

60V N-CHANNEL ENHANCEMENT MODE VERTICAL DMOSFET IN SOT23

Features

- $BV_{DSS} > 60V$
- $R_{DS(on)} \leq 2.5\Omega @ V_{GS} = 10V$
- Maximum continuous drain current $I_D = 200mA$
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

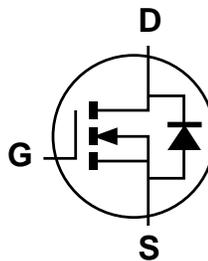
Mechanical Data

- Case: SOT23
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish. Solderable per MIL-STD-202, Method 208 e3
- Weight: 0.008 grams (approximate)

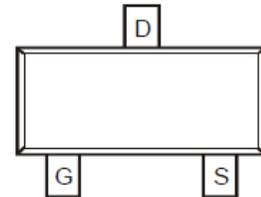
SOT23



Top View



Device symbol



Pin-Out
Top View

Ordering Information (Note 4)

Part Number	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
ZVN4106FTA	MZ	7	8	3000

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
 2. See <http://www.diodes.com> 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>.

Marking Information



MZ = Product Type Marking Code

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

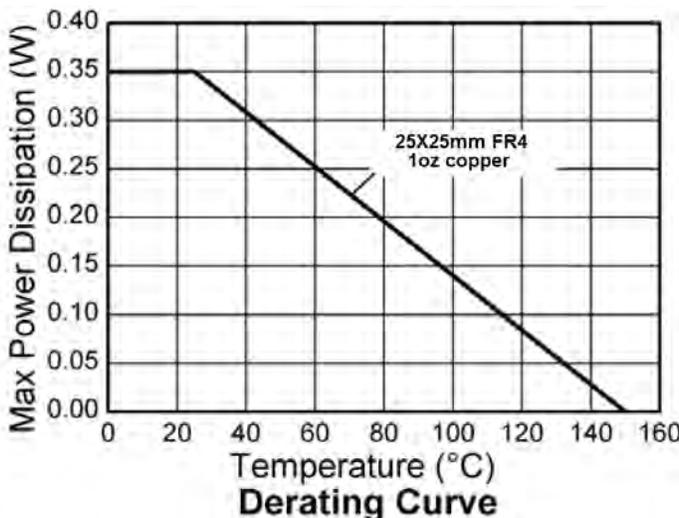
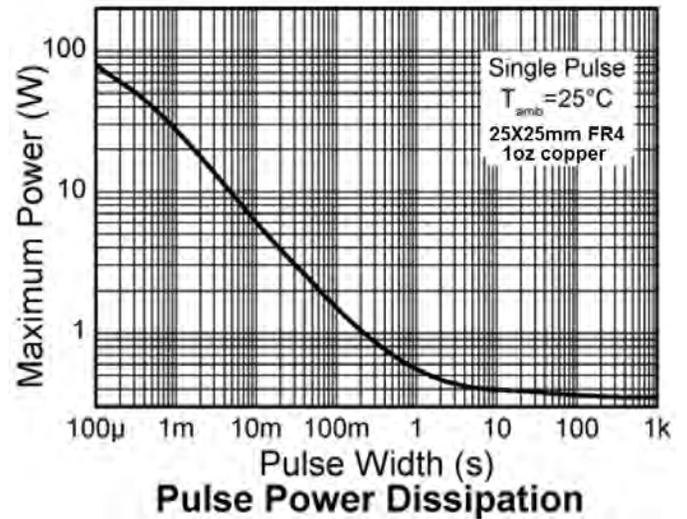
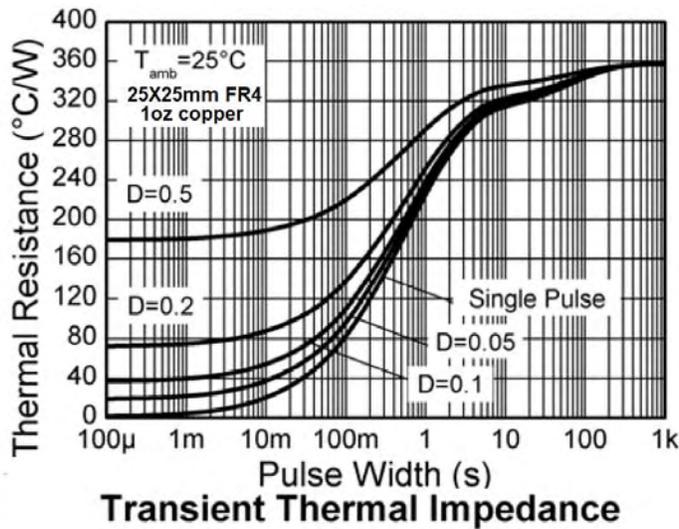
Characteristic	Symbol	Value	Unit
Drain-Source Voltage	V_{DSS}	60	V
Gate-Source Voltage	V_{GSS}	± 20	V
Continuous Drain Current	I_D	200	mA
Pulsed Drain Current (Note 5)	I_{DM}	3	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 6)	P_D	350	mW
Thermal Resistance, Junction to Ambient (Note 6)	$R_{\theta JA}$	357	$^\circ\text{C}/\text{W}$
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	$^\circ\text{C}$

Notes: 5. Device mounted on minimum recommended pad layout test board, 10 μs pulse duty cycle = 1%.
6. For a device mounted on 25mm X 25mm X 1.6mm FR-4 PCB with high coverage of single sided 1oz copper, in still air condition.

