

Product Summary

V(BR)DSS	R _{Ds(ON)} Max	I _D T _A = +25°C
20V	24mΩ @ V _{GS} = 4.5V	6.2A
	32mΩ @ V _{GS} = 2.5V	

Description and Applications

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.

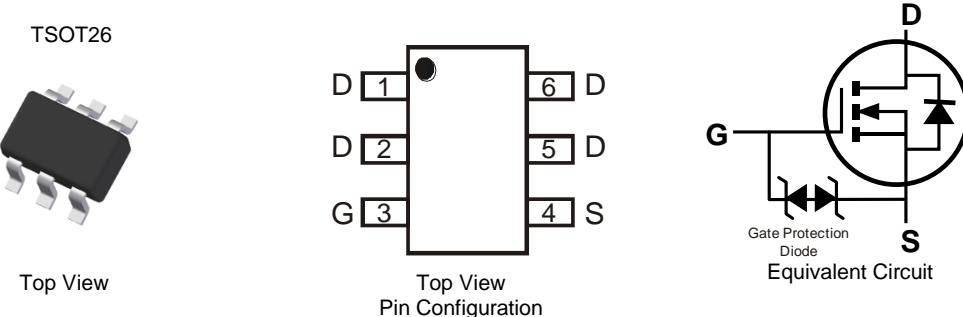
- DC-DC Converters
- Power Management Functions
- Backlighting

Features and Benefits

- Low Input Capacitance
- Low On-Resistance
- Fast Switching Speed
- ESD Protected Gate
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

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 – Tin Finish Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208 (e3)
- Weight: 0.013 grams (Approximate)



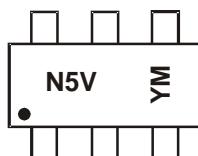
Ordering Information (Note 4)

Part Number	Case	Packaging
DMN2026UVT-7	TSOT26	3,000/Tape & Reel
DMN2026UVT-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 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. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

Marking Information



N5V = Product Type Marking Code
YM = Date Code Marking
Y = Year (ex: B = 2014)
M = Month (ex: 9 = September)

Date Code Key

Year	2014	2015	2016	2017	2018	2019	2020					
Code	B	C	D	E	F	G	H					
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 (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

Characteristic			Symbol	Value	Unit
Drain-Source Voltage			V_{DSS}	20	V
Gate-Source Voltage			V_{GSS}	± 10	V
Continuous Drain Current (Note 6) $V_{GS} = 4.5\text{V}$	Steady State	$T_A = +25^\circ\text{C}$	I_D	6.2	A
Maximum Body Diode Forward Current (Note 6)			I_S	2	A
Pulsed Drain Current (10 μs Pulse, Duty Cycle = 1%)			I_{DM}	20	A

