

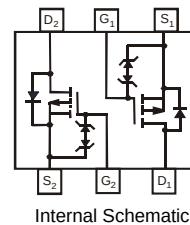
Features

- Dual P-Channel MOSFET
- Low On-Resistance
 - o 5.0Ω @ -4.5V
 - o 7.0Ω @ -2.5V
 - o 10Ω @ -1.8V
 - o 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 @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Value	Units
Drain-Source Voltage	V_{DSS}	-20	V
Gate-Source Voltage	V_{GSS}	± 8	V
Continuous Drain Current (Note 1)	I_D	-140 -100	mA
		@ $T_A = 25^\circ\text{C}$ @ $T_A = 85^\circ\text{C}$	
Pulsed Drain Current	I_{DM}	-600	mA
		$T_P = 10\mu\text{s}$	

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

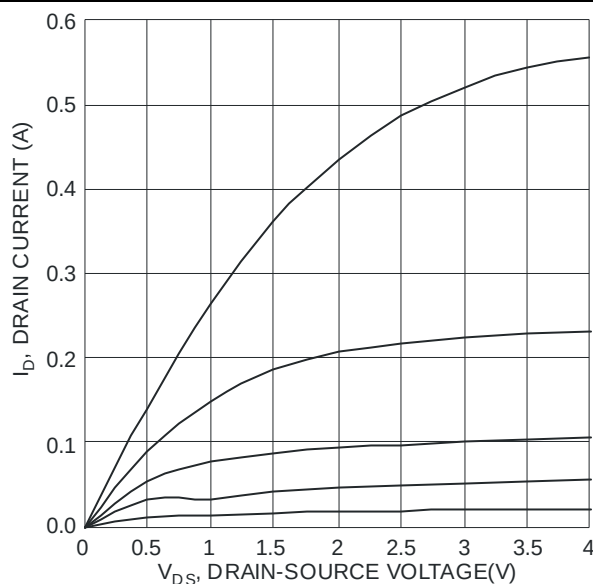
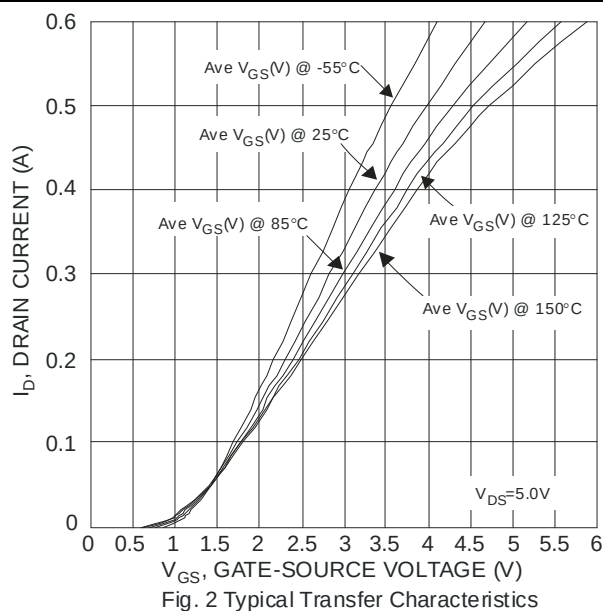
Characteristic	Symbol	Value	Units
Total Power Dissipation (Note 1)	P_D	330	mW
Thermal Resistance, Junction to Ambient, Note 1	$R_{\theta JA}$	377.16	$^\circ\text{C/W}$
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	$^\circ\text{C}$

- 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.

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 = -250mA
Zero Gate Voltage Drain Current	I _{DSS}	—	—	-100 -50	nA nA	V _{DS} = -16V, V _{GS} = 0V V _{DS} = -5.0V, V _{GS} = 0V
Gate-Source Leakage	I _{GSS}	—	—	±100	nA	V _{GS} = ±5.0V, V _{DS} = 0V
ON CHARACTERISTICS (Note 4)						
Gate Threshold Voltage	V _{GS(th)}	-0.5	—	-1.0	V	V _{DS} = V _{GS} , I _D = -250μA
Static Drain-Source On-Resistance	R _{DS (ON)}	—	—	5.0	Ω	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
DYNAMIC CHARACTERISTICS (Note 5)						
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	
SWITCHING CHARACTERISTICS (Note 5)						
Turn-On Delay Time	t _{d(on)}	—	20	—	ms	V _{GS} = -4.5V, V _{DD} = -15V I _D = -180mA, R _G = 2.0Ω
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


