ZVN3310F

100V N-CHANNEL ENHANCEMENT MODE MOSFET

Please click here to visit our online spice models database.

Product Summary

V_{DS} (V)	100
$R_{DS(ON)}$ (Ω)	10

Features and Benefits

- High pulse current handling in linear mode
- Low input capacitance
- Fast switching speed
- **Lead Free By Design/RoHS Compliant (Note 1)**

Description and Applications

This MOSFET utilises a structure that combines low input capacitance with relatively low on-resistance and has an intrinsically higher pulse current handling capability in linear mode than a comparable trench technology structure. This MOSFET is suitable for general purpose applications.

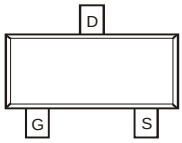
- General purpose 100V FET
- Power management
- Disconnect switches
- Telecoms
- Complementary Type – ZVP3310F

Mechanical Data

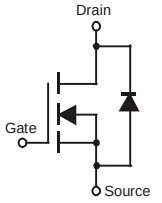
- Case: SOT-23
- Case Material: UL Flammability Classification Rating 94V-0
- Moisture sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish annealed over Alloy 42 leadframe (Lead Free Plating). Solderable per MIL-STD-202, Method 208
- Terminal Connections: See Diagram
- Weight: 0.008 grams (approximate)

SOT-23

TOP VIEW



TOP VIEW
Pin Out Configuration



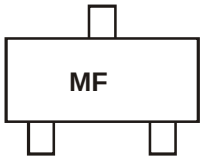
Equivalent Circuit

Ordering Information (Note 2)

Product	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
ZVN3310FTA	MF	7	8	3000

Notes: 1. No purposefully added lead.
2. For packaging details, go to our website at http://www.diodes.com/datasheets/ap02007.pdf.

Marking Information



MF = Product Type Marking Code

Maximum Ratings @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Units
Drain-Source Voltage	V_{DSS}	100	V
Gate-Source Voltage	V_{GSS}	±20	V
Continuous Drain Current	I_D	100	mA
Pulsed Drain Current	I_{DM}	2	A

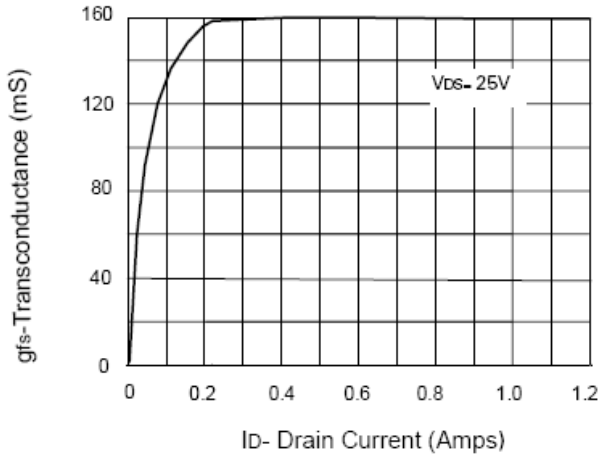
Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation @T_A = 25°C	P_D	330	mW
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°C

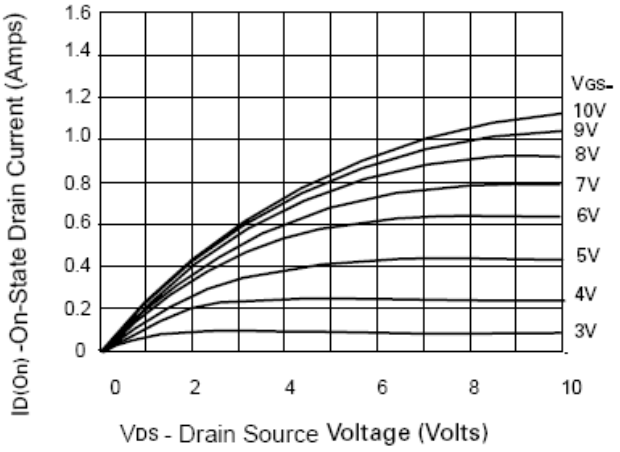
Electrical Characteristics @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	100	—	—	V	I_D = 1mA, V_{GS} = 0V
Zero Gate Voltage Drain Current T_J = 25°C T_J = 125°C (Note 4)	I_{DSS}	—	—	1 50	μA	V_{DS} = 100V, V_{GS} = 0V V_{DS} = 80V, V_{GS} = 0V
Gate-Source Leakage	I_{GSS}	—	—	20	nA	V_{GS} = ±20V, V_{DS} = 0V
Gate Threshold Voltage	$V_{GS(th)}$	0.8	—	2.4	V	V_{DS} = V_{GS}, I_D = 1mA
ON CHARACTERISTICS (Note 3)						
On-State Drain Current	$I_{D(ON)}$	500	—	—	mA	V_{DS} = 25V, V_{GS} = 10V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	—	—	10	Ω	V_{GS} = 10V, I_D = 500mA
DYNAMIC CHARACTERISTICS (Note 4)						
Forward Transconductance (Note 3)	g_{fs}	100	—	—	mS	V_{DS} = 25V, I_D = 500mA
Input Capacitance	C_{iss}	—	—	40	pF	V_{DS} = 25V, V_{GS} = 0V f = 1.0MHz
Output Capacitance	C_{oss}	—	—	15		
Reverse Transfer Capacitance	C_{rss}	—	—	5		
Turn-On Delay Time (Note 5)	$t_{D(on)}$	—	3	5	ns	V_{DD} ≈ 25V, I_D = 500mA
Turn-On Rise Time (Note 5)	t_r	—	5	7		
Turn-Off Delay Time (Note 5)	$t_{D(off)}$	—	4	6		
Turn-Off Fall Time (Note 5)	t_f	—	5	7		