 Thermal Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

Characteristic		Symbol	Value	Unit
Total Power Dissipation (Note 5)	$T_A = +25^\circ\text{C}$	P_D	1.15	W
Thermal Resistance, Junction to Ambient (Note 5)	Steady state	$R_{\theta JA}$	107	$^\circ\text{C}/\text{W}$
	$t < 10\text{s}$		76	
Total Power Dissipation (Note 6)	$T_A = +25^\circ\text{C}$	P_D	1.75	W
Thermal Resistance, Junction to Ambient (Note 6)	Steady state	$R_{\theta JA}$	75	$^\circ\text{C}/\text{W}$
	$t < 10\text{s}$		50	
Thermal Resistance, Junction to Case (Note 6)		$R_{\theta JC}$	16	
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
OFF CHARACTERISTICS (Note 7)						
Drain-Source Breakdown Voltage	BV_{DSS}	20	—	—	V	$V_{GS} = 0\text{V}, I_D = 250\mu\text{A}$
Zero Gate Voltage Drain Current	I_{DSS}	—	—	1	μA	$V_{DS} = 20\text{V}, V_{GS} = 0\text{V}$
Gate-Source Leakage	I_{GSS}	—	—	± 10	μA	$V_{GS} = \pm 8\text{V}, V_{DS} = 0\text{V}$
ON CHARACTERISTICS (Note 7)						
Gate Threshold Voltage	$V_{GS(\text{TH})}$	0.4	—	1.5	V	$V_{DS} = V_{GS}, I_D = 250\mu\text{A}$
Static Drain-Source On-Resistance	$R_{DS(\text{ON})}$	—	18	24	$\text{m}\Omega$	$V_{GS} = 4.5\text{V}, I_D = 6.2\text{A}$
		—	21	32		$V_{GS} = 2.5\text{V}, I_D = 5.2\text{A}$
Diode Forward Voltage	V_{SD}	—	0.7	1.2	V	$V_{GS} = 0\text{V}, I_S = 1.3\text{A}$
DYNAMIC CHARACTERISTICS (Note 8)						
Input Capacitance	C_{iss}	—	887	—	pF	$V_{DS} = 10\text{V}, V_{GS} = 0\text{V}$ $f = 1.0\text{MHz}$
Output Capacitance	C_{oss}	—	91	—		
Reverse Transfer Capacitance	C_{rss}	—	37	—		
Gate Resistance	R_g	—	191	—	Ω	$V_{DS} = 0\text{V}, V_{GS} = 0\text{V}, f = 1\text{MHz}$
Total Gate Charge ($V_{GS} = 4.5\text{V}$)	Q_g	—	10	—	nC	$V_{DS} = 10\text{V}, I_D = 6.5\text{A}$
Total Gate Charge ($V_{GS} = 8\text{V}$)	Q_g	—	18.4	—		
Gate-Source Charge	Q_{gs}	—	1.3	—		
Gate-Drain Charge	Q_{gd}	—	1.8	—		
Turn-On Delay Time	$t_{D(\text{ON})}$	—	53	—	ns	$V_{DS} = 10\text{V}, V_{GS} = 4.5\text{V}, R_G = 6\Omega, R_L = 10\Omega, I_D = 1\text{A}$
Turn-On Rise Time	t_R	—	66	—		
Turn-Off Delay Time	$t_{D(\text{OFF})}$	—	619	—		
Turn-Off Fall Time	t_F	—	197	—		
Reverse Recovery Time	t_{RR}	—	119	—	ns	$I_F = 4\text{A}, \text{di}/\text{dt} = 100\text{A}/\mu\text{s}$
Reverse Recovery Charge	Q_{RR}	—	96	—	nC	$I_F = 4\text{A}, \text{di}/\text{dt} = 100\text{A}/\mu\text{s}$

Notes:

