

## Features

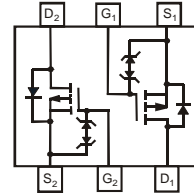
- Low On-Resistance
- ESD Protected Gate to 1kV
- Low Input Capacitance
- Fast Switching Speed
- **Lead Free By Design/RoHS Compliant (Note 2)**
- **"Green" Device (Note 3)**
- **Qualified to AEC-Q 101 Standards for High Reliability**

## 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-020D
- Terminals: Finish — Matte Tin annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208
- Terminal Connections: See Diagram
- Marking Information: See Page 3
- Ordering Information: See Page 3
- Weight: 0.006 grams (approximate)



SOT-563


 TOP VIEW  
Internal Schematic

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

Characteristic	Symbol	Value	Units
Drain-Source Voltage	$V_{DSS}$	-50	V
Gate-Source Voltage	$V_{GSS}$	$\pm 8$	V
Drain Current (Note 2)	$I_D$	-160	mA

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

Characteristic	Symbol	Value	Units
Total Power Dissipation (Note 1)	$P_D$	400	mW
Thermal Resistance, Junction to Ambient (Note 1)	$R_{\theta JA}$	313	$^\circ\text{C/W}$
Operating and Storage Temperature Range	$T_J, T_{STG}$	-55 to +150	$^\circ\text{C}$

## 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	$BV_{DSS}$	-50	—	—	V	$V_{GS} = 0V, I_D = -250\mu\text{A}$
Zero Gate Voltage Drain Current	$I_{DSS}$	—	—	-10	$\mu\text{A}$	$V_{DS} = -50V, V_{GS} = 0V$
Gate-Body Leakage	$I_{GSS}$	—	—	$\pm 500$	nA	$V_{GS} = \pm 8V, V_{DS} = 0V$
<b>ON CHARACTERISTICS (Note 4)</b>						
Gate Threshold Voltage	$V_{GS(th)}$	-0.7	—	-1.0	V	$V_{DS} = V_{GS}, I_D = -250\mu\text{A}$
Static Drain-Source On-Resistance	$R_{DS(on)}$	—	4.6	6	$\Omega$	$V_{GS} = -4V, I_D = -100\text{mA}$ $V_{GS} = -2.5V, I_D = -80\text{mA}$
Forward Transfer Admittance	$ Y_{fs} $	100	—	—	mS	$V_{DS} = -5V, I_D = -100\text{mA}$
Diode Forward Voltage	$V_{SD}$	—	—	-1.2	V	$V_{GS} = 0V, I_S = -100\text{mA}$
<b>DYNAMIC CHARACTERISTICS</b>						
Input Capacitance	$C_{iss}$	—	29	—	pF	$V_{DS} = -25V, V_{GS} = 0V, f = 1.0\text{MHz}$
Output Capacitance	$C_{oss}$	—	7.3	—	pF	
Reverse Transfer Capacitance	$C_{rss}$	—	2.5	—	pF	

- Notes:
1. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch; pad layout as shown on Diodes Inc. suggested pad layout document AP02001, which can be found on our website at <http://www.diodes.com/datasheets/ap02001.pdf>.
  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).
  4. Short duration pulse test used to minimize self-heating effect.

