100V P-CHANNEL ENHANCEMENT MODE MOSFET

Product Summary

$V_{(BR)DSS}$	$R_{DS(ON)}$ max	I_D T_A = +25°C
-100V	20Ω @ V_{GS} = -10V	-75mA

Description

This MOSFET is designed to minimize the on-state resistance ($R_{DS(on)}$) and yet maintain superior switching performance, making it ideal for high-efficiency power management applications.

Applications

- General Purpose Switches
- Power Management Functions

Features and Benefits

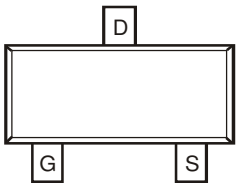
- Low Input Capacitance
- Fast Switching Speed
- Small Surface Mount Package
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**
- **PPAP Capable (Note 4)**

Mechanical Data

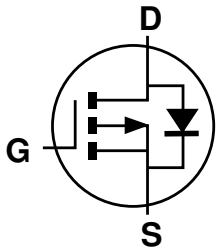
- Case: SOT23
- Case Material: Molded Plastic; UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Lead-Free Plating (Matte Tin Finish Annealed over Alloy 42 Leadframe).
- Terminals: Solderable per MIL-STD-202, Method 208 e3
- Terminal Connections: See Diagram
- Weight: 0.008 grams (Approximate)

SOT23

Top View



Top View
Pin Configuration



Equivalent Circuit

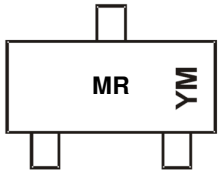
Ordering Information (Note 5)

Part Number	Case	Packaging
ZVP3310FQTA	SOT23	3,000/Tape & Reel

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. Automotive products are AEC-Q101 qualified and are PPAP capable. Automotive, AEC-Q101 and standard products are electrically and thermally the same, except where specified. For more information, please refer to http://www.diodes.com/quality/product_grade_definitions/.
5. For packaging details, go to our website at http://www.diodes.com/products/packages.html.

Marking Information

SOT23



MR = Product Type Marking Code
YM = Date Code Marking
Y = Year (ex: C = 2015)
M = Month (ex: 9 = September)

Date Code Key

Year	2015	2016	2017	2018	2019	2020	2021
Code	C	D	E	F	G	H	I

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

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	-75	mA
Pulsed Drain Current	I_{DM}	-1.2	A

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

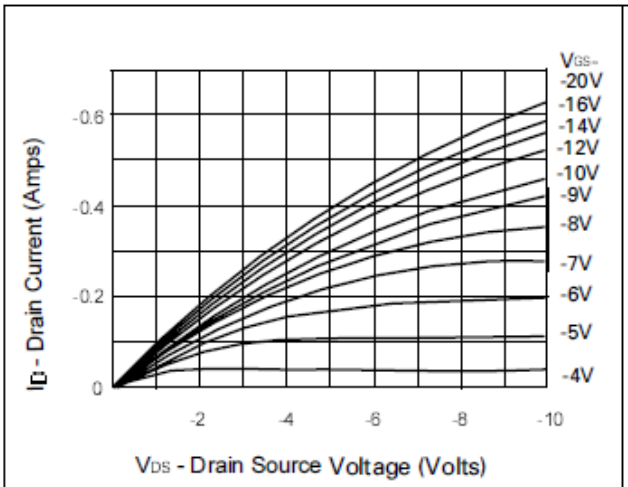
Characteristic	Symbol	Value	Units
Total Power Dissipation	P_D	330	mW
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to 150	°C

