T = +125^{\circ}C$
Gate-Source Leakage	IGSS	_	_	100	nA	$V_{GS} = \pm 40V, V_{DS} = 0V$
ON CHARACTERISTICS						
Gate Threshold Voltage	V _{GS(TH)}	0.8	1.3	1.8	V	$I_D = 1mA$, $V_{DS} = V_{GS}$
Static Drain-Source On-Resistance (Note 7)	R _{DS(ON)}	_	4	5.5	Ω	$V_{GS} = 10V, I_D = 500mA$
Static Drain-Source On-Nesistance (Note 7)			4.3	6	Ω	$V_{GS} = 2.5V, I_D = 500mA$
Forward Transconductance (Notes 7 & 9)	g FS	0.4	0.75	_	S	$V_{DS} = 10V, I_D = 0.5A$
DYNAMIC CHARACTERISTICS (Note 9)						
Input Capacitance	C _{iss}	_	110	200		V _{DS} = 25V, V _{GS} = 0V f = 1.0MHz
Output Capacitance	Coss	_	15	25	pF	
Reverse Transfer Capacitance	C _{rss}	_	3.5	15		
Turn-On Delay Time (Note 8)	t _{D(ON)}	_	2.5	5	20	V _{DD} = 50V, V _{GEN} = 10V I _D = 0.25A
Turn-On Rise Time (Note 8)	t _R	_	5	8		
Turn-Off Delay Time (Note 8)	t _{D(OFF)}	_	40	60	ns	
Turn-Off Fall Time (Note 8)	t _F	_	16	25		

Notes:

- 7. Measured under pulsed conditions. Pulse width \leq 300 μ s. Duty cycle \leq 2%.
- 8. Switching characteristics are independent of operating junction temperature. Switching times are measured with 50Ω source impedance and <5ns rise time on a pulse generator.
- 9. For design aid only, not subject to production testing.

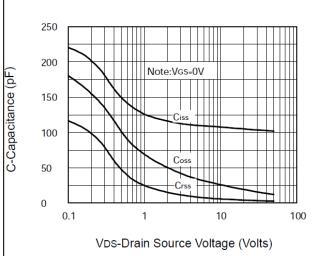


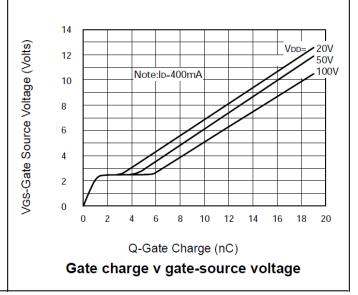
Typical Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

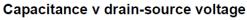


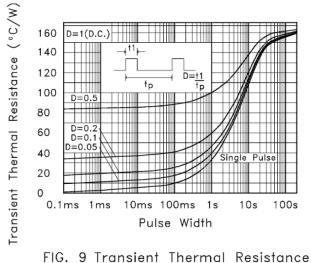


Typical Electrical Characteristics (Cont.) (@ $T_A = +25$ °C, unless otherwise specified.)









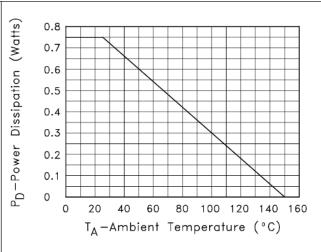


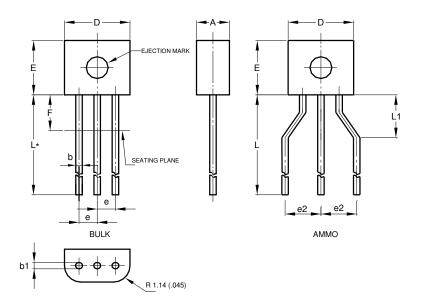
FIG. 10 Power vs. Temperature Derating Curve (Ambient)



Package Outline Dimensions

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

E-Line



E-Line					
Dim	Min	Max	Тур		
Α	2.16	2.41	_		
b	0.41	0.495	-		
b1	0.41	0.495	-		
D	4.37	4.77	-		
E	3.61	4.01	-		
е	_	_	1.27		
e2	_	_	2.54		
F	_	2.50	_		
L	13.00	13.97	_		
L1	2.50	3.50	_		
All Dimensions in mm					



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