Lead-free Green

DMP2104V

P-CHANNEL ENHANCEMENT MODE FIELD EFFECT TRANSISTOR

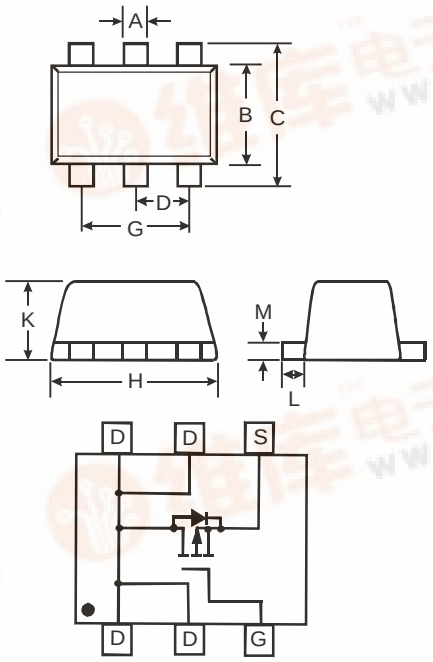
NEW PRODUCT

Features

- P-Channel MOSFET
- Very Low On-Resistance
- Very Low Gate Threshold Voltage
- Low Input Capacitance
- Fast Switching Speed
- Low Input/Output Leakage
- Ultra-Small Surface Mount Package
- **Lead Free By Design/RoHS Compliant (Note 2)**
- **"Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

Mechanical Data

- Case: SOT-563
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminals Connections: See Diagram
- Terminals: Finish - Matte Tin annealed over Copper lead frame. Solderable per MIL-STD-202, Method 208
- Marking Information: See Page 4
- Ordering Information: See Page 4
- Weight: 0.006 grams (approximate)



SOT-563			
Dim	**Min**	**Max**	**Typ**
A	0.15	0.30	0.25
B	1.10	1.25	1.20
C	1.55	1.70	1.60
D		0.50	
G	0.90	1.10	1.00
H	1.50	1.70	1.60
K	0.56	0.60	0.60
L	0.10	0.30	0.20
M	0.10	0.18	0.11
All Dimensions in mm			

Maximum Ratings @T_A = 25°C unless otherwise specified

Characteristic			Symbol	Value	Units
Drain-Source Voltage			V_{DSS}	-20	V
Gate-Source Voltage			V_{GSS}	±12	V
Continuous Drain Current (Note 1)	Steady State	T_A = 25°C T_A = 70°C	I_D	-860 -690	mA
Power Dissipation (Note 1)	Steady State		P_D	170	mW
Continuous Drain Current (Note 1)	t ≤ 5s	T_A = 25°C T_A = 70°C	I_D	-950 -760	mA
Power Dissipation (Note 1)	t ≤ 5s		P_D	210	mW
Pulsed Drain Current	t_p = 10µs		I_{DM}	-4.0	A
Operating and Storage Temperature Range			T_j, T_{STG}	-55 to +150	°C

Notes:
1. Device mounted on FR-4 PCB with 1 inch square pads.
2. No purposefully added lead.
3. Diodes Inc.'s "Green" policy can be found on our website at http://www.diodes.com/products/lead_free/index.php.

NEW PRODUCT

Electrical Characteristics @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 4)						
Drain-Source Breakdown Voltage	BV_{DSS}	-20	—	—	V	V_{GS} = 0V, I_D = -250μA
Zero Gate Voltage Drain Current T_J = 25°C T_J = 125°C	I_{DSS}	—	—	-1.0 -5.0	μA	V_{DS} = -20V, V_{GS} = 0V
Gate-Source Leakage	I_{GSS}	—	—	±100	nA	V_{GS} = ±12V, V_{DS} = 0V
ON CHARACTERISTICS (Note 4)						
Gate Threshold Voltage	$V_{GS(th)}$	-0.45	—	-1.0	V	V_{DS} = V_{GS}, I_D = -250μA
Static Drain-Source On-Resistance	$R_{DS\ (ON)}$	—	92	150	mΩ	V_{GS} = -4.5V, I_D = -950mA
			134	200		V_{GS} = -2.5V, I_D = -670mA
			180	240		V_{GS} = -1.8V, I_D = -200mA
Forward Transconductance	g_{FS}	—	3.1	—	S	V_{DS} = -10V, I_D = -810mA
Diode Forward Voltage (Note 4)	V_{SD}	—	—	-0.9	V	V_{GS} = 0V, I_S = -360mA
DYNAMIC CHARACTERISTICS						
Input Capacitance	C_{iss}	—	320	—	pF	V_{DS} = -16V, V_{GS} = 0V f = 1.0MHz
Output Capacitance	C_{oss}	—	80	—	pF	
Reverse Transfer Capacitance	C_{rss}	—	60	—	pF	