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

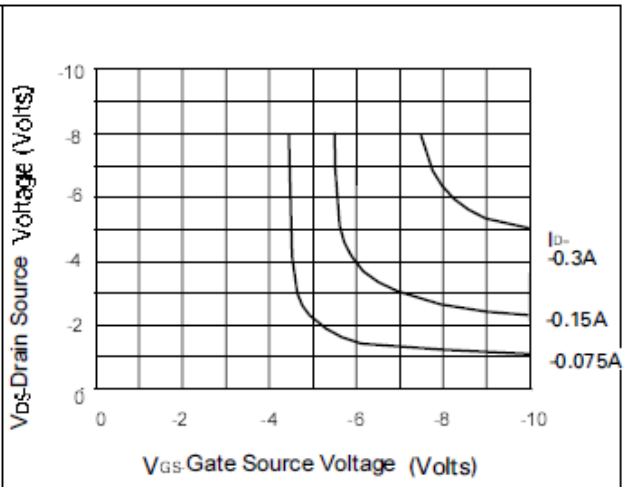
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	-100	—	—	V	V_{GS} = 0V, I_D = -1mA
Zero Gate Voltage Drain Current	I_{DSS}	—	—	-1	µA	V_{DS} = -100V, V_{GS} = 0V
		—	—	-50	µA	V_{DS} = -80V, V_{GS} = 0V, T = +125°C (Note 7)
Gate-Body Leakage	I_{GSS}	—	—	±20	nA	V_{GS} = ±20V, V_{DS} = 0V
ON CHARACTERISTICS (Note 6)						
Gate Threshold Voltage	$V_{GS(th)}$	-1.5	—	-3.5	V	V_{DS} = V_{GS}, I_D = -1mA
On-State Drain Current	$I_{D(ON)}$	-300	—	—	mA	V_{DS} = -25V, V_{GS} = -10V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	—	—	20	Ω	V_{GS} = -10V, I_D = -150mA
Forward Transconductance (Note 7)	g_{fs}	50	—	—	mS	V_{DS} = -25V, I_D = -150mA
DYNAMIC CHARACTERISTICS (Note 7)						
Input Capacitance	C_{iss}	—	—	50	pF	V_{DS} = -25V, V_{GS} = 0V, f = 1MHz
Output Capacitance	C_{oss}	—	—	15		
Reverse Transfer Capacitance	C_{rss}	—	—	5		
Turn-On Delay Time (Note 8)	$t_{D(on)}$	—	—	8	nS	V_{DD} ≈ -25V, I_D = -150mA
Turn-On Rise Time (Note 8)	t_r	—	—	8		
Turn-Off Delay Time (Note 8)	$t_{D(off)}$	—	—	8		
Turn-Off Fall Time (Note 8)	t_f	—	—	8		

Notes: 6. Measured under pulsed conditions. Width=300µs. Duty cycle ≤ 2%.
7. Sample Test.
8. Switching times measured with 50Ω source impedance and <5ns rise time on a pulse generator.

