

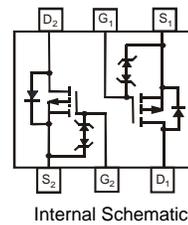
### Features

- Dual P-Channel MOSFET
- Low On-Resistance
  - 5.0Ω @ -4.5V
  - 7.0Ω @ -2.5V
  - 10Ω @ -1.8V
  - 15Ω @ -1.5V
- Very Low Gate Threshold Voltage  $V_{GS(TH)} < 1V$
- Low Input Capacitance
- Fast Switching Speed
- **Lead Free By Design/RoHS Compliant (Note 2)**
- **ESD Protected Gate**
- **"Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

### Mechanical Data

- Case: SOT-963
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections: See Diagram
- Terminals: Finish - Matte Tin annealed over Copper lead frame. Solderable per MIL-STD-202, Method 208
- Marking Information: See Page 2
- Ordering Information: See Page 2
- Weight: 0.0027 grams (approximate)

SOT-963



### Maximum Ratings @ $T_A = 25^\circ C$ unless otherwise specified

Characteristic	Symbol	Value	Units
Drain-Source Voltage	$V_{DSS}$	-20	V
Gate-Source Voltage	$V_{GSS}$	$\pm 8$	V
Continuous Drain Current (Note 1)	$I_D$	@ $T_A = 25^\circ C$	-140
		@ $T_A = 85^\circ C$	-100
Pulsed Drain Current	$I_{DM}$	-600	mA

### Thermal Characteristics @ $T_A = 25^\circ C$ unless otherwise specified

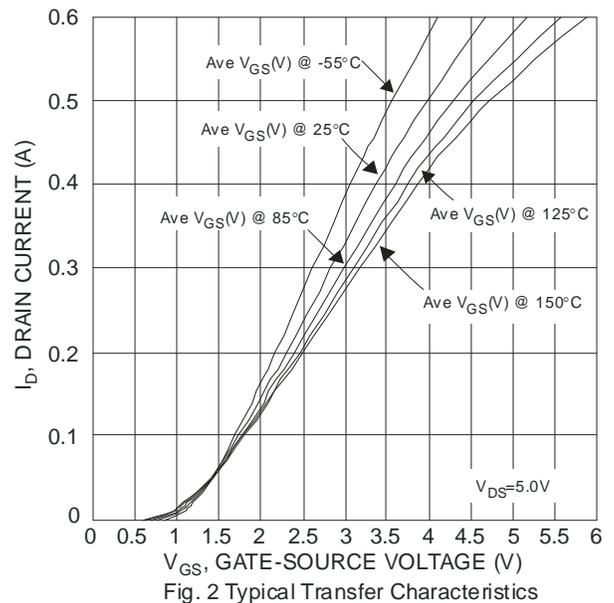
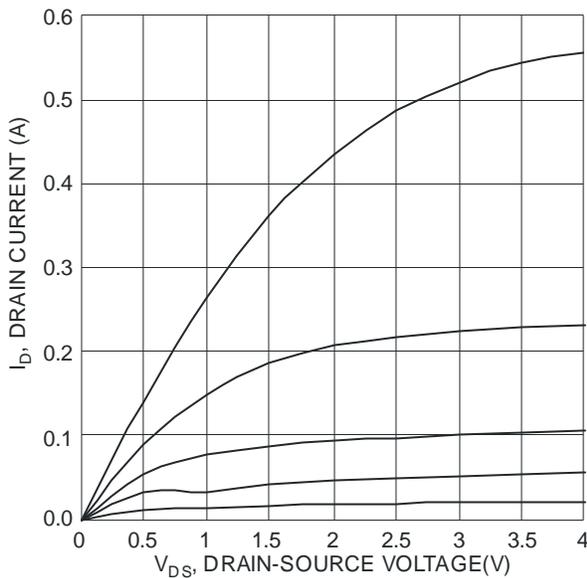
Characteristic	Symbol	Value	Units
Total Power Dissipation (Note 1)	$P_D$	330	mW
Thermal Resistance, Junction to Ambient, Note 1	$R_{\theta JA}$	377.16	$^\circ C/W$
Operating and Storage Temperature Range	$T_J, T_{STG}$	-55 to +150	$^\circ C$

- Notes:
1. Device mounted on 1"x1" FR-4 substrate PC board, with minimum recommended pad layout, single sided.
  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](http://www.diodes.com/products/lead_free/index.php).