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

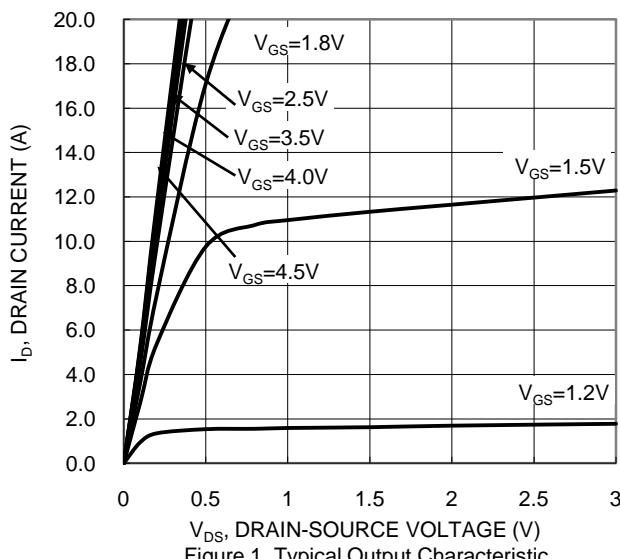


Figure 1. Typical Output Characteristic

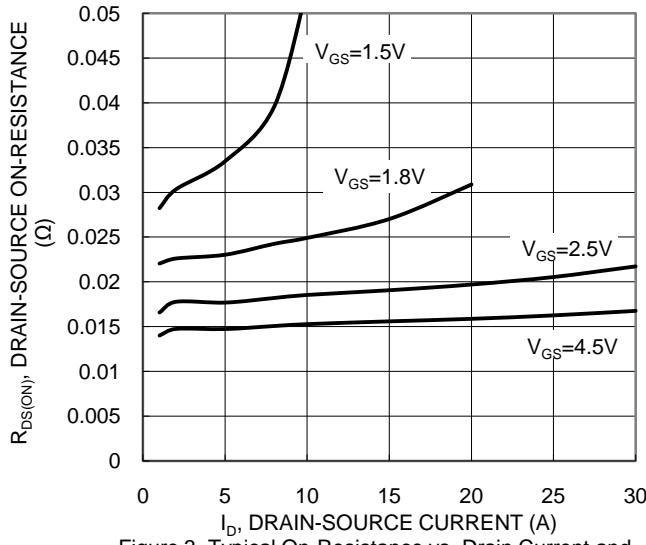


Figure 3. Typical On-Resistance vs. Drain Current and Gate Voltage

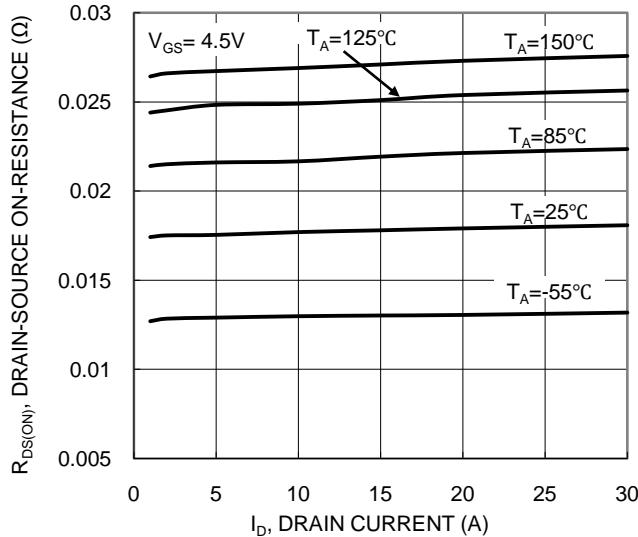


