

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 1)**
- **"Green" Device (Note 2)**
- **Qualified to AEC-Q101 Standards for High Reliability**

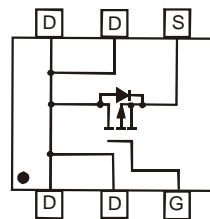
Mechanical Data

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

SOT-563



TOP VIEW



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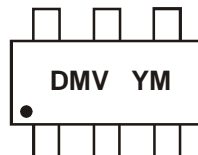
Internal Schematic

Ordering Information (Note 3)

Part Number	Case	Packaging
DMP2104V-7	SOT-563	3000/Tape & Reel

- Notes:
1. No purposefully added lead.
 2. Diodes Inc.'s "Green" policy can be found on our website at <http://www.diodes.com>.
 3. For packaging details, go to our website at <http://www.diodes.com>.

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

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 4)	Steady State	T _A = 25°C T _A = 70°C	I _D	-860 -690	mA
Continuous Drain Current (Note 4)	t ≤ 5s	T _A = 25°C T _A = 70°C	I _D	-950 -760	mA

Thermal Characteristics

Characteristic			Symbol	Value	Units
Power Dissipation (Note 4)	Steady State		P _D	170	mW
Power Dissipation (Note 4)	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

Electrical Characteristics @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 5)						
Drain-Source Breakdown Voltage	BV _{DSS}	-20	—	—	V	V _{GS} = 0V, I _D = -250μA
Zero Gate Voltage Drain Current	I _{DSS}	—	—	-1.0 -5.0	μA	T _J = 25°C T _J = 125°C V _{DS} = -20V, V _{GS} = 0V
Gate-Source Leakage	I _{GSS}	—	—	±100	nA	V _{GS} = ±12V, V _{DS} = 0V
ON CHARACTERISTICS (Note 5)						
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
			—	—		V _{GS} = -1.8V, I _D = -200mA
Forward Transconductance	g _{FS}	—	3.1	—	S	V _{DS} = -10V, I _D = -810mA
Diode Forward Voltage (Note 5)	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. Device mounted on FR-4 PCB with 1 inch square pads.
 5. Short duration pulse test used to minimize self-heating effect.

