



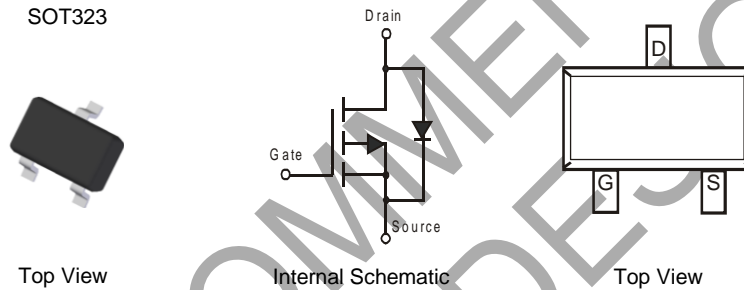
**THE DATASHEET OF
DMP2160UW-7**

Features

- Low On-Resistance
- 100mΩ @ $V_{GS} = -4.5V$
- 120mΩ @ $V_{GS} = -2.5V$
- 160mΩ @ $V_{GS} = -1.8V$
- Very Low Gate Threshold Voltage $V_{GS(TH)} \leq 1V$
- 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)**
- **Qualified to AEC-Q101 Standards for High Reliability**
- **An Automotive-Compliant Part is Available Under Separate Datasheet ([DMP2160UWQ](#))**

Mechanical Data

- Case: SOT323
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- Terminals Connections: See Diagram Below
- Terminals: Finish - Matte Tin Annealed over Alloy 42 Leadframe. Solderable per MIL-STD-202, Method 208 ^(e3)
- Weight: 0.006 grams (Approximate)

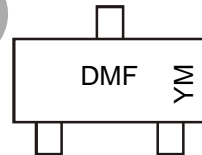


Ordering Information (Note 4)

Part Number	Compliance	Case	Packaging
DMP2160UW-7	Standard	SOT323	3000/Tape & Reel

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
 2. 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.
 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 <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

Marking Information



DMF = Marking Code
 YM = Date Code Marking
 Y = Year (ex: F = 2018)
 M = Month (ex: 9 = September)

Date Code Key

Year	2018	2019	2020	2021	2022	2023	2024	2025
Code	F	G	H	I	J	K	L	M

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}	-20	V
Gate-Source Voltage	V _{GSS}	±12	V
Drain Current (Note 5)	I _D	-1.5 -1.2	A
		T _A = +25°C T _A = +70°C	
Pulsed Drain Current	I _{DM}	-10	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Total Power Dissipation (Note 5)	P _D	350	mW
Thermal Resistance, Junction to Ambient	R _{θJA}	360	°C/W
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 6)						
Drain-Source Breakdown Voltage	BV _{DSS}	-20	—	—	V	V _{GS} = 0V, I _D = -250μA
Zero Gate Voltage Drain Current	I _{DSS}	—	—	-1.0	μA	T _J = +25°C V _{DS} = -20V, V _{GS} = 0V
Gate-Source Leakage	I _{GSS}	—	—	±100 ±800	nA	V _{GS} = ±8V, V _{DS} = 0V V _{GS} = ±12V, V _{DS} = 0V
ON CHARACTERISTICS (Note 6)						
Gate Threshold Voltage	V _{GS(TH)}	-0.4	-0.6	-0.9	V	V _{DS} = V _{GS} , I _D = -250μA
Static Drain-Source On-Resistance	R _{DS(ON)}	—	75	100	mΩ	V _{GS} = -4.5V, I _D = -1.5A
		—	90	120		V _{GS} = -2.5V, I _D = -1.2A
		—	120	160		V _{GS} = -1.8V, I _D = -1A
Forward Transconductance	g _{FS}	—	4	—	S	V _{DS} = -10V, I _D = -1.5A
Diode Forward Voltage (Note 6)	V _{SD}	—	—	-1.0	V	V _{GS} = 0V, I _S = -1.0A
DYNAMIC CHARACTERISTICS						
Input Capacitance	C _{iSS}	—	627	—	pF	V _{DS} = -10V, V _{GS} = 0V f = 1.0MHz
Output Capacitance	C _{oSS}	—	64	—	pF	
Reverse Transfer Capacitance	C _{rSS}	—	53	—	pF	

Notes: 5. Device mounted on 1inch² FR-4 PCB with 2 oz. Copper. t ≤ 10 sec.
6. Short duration pulse test used to minimize self-heating effect.

