

## Product Summary

BV <sub>DSS</sub>	R <sub>D(S)</sub> (ON) MAX	Package	I <sub>D</sub> MAX T <sub>A</sub> = +25°C
-20V	110mΩ @ V <sub>GS</sub> = -4.5V	SOT23	-2.6A
	225mΩ @ V <sub>GS</sub> = -2.5V		-2.0A

## Description

This new generation MOSFET is designed to minimize the on-state resistance (R<sub>D(S)</sub>(ON)) yet maintain superior switching performance, making it ideal for high efficiency power management applications.

## Applications

- General purpose interfacing switches
- Power management functions

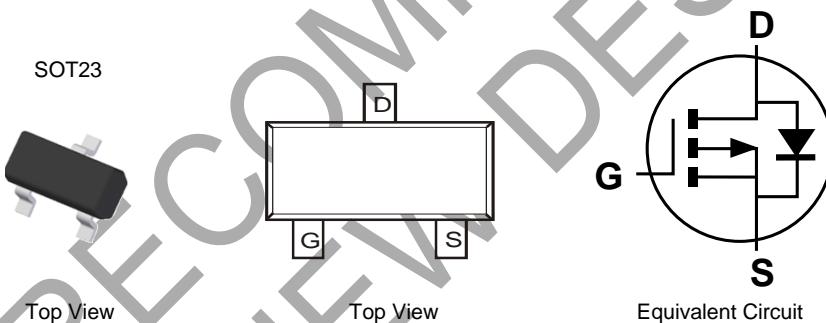
## Features

- Low On-Resistance
- Low Input Capacitance
- Fast Switching Speed
- Low Input/Output Leakage
- Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- Halogen and Antimony Free. "Green" Device (Note 3)**
- The DIODES™ DMP2225LQ is suitable for automotive applications requiring specific change control; this part is AEC-Q101 qualified, PPAP capable, and manufactured in IATF 16949 certified facilities.**

<https://www.diodes.com/quality/product-definitions/>

## Mechanical Data

- Package: SOT23
- Package Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish — Matte Tin Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208 <sup>(e3)</sup>
- Terminal Connections: See Diagram
- Weight: 0.008 grams (Approximate)



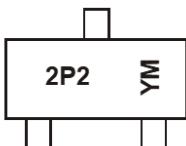
## Ordering Information (Note 4)

Part Number	Package	Packing	
		Qty.	Carrier
DMP2225LQ-7	SOT23	3,000	Tape & Reel

Notes:

- No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
- See <https://www.diodes.com/quality/lead-free/> for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
- Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
- For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

## Marking Information



2P2 = Product Type Marking Code  
YM = Date Code Marking  
Y = Year (ex: J = 2022)  
M = Month (ex: 9 = September)

### Date Code Key

Year	2019	...	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Code	G	...	J	K	L	M	N	O	P	R	S	T
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 (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

Characteristic		Symbol	Value	Unit
Drain-Source Voltage		$V_{DSS}$	-20	V
Gate-Source Voltage		$V_{GSS}$	$\pm 12$	V
Continuous Drain Current (Note 5)	Steady State	$I_D$	-2.6 -2	A
Pulsed Drain Current (Note 6)		$I_{DM}$	-8	A

## Thermal Characteristics

Characteristic	Symbol	Value	Unit
Total Power Dissipation (Note 5)	$P_D$	1.08	W
Thermal Resistance, Junction to Ambient @ $T_A = +25^\circ\text{C}$ (Note 5)	$R_{\theta JA}$	115	°C/W
Operating and Storage Temperature Range	$T_J, T_{STG}$	-55 to +150	°C

