

## Product Summary

$V_{DS}$ (V)	100
$R_{DS(ON)}$ ( $\Omega$ )	10

## Description and Applications

This MOSFET utilizes 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.

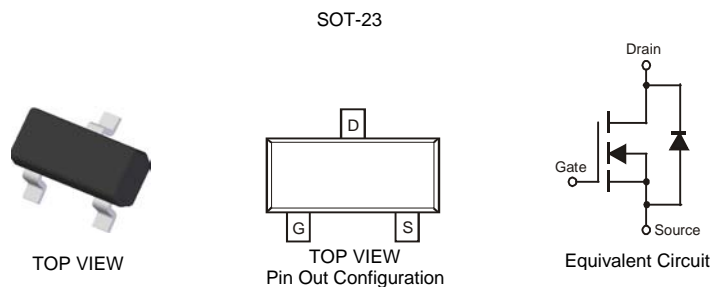
- General purpose 100V FET
- Power management
- Disconnect switches
- Telecoms
- Complementary Type – ZVP3310F

## Features and Benefits

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

## 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)

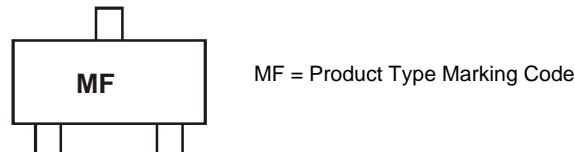


## Ordering Information (Note 2)

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



### Maximum Ratings @ $T_A = 25^\circ\text{C}$ unless otherwise specified

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

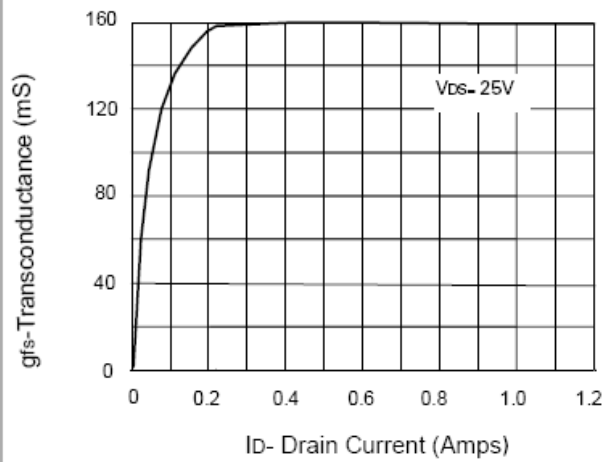
### Thermal Characteristics

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

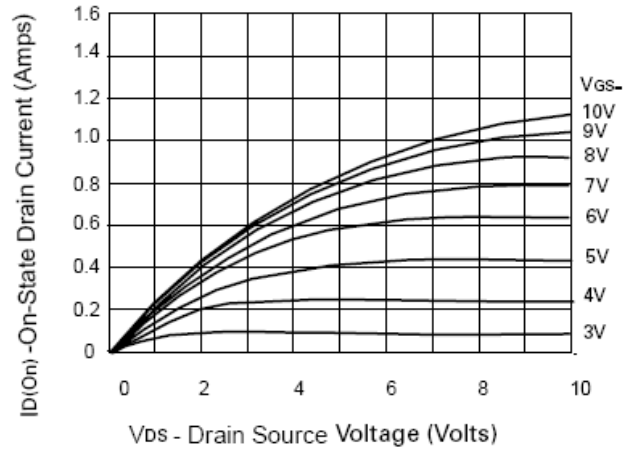
### Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
<b>OFF CHARACTERISTICS</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	100	—	—	V	$I_D = 1\text{mA}, V_{GS} = 0\text{V}$
Zero Gate Voltage Drain Current $T_J = 25^\circ\text{C}$ $T_J = 125^\circ\text{C}$ (Note 4)	$I_{DSS}$	—	—	1 50	$\mu\text{A}$	$V_{DS} = 100\text{V}, V_{GS} = 0\text{V}$ $V_{DS} = 80\text{V}, V_{GS} = 0\text{V}$
