

100V N-CHANNEL ENHANCEMENT MODE MOSFET

Product Summary

V_{DS} (V)	100
$R_{DS(ON)}$ (Ω)	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.

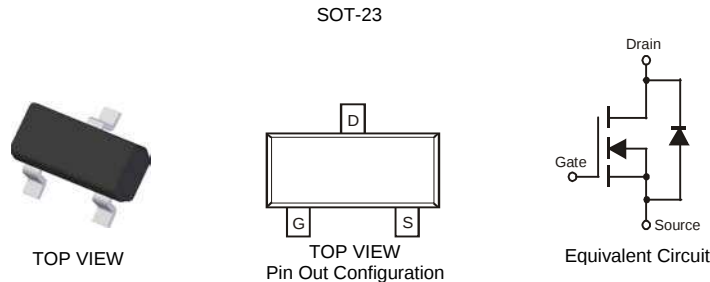
- General purpose 100V FET
- Power management
- Disconnect switches
- Telecoms
- Complementary Type – ZVP3310F

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)

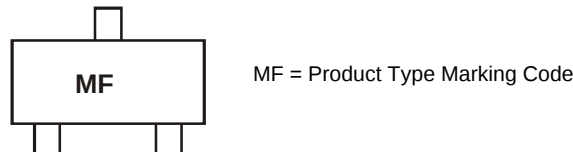


Ordering Information (Note 2)

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°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

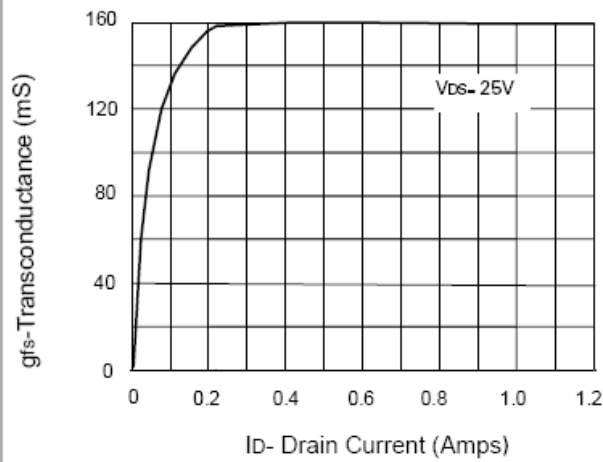
Thermal Characteristics

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

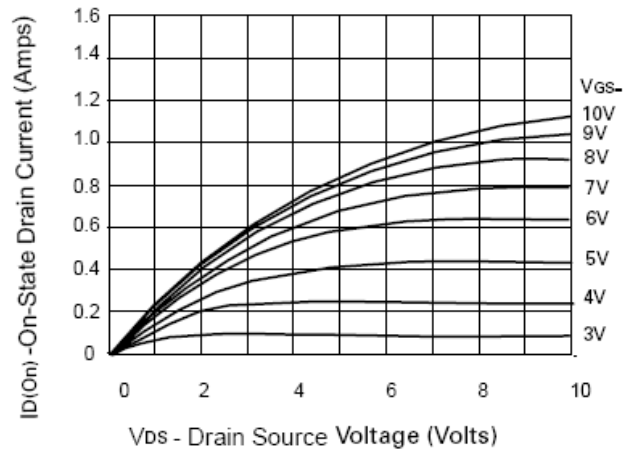
Electrical Characteristics @T_A = 25°C unless otherwise specified

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		

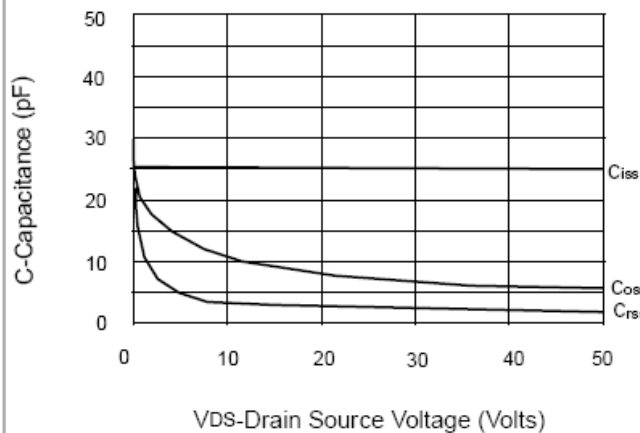
- Notes:
3. Measured under pulsed conditions. Width = 300μs. Duty cycle ≤2%
 4. Sample test.
 5. Switching times measured with 50Ω source impedance and <5ns rise time on a pulse generator.



