

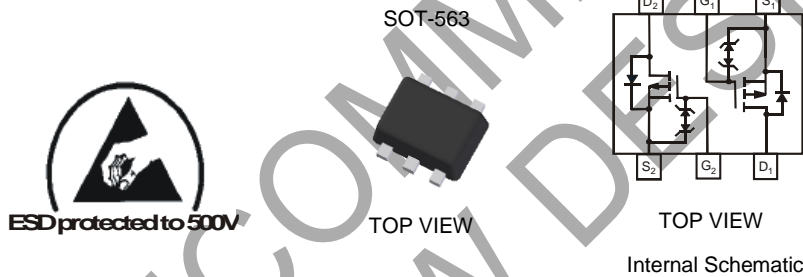
DUAL P-CANNEL ENHANCEMENT MODE FIELD EFFECT TRANSISTOR

Features

- Low On-Resistance
- ESD Protected Gate to 500V
- Low Input Capacitance
- Fast Switching Speed
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **For automotive applications requiring specific change control (i.e.: parts qualified to AEC-Q100/101/104/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please refer to the related automotive grade (Q-suffix) part. A listing can be found at <https://www.diodes.com/products/automotive/automotive-products/>.**
- **This part is qualified to JEDEC standards (as references in AEC-Q) for High Reliability. <https://www.diodes.com/quality/product-definitions/>**

Mechanical Data

- Package: SOT-563
- Package 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 ③
- Terminal Connections: See Diagram
- Marking Information: See Page 4
- Ordering Information: See Page 4
- Weight: 0.006 grams (Approximate)



Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Units
Drain-Source Voltage	V _{DSS}	-50	V
Drain-Gate Voltage (Note 4)	V _{DGR}	-50	V
Gate-Source Voltage	V _{GSS}	±20	V
Drain Current (Note 5)	I _D	-160	mA

Thermal Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Units
Total Power Dissipation (Note 5)	P _D	400	mW
Thermal Resistance, Junction to Ambient (Note 5)	R _{θJA}	313	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
 2. See <https://www.diodes.com/quality/lead-free/> for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
 3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
 4. R_{GS} ≤ 20KΩ.
 5. Device mounted on FR-4 PCB, 1inch x 0.85inch x 0.062inch; pad layout as shown on Diodes Incorporated's suggested pad layout document AP02001, which can be found on our website at <http://www.diodes.com/datasheets/ap02001.pdf>.

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 6)						
Drain-Source Breakdown Voltage	BV _{DSS}	-50	—	—	V	V _{GS} = 0V, I _D = -250μA
Zero Gate Voltage Drain Current	I _{DSS}	—	—	-1	μA	V _{DS} = -50V, V _{GS} = 0V
Gate-Body Leakage	I _{GSS}	—	—	±5	μA	V _{GS} = ±20V, V _{DS} = 0V
ON CHARACTERISTICS (Note 6)						
Gate Threshold Voltage	V _{GS(TH)}	-0.8	—	-2.1	V	V _{DS} = V _{GS} , I _D = -250μA
Static Drain-Source On-Resistance	R _{DS(ON)}	—	6	8	Ω	V _{GS} = -5V, I _D = -0.1A
Forward Transconductance	g _{FS}	0.05	—	—	S	V _{DS} = -25V, I _D = -0.1A
DYNAMIC CHARACTERISTICS						
Input Capacitance	C _{iss}	—	27	—	pF	V _{DS} = -25V, V _{GS} = 0V, f = 1.0MHz
Output Capacitance	C _{oss}	—	4	—	pF	
Reverse Transfer Capacitance	C _{rss}	—	1.4	—	pF	

Note: 6. Short duration pulse test used to minimize self-heating effect.