Notes: 4. Short duration test pulse used to minimize self-heating effect.

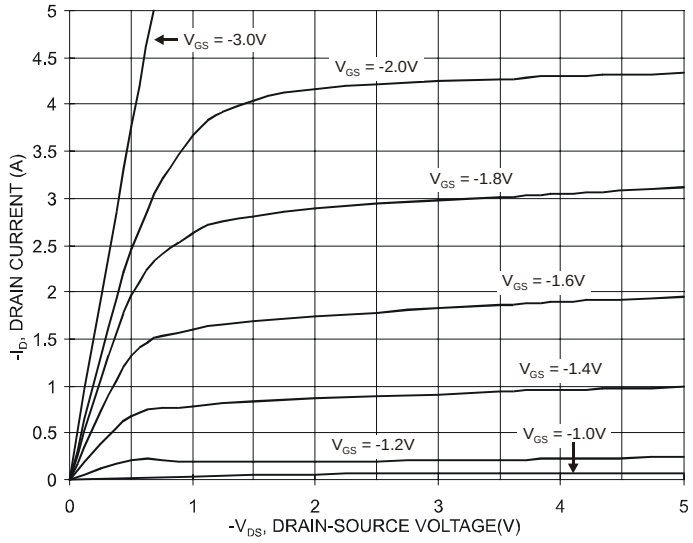


Fig.1 Typical Output Characteristics

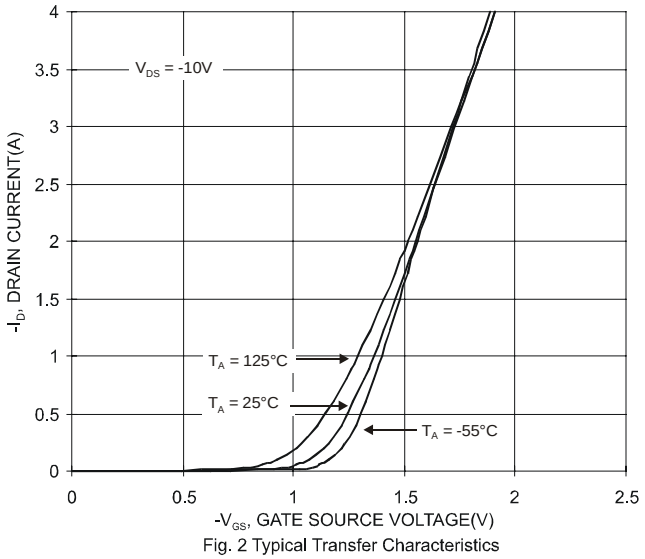


Fig. 2 Typical Transfer Characteristics

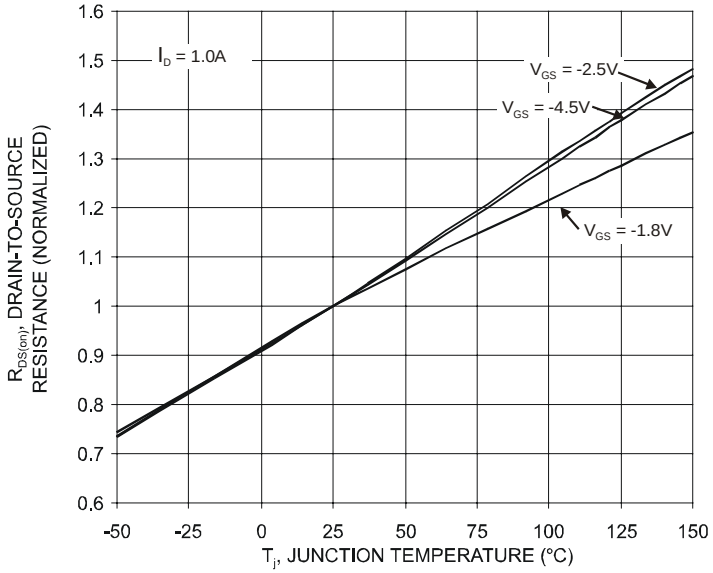


Fig. 3 On-Resistance Variation with Temperature

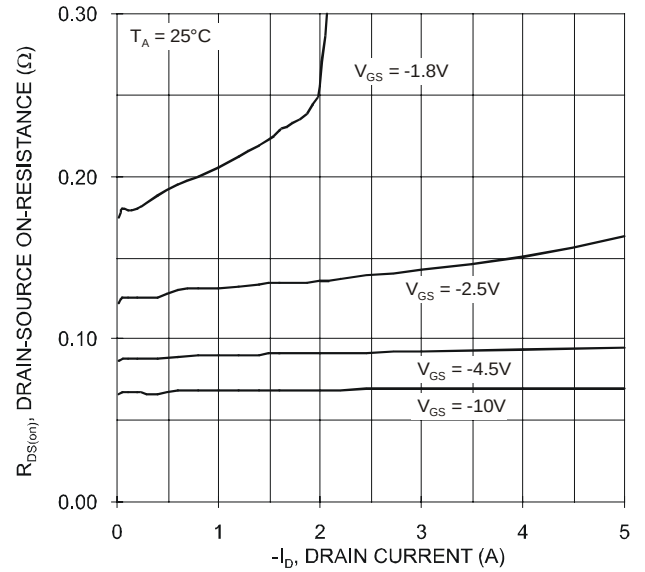


Fig. 4 On-Resistance vs Drain Current and Gate Voltage

NEW PRODUCT

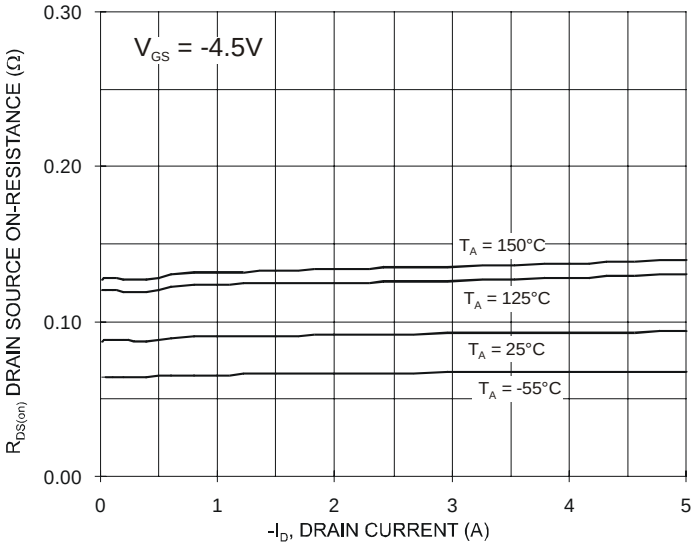