## Electrical Characteristics (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
<b>OFF CHARACTERISTICS (Note 7)</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	-20	—	—	V	$V_{GS} = 0\text{V}, I_D = -250\mu\text{A}$
Zero Gate Voltage Drain Current	$I_{DSS}$	—	—	-800	nA	$V_{DS} = -20\text{V}, V_{GS} = 0\text{V}$
On-State Drain Current	$I_D(\text{ON})$	-6	—	—	A	$V_{DS} \leq -5\text{V}, V_{GS} = -4.5\text{V}$
		-3	—	—		$V_{DS} \leq -5\text{V}, V_{GS} = -2.5\text{V}$
Gate-Source Leakage	$I_{GSS}$	—	—	$\pm 80$	nA	$V_{GS} = \pm 12\text{V}, V_{DS} = 0\text{V}$
<b>ON CHARACTERISTICS (Note 7)</b>						
Gate Threshold Voltage	$V_{GS(\text{TH})}$	-0.45	—	-1.25	V	$V_{DS} = V_{GS}, I_D = -250\mu\text{A}$
Static Drain-Source On-Resistance	$R_{DS(\text{ON})}$	—	80	110	mΩ	$V_{GS} = -4.5\text{V}, I_D = -2.6\text{A}$
		—	165	225		$V_{GS} = -2.5\text{V}, I_D = -2.0\text{A}$
Forward Transfer Admittance	$ Y_{fs} $	—	4	—	s	$V_{DS} = -5\text{V}, I_D = -2.6\text{A}$
Diode Forward Voltage (Note 6)	$V_{SD}$	—	—	-1.26	V	$V_{GS} = 0\text{V}, I_S = -2.6\text{A}$
<b>DYNAMIC CHARACTERISTICS (Note 8)</b>						
Input Capacitance	$C_{iss}$	—	250	—	pF	$V_{DS} = -10\text{V}, V_{GS} = 0\text{V}$ $f = 1.0\text{MHz}$
Output Capacitance	$C_{oss}$	—	88	—	pF	
Reverse Transfer Capacitance	$C_{rss}$	—	58	—	pF	
Gate Resistance	$R_g$	—	12	16	Ω	$V_{GS} = 0\text{V}, V_{DS} = 0\text{V}, f = 1\text{MHz}$
Total Gate Charge	$Q_g$	—	4.3	5.3	nC	$V_{GS} = -4.5\text{V}, V_{DS} = -10\text{V}, I_D = -2.7\text{A}$
Gate-Source Charge	$Q_{gs}$	—	0.9	—		
Gate-Drain Charge	$Q_{gd}$	—	2.1	—		

Notes:

- 5. Device mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout.
- 6. Repetitive rating, pulse width limited by junction temperature.
- 7. Short duration pulse test used to minimize self-heating effect.
- 8. Guaranteed by design. Not subject to production testing.