Gate-Source Leakage	$I_{GSS}$	—	—	20	nA	$V_{GS} = \pm 20\text{V}, V_{DS} = 0\text{V}$
Gate Threshold Voltage	$V_{GS(th)}$	0.8	—	2.4	V	$V_{DS} = V_{GS}, I_D = 1\text{mA}$
<b>ON CHARACTERISTICS (Note 3)</b>						
On-State Drain Current	$I_{D(ON)}$	500	—	—	mA	$V_{DS} = 25\text{V}, V_{GS} = 10\text{V}$
Static Drain-Source On-Resistance	$R_{DS(ON)}$	—	—	10	$\Omega$	$V_{GS} = 10\text{V}, I_D = 500\text{mA}$
<b>DYNAMIC CHARACTERISTICS (Note 4)</b>						
Forward Transconductance (Note 3)	$g_{fs}$	100	—	—	mS	$V_{DS} = 25\text{V}, I_D = 500\text{mA}$
Input Capacitance	$C_{iss}$	—	—	40	pF	$V_{DS} = 25\text{V}, V_{GS} = 0\text{V}$ $f = 1.0\text{MHz}$
Output Capacitance	$C_{oss}$	—	—	15		
Reverse Transfer Capacitance	$C_{rss}$	—	—	5		
Turn-On Delay Time (Note 5)	$t_{D(on)}$	—	3	5	ns	$V_{DD} \approx 25\text{V}, I_D = 500\text{mA}$
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		

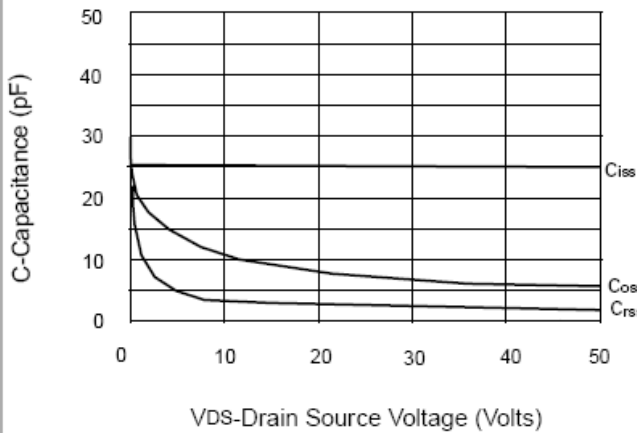
- Notes:
3. Measured under pulsed conditions. Width = 300 $\mu\text{s}$ . Duty cycle  $\leq 2\%$
  4. Sample test.
  5. Switching times measured with 50 $\Omega$  source impedance and <5ns rise time on a pulse generator.



