

## Product Summary

$V_{(BR)DSS}$	$R_{DS(ON)}$ max	$I_D$ max $T_A = +25^\circ\text{C}$
-20V	45m $\Omega$ @ $V_{GS} = -4.5\text{V}$	-4.5A
	65m $\Omega$ @ $V_{GS} = -2.5\text{V}$	-3.8A

## Description

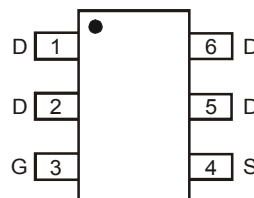
This new generation MOSFET has been designed to minimize the on-state resistance ( $R_{DS(on)}$ ) and yet maintain superior switching performance, making it ideal for high efficiency power management applications.

## Applications

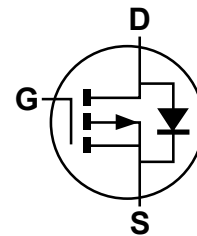
- General Purpose Interfacing Switch
- Power Management Functions



Top View



Top View  
Pin-Out



Equivalent Circuit

## Features and Benefits

- Low On-Resistance
- Low Gate Threshold Voltage
- Low Input Capacitance
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

## Mechanical Data

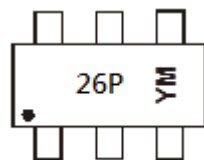
- Case: TSOT26
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections: See Diagram
- Terminals: Finish — Matte Tin annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208 Ⓔ3
- Weight: 0.015 grams (approximate)

## Ordering Information (Note 4)

Part Number	Case	Packaging
DMP2066LVT-7	TSOT26	3,000/Tape & Reel
DMP2066LVT-13	TSOT26	10,000/Tape & Reel

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
  2. See [http://www.diodes.com/quality/lead\\_free.html](http://www.diodes.com/quality/lead_free.html) 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. For packaging details, go to our website at <http://www.diodes.com>.
  4. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

## Marking Information



Shanghai A/T Site

26P = Product Type Marking Code  
 YM = Date Code Marking for SAT (Shanghai Assembly/ Test site)  
 Y or Y = Year (ex: A = 2013)  
 M = Month (ex: 9 = September)

### Date Code Key

Year	2011	2012	2013	2014	2015	2016	2017
Code	Y	Z	A	B	C	D	E

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<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit	
Drain-Source Voltage	V <sub>DSS</sub>	-20	V	
Gate-Source Voltage	V <sub>GSS</sub>	±8	V	
Drain Current (Note 5) Continuous	I <sub>D</sub>	T <sub>A</sub> = +25°C T <sub>A</sub> = +70°C	-4.5 -3.7	A
Pulsed Drain Current (10µs pulse, duty cycle = 1%)		I <sub>DM</sub>	-20	A
Body-Diode Continuous Current (Note 5)	I <sub>S</sub>	-2.0	A	

**Thermal Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Units
Total Power Dissipation (Note 5)	P <sub>D</sub>	1.2	W
Thermal Resistance, Junction to Ambient (Note 5)	Steady State	100	°C/W
	t < 10s	74	
Total Power Dissipation (Note 6)	P <sub>D</sub>	1.8	W
Thermal Resistance, Junction to Ambient (Note 6)	Steady State	70	°C/W
	t < 10s	46	
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

**Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
<b>STATIC PARAMETERS (Note 7)</b>						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	-20	—	—	V	I <sub>D</sub> = -250µA, V <sub>GS</sub> = 0V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	—	—	-1	µA	V <sub>DS</sub> = -16V, V <sub>GS</sub> = 0V
@ T <sub>J</sub> = +55°C (Note 8)				-10		V <sub>DS</sub> = -16V, V <sub>GS</sub> = 0V
Gate-Body Leakage Current	I <sub>GSS</sub>	—	—	±100	nA	V <sub>DS</sub> = 0V, V <sub>GS</sub> = ±8V
Gate Threshold Voltage	V <sub>GS(th)</sub>	-0.4	—	-1.5	V	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = -250µA
Static Drain-Source On-Resistance	R <sub>DS(ON)</sub>	—	25 33	45 65	mΩ	V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -4.5A V <sub>GS</sub> = -2.5V, I <sub>D</sub> = -3.8A
Static Drain-Source On-Resistance @ T <sub>J</sub> = +125°C (Note 8)	R <sub>DS(ON)</sub>	—	—	72	mΩ	V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -4.5A
Forward Transconductance	g <sub>FS</sub>	—	9	—	S	V <sub>DS</sub> = -10V, I <sub>D</sub> = -4.5A
Diode Forward Voltage	V <sub>SD</sub>	-0.5	-0.72	-1.4	V	I <sub>S</sub> = -2.1A, V <sub>GS</sub> = 0V
<b>DYNAMIC PARAMETERS (Note 8)</b>						
Input Capacitance	C <sub>iss</sub>	—	1496	—	pF	V <sub>DS</sub> = -15V, V <sub>GS</sub> = 0V f = 1.0MHz
Output Capacitance	C <sub>oss</sub>	—	130	—	pF	
Reverse Transfer Capacitance	C <sub>rss</sub>	—	116	—	pF	
Total Gate Charge	Q <sub>G</sub>	—	14.4	—	nC	V <sub>DS</sub> = -10V, V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -4.5A
Gate-Source Charge	Q <sub>GS</sub>	—	2.6	—		
Gate-Drain Charge	Q <sub>GD</sub>	—	2.7	—		
Turn-On Delay Time	t <sub>d(on)</sub>	—	8.5	30	ns	V <sub>DS</sub> = -5V, V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -1A, R <sub>G</sub> = 6.0Ω
Rise Time	t <sub>r</sub>	—	11	60		
Turn-Off Delay Time	t <sub>d(off)</sub>	—	61	130		
Fall Time	t <sub>f</sub>	—	25	100		

- Notes:
- Device mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout.
  - Device mounted on FR-4 substrate PC board, 2oz copper, with 1inch square copper plate.
  - Short duration pulse test used to minimize self-heating effect.
  - Guaranteed by design. Not subject to product testing.

