Product Summary

$V_{(BR)DSS}$	$R_{DS(ON)}$ max	I_D max T_A = +25°C
-20V	45mΩ @ V_{GS} = -4.5V	-4.5A
	65mΩ @ V_{GS} = -2.5V	-3.8A

Description

This new generation MOSFET is 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

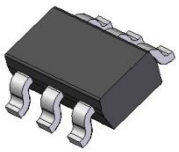
Features and Benefits

- 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**

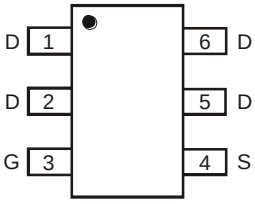
Mechanical Data

- Case: SOT26
- 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 (e3)
- Weight: 0.015 grams (Approximate)

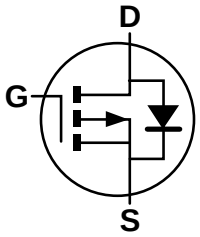
SOT26



Top View



Top View
Pin-Out



Equivalent Circuit

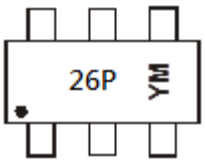
Ordering Information (Note 4)

Part Number	Case	Packaging
DMP2066LVT-7	SOT26	3,000/Tape & Reel
DMP2066LVT-13	SOT26	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 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 compounds4. 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

SOT26



Shanghai A/T Site

26P = Product Type Marking Code
YM = Date Code Marking for SAT (Shanghai Assembly/ Test site)
Y or $\overline{Y}$ = 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_A = +25°C, unless otherwise specified.)

Characteristic		Symbol	Value	Unit
Drain-Source Voltage		V_{DSS}	-20	V
Gate-Source Voltage		V_{GSS}	±8	V
Drain Current (Note 5) Continuous	T_A = +25°C T_A = +70°C	I_D	-4.5 -3.7	A
Pulsed Drain Current (10µs pulse, duty cycle = 1%)		I_{DM}	-20	A
Body-Diode Continuous Current (Note 5)		I_S	-2.0	A

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

Characteristic		Symbol	Value	Units
Total Power Dissipation (Note 5)		P_D	1.2	W
Thermal Resistance, Junction to Ambient (Note 5)	Steady State	$R_{\theta JA}$	100	°C/W
	t<10s		74	
Total Power Dissipation (Note 6)		P_D	1.8	W
Thermal Resistance, Junction to Ambient (Note 6)	Steady State	$R_{\theta JA}$	70	°C/W
	t<10s		46	
Operating and Storage Temperature Range		T_J, T_{STG}	-55 to +150	°C

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
STATIC PARAMETERS (Note 7)						
Drain-Source Breakdown Voltage	BV_{DSS}	-20	—	—	V	I_D = -250µA, V_{GS} = 0V
Zero Gate Voltage Drain Current @ T_J = +55°C (Note 8)	I_{DSS}	—	—	-1 -10	µA	V_{DS} = -16V, V_{GS} = 0V V_{DS} = -16V, V_{GS} = 0V
Zero Gate Voltage Drain Current @T_J = +150°C (Note 8)	I_{DSS}	—	—	-100	µA	V_{DS} = -16V, V_{GS} = 0V
Gate-Body Leakage Current	I_{GSS}	—	—	±100	nA	V_{DS} = 0V, V_{GS} = ±8V
Gate Threshold Voltage	$V_{GS(th)}$	-0.4	—	-1.5	V	V_{DS} = V_{GS}, I_D = -250µA
Static Drain-Source On-Resistance	$R_{DS\ (ON)}$	—	25 33	45 65	mΩ	V_{GS} = -4.5V, I_D = -4.5A V_{GS} = -2.5V, I_D = -3.8A
Static Drain-Source On-Resistance @ T_J = +125°C (Note 8)	$R_{DS\ (ON)}$	—	—	72	mΩ	V_{GS} = -4.5V, I_D = -4.5A
Diode Forward Voltage	V_{SD}	-0.5	-0.72	-1.4	V	I_S = -2.1A, V_{GS} = 0V
On State Drain Current (Note 8)	$I_{D(ON)}$	10	—	—	A	V_{DS} ≦5V, V_{GS} = 4.5V
DYNAMIC PARAMETERS (Note 8)						
Input Capacitance	C_{iss}	—	1,496	2,990	pF	V_{DS} = -15V, V_{GS} = 0V f = 1.0MHz
Output Capacitance	C_{oss}	—	130	260	pF	
Reverse Transfer Capacitance	C_{rss}	—	116	230	pF	
Total Gate Charge	Q_G	—	14.4	25	nC	V_{DS} = -10V, V_{GS} = -4.5V, I_D = -4.5A
Gate-Source Charge	Q_{GS}	—	2.6	5		
Gate-Drain Charge	Q_{GD}	—	2.7	5.5		
Turn-On Delay Time	$t_{d(on)}$	—	8.5	30	ns	V_{DS} = -5V, V_{GS} = -4.5V, I_D = -1A, R_G = 6.0Ω
Rise Time	t_r	—	11	60		
Turn-Off Delay Time	$t_{d(off)}$	—	61	130		
Fall Time	t_f	—	25	100		