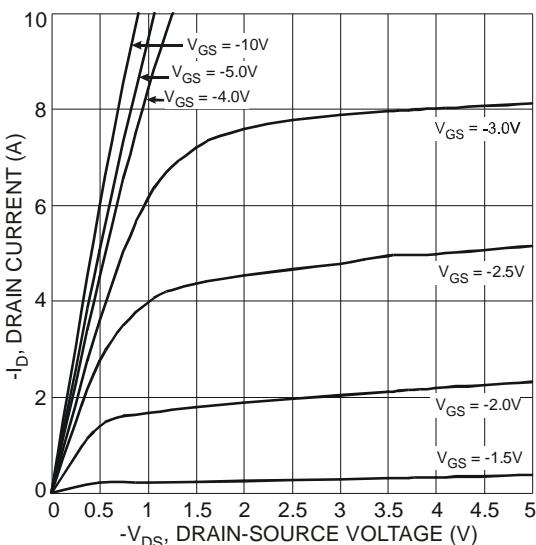


Figure 1 Typical Output Characteristics

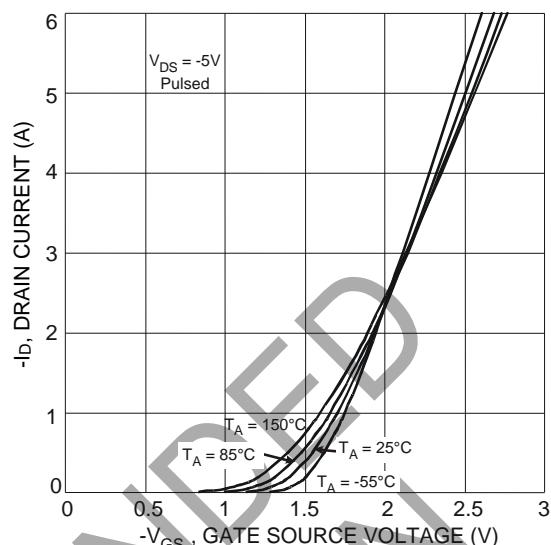


Figure 2 Typical Transfer Characteristics

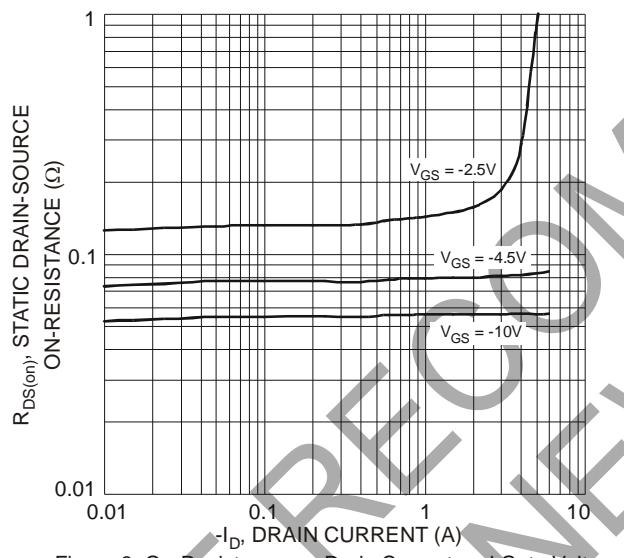


Figure 3 On-Resistance vs. Drain Current and Gate Voltage

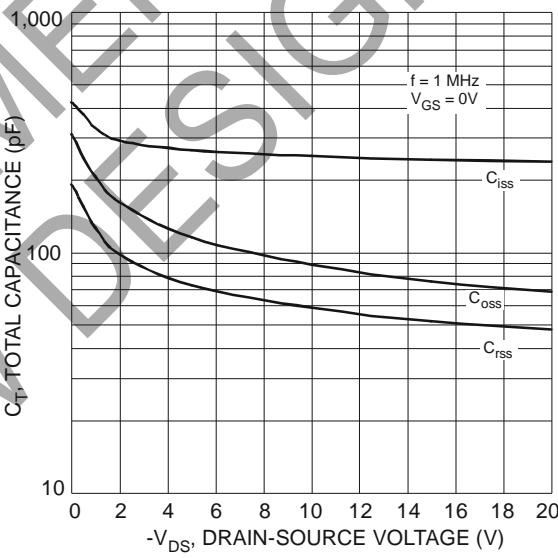