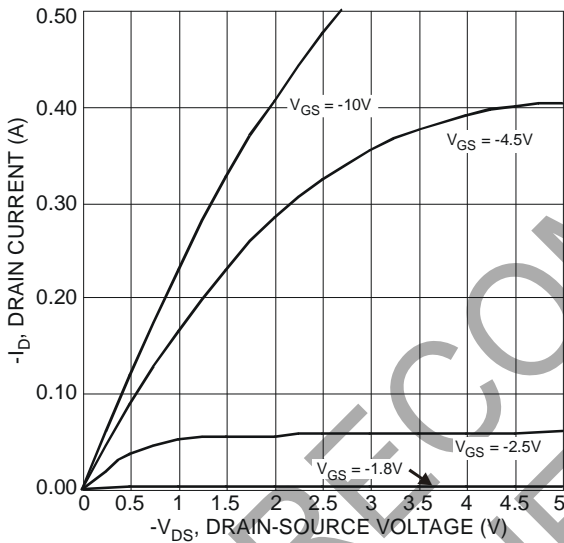


Figure 1. Typical Output Characteristics

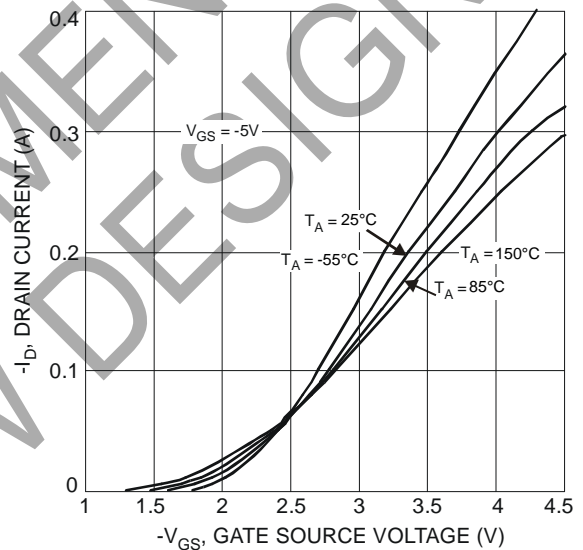


Figure 2. Typical Transfer Characteristics

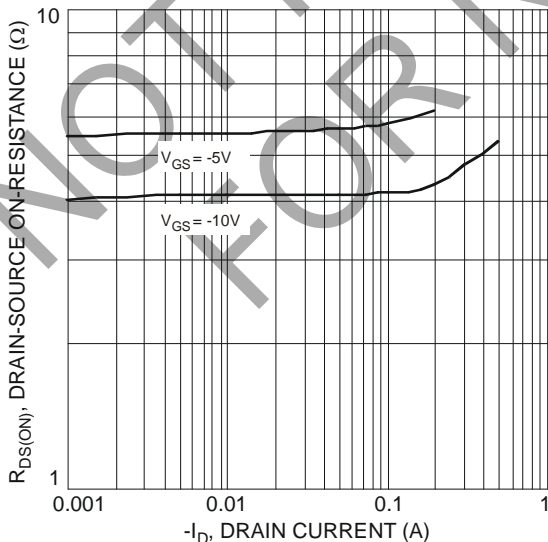


Figure 3. Typical On-Resistance vs. Drain Current and Gate Voltage