Notes: 5. Device mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout.
6. Device mounted on FR-4 substrate PC board, 2oz copper, with 1inch square copper plate.
7. Short duration pulse test used to minimize self-heating effect.
8. Guaranteed by design. Not subject to product testing.

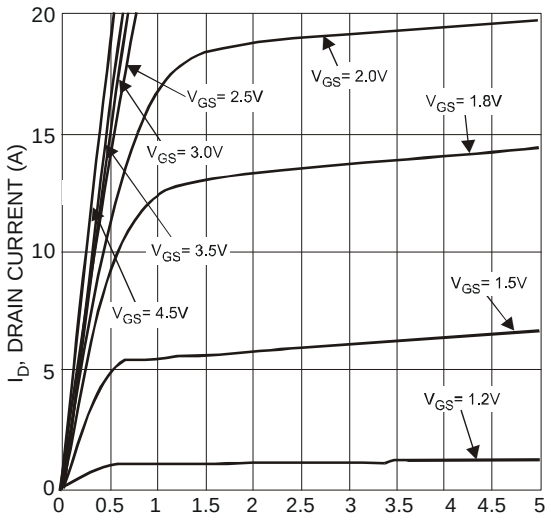


Figure 1 Typical Output Characteristics

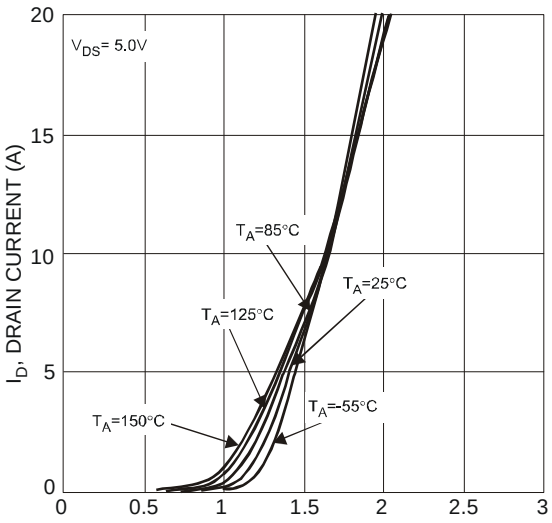


Figure 2 Typical Transfer Characteristics

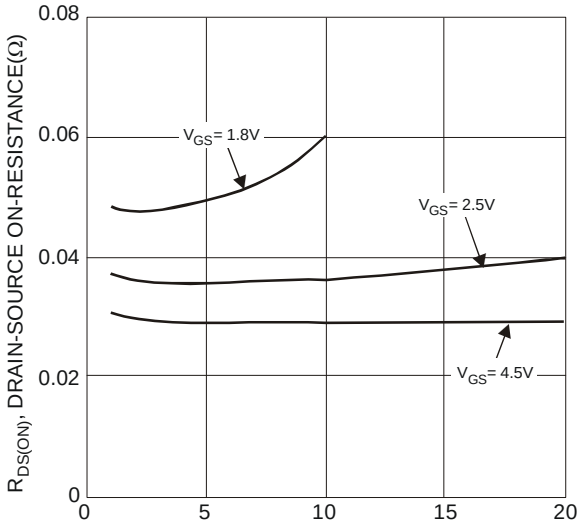


Figure 3 Typical On-Resistance vs. Drain Current and Gate Voltage