Typical Characteristics

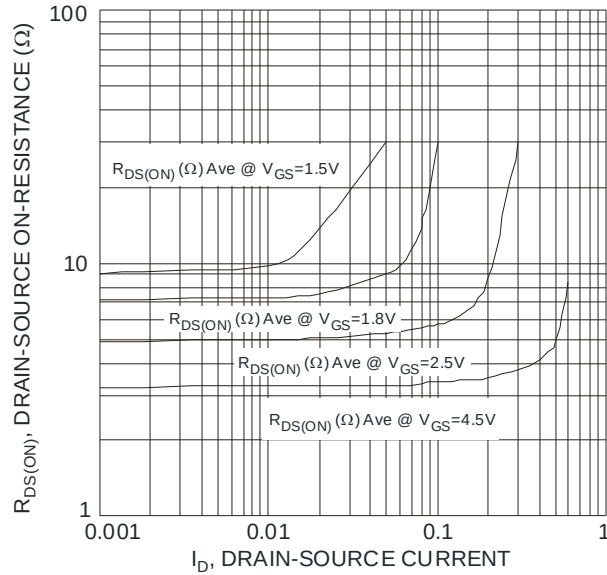


Fig. 3 Typical On-Resistance vs. Drain Current and Gate Voltage

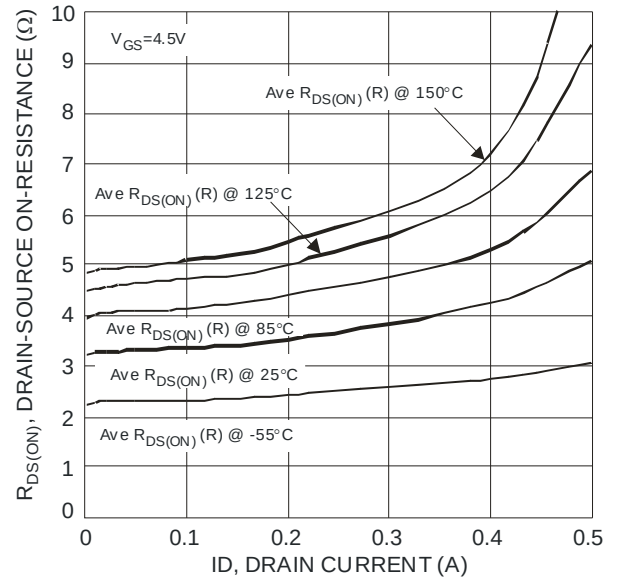


Fig. 4 Typical On-Resistance vs. Drain Current and Temperature

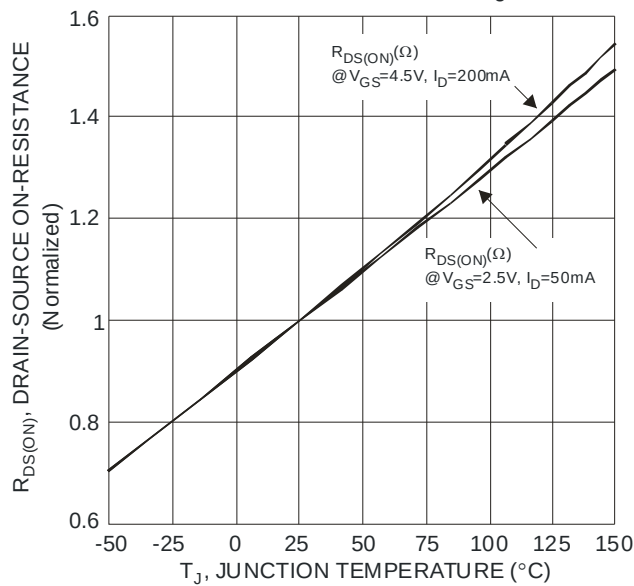


Fig. 5 On-Resistance Variation with Temperature

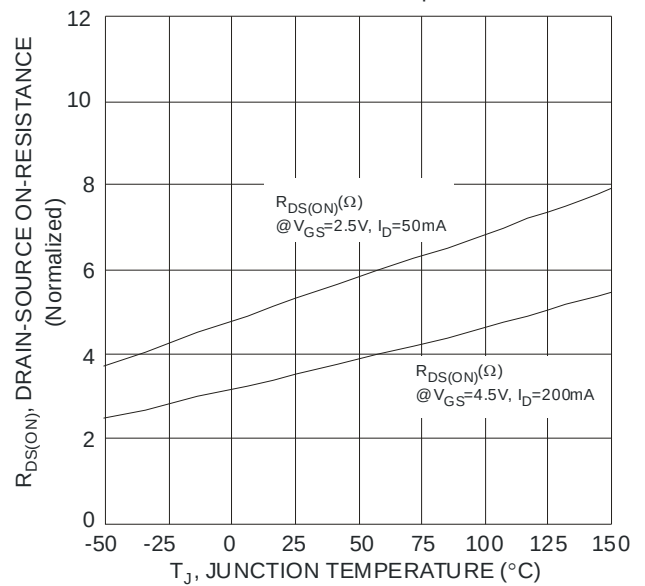


Fig. 6 On-Resistance vs. Temperature

Typical Characteristics

