

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)}$ Max	I_D Max @ $T_A = 25^\circ C$
-30V	2.4 Ω @ $V_{GS} = -10V$	-250mA
	4 Ω @ $V_{GS} = -4.5V$	-200mA

Description

This MOSFET has been 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

- Load Switch
- Portable Applications
- Power Management Functions

Features

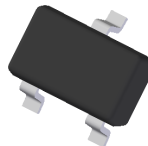
- Low On-Resistance
- ESD Protected Gate
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

Mechanical Data

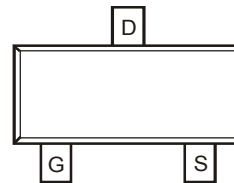
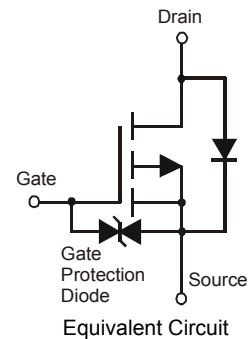
- Case: SOT323
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Lead Free Plating (Matte Tin Finish annealed over Alloy 42 leadframe).
- Weight: 0.006 grams (approximate)



SOT323



Top View

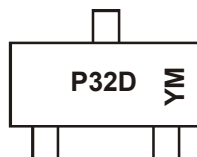

 Top View
Pin-out


Ordering Information (Note 4)

Product	Marking	Reel size (inches)	Quantity per reel
DMP32D4SW-7	P32D	7	3,000
DMP32D4SW-13	P32D	13	10,000

- 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/quality/lead_free.html 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/products/packages.html>.

Marking Information



P32D = Product Type Marking Code
 YM = Date Code Marking
 Y = Year (ex: Z = 2012)
 M = Month (ex: 9 = September)

Date Code Key

Year	2012	2013	2014	2015	2016	2017	2018
Code	Z	A	B	C	D	E	F

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	Unit
Drain-Source Voltage			V _{DSS}	-30	V
Gate-Source Voltage			V _{GSS}	±20	V
Continuous Drain Current (Note 6)	V _{GS} = -10V	T _A = +25°C	I _D	250	mA
		T _A = +70°C		200	
Pulsed Drain Current (Note 6)			I _{DM}	-1	A

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

Characteristic		Symbol	Value	Units
Total Power Dissipation	(Note 5)	P _D	300	mW
	(Note 6)		432	
Thermal Resistance, Junction to Ambient	(Note 5)	R _{θJA}	398	°C/W
	(Note 6)		290	
Thermal Resistance, Junction to Case	(Note 5)	R _{θJC}	142	
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 (Note 7)						
Drain-Source Breakdown Voltage	BV _{DSS}	-30	-	-	V	V _{GS} = 0V, I _D = -1mA
Zero Gate Voltage Drain Current T _J = +25°C	I _{DSS}	-	-	-1	µA	V _{DS} = -30V, V _{GS} = 0V
Gate-Source Leakage	I _{GSS}	-	-	±10	µA	V _{GS} = ±16V, V _{DS} = 0V
ON CHARACTERISTICS (Note 7)						
Gate Threshold Voltage	V _{GS(th)}	-1.4	-	-2.4	V	V _{DS} = V _{GS} , I _D = -250µA
Static Drain-Source On-Resistance	R _{DS(ON)}	-	-	2.4	Ω	V _{GS} = -10V, I _D = -0.5A
				4		V _{GS} = -4.5V, I _D = -0.3A
Forward Transfer Admittance	Y _{fs}	-	6	-	S	V _{DS} = -10V, I _D = -400mA
Diode Forward Voltage	V _{SD}	-	0.8	1.2	V	V _{GS} = 0V, I _S = -300mA
DYNAMIC CHARACTERISTICS (Note 8)						
Input Capacitance	C _{iss}	-	51.16	-	pF	V _{DS} = -15V, V _{GS} = 0V, f = 1.0MHz
Output Capacitance	C _{oss}	-	10.85	-	pF	
Reverse Transfer Capacitance	C _{rss}	-	8.88	-	pF	
Gate Resistance	R _g	-	275	-	Ω	V _{DS} = 0V, V _{GS} = 0V, f = 1MHz
Total Gate Charge	Q _g	-	0.6	-	nC	V _{GS} = -10V, I _D = -1A
Total Gate Charge	Q _g	-	1.2	-	nC	
Gate-Source Charge	Q _{gs}	-	0.2	-	nC	
Gate-Drain Charge	Q _{gd}	-	0.3	-	nC	
Turn-On Delay Time	t _{D(on)}	-	9.86	-	ns	V _{DS} = -15V, I _D = -1A V _{GS} = -10V, R _G = 6Ω
Turn-On Rise Time	t _r	-	11.5	-	ns	
Turn-Off Delay Time	t _{D(off)}	-	31.8	-	ns	
Turn-Off Fall Time	t _f	-	21.9	-	ns	

- Notes:
- Device mounted on FR-4 PC board, with minimum recommended pad layout, single sided.
 - Device mounted on FR-4 substrate PC board, 2oz copper, with 1inch square copper pad layout
 - Short duration pulse test used to minimize self-heating effect.
 - Guaranteed by design. Not subject to production testing.