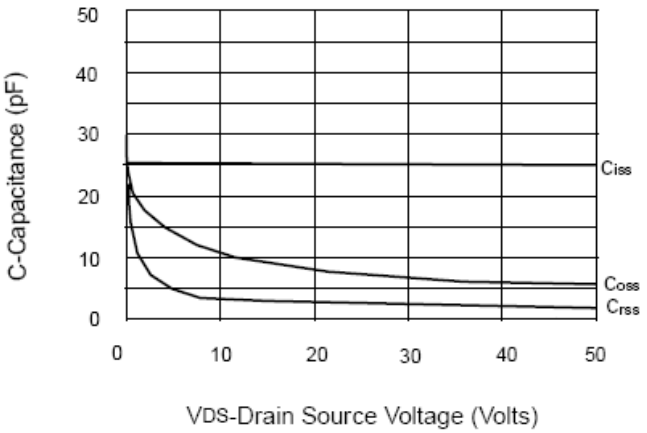
Notes:
3. Measured under pulsed conditions. Width = 300μs. Duty cycle ≤2%
4. Sample test.
5. Switching times measured with 50Ω source impedance and <5ns rise time on a pulse generator.



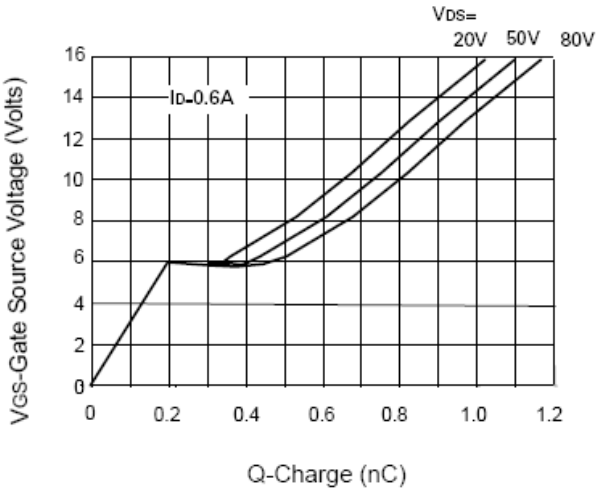
Transconductance v drain current



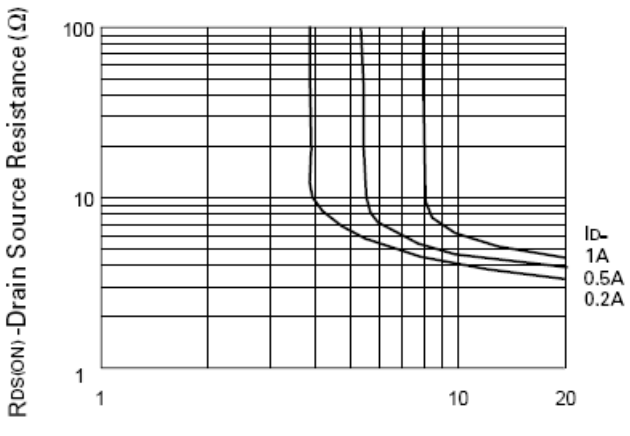
Saturation Characteristics



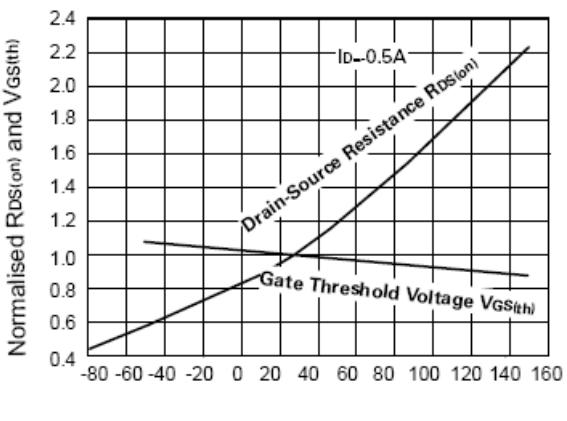
Capacitance v drain-source voltage



Gate charge v gate-source voltage

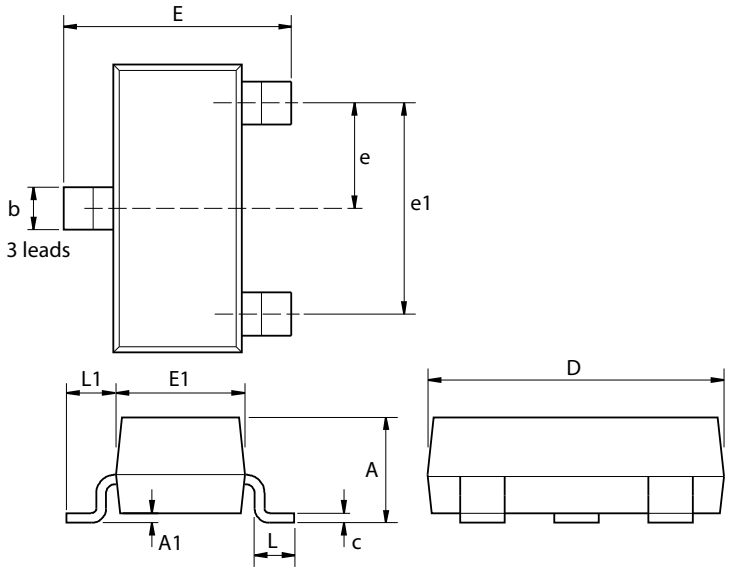


On-resistance vs gate-source voltage



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

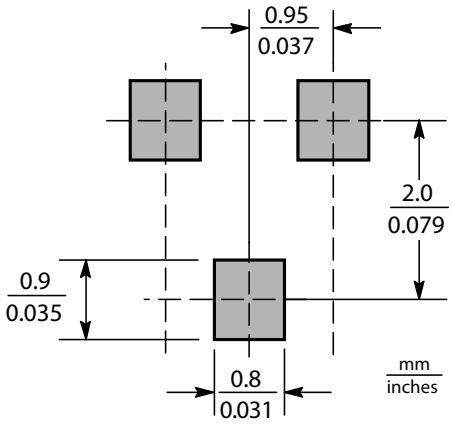
Package Outline Dimensions



Dim.	Millimeters		Inches		Dim.	Millimeters		Inches	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	-	1.12	-	0.044	e1	1.90 NOM		0.075 NOM	
A1	0.01	0.10	0.0004	0.004	E	2.10	2.64	0.083	0.104
b	0.30	0.50	0.012	0.020	E1	1.20	1.40	0.047	0.055
c	0.085	0.20	0.003	0.008	L	0.25	0.60	0.0098	0.0236
D	2.80	3.04	0.110	0.120	L1	0.45	0.62	0.018	0.024
e	0.95 NOM		0.037 NOM		-	-	-	-	-

Note: Controlling dimensions are in millimeters. Approximate dimensions are provided in inches

Suggested Pad Layout



IMPORTANT NOTICE

DIODES INCORPORATED MAKES NO WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, WITH REGARDING TO THIS DOCUMENT, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE (AND THEIR EQUIVALENTS UNDER THE LAWS OF ANY JURISDICTION).

Diodes Incorporated and its subsidiaries reserve the right to make modifications, enhancements, improvements, corrections or other changes without further notice to this document and any product described herein. Diodes Incorporated does not assume any liability arising out of the application or use of this document or any product described herein; neither does Diodes Incorporated convey any license under its patent or trademark rights, nor the rights of others. Any Customer or user of this document or products described herein in such applications shall assume all risks of such use and will agree to hold Diodes Incorporated and all the companies whose products are represented on Diodes Incorporated website, harmless against all damages.

