

Product Summary

$V_{(BR)DSS}$	$R_{DS(ON)}$ Max	I_D Max $T_C = +25^\circ\text{C}$
-60V	105m Ω @ $V_{GS} = -10\text{V}$	-7.3A
	130m Ω @ $V_{GS} = -4.5\text{V}$	-6.5A

Description and Applications

This 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.

- Backlighting
- Power Management Functions
- DC-DC Converters

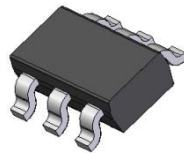
Features and Benefits

- Low On-Resistance
- Low Input Capacitance
- Fast Switching Speed
- **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

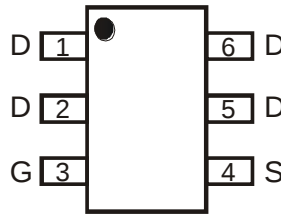
Mechanical Data

- 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 Indicator: See Diagram
- Terminals: Finish — Matte Tin Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208 **(e3)**
- Weight: 0.008 grams (Approximate)

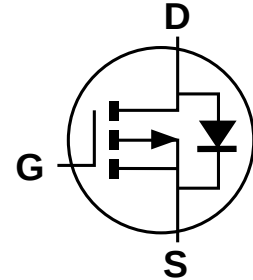
TSOT26



Top View



Device Schematic



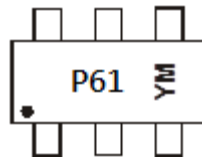
Equivalent Circuit

Ordering Information (Note 4)

Part Number	Case	Packaging
DMP6110SVT-7	TSOT26	3,000/Tape & Reel
DMP6110SVT-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



P61 = Product Type Marking Code
 YM or YM = Date Code Marking
 Y or Y = Year (ex: C = 2015)
 M = Month (ex: 9 = September)

Date Code Key

Year	2015	2016	2017	2018	2019	2020	2021
Code	C	D	E	F	G	H	I

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}	-60	V
Gate-Source Voltage	V _{GSS}	±20	V
Continuous Drain Current (Note 6) V _{GS} = -10V	I _D	T _C = +25°C -7.3	A
		T _C = +70°C -5.8	
Maximum Body Diode Forward Current (Note 6)	I _S	-1.8	A
Pulsed Drain Current (380µs Pulse, 1% Duty Cycle)	I _{DM}	-24	A
Avalanche Current (Note 7) L = 0.1mH	I _{AS}	-19	A
Repetitive Avalanche Energy (Note 7) L = 0.1mH	E _{AS}	18	mJ

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

Characteristic	Symbol	Value	Unit
Total Power Dissipation (Note 5)	P _D	T _A = +25°C 1.2	W
		T _A = +70°C 0.75	
Thermal Resistance, Junction to Ambient (Note 5)	R _{θJA}	Steady state 105	°C/W
		t < 10s 60	
Total Power Dissipation (Note 6)	P _D	T _A = +25°C 1.8	W
		T _A = +70°C 1.1	
Thermal Resistance, Junction to Ambient (Note 6)	R _{θJA}	Steady state 69	°C/W
		t < 10s 39	
Thermal Resistance, Junction to Case (Note 6)	R _{θJC}	15	°C/W
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
OFF CHARACTERISTICS (Note 8)						
Drain-Source Breakdown Voltage	BV _{DSS}	-60	—	—	V	V _{GS} = 0V, I _D = -250µA
Zero Gate Voltage Drain Current	I _{DSS}	—	—	-1	µA	V _{DS} = -48V, V _{GS} = 0V
Gate-Source Leakage	I _{GSS}	—	—	100	nA	V _{GS} = ±16V, V _{DS} = 0V
ON CHARACTERISTICS (Note 8)						
Gate Threshold Voltage	V _{GS(TH)}	-1	—	-3	V	V _{DS} = V _{GS} , I _D = -250µA
Static Drain-Source On-Resistance	R _{DS(ON)}	—	—	105	mΩ	V _{GS} = -10V, I _D = -4.5A
		—	—	130		V _{GS} = -4.5V, I _D = -3.5A
Diode Forward Voltage	V _{SD}	—	-0.7	-1.2	V	V _{GS} = 0V, I _S = -1A
DYNAMIC CHARACTERISTICS (Note 9)						
Input Capacitance	C _{ISS}	—	969	—	pF	V _{DS} = -30V, V _{GS} = 0V, f = 1.0MHz
Output Capacitance	C _{OSS}	—	57	—		
Reverse Transfer Capacitance	C _{RSS}	—	44	—		
Gate Resistance	R _G	—	13.7	—	Ω	V _{DS} = 0V, V _{GS} = 0V, f = 1.0MHz
Total Gate Charge (V _{GS} = -4.5V)	Q _g	—	8.2	—	nC	V _{DS} = -30V, I _D = -12A
Total Gate Charge (V _{GS} = -10V)	Q _g	—	17.2	—		
Gate-Source Charge	Q _{gs}	—	3.0	—		
Gate-Drain Charge	Q _{gd}	—	3.1	—		
Turn-On Delay Time	t _{D(ON)}	—	4.4	—	ns	V _{GS} = -10V, V _{DS} = -30V, R _{GEN} = 3Ω, I _D = -12A
Turn-On Rise Time	t _r	—	23	—		
Turn-Off Delay Time	t _{D(OFF)}	—	34	—		
Turn-Off Fall Time	t _f	—	42	—		
Body Diode Reverse Recovery Time	t _{RR}	—	13.2	—	ns	I _S = -12A, dI/dt = 100A/µs
Body Diode Reverse Recovery Charge	Q _{RR}	—	6.18	—	nC	