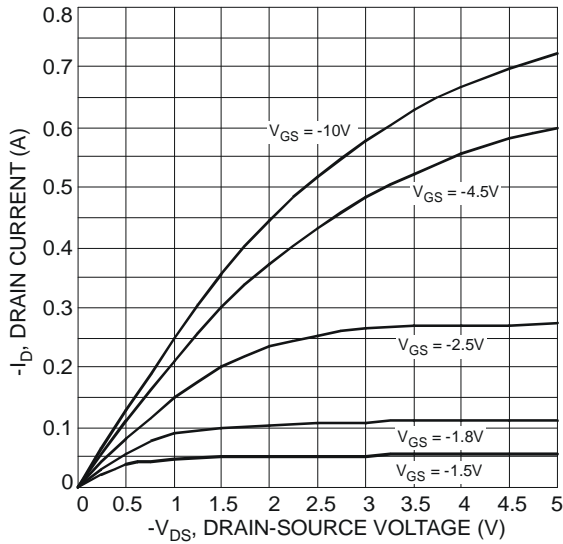


Fig. 1 Typical Output Characteristics

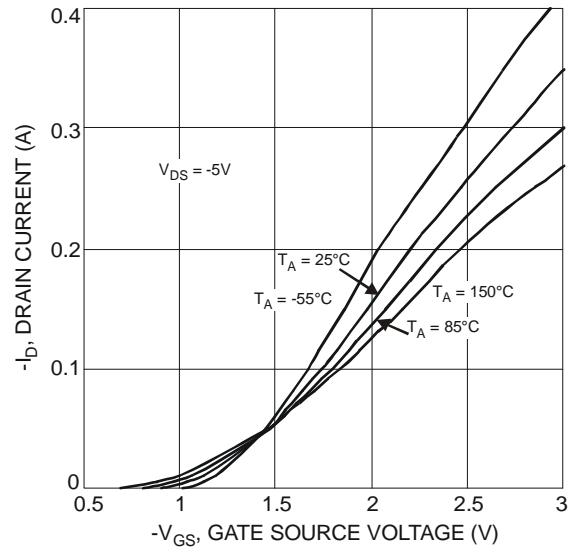


Fig. 2 Typical Transfer Characteristics

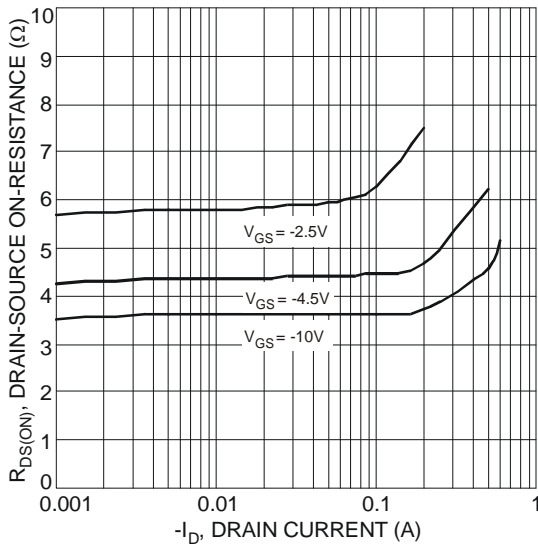


Fig. 3 Typical On-Resistance vs. Drain Current and Gate Voltage

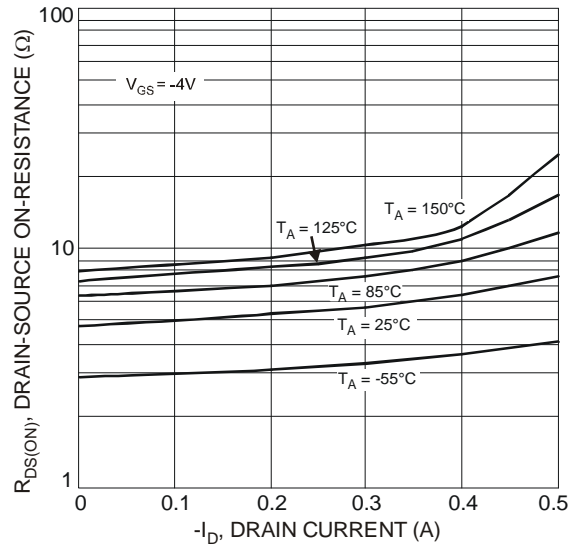


Fig. 4 Typical Drain-Source On-Resistance vs. Drain Current and Temperature

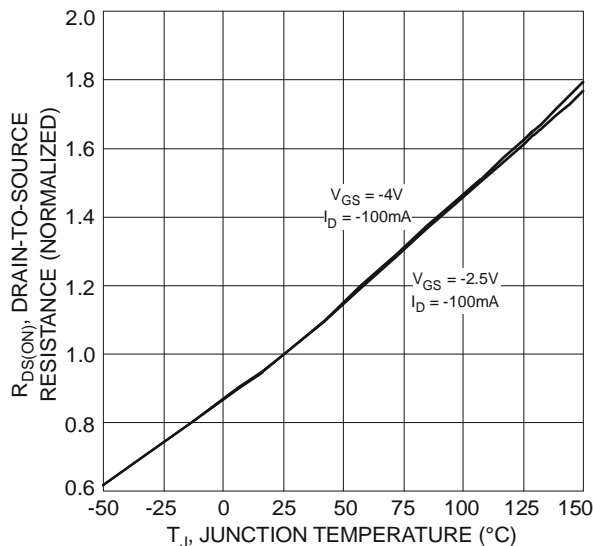


Fig. 5 On-Resistance Variation with Temperature

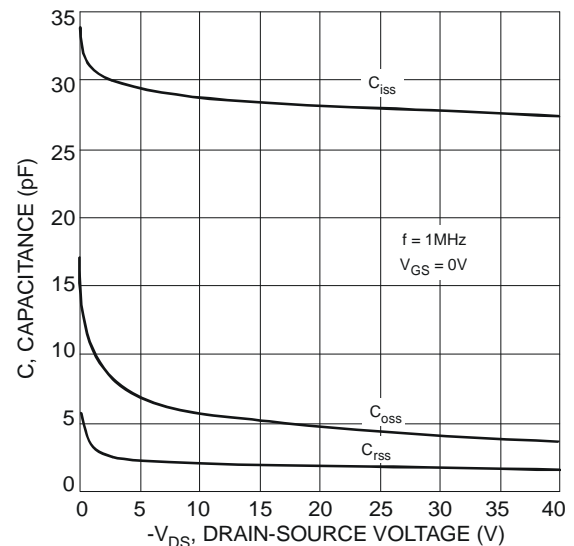