Figure 4 Typical Total Capacitance

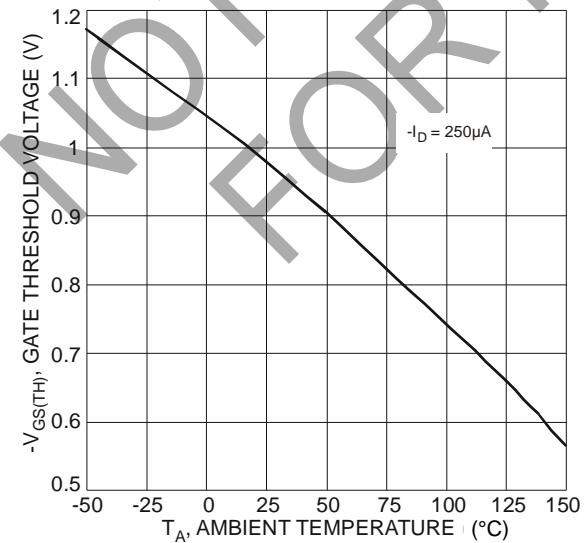


Figure 5 Gate Threshold Voltage vs. Ambient Temperature

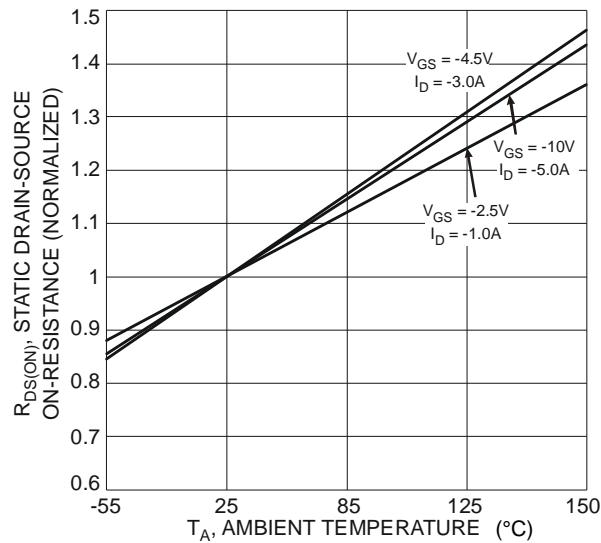
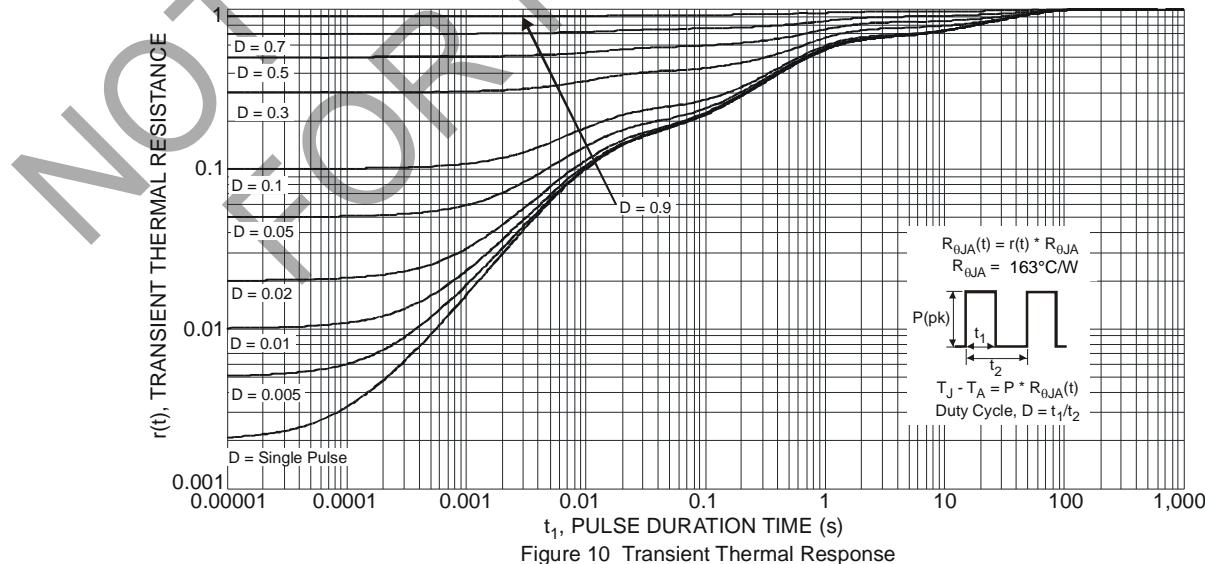
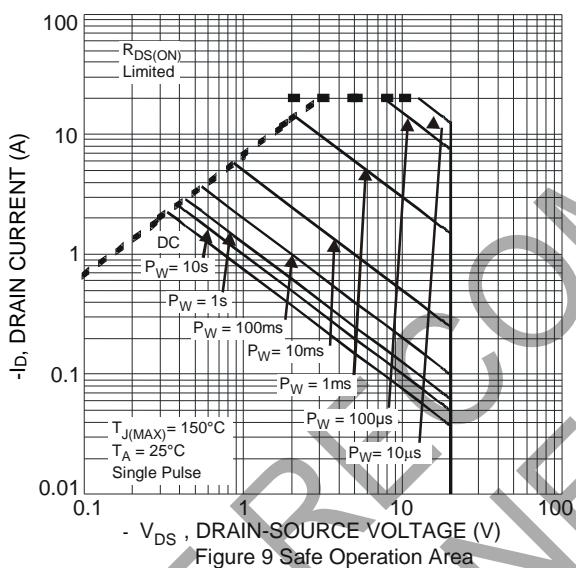
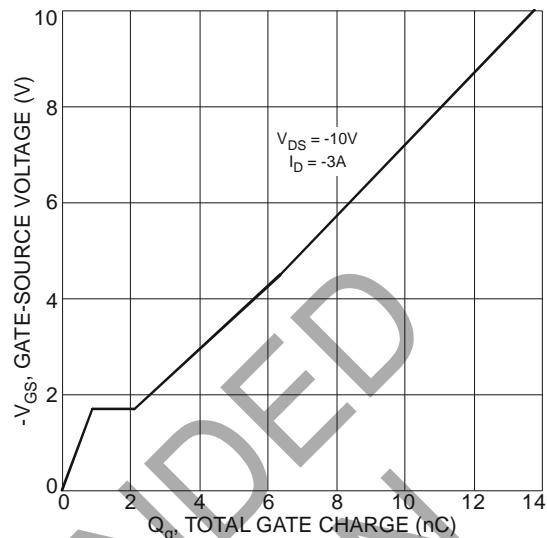
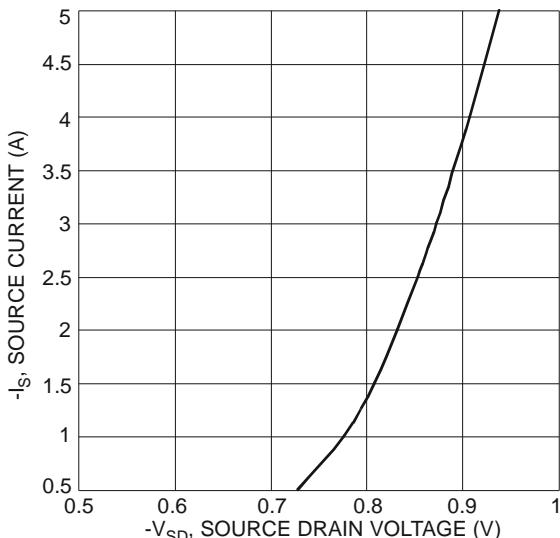