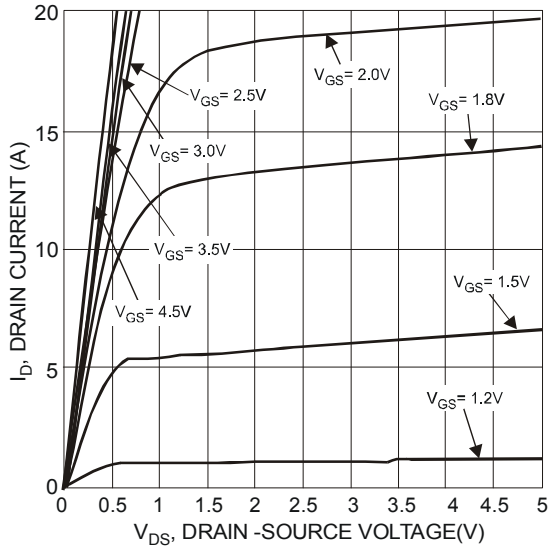


Figure 1 Typical Output Characteristics

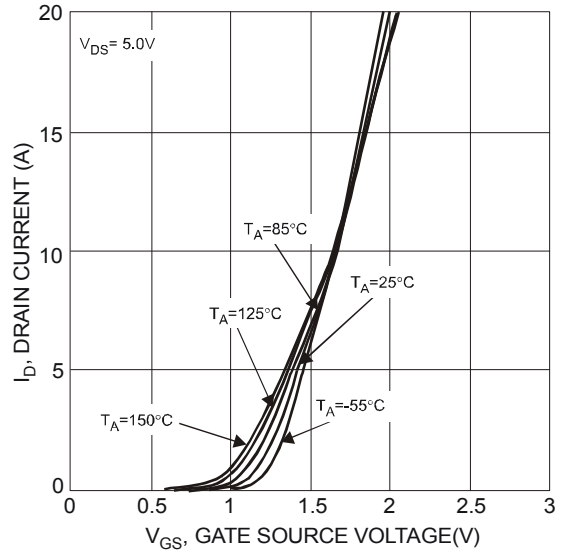


Figure 2 Typical Transfer Characteristics

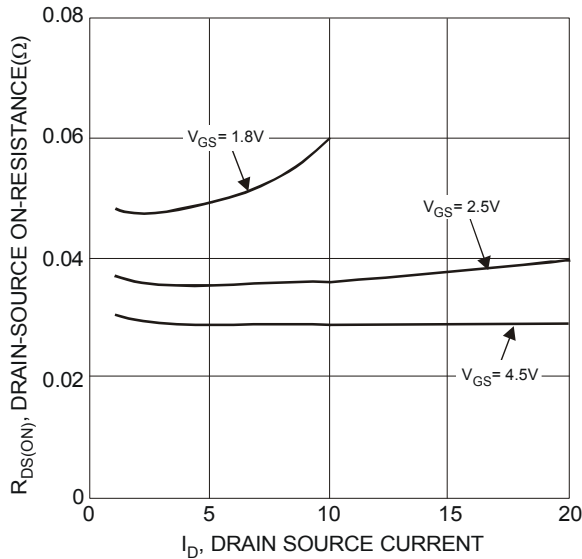


Figure 3 Typical On-Resistance vs. Drain Current and Gate Voltage

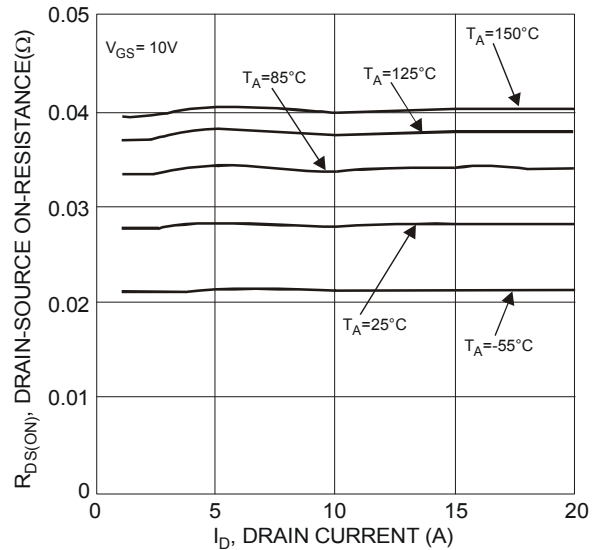


Figure 4 Typical On-Resistance vs. Drain Current and Temperature

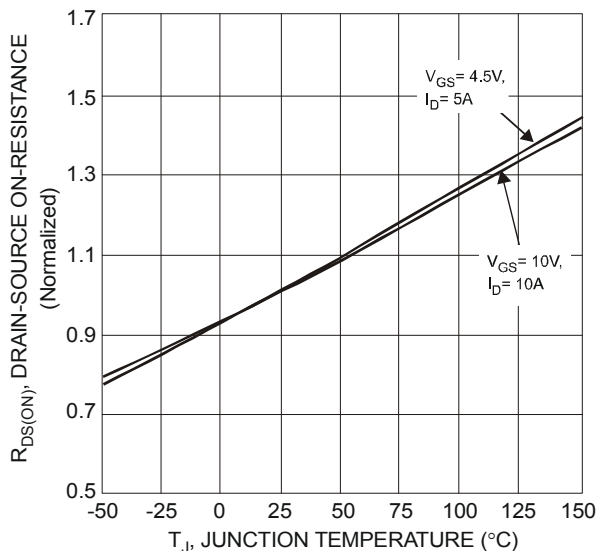


Figure 5 On-Resistance Variation with Temperature

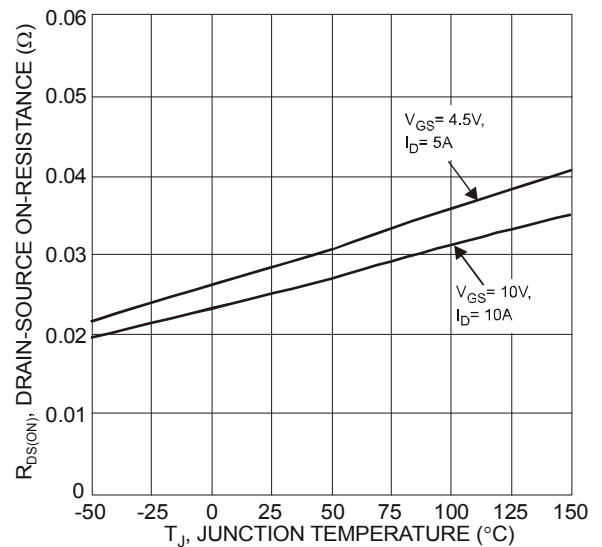


Figure 6 On-Resistance Variation with Temperature