Diodes Incorporated does not warrant or accept any liability whatsoever in respect of any products purchased through unauthorized sales channel. Should Customers purchase or use Diodes Incorporated products for any unintended or unauthorized application, Customers shall indemnify and hold Diodes Incorporated and its representatives harmless against all claims, damages, expenses, and attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized application.

Products described herein may be covered by one or more United States, international or foreign patents pending. Product names and markings noted herein may also be covered by one or more United States, international or foreign trademarks.

LIFE SUPPORT

Diodes Incorporated products are specifically not authorized for use as critical components in life support devices or systems without the express written approval of the Chief Executive Officer of Diodes Incorporated. As used herein:

A. Life support devices or systems are devices or systems which:

1. are intended to implant into the body, or

2. support or sustain life and whose failure to perform when properly used in accordance with instructions for use provided in the labeling can be reasonably expected to result in significant injury to the user.

B. A critical component is any component in a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or to affect its safety or effectiveness.

Customers represent that they have all necessary expertise in the safety and regulatory ramifications of their life support devices or systems, and acknowledge and agree that they are solely responsible for all legal, regulatory and safety-related requirements concerning their products and any use of Diodes Incorporated products in such safety-critical, life support devices or systems, notwithstanding any devices- or systems-related information or support that may be provided by Diodes Incorporated. Further, Customers must fully indemnify Diodes Incorporated and its representatives against any damages arising out of the use of Diodes Incorporated products in such safety-critical, life support devices or systems.

www.diodes.com