Figure 5. Typical On-Resistance vs. Drain Current and Temperature

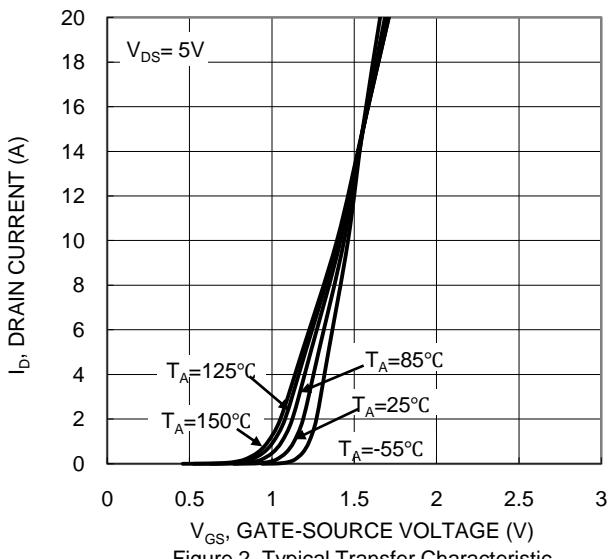


Figure 2. Typical Transfer Characteristic

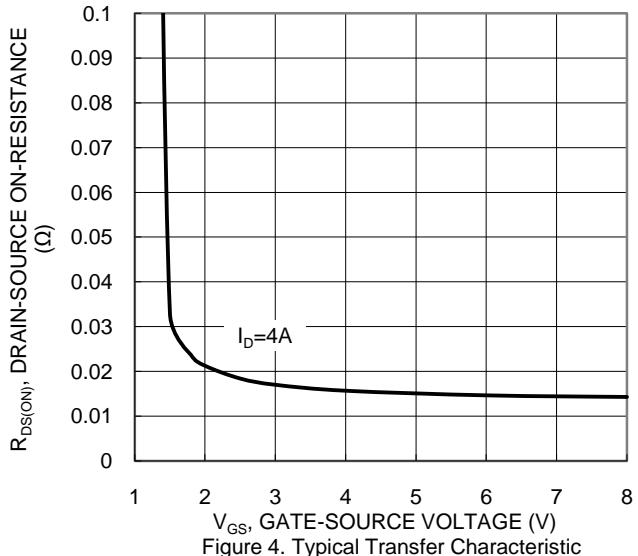


Figure 4. Typical Transfer Characteristic

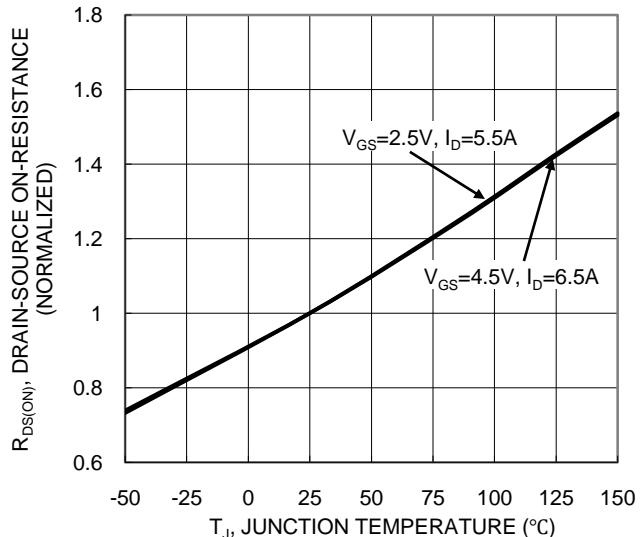