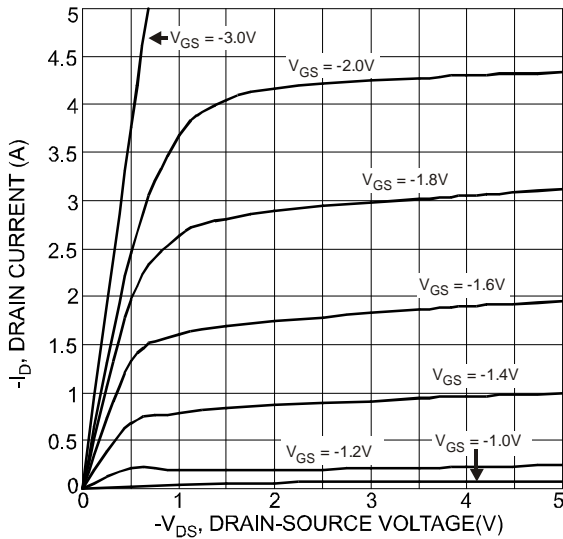


Fig. 1 Typical Output Characteristics

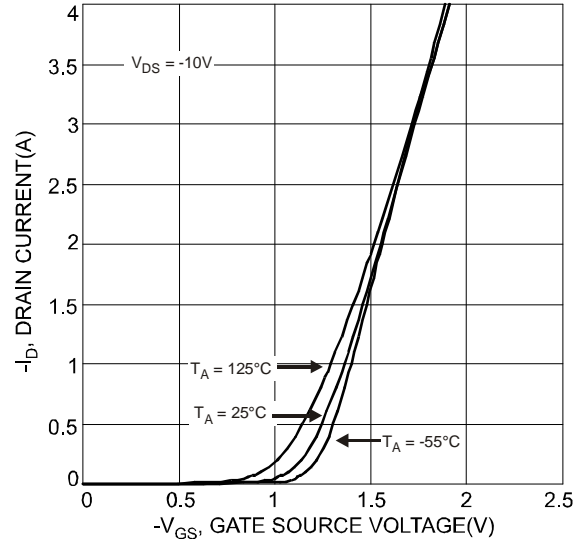


Fig. 2 Typical Transfer Characteristics

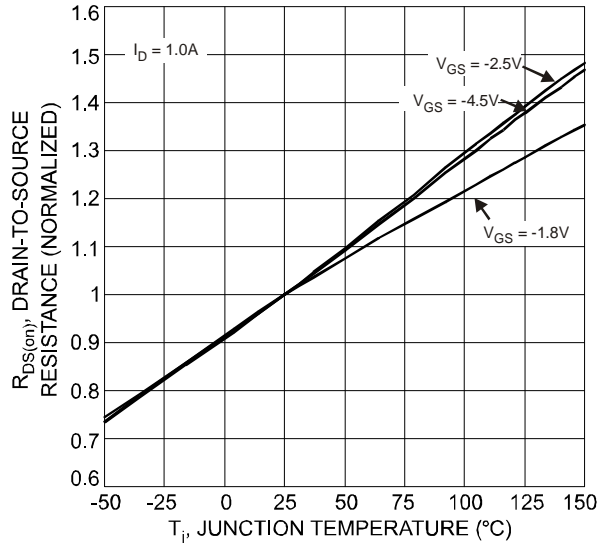


Fig. 3 On-Resistance Variation with Temperature

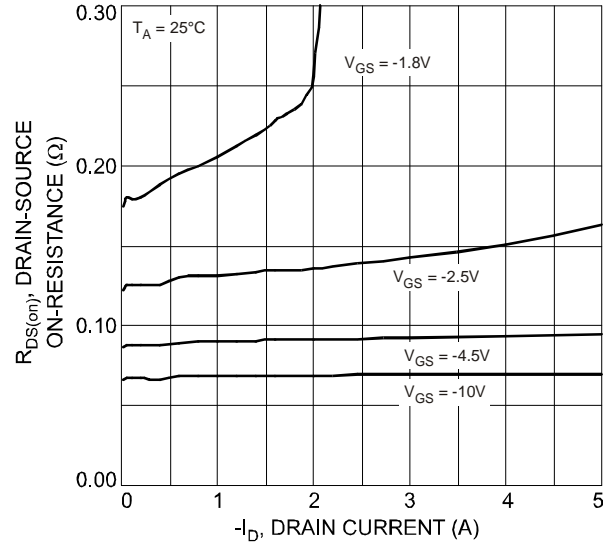


Fig. 4 On-Resistance vs. Drain Current and Gate Voltage

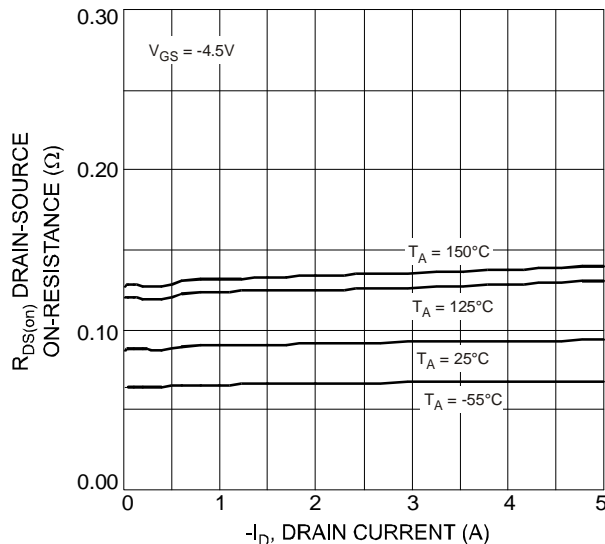


Fig. 5 Drain-Source On-Resistance vs. Drain Current and Temperature