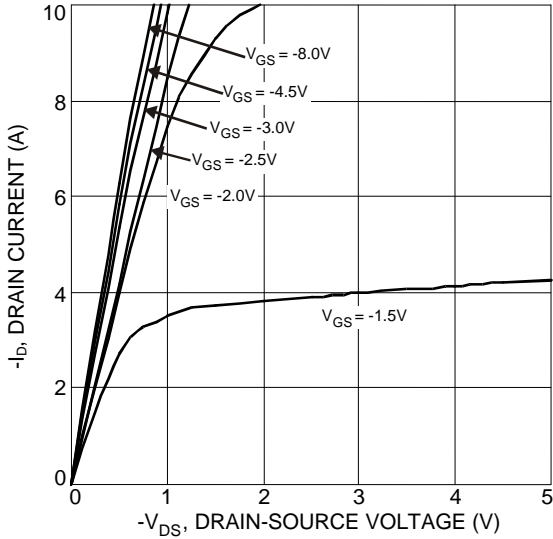


Fig. 1 Typical Output Characteristics

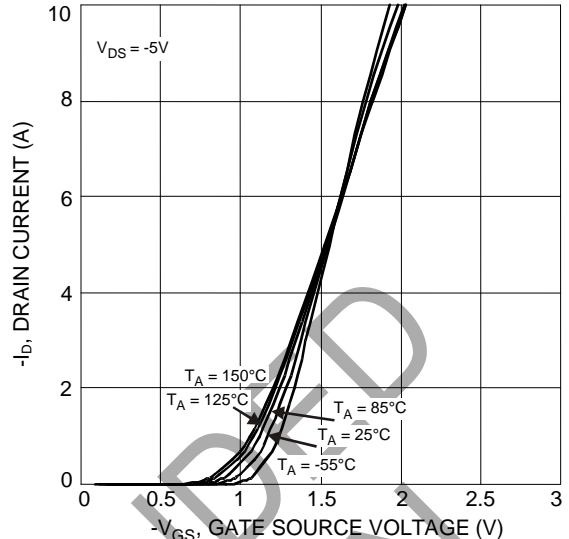


Fig. 2 Typical Transfer Characteristics

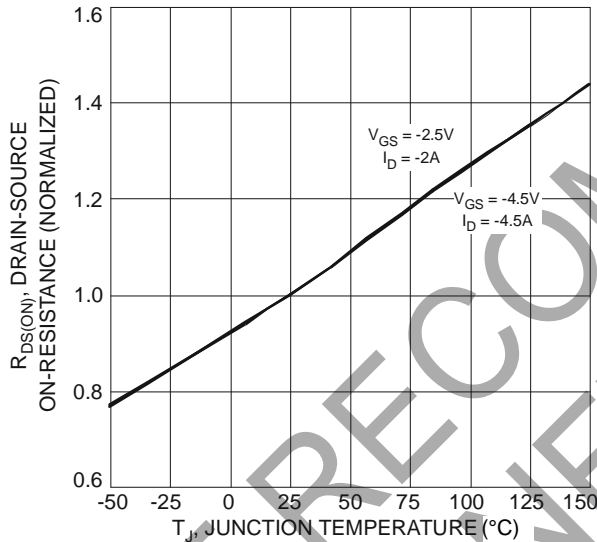


Fig. 3 On-Resistance Variation with Temperature

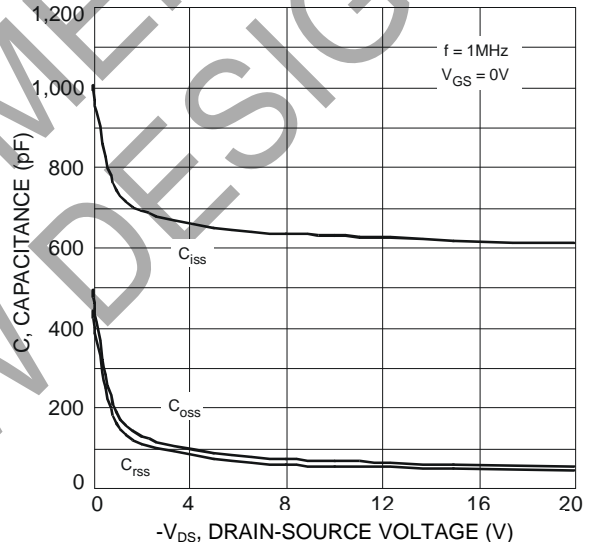


Fig. 4 Typical Capacitance

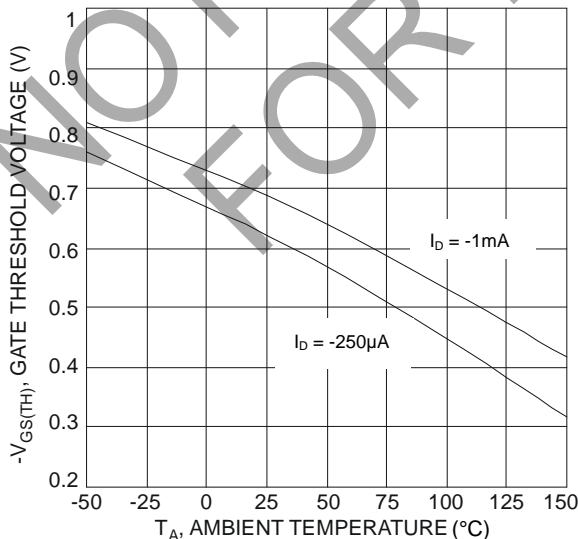


Fig. 5 Gate Threshold Variation vs. Ambient Temperature