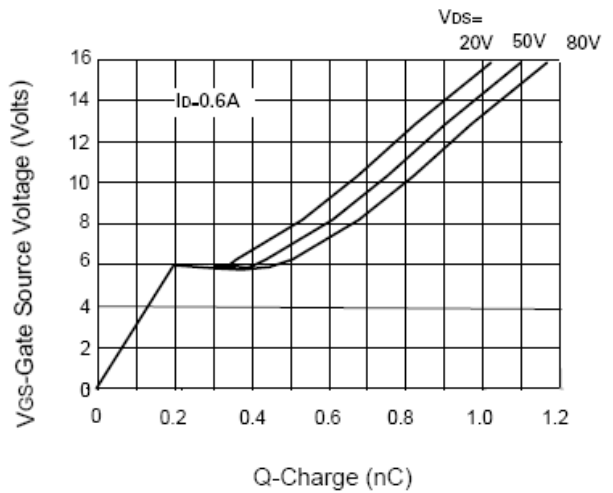
**Transconductance v drain current**



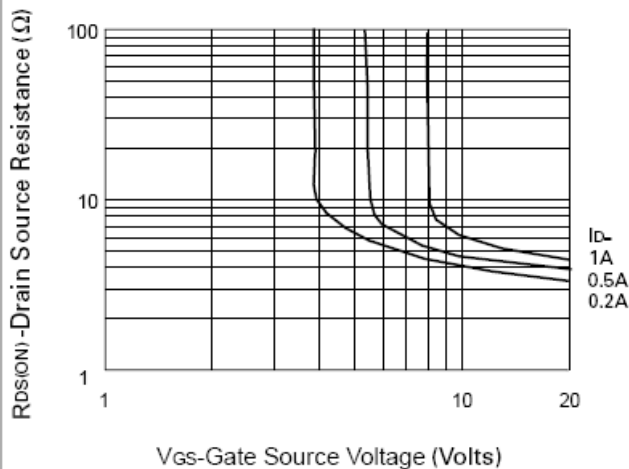
**Saturation Characteristics**



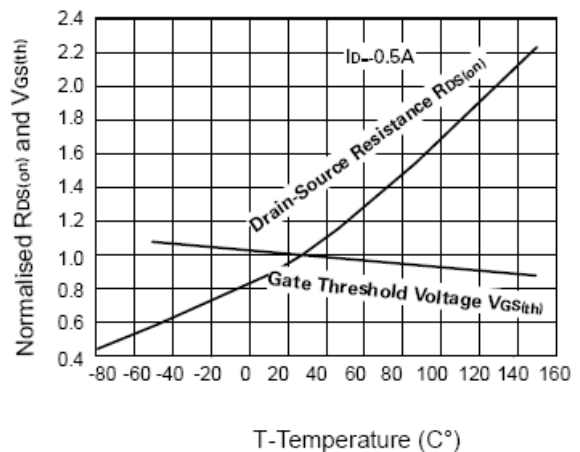
**Capacitance v drain-source voltage**



**Gate charge v gate-source voltage**

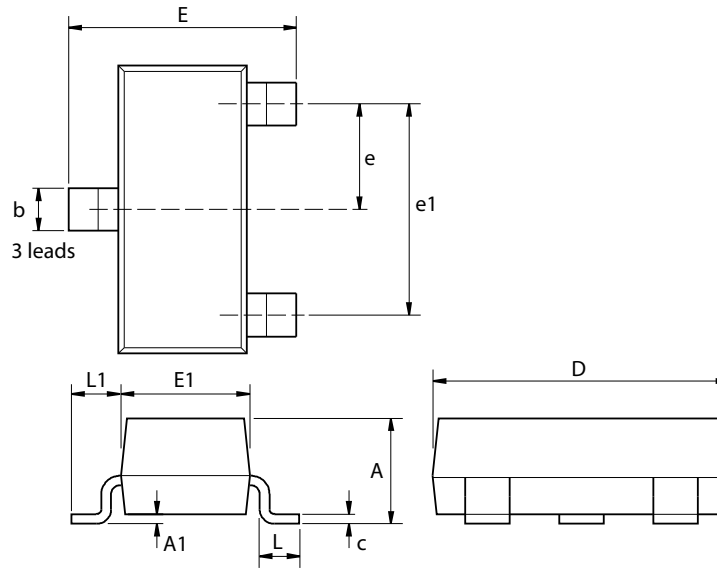


**On-resistance vs gate-source voltage**



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

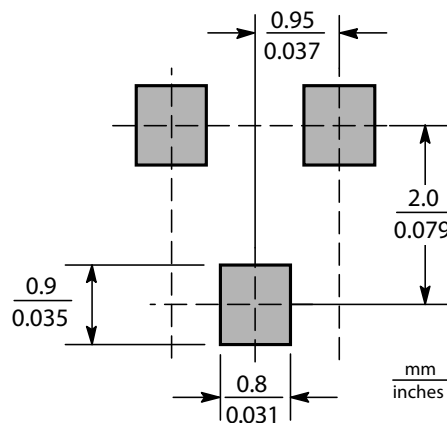
**Package Outline Dimensions**



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**



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