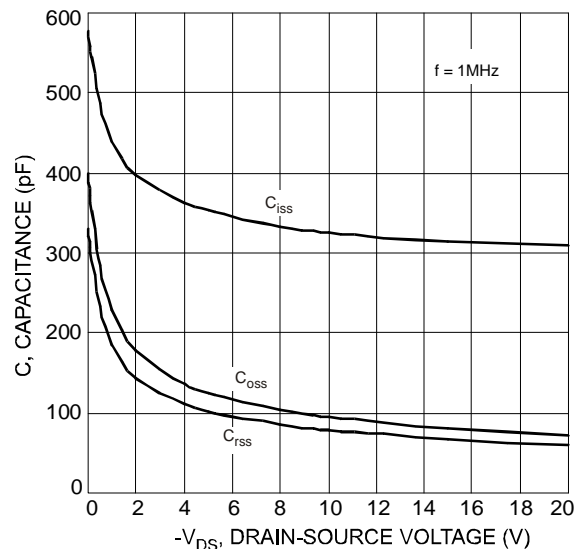


Fig. 6 Typical Capacitance

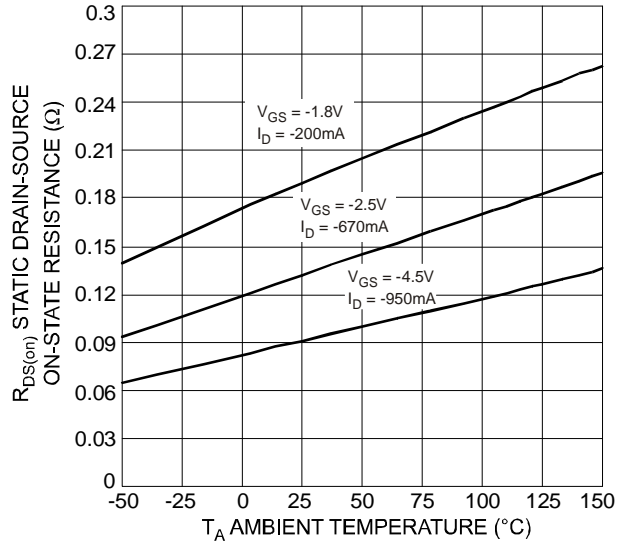


Fig. 7 Static Drain-Source On-State Resistance vs. Ambient Temperature

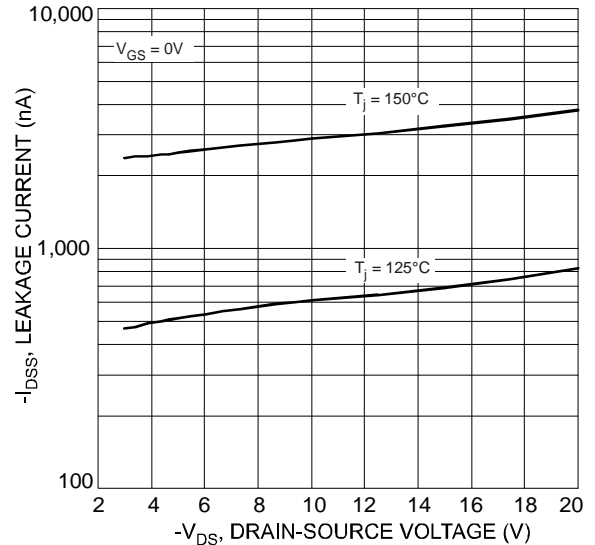


Fig. 8 Drain-Source Leakage Current vs. Voltage

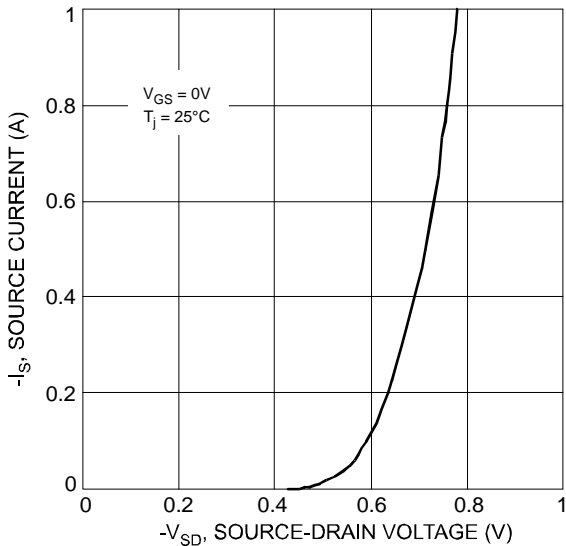


Fig. 9 Diode Forward Voltage vs. Current

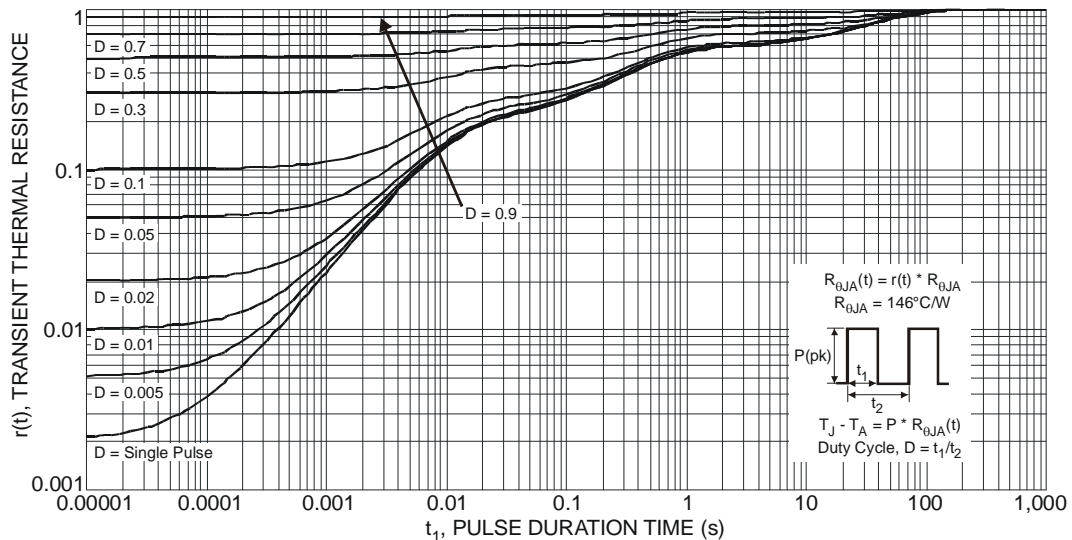