Fig. 5 Drain-Source On-Resistance Vs. Drain Current and Temperature

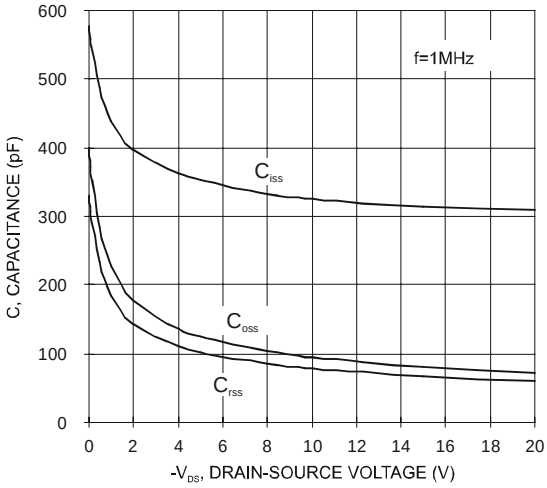


Fig. 6: Typical Capacitance

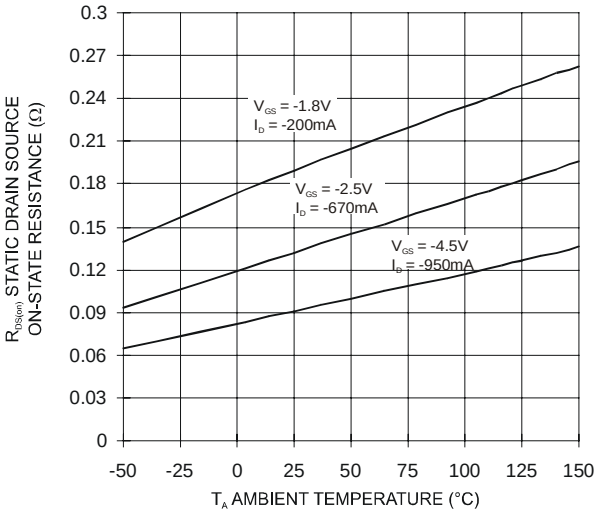


Fig. 7 Static Drain-Source On-State Resistance vs Ambient Temperature

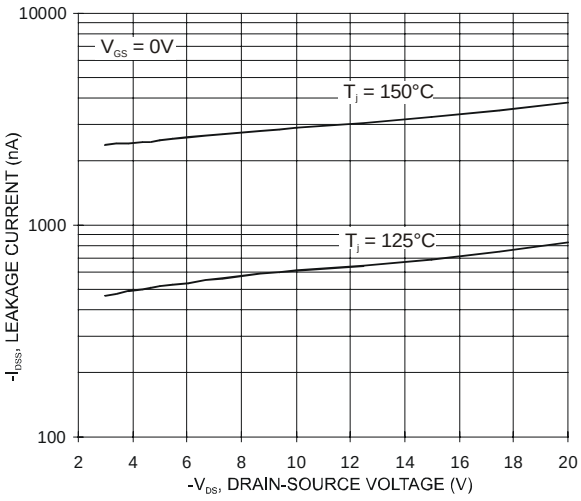


Fig. 8 Drain-Source Leakage Current vs Voltage

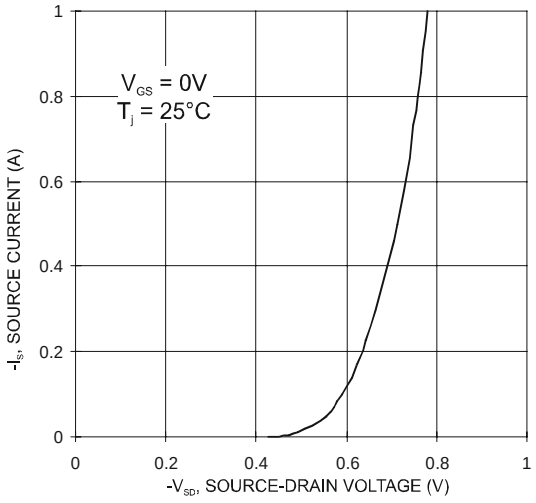


Fig. 9 Diode Forward Voltage vs. Current

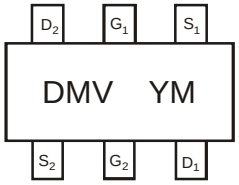
NEW PRODUCT

Ordering Information (Note 5)

Device	Packaging	Shipping
DMP2104V-7	SOT-563	3000/Tape & Reel

Notes: 5. For Packaging Details, go to our website at http://www.diodes.com/datasheets/ap02007.pdf.

Marking Information



DMV = Marking Code
YM = Date Code Marking
Y = Year ex: T = 2006
M = Month ex: 9 = September

Date Code Key

Year	2006	2007	2008	2009	2010	2011	2012
Code	T	U	V	W	X	Y	Z

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