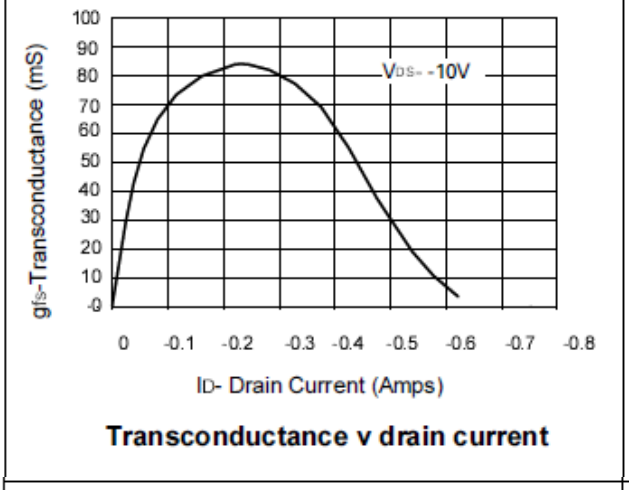
Typical Characteristics



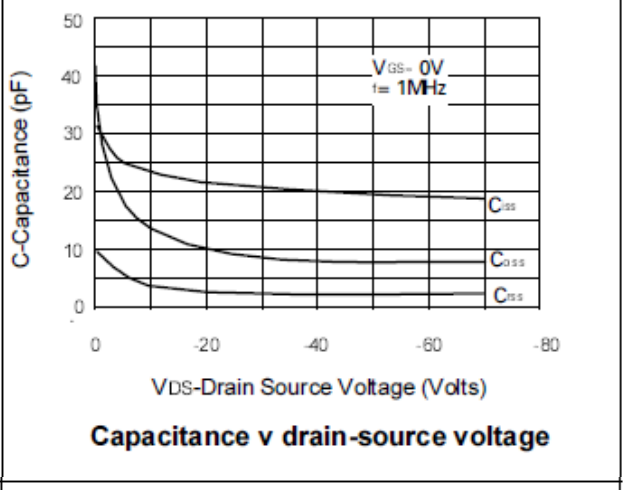
Saturation Characteristics



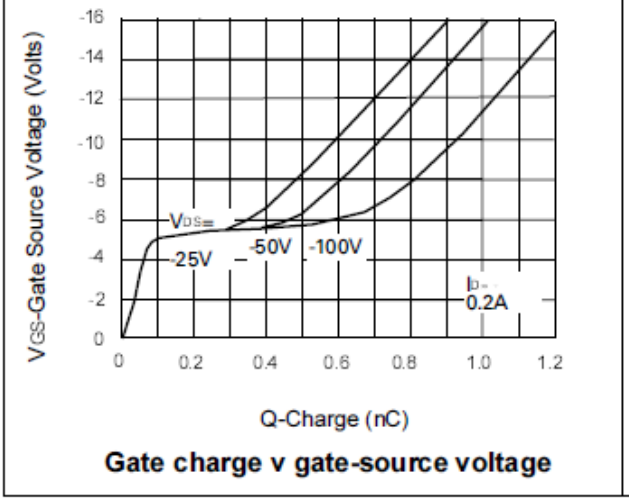
Voltage Saturation Characteristics



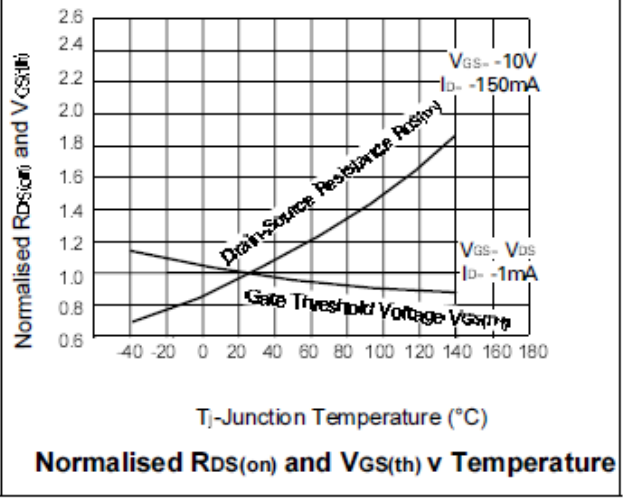
Transconductance v drain current



Capacitance v drain-source voltage



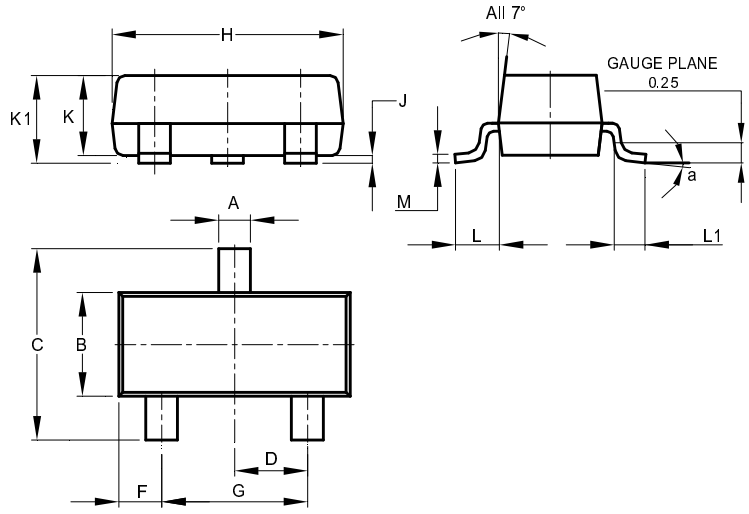
Gate charge v gate-source voltage



Normalised RDS(on) and VGS(th) v Temperature

Package Outline Dimensions

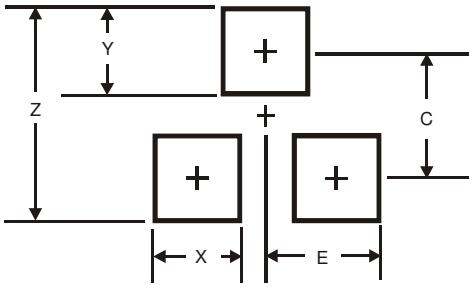
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for the latest version.



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	0.890	1.00	0.975
K1	0.903	1.10	1.025
L	0.45	0.61	0.55
L1	0.25	0.55	0.40
M	0.085	0.150	0.110
a	8°		
All Dimensions in mm			

Suggested Pad Layout

Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for the latest version.



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

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