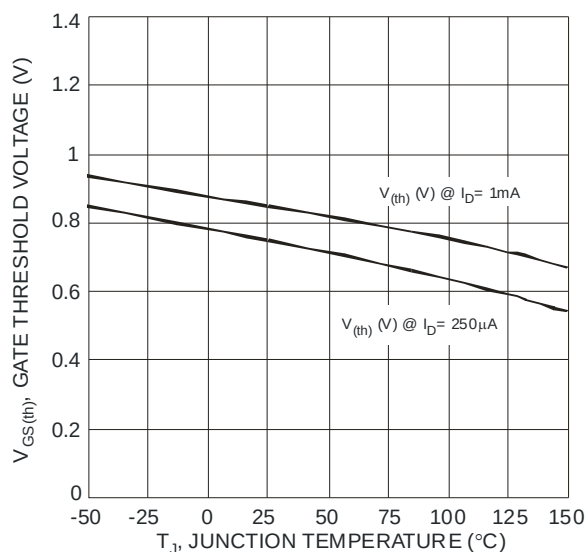


Fig. 7 Gate Threshold Variation vs. Ambient Temperature

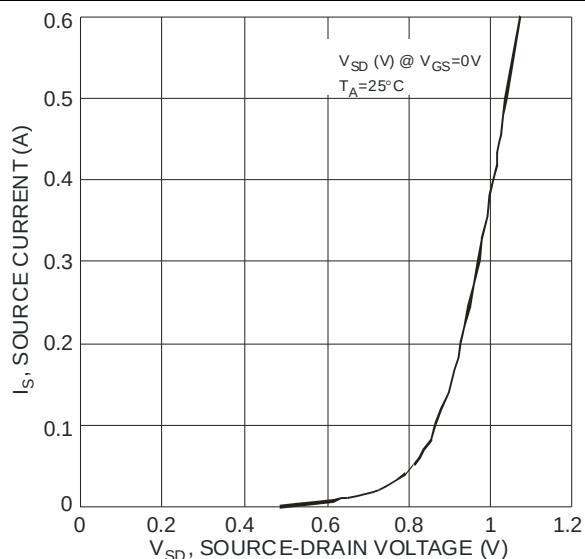


Fig. 8 Diode Forward Voltage vs. Current

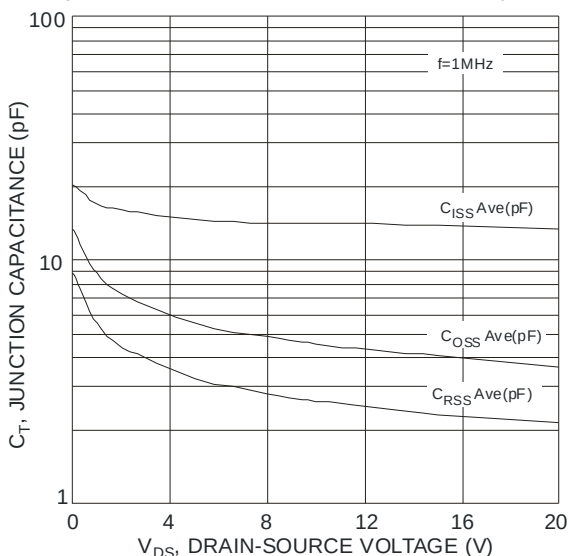


Fig. 9 Typical Junction Capacitance

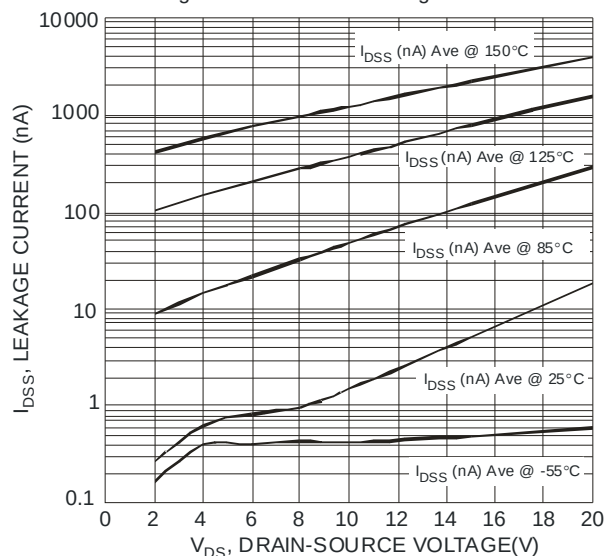


Fig. 10 Typical Drain-Source Leakage Current vs. Voltage

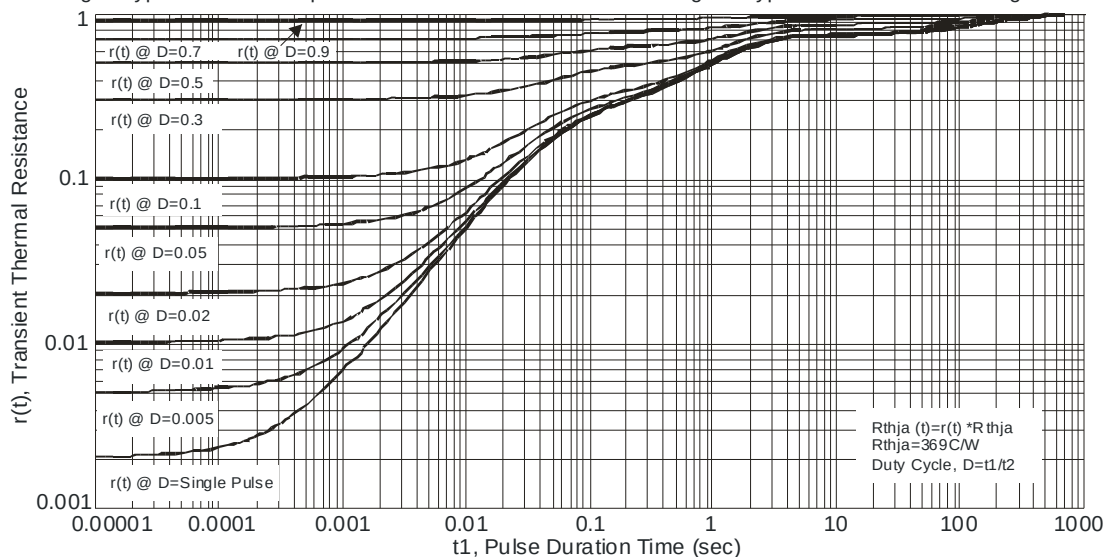


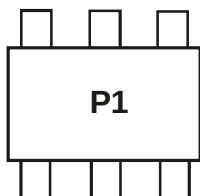
Fig. 11 Transient Thermal Resistance

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>.

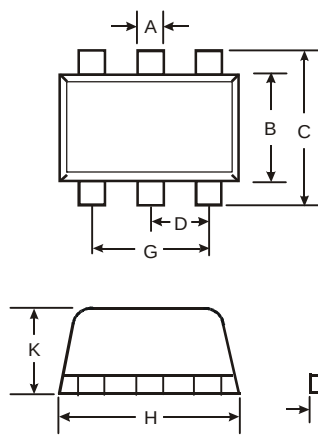
Marking Information (Note 7)



P1 = Product Type Marking Code

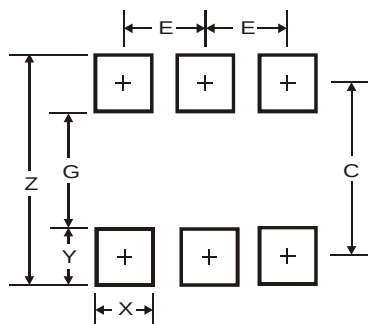
Notes: 7. Package is non-polarized. Parts may be on reel in orientation illustrated, 180° rotated, or mixed (both ways).

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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