**Electrical Characteristics** @ $T_A = 25^\circ\text{C}$  unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
<b>OFF CHARACTERISTICS (Note 4)</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	-20	—	—	V	$V_{GS} = 0V, I_D = -250mA$
Zero Gate Voltage Drain Current	$I_{DSS}$	—	—	-100	nA	$V_{DS} = -16V, V_{GS} = 0V$
		—	—	-50	nA	$V_{DS} = -5.0V, V_{GS} = 0V$
Gate-Source Leakage	$I_{GSS}$	—	—	$\pm 100$	nA	$V_{GS} = \pm 5.0V, V_{DS} = 0V$
<b>ON CHARACTERISTICS (Note 4)</b>						
Gate Threshold Voltage	$V_{GS(th)}$	-0.5	—	-1.0	V	$V_{DS} = V_{GS}, I_D = -250\mu A$
Static Drain-Source On-Resistance	$R_{DS(on)}$	—	—	5.0	$\Omega$	$V_{GS} = -4.5V, I_D = -100mA$
				7.0		$V_{GS} = -2.5V, I_D = -50mA$
				10		$V_{GS} = -1.8V, I_D = -20mA$
				15		$V_{GS} = -1.5V, I_D = -10mA$
Forward Transfer Admittance	$ Y_{fs} $	200	—	—	mS	$V_{DS} = -10V, I_D = -0.2A$
Diode Forward Voltage (Note 4)	$V_{SD}$	-0.5	—	-1.2	V	$V_{GS} = 0V, I_S = -115mA$
<b>DYNAMIC CHARACTERISTICS (Note 5)</b>						
Input Capacitance	$C_{iss}$	—	13.72	175	pF	$V_{DS} = -15V, V_{GS} = 0V$ $f = 1.0MHz$
Output Capacitance	$C_{oss}$	—	4.01	30	pF	
Reverse Transfer Capacitance	$C_{rss}$	—	2.34	20	pF	
<b>SWITCHING CHARACTERISTICS (Note 5)</b>						
Turn-On Delay Time	$t_{d(on)}$	—	20	—	ms	$V_{GS} = -4.5V, V_{DD} = -15V$ $I_D = -180mA, R_G = 2.0\Omega$
Rise Time	$t_r$	—	37	—		
Turn-Off Delay Time	$t_{d(off)}$	—	112	—		
Fall Time	$t_f$	—	97	—		

- Notes: 4. Short duration pulse test used to minimize self-heating effect.  
5. Guaranteed by design. Not subject to production testing.

**Typical Characteristics**


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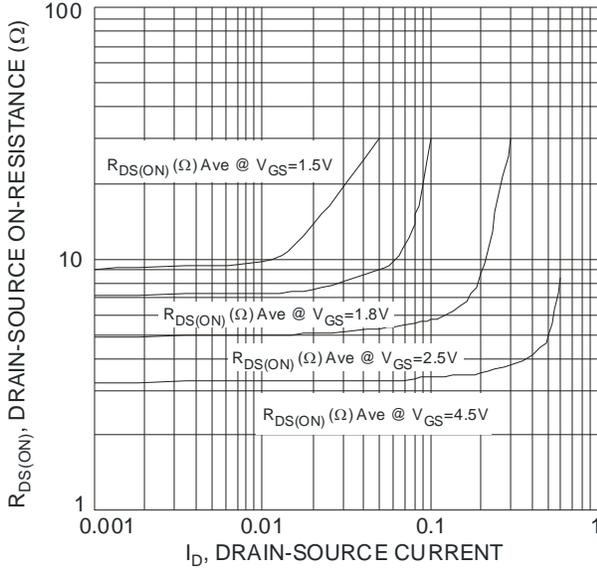