Fig. 6 Typical Capacitance

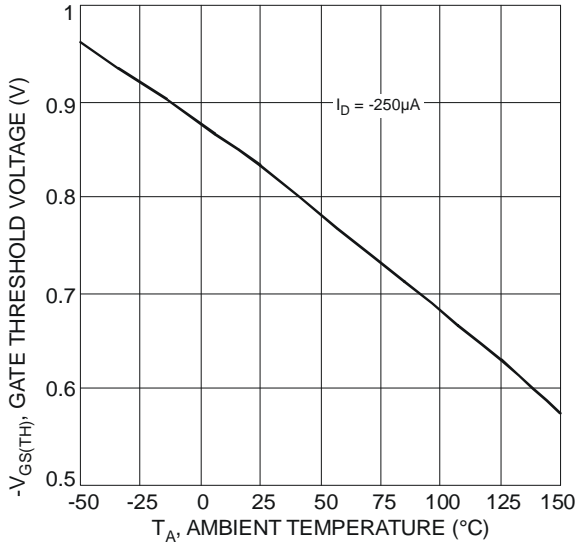


Fig. 7 Gate Threshold Variation vs. Ambient Temperature

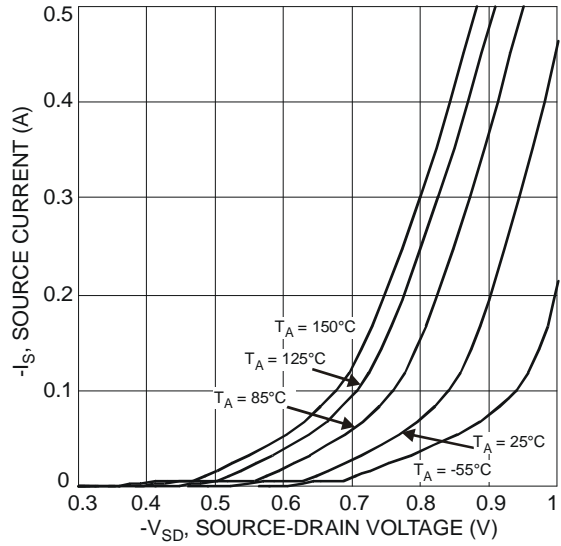


Fig. 8 Diode Forward Voltage vs. Current

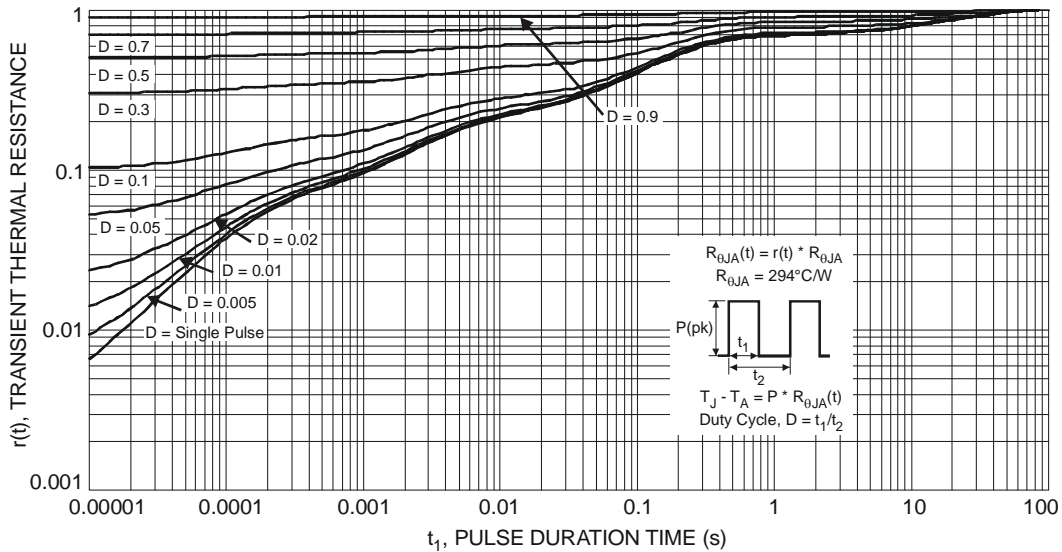


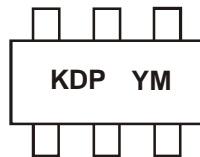
Fig. 9 Transient Thermal Response

**Ordering Information** (Note 5)

Part Number	Case	Packaging
DMP57D5UV -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** (Note 6)



KDP = Product Type Marking Code  
 YM = Date Code Marking  