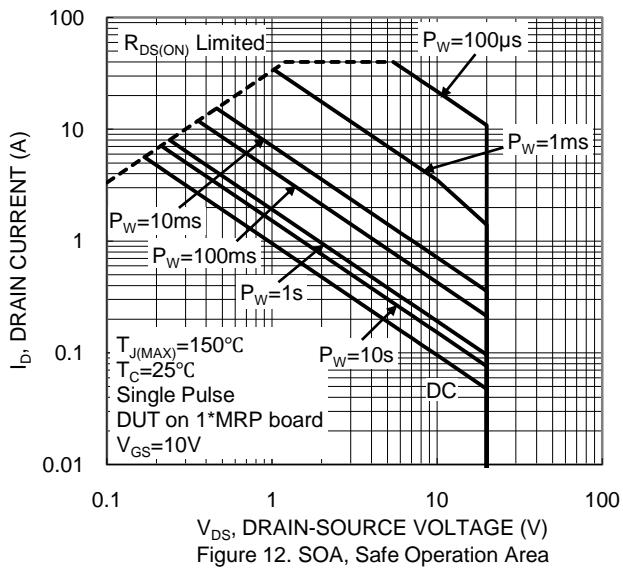
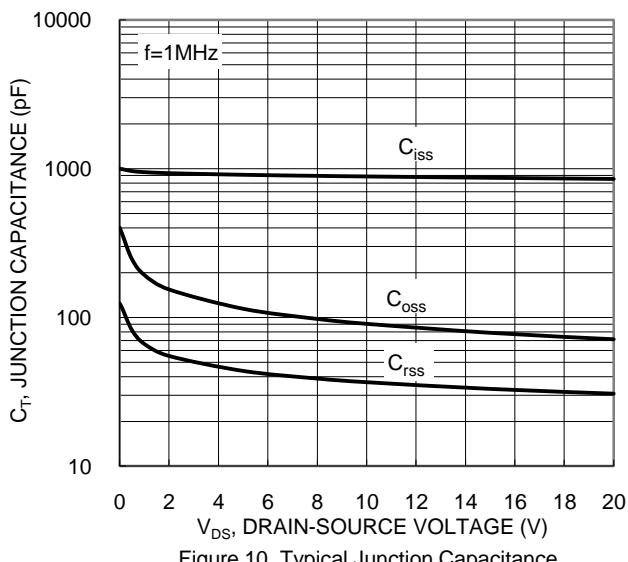
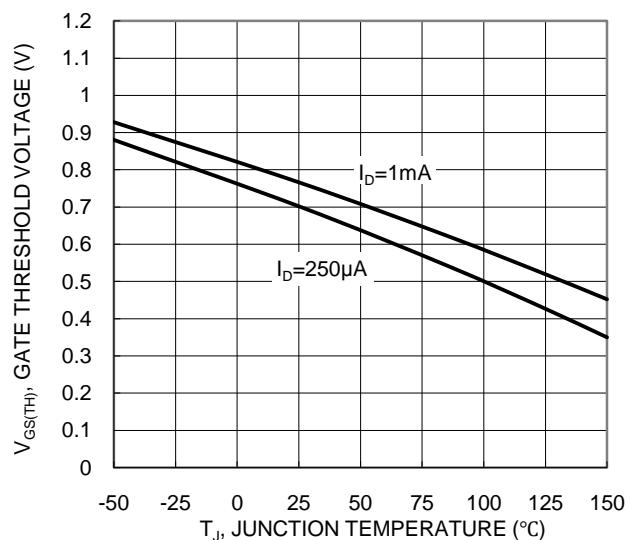
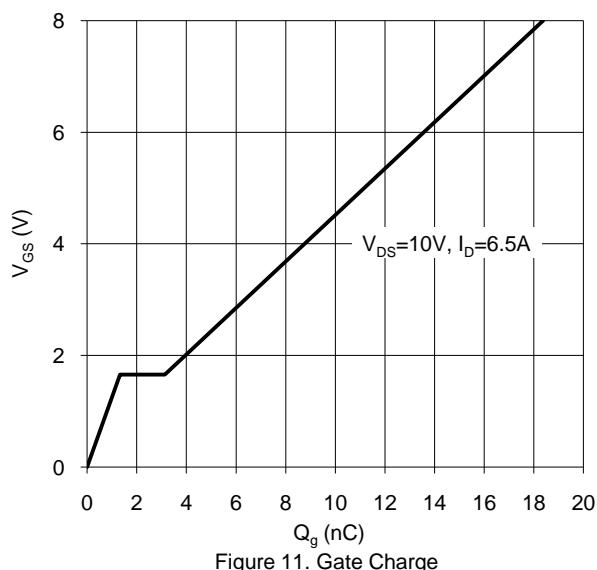
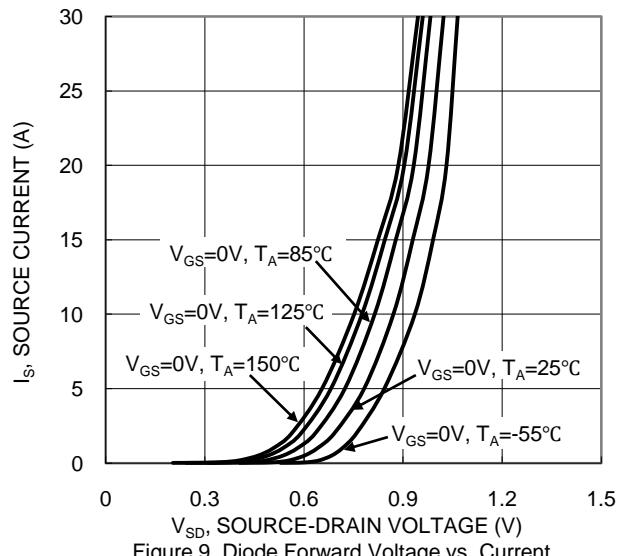
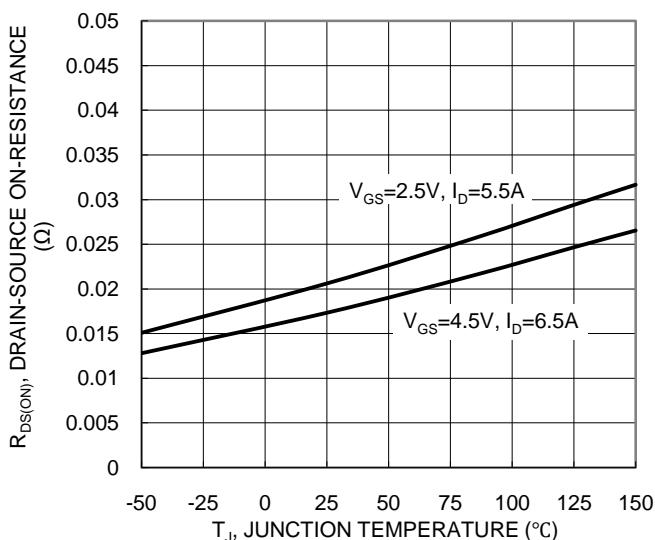
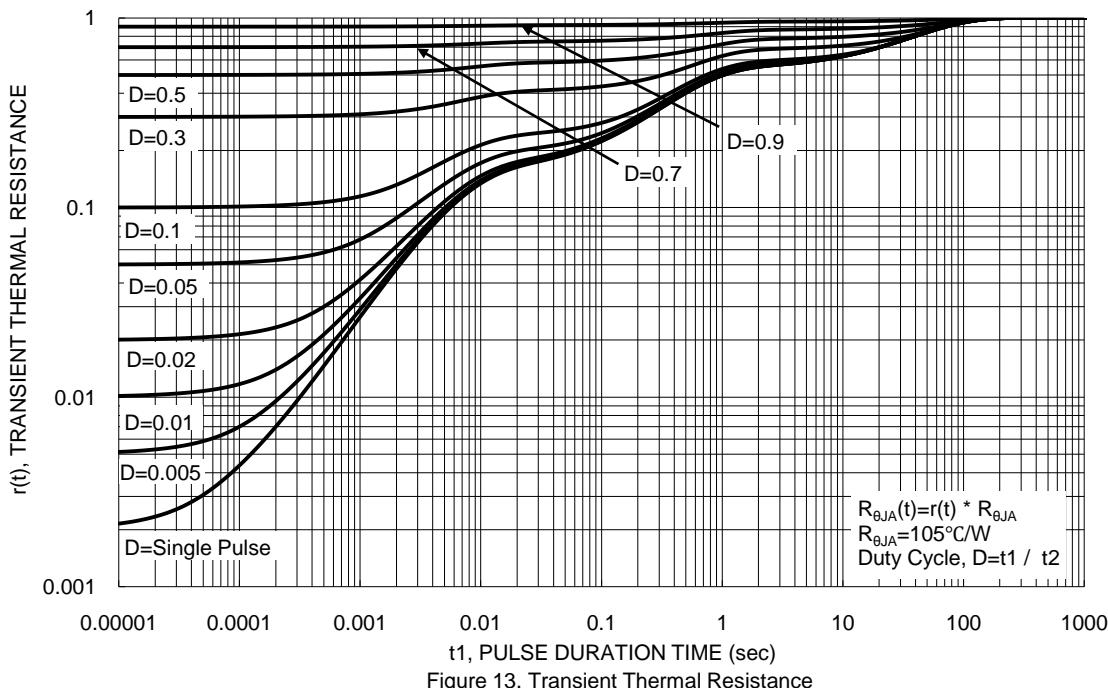