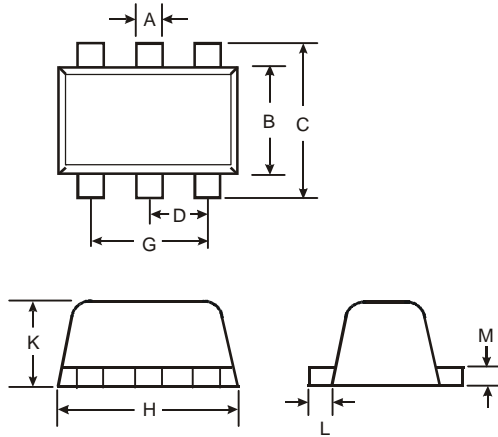


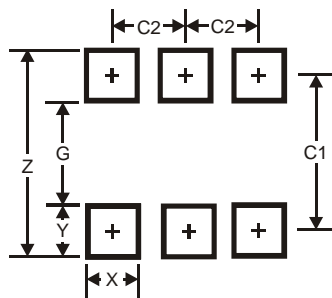
Fig. 10 Transient Thermal Response

Package Outline Dimensions



SOT-563			
Dim	Min	Max	Typ
A	0.15	0.30	0.20
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	0.55	0.60	0.60
L	0.10	0.30	0.20
M	0.10	0.18	0.11
All Dimensions in mm			

Suggested Pad Layout



Dimensions	Value (in mm)
Z	2.2
G	1.2
X	0.375
Y	0.5
C1	1.7
C2	0.5

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