NEW PRODUCT

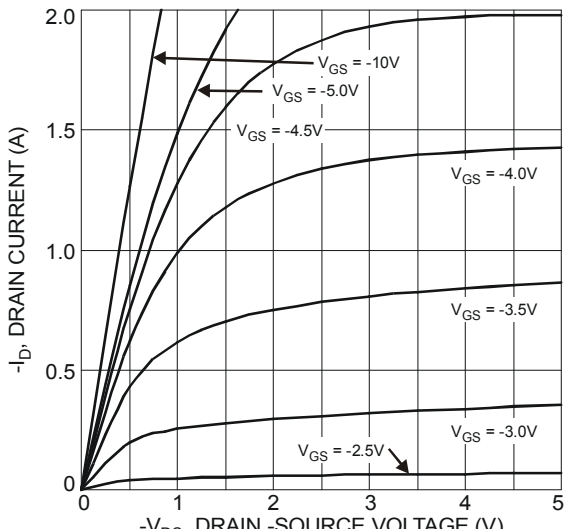


Figure 1 Typical Output Characteristics

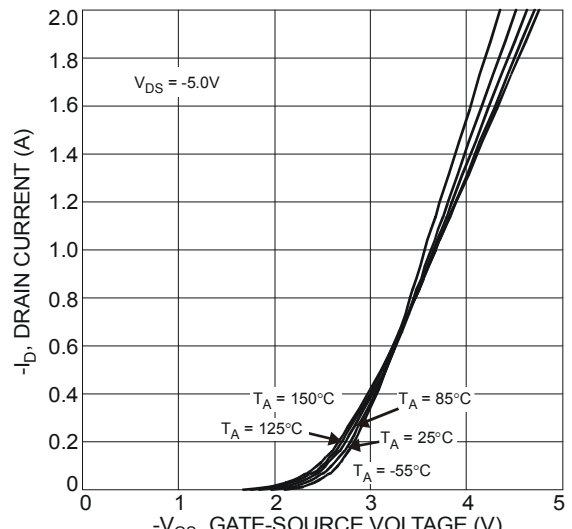


Figure 2 Typical Transfer Characteristics

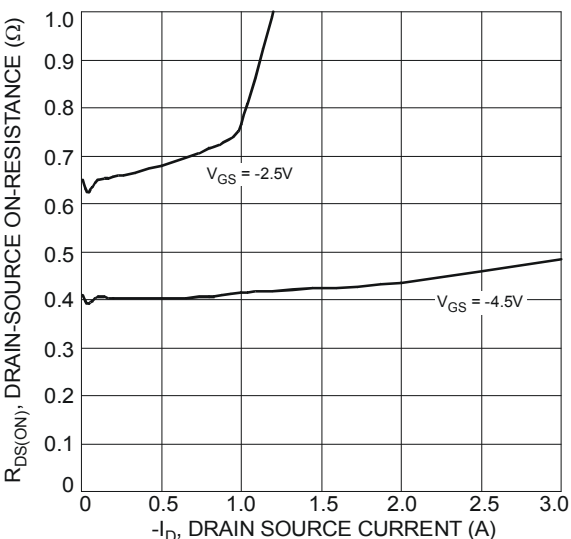


Figure 3 Typical On-Resistance vs. Drain Current and Gate Voltage

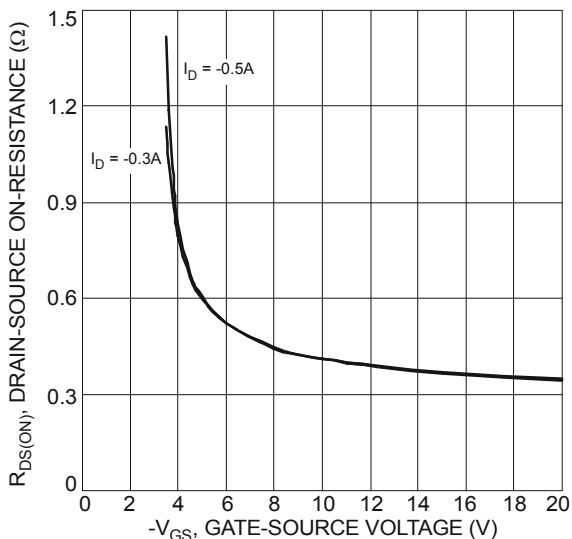


Figure 4 Typical Drain-Source On-Resistance vs. Gate-Source Voltage

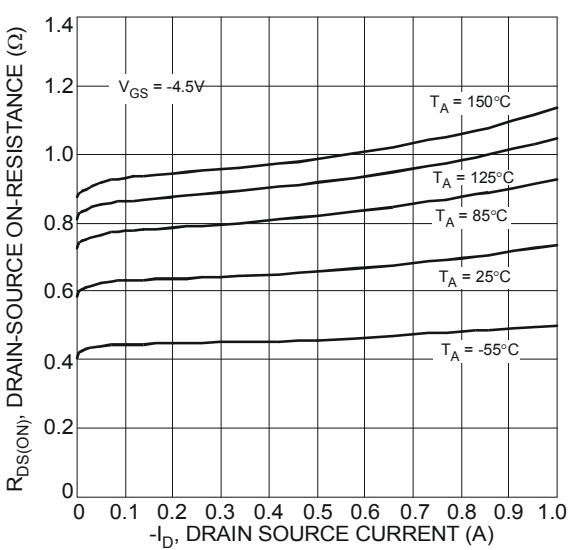


Figure 5 Typical On-Resistance vs. Drain Current and Temperature

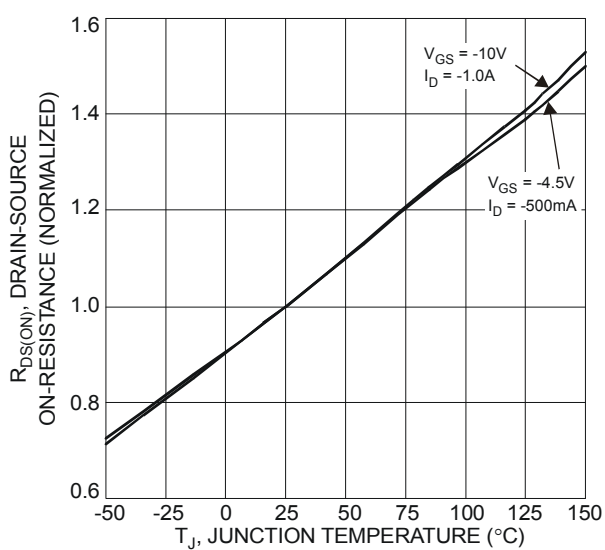