Thermal Characteristics

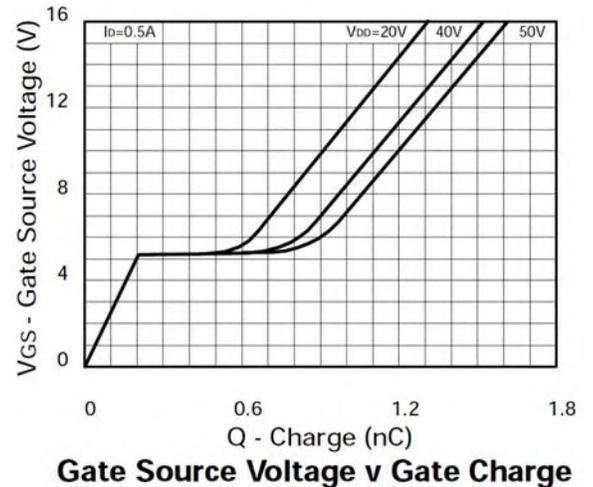
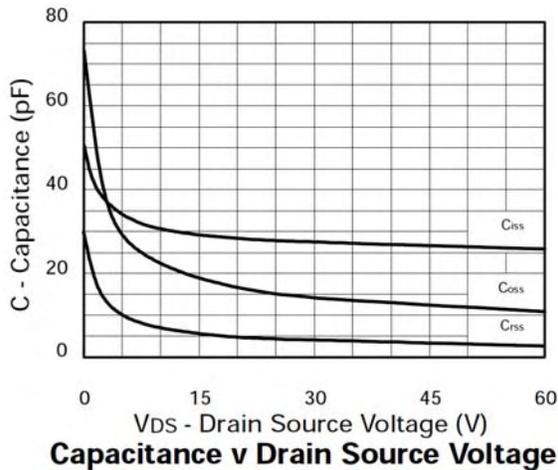
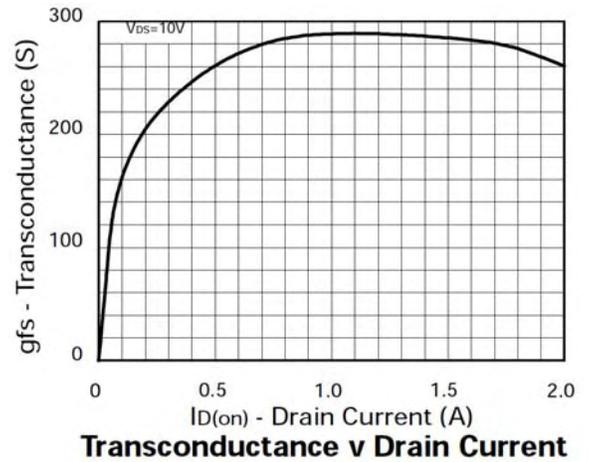
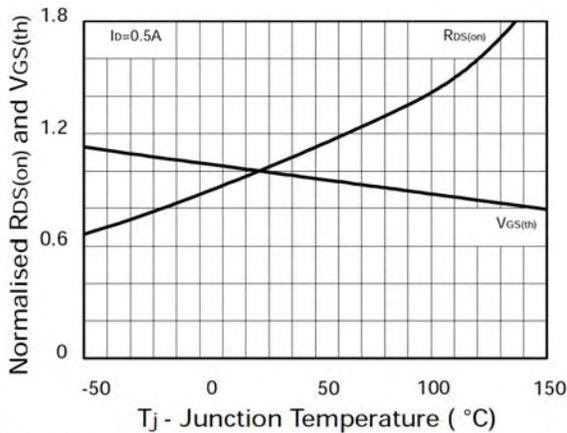
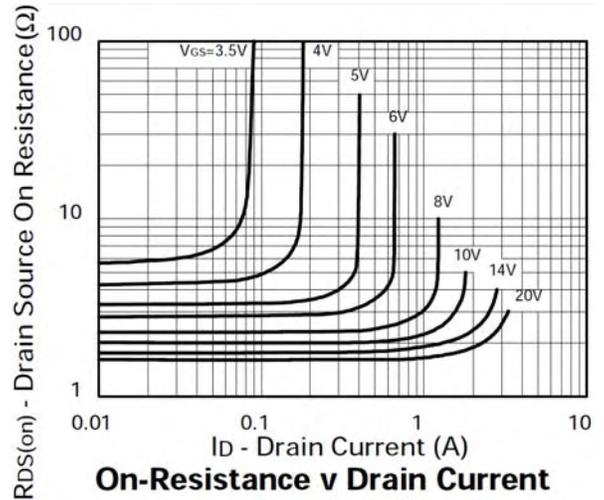
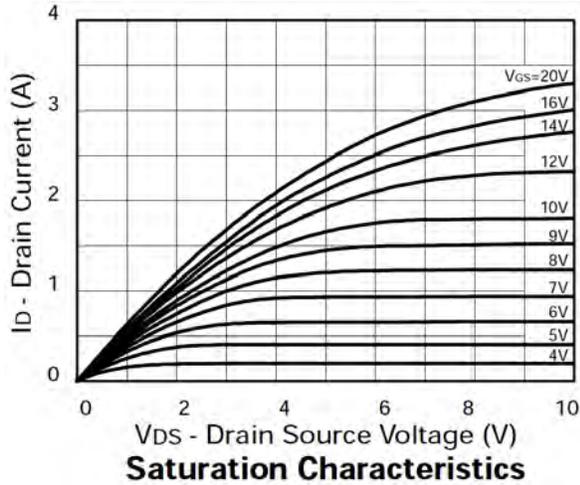


Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

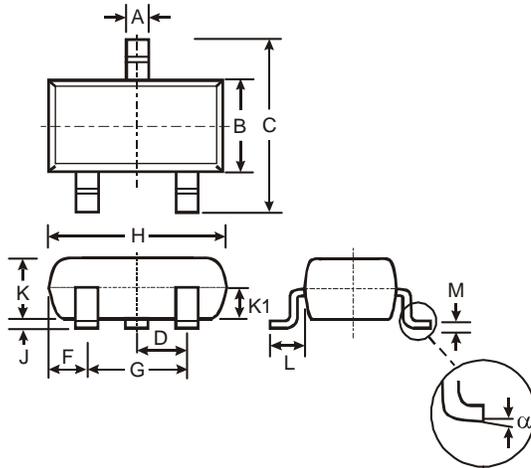
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 7)						
Drain-Source Breakdown Voltage	BV _{DSS}	60	—	—	V	V _{GS} = 0V, I _D = 10mA
Zero Gate Voltage Drain Current T _J = +25°C	I _{DSS}	—	—	10 50	μA	V _{DS} = 60V, V _{GS} = 0V V _{DS} = 48V, V _{GS} = 0V, T _A = +125°C
Gate-Source Leakage	I _{GSS}	—	—	100	nA	V _{GS} = ±20V, V _{DS} = 0V
On-State Drain Current	I _{D(on)}	1	—	-	A	V _{GS} = 10V, V _{DS} = 15V
ON CHARACTERISTICS (Note 7)						
Gate Threshold Voltage	V _{GS(th)}	1.3	—	3	V	V _{DS} = V _{GS} , I _D = 1mA
Static Drain-Source On-Resistance	R _{DS(on)}	—	—	2.5 5	Ω	V _{GS} = 10V, I _D = 500mA V _{GS} = 5V, I _D = 200mA
Forward Transconductance	g _{fs}	150	—	-	mS	V _{DS} = 25V, I _D = 250mA
DYNAMIC CHARACTERISTICS (Note 7)						
Input Capacitance	C _{iss}	—	—	35	pF	V _{DS} = 25V, V _{GS} = 0V, f = 1.0MHz
Output Capacitance	C _{oss}	—	—	25	pF	
Reverse Transfer Capacitance	C _{rss}	—	—	8	pF	
Turn-On Delay Time	t _{D(on)}	—	—	5	ns	V _{DS} = 25V, I _D = 150mA
Turn-On Rise Time	t _r	—	—	7	ns	
Turn-Off Delay Time	t _{D(off)}	—	—	6	ns	
Turn-Off Fall Time	t _f	—	—	8	ns	

Notes: 7. Short duration pulse test used to minimize self-heating effect.

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

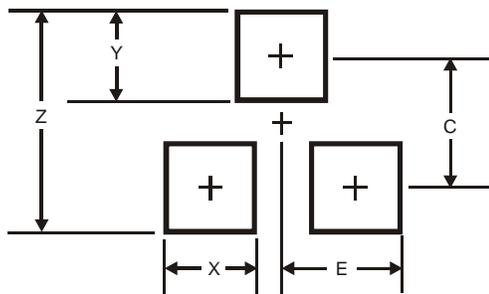


Package Outline Dimensions



SOT23			
Dim	Min	Max	Typ
A	0.37	0.51	0.40
B	1.20	1.40	1.30
C	2.30	2.50	2.40
D	0.89	1.03	0.915
F	0.45	0.60	0.535
G	1.78	2.05	1.83
H	2.80	3.00	2.90
J	0.013	0.10	0.05
K	0.903	1.10	1.00
K1	-	-	0.400
L	0.45	0.61	0.55
M	0.085	0.18	0.11
α	0°	8°	-
All Dimensions in mm			

Suggested Pad Layout



Dimensions	Value (in mm)
Z	2.9
X	0.8
Y	0.9
C	2.0
E	1.35

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