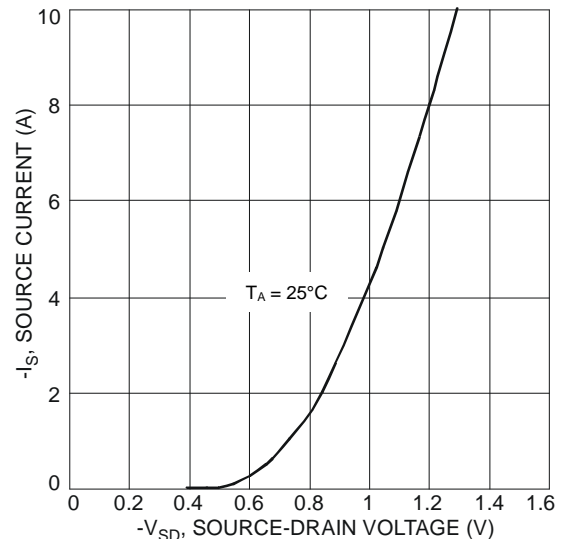


Fig. 6 Diode Forward Voltage vs. Current

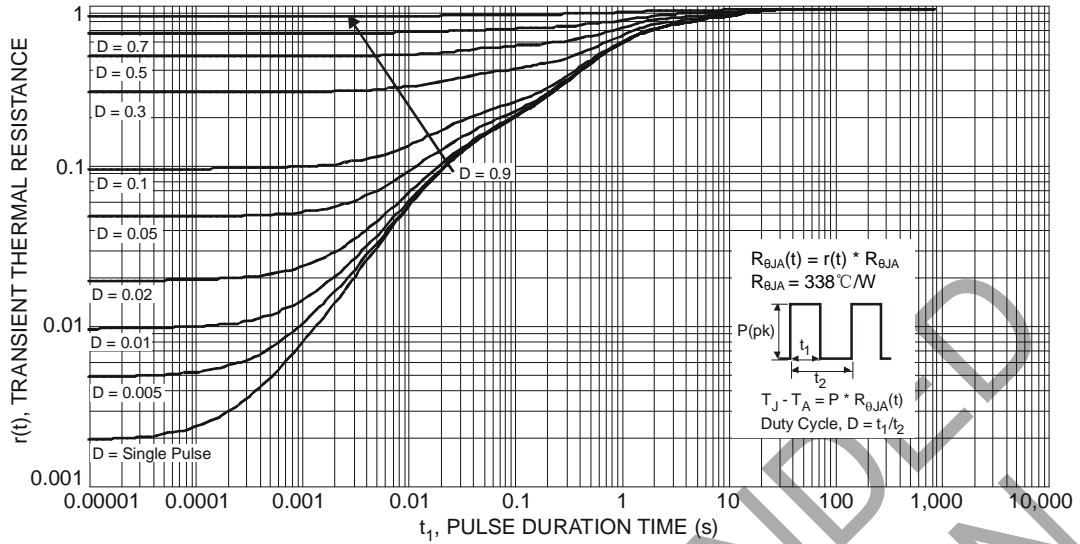


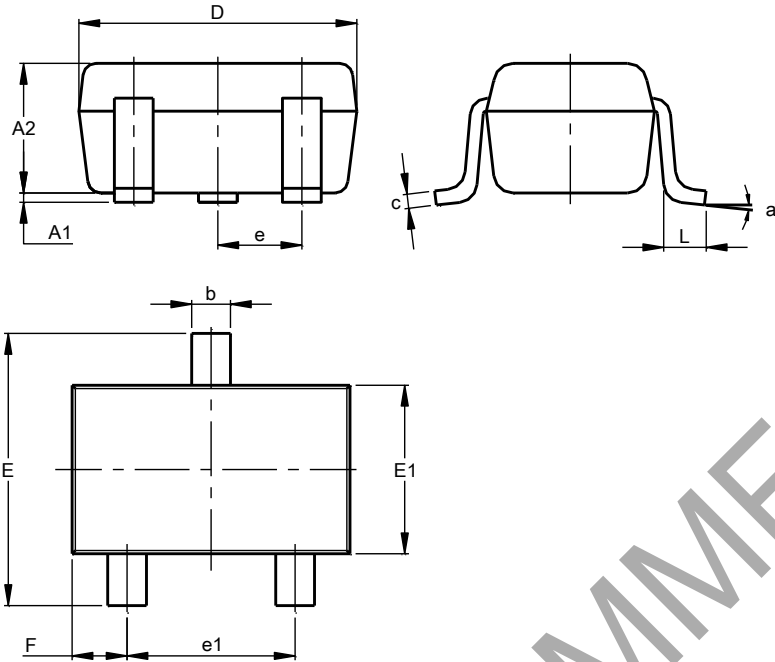
Fig. 7 Transient Thermal Response

NOT RECOMMENDED FOR NEW DESIGN

Package Outline Dimensions

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

SOT323

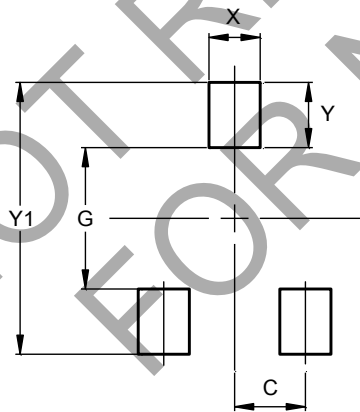


SOT323			
Dim	Min	Max	Typ
A1	0.00	0.10	0.05
A2	0.90	1.00	0.95
b	0.25	0.40	0.30
c	0.10	0.18	0.11
D	1.80	2.20	2.15
E	2.00	2.20	2.10
E1	1.15	1.35	1.30
e	0.650 BSC		
e1	1.20	1.40	1.30
F	0.375	0.475	0.425
L	0.25	0.40	0.30
a	0°	8°	--
All Dimensions in mm			

Suggested Pad Layout

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

SOT323



Dimensions	Value (in mm)
C	0.650
G	1.300
X	0.470
Y	0.600
Y1	2.500

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