Figure 6 On-Resistance Variation with Temperature

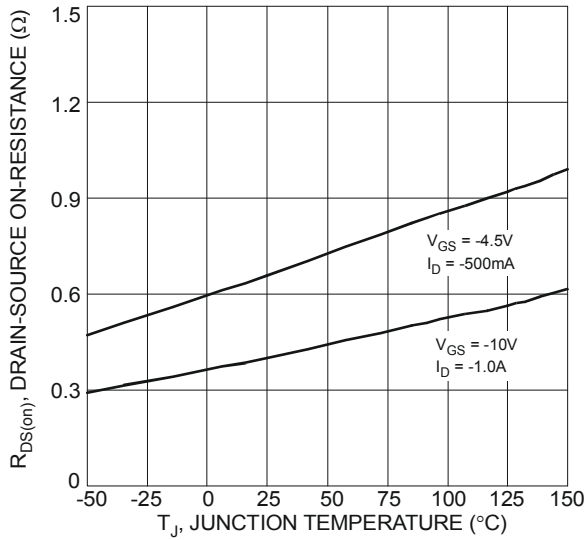


Figure 7 On-Resistance Variation with Temperature

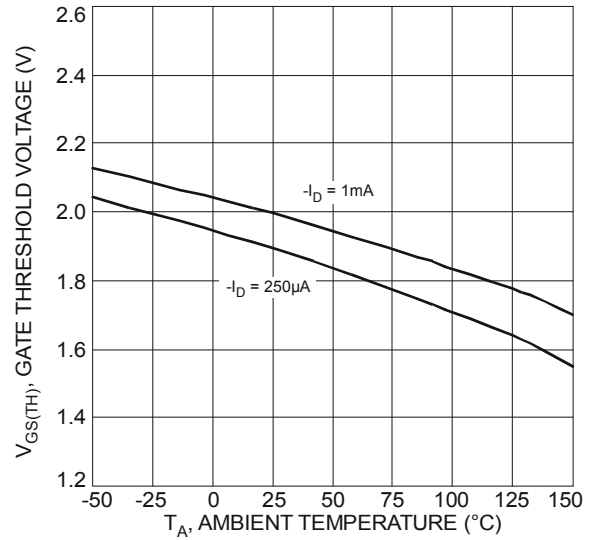


Figure 8 Gate Threshold Variation vs. Ambient Temperature

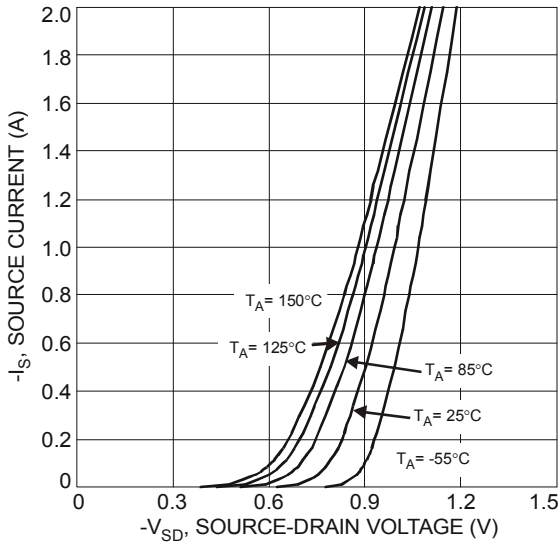


Figure 9 Diode Forward Voltage vs. Current

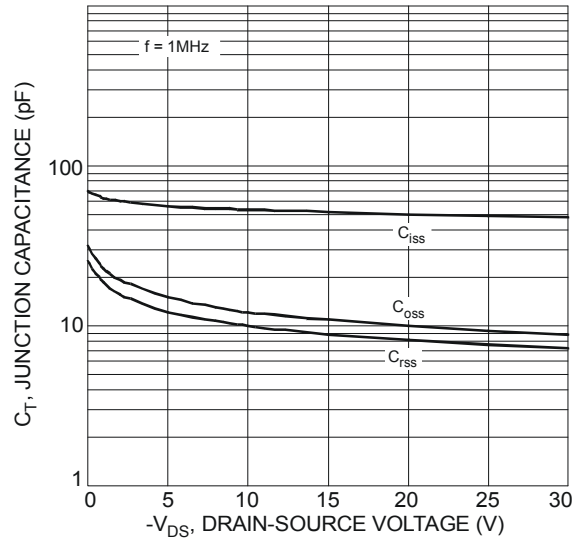


Figure 10 Typical Junction Capacitance

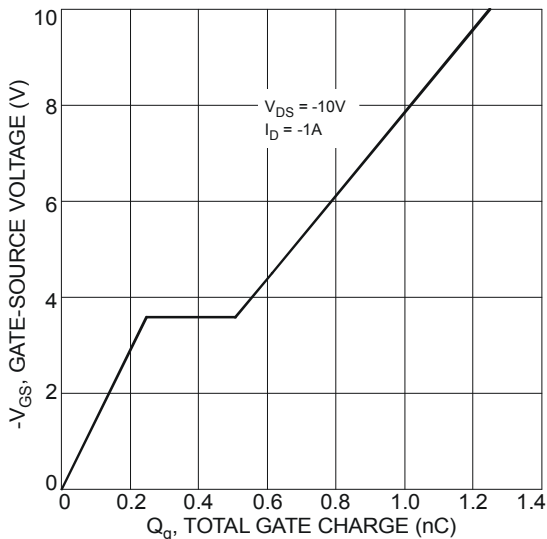
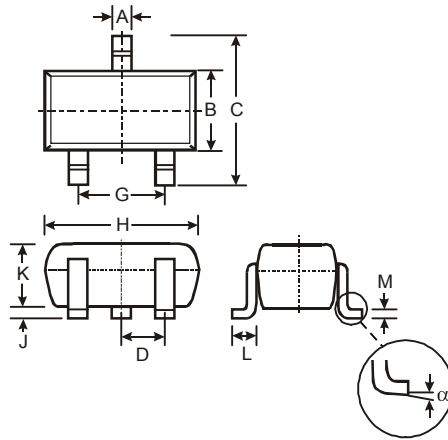


Figure 11 Gate-Charge Characteristics

Package Outline Dimensions

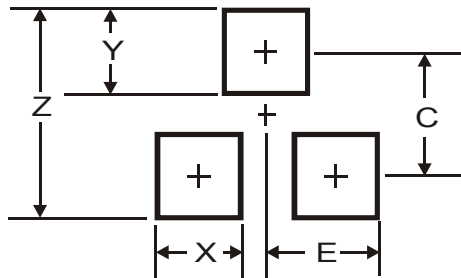
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version.



SOT323			
Dim	Min	Max	Typ
A	0.25	0.40	0.30
B	1.15	1.35	1.30
C	2.00	2.20	2.10
D	-	-	0.65
G	1.20	1.40	1.30
H	1.80	2.20	2.15
J	0.0	0.10	0.05
K	0.90	1.00	0.95
L	0.25	0.40	0.30
M	0.10	0.18	0.11
α	0°	8°	-
All Dimensions in mm			

Suggested Pad Layout

Please see AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> for the latest version.



Dimensions	Value (in mm)
Z	2.8
X	0.7
Y	0.9
C	1.9
E	1.0

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