Fig. 3 Typical On-Resistance vs. Drain Current and Gate Voltage

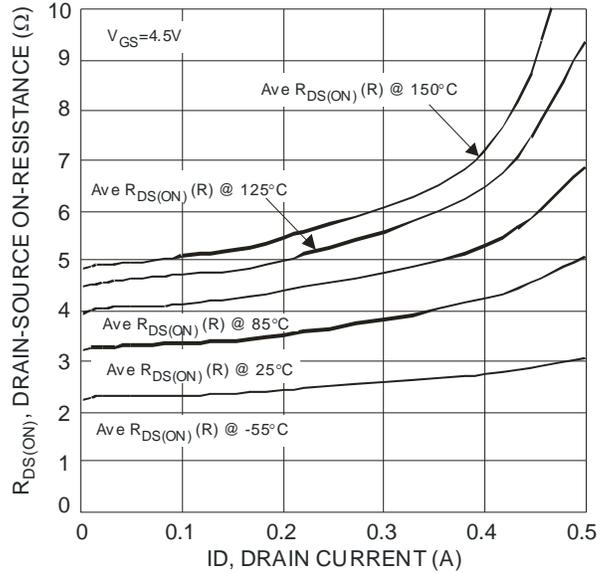


Fig. 4 Typical On-Resistance vs. Drain Current and Temperature

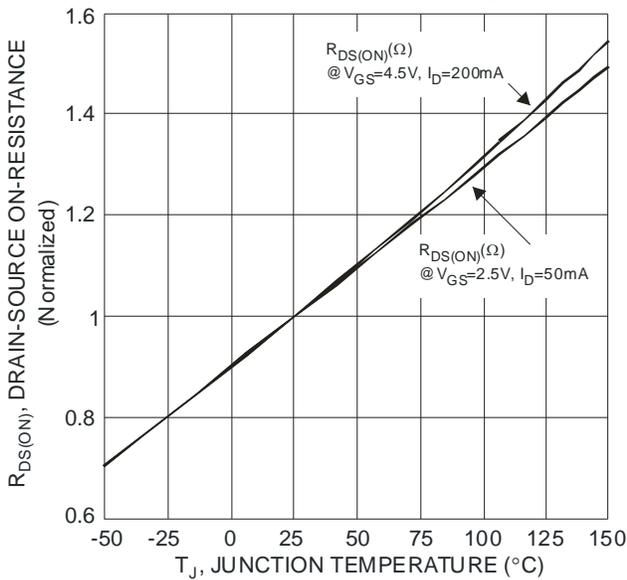


Fig. 5 On-Resistance Variation with Temperature

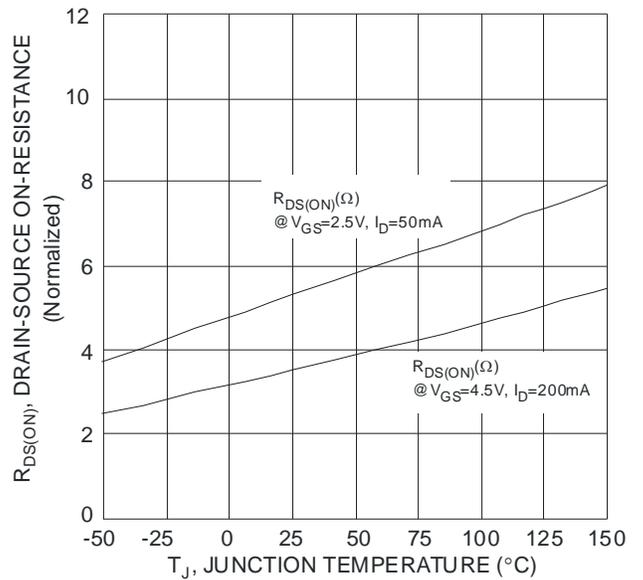


Fig. 6 On-Resistance vs. Temperature

**Typical Characteristics**

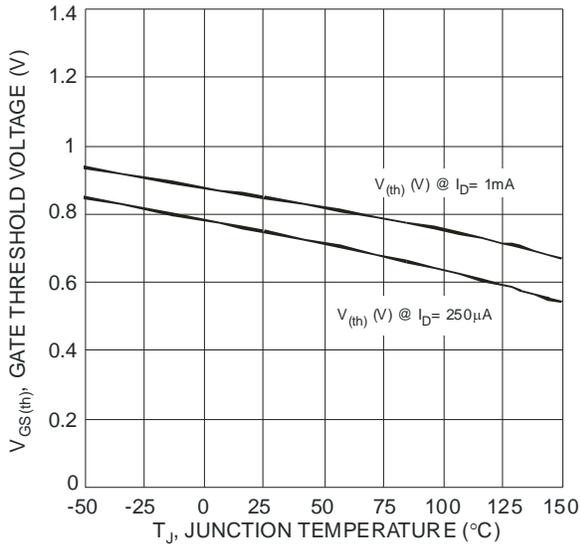


Fig. 7 Gate Threshold Variation vs. Ambient Temperature

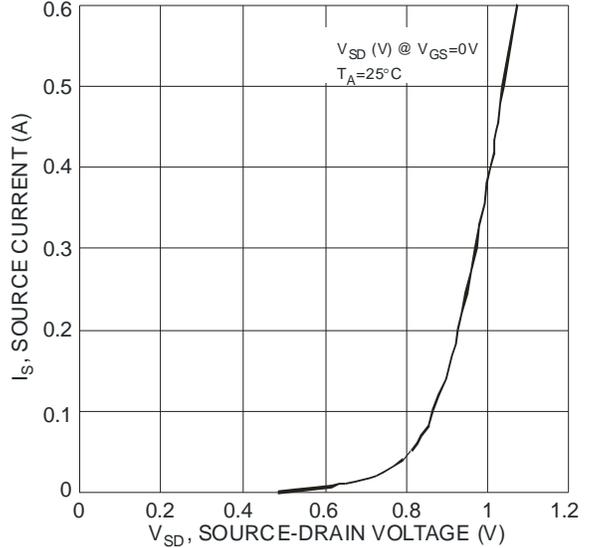


Fig. 8 Diode Forward Voltage vs. Current