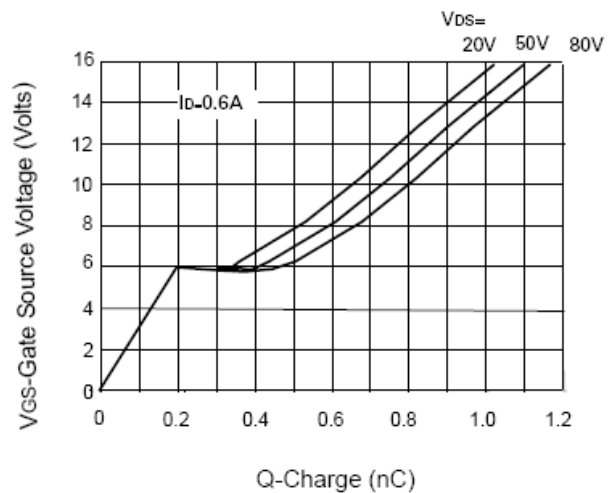
Transconductance v drain current



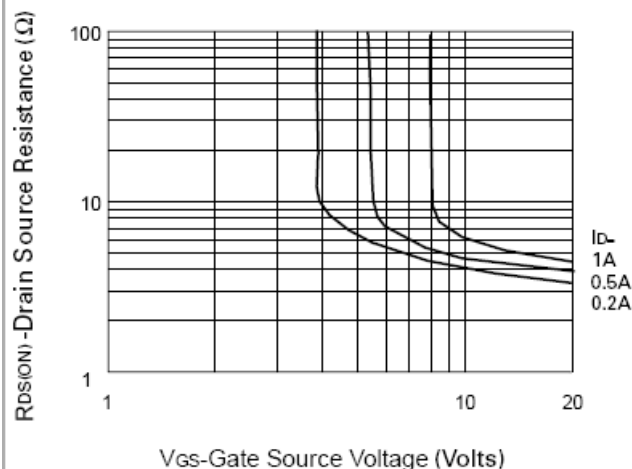
Saturation Characteristics



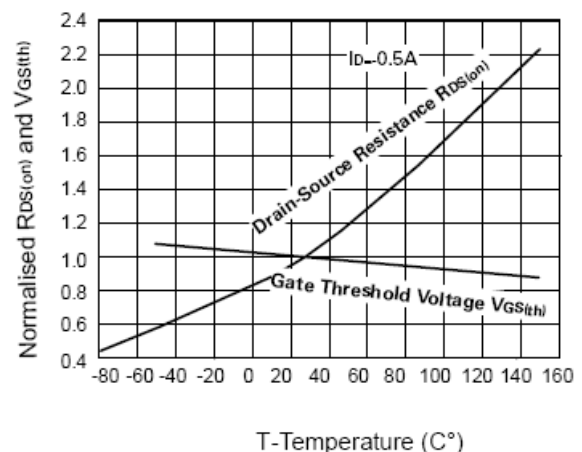
Capacitance v drain-source voltage



Gate charge v gate-source voltage

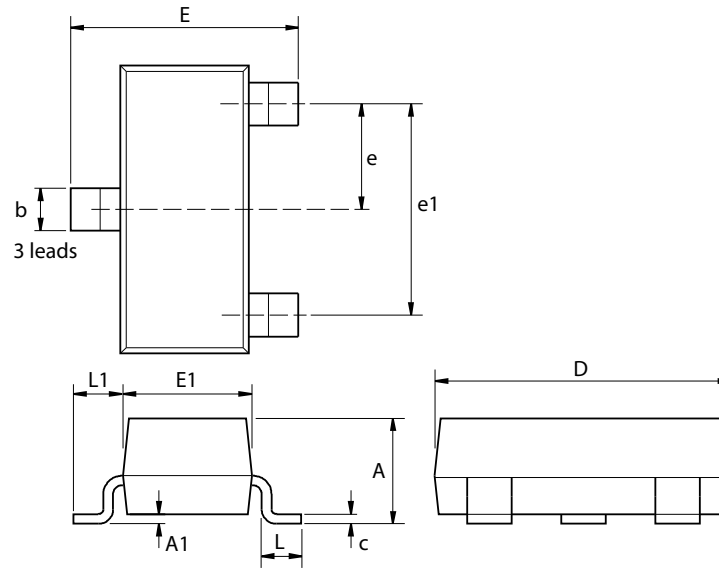


On-resistance vs gate-source voltage



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

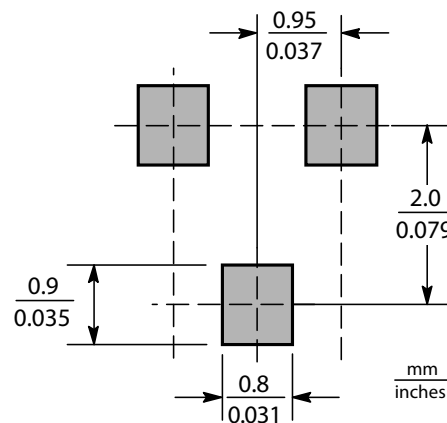
Package Outline Dimensions



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



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