 Y = Year (ex: V = 2008)  
 M = Month (ex: 9 = September)

Notes: 6. Package is non-polarized. Parts may be on reel in orientation illustrated, 180° rotated, or mixed (both ways).

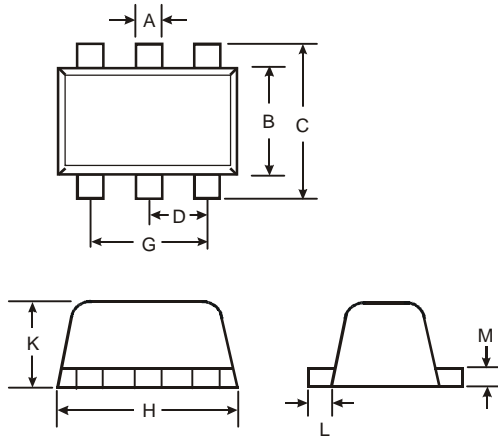
**Date Code Key**

Year	2008	2009	2010	2011	2012	2013	2014	2015
Code	V	W	X	Y	Z	A	B	C

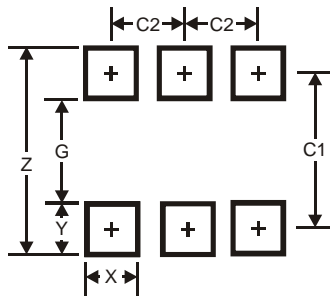
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

**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
C	1.7
E	0.5

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