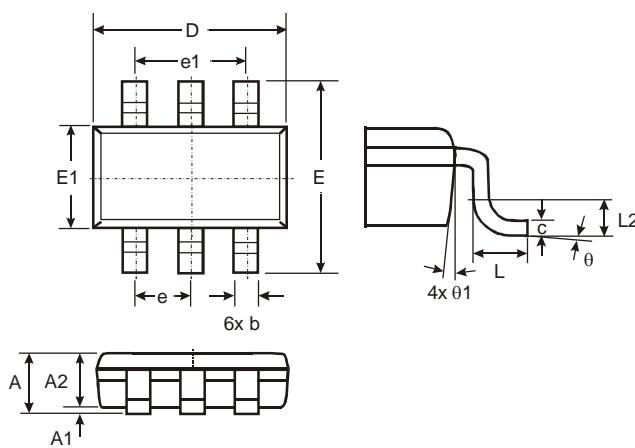
Figure 6. On-Resistance Variation with Temperature





Package Outline Dimensions

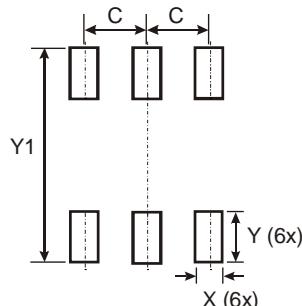
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for the latest version.



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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