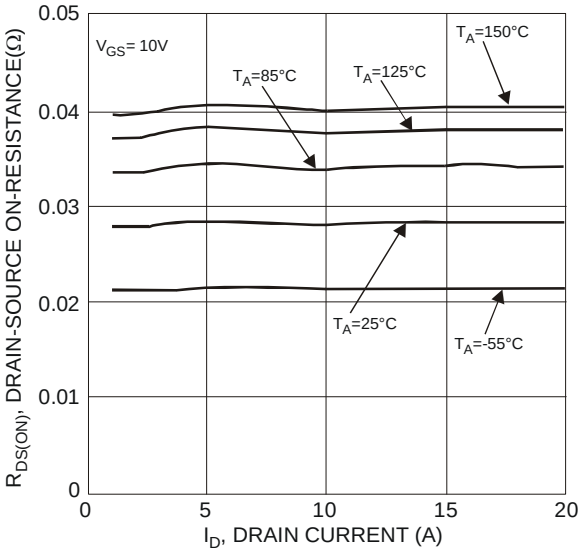


Figure 4 Typical On-Resistance vs. Drain Current and Temperature

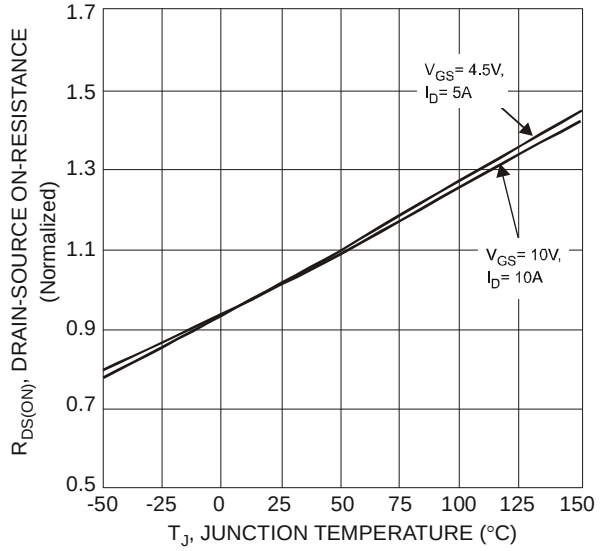


Figure 5 On-Resistance Variation with Temperature

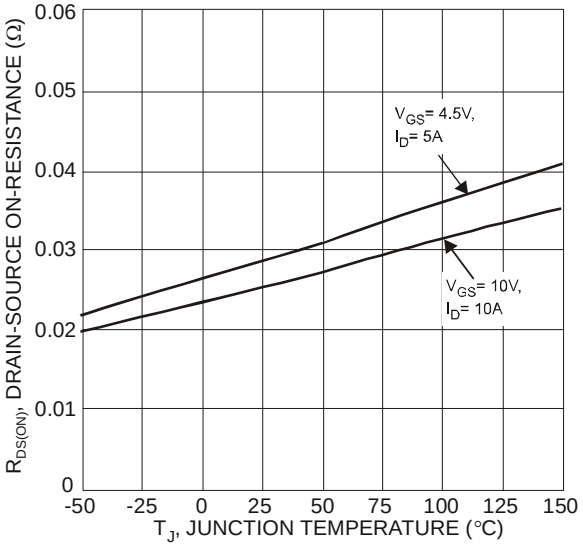


Figure 6 On-Resistance Variation with Temperature

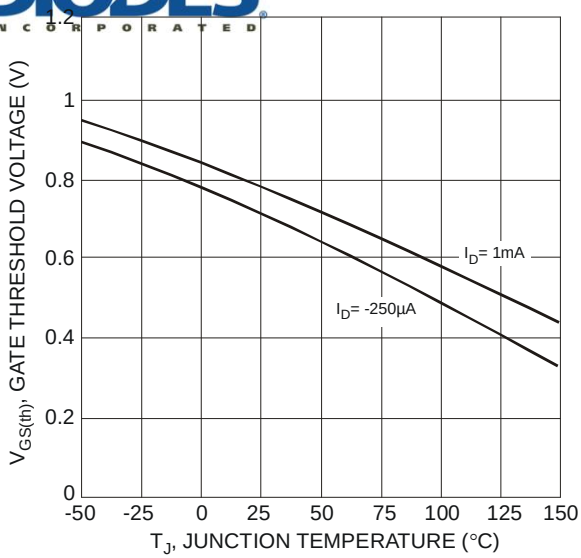


Figure 7 Gate Threshold Variation vs. Ambient Temperature

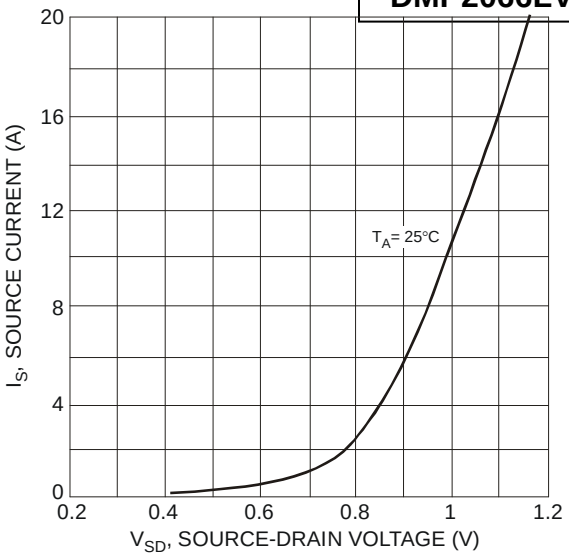


Figure 8 Diode Forward Voltage vs. Current