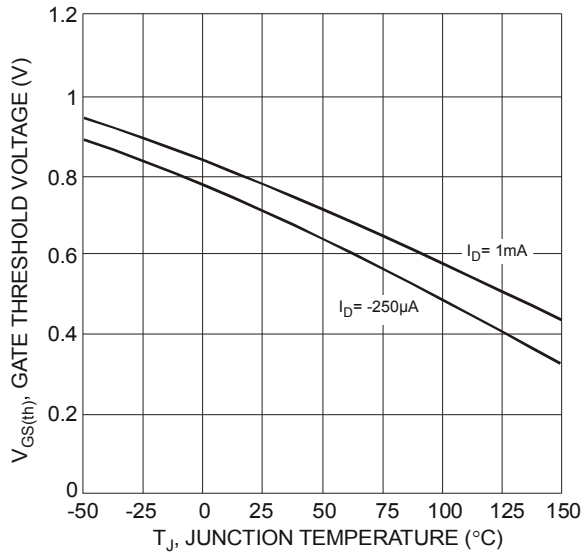


Figure 7 Gate Threshold Variation vs. Ambient Temperature

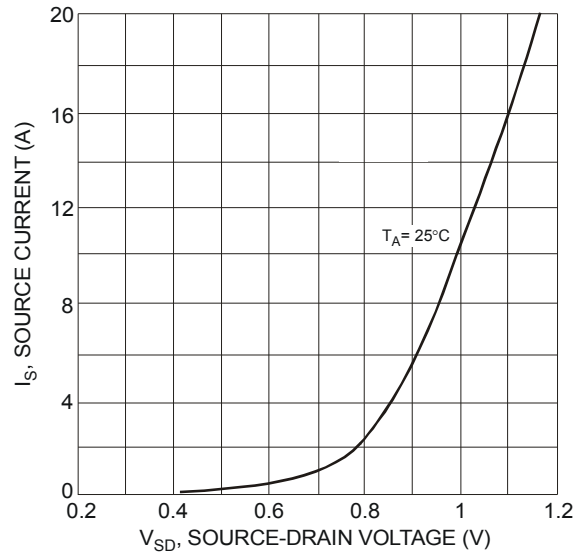


Figure 8 Diode Forward Voltage vs. Current

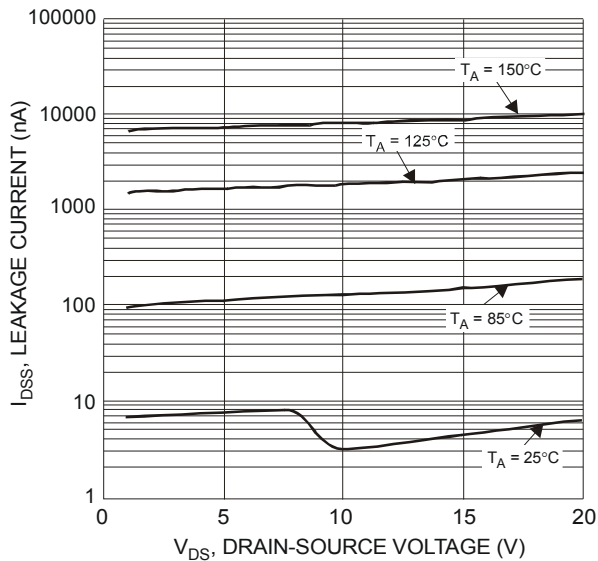


Figure 9 Typical Drain-Source Leakage Current vs. Voltage

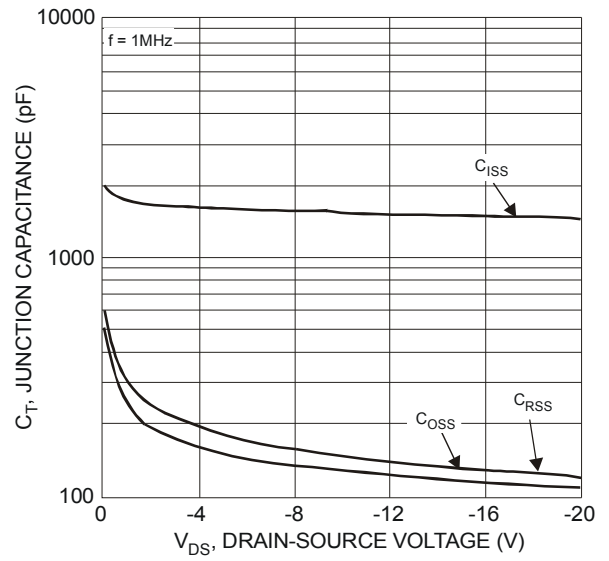


Figure 10 Typical Junction Capacitance

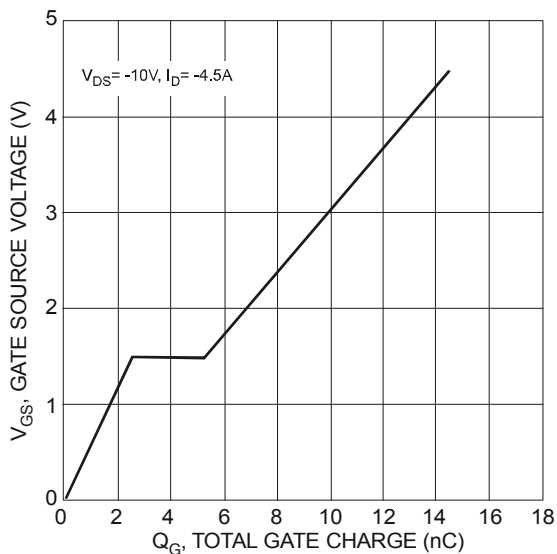
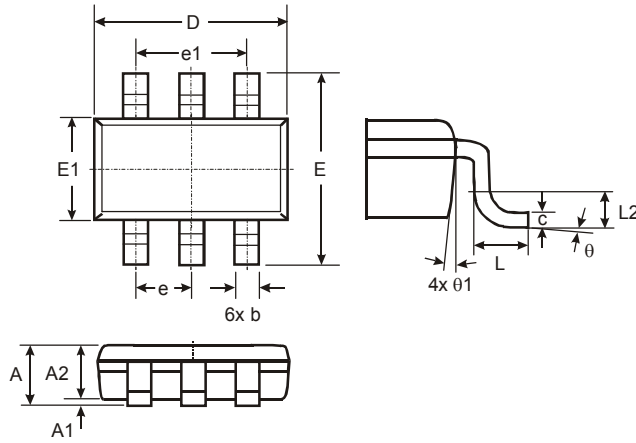


Figure 11 Gate Charge Characteristics

**Package Outline Dimensions**

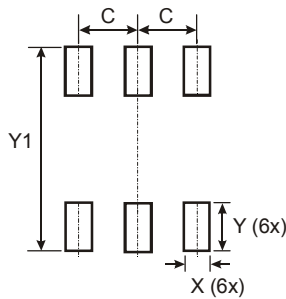
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version.



TSOT26			
Dim	Min	Max	Typ
A	-	1.00	-
A1	0.01	0.10	-
A2	0.84	0.90	-
D	-	-	2.90
E	-	-	2.80
E1	-	-	1.60
b	0.30	0.45	-
c	0.12	0.20	-
e	-	-	0.95
e1	-	-	1.90
L	0.30	0.50	-
L2	-	-	0.25
θ	0°	8°	4°
θ1	4°	12°	-
All Dimensions in mm			

**Suggested Pad Layout**

Please see AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> for the latest version.



Dimensions	Value (in mm)
C	0.950
X	0.700
Y	1.000
Y1	3.199

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