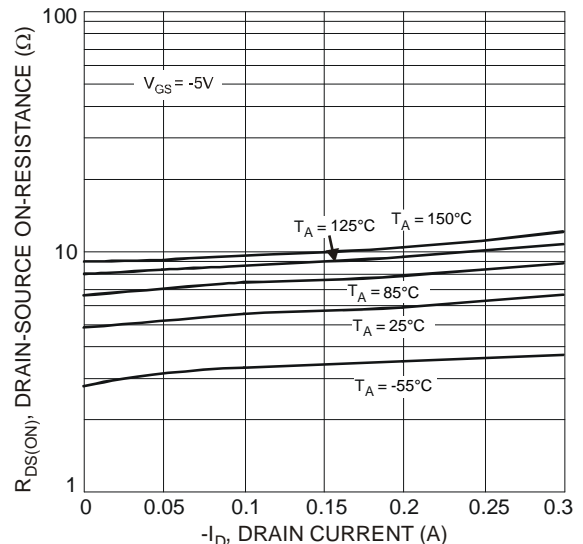
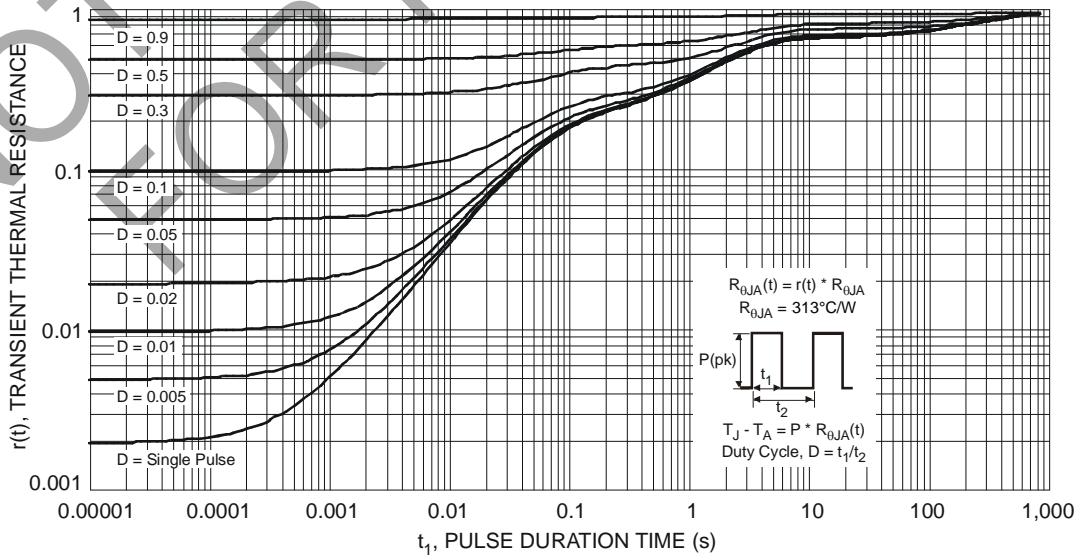
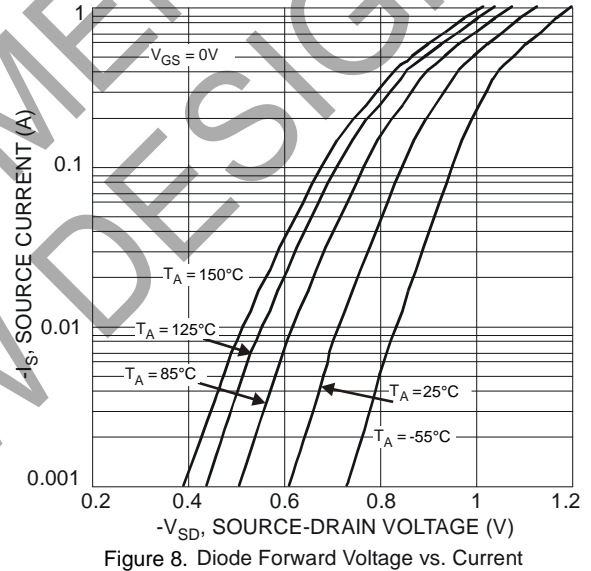
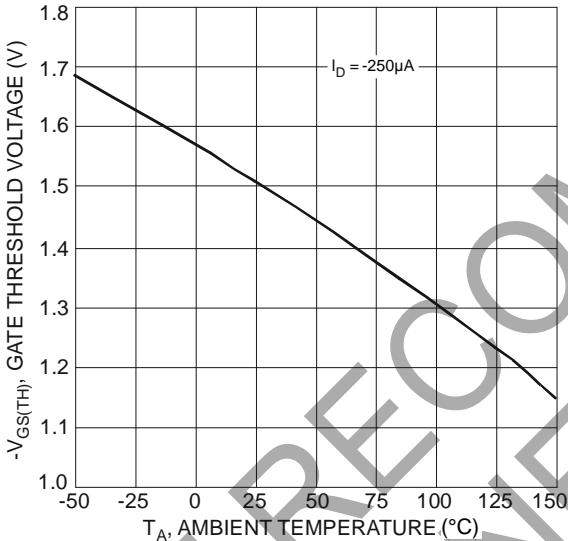
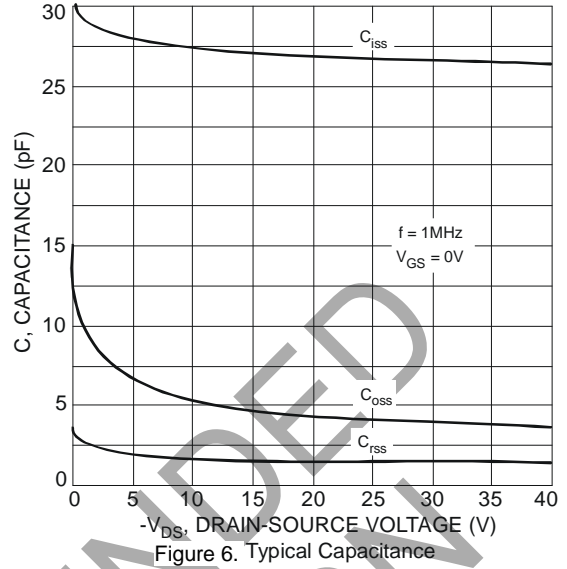
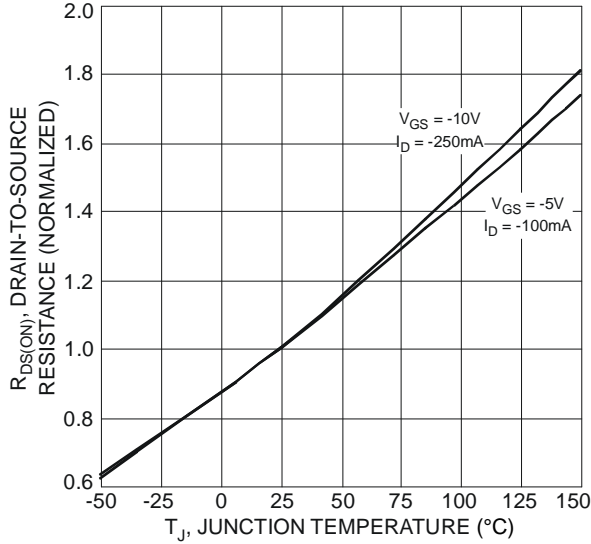