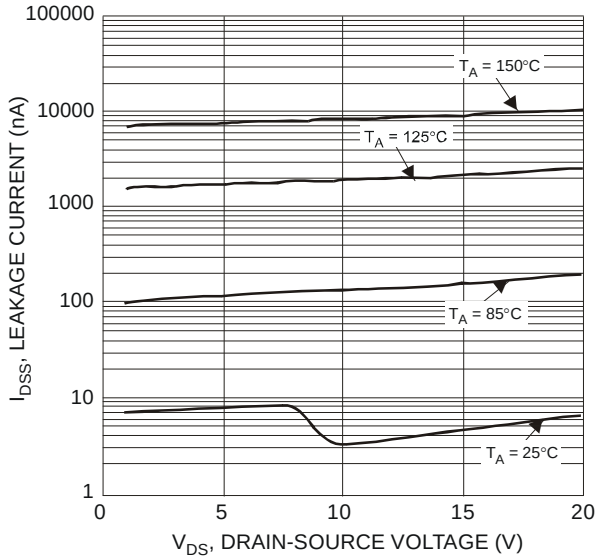


Figure 9 Typical Drain-Source Leakage Current vs. Voltage

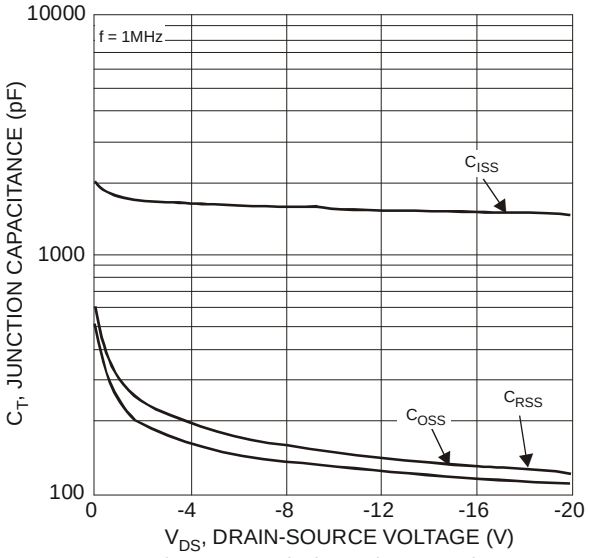


Figure 10 Typical Junction Capacitance

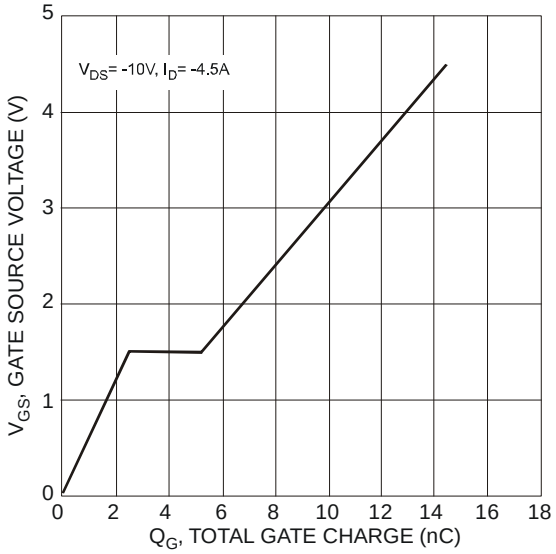
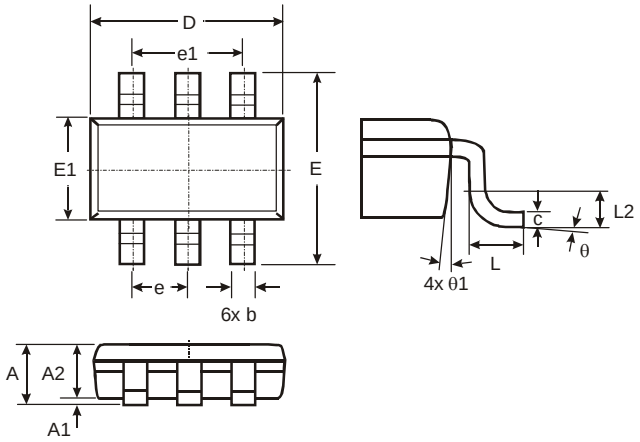


Figure 11 Gate Charge Characteristics

Package Outline Dimensions

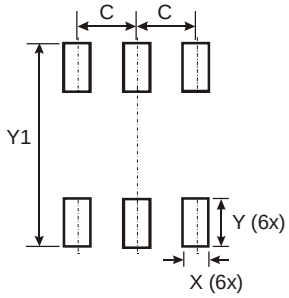
TSOT26



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

TSOT26



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

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