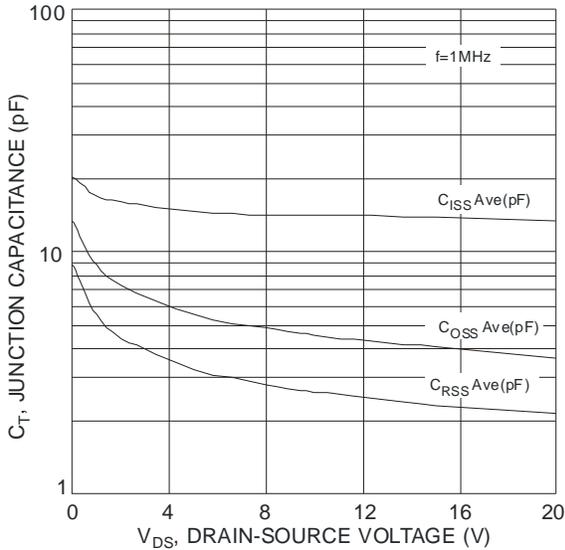


Fig. 9 Typical Junction Capacitance

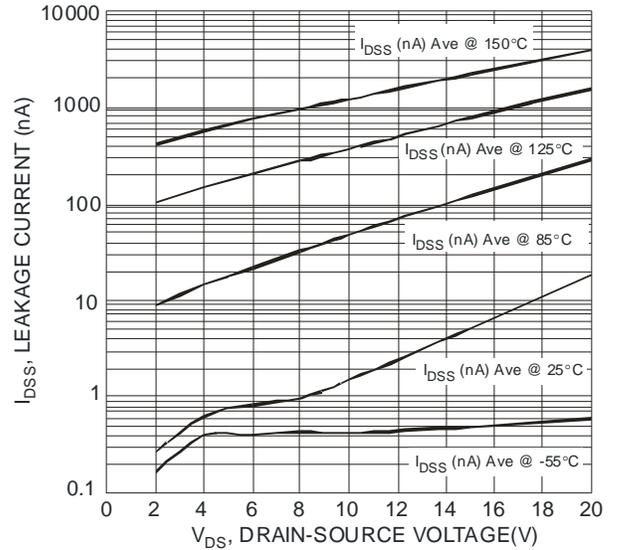


Fig. 10 Typical Drain-Source Leakage Current vs. Voltage

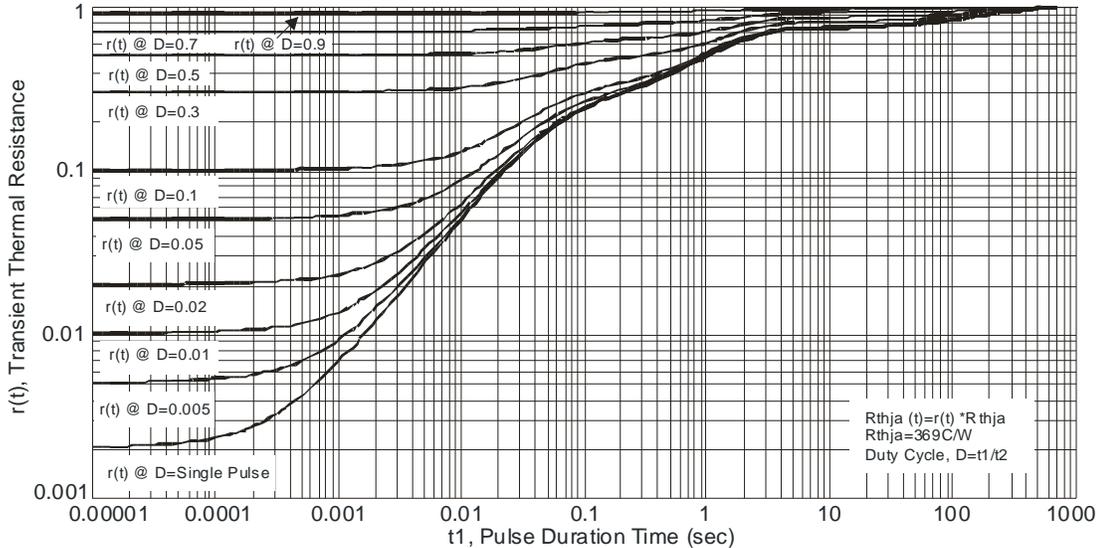


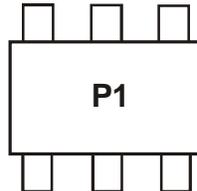
Fig. 11 Transient Thermal Resistance

**Ordering Information** (Note 6)

Part Number	Case	Packaging
DMP210DUDJ-7	SOT-963	10,000/Tape & Reel

Notes: 6. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

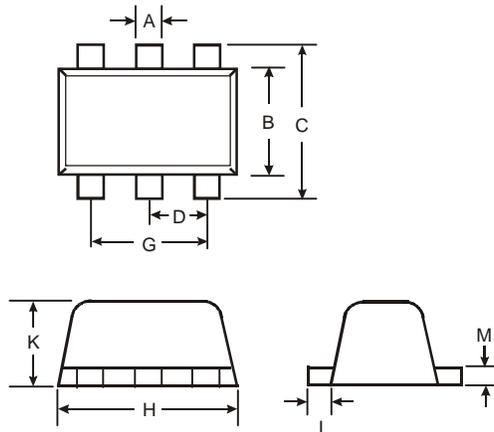
**Marking Information** (Note 7)



P1 = Product Type Marking Code

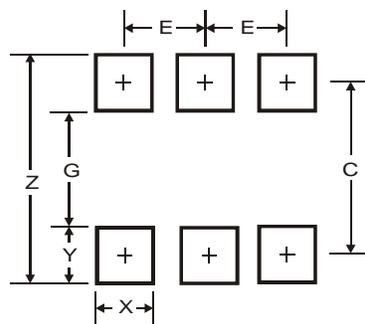
Notes: 7. Package is non-polarized. Parts may be on reel in orientation illustrated, 180° rotated, or mixed (both ways).

**Package Outline Dimensions**



SOT-963			
Dim	Min	Max	Typ
A	0.10	0.20	0.15
B	0.95	1.05	1.00
C	0.95	1.05	1.00
D		0.35	
G		0.70	
H	0.95	1.05	1.00
K	0.40	0.50	0.45
L	0.05	0.15	0.10
M	0.05	0.15	0.10
All Dimensions in mm			

**Suggested Pad Layout**



Dimensions	Value (in mm)
Z	1.10
G	0.70
X	0.20
Y	0.20
C	0.90
E	0.35

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