Figure 4. Typical Drain-Source On-Resistance vs. Drain Current and Temperature

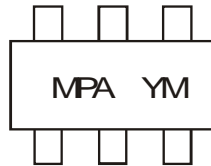


Ordering Information (Note 7)

Part Number	Package	Packing	
		Qty.	Carrier
DMP58D0SV-7	SOT-563	3000	Tape & Reel

Note: 7. For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

Marking Information (Note 8)



MPA = Product Type Marking Code
 YM = Date Code Marking
 Y = Year (ex: J = 2022)
 M = Month (ex: 6 = June)

Date Code Key

Year	2007	...	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Code	U	...	J	K	L	M	N	O	P	R	S	T

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

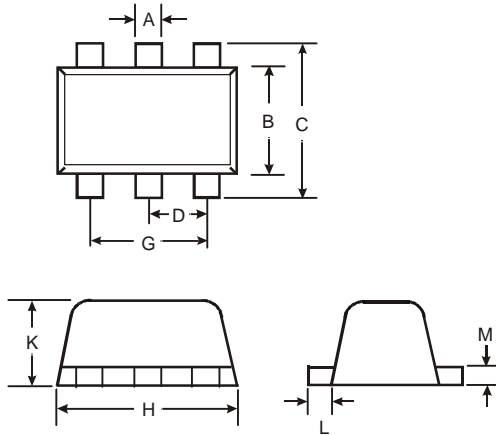
Note: 8. Package is non-polarized. Parts may be on reel in orientation illustrated, 180° rotated, or mixed (both ways).

NOT RECOMMENDED FOR NEW DESIGN

Package Outline Dimensions

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

SOT-563

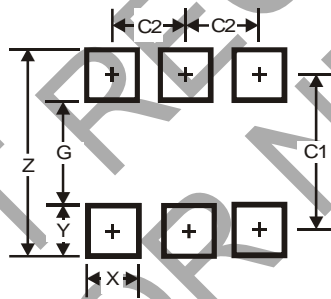


SOT-563			
Dim	Min	Max	Typ
A	0.15	0.30	0.20
B	1.10	1.25	1.20
C	1.55	1.70	1.60
D	-	-	0.50
G	0.90	1.10	1.00
H	1.50	1.70	1.60
K	0.55	0.60	0.60
L	0.10	0.30	0.20
M	0.10	0.18	0.11
All Dimensions in mm			

Suggested Pad Layout

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

SOT-563



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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