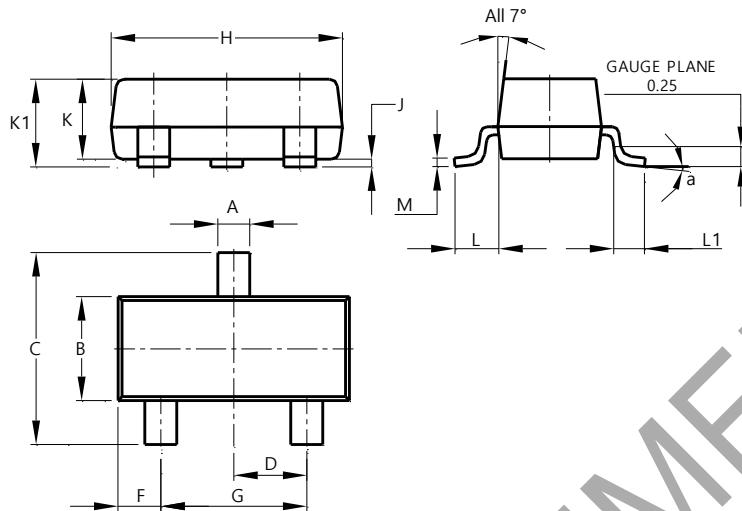
Figure 6 Normalized Static Drain-Source On-Resistance vs. Ambient Temperature



## Package Outline Dimensions

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

**SOT23**



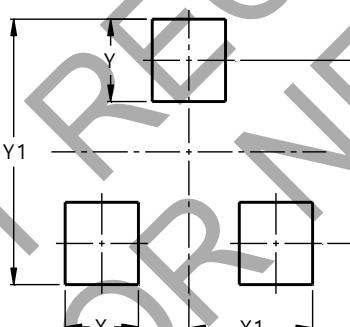
<b>SOT23</b>			
<b>Dim</b>	<b>Min</b>	<b>Max</b>	<b>Typ</b>
<b>A</b>	0.37	0.51	0.40
<b>B</b>	1.20	1.40	1.30
<b>C</b>	2.30	2.50	2.40
<b>D</b>	0.89	1.03	0.915
<b>F</b>	0.45	0.60	0.535
<b>G</b>	1.78	2.05	1.83
<b>H</b>	2.80	3.00	2.90
<b>J</b>	0.013	0.10	0.05
<b>K</b>	0.890	1.00	0.975
<b>K1</b>	0.903	1.10	1.025
<b>L</b>	0.45	0.61	0.55
<b>L1</b>	0.25	0.55	0.40
<b>M</b>	0.085	0.150	0.110
<b>a</b>	0°	8°	--

All Dimensions in mm

## Suggested Pad Layout

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

**SOT23**



Dimensions	Value (in mm)
C	2.0
X	0.8
X1	1.35
Y	0.9
Y1	2.9

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