- 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.
 - I_{AS} and E_{AS} rating are based on low frequency and duty cycles to keep T_J = +25°C.
 - Short duration pulse test used to minimize self-heating effect.
 - Guaranteed by design. Not subject to product testing.

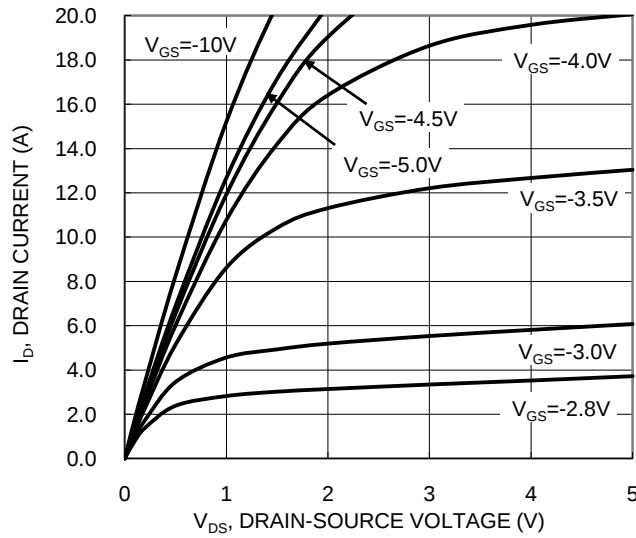


Figure 1. Typical Output Characteristic

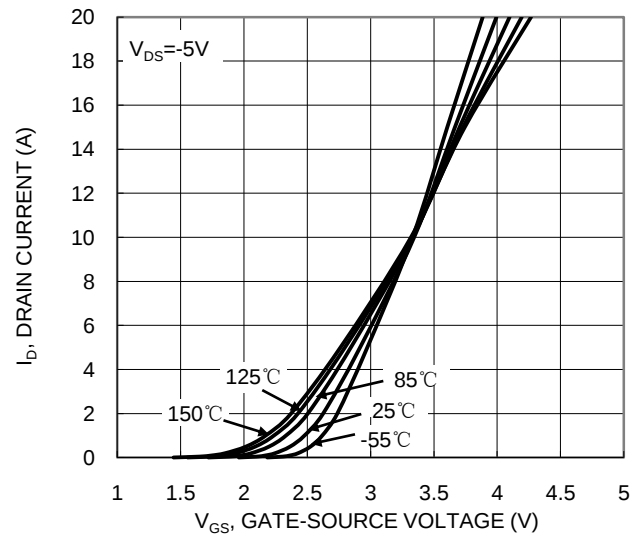


Figure 2. Typical Transfer Characteristic

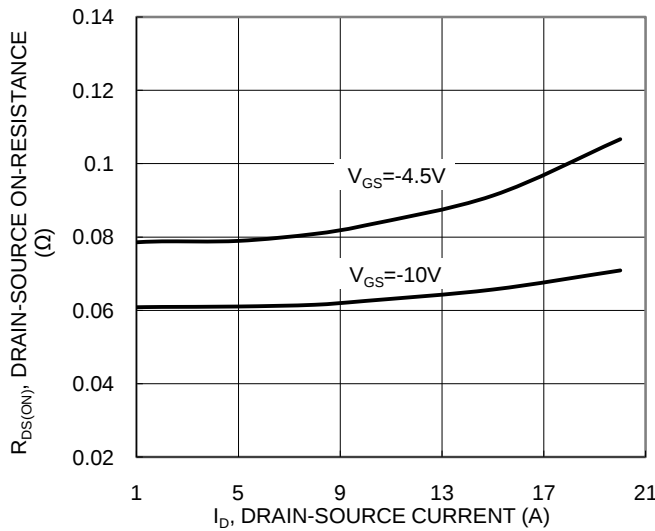


Figure 3. Typical On-Resistance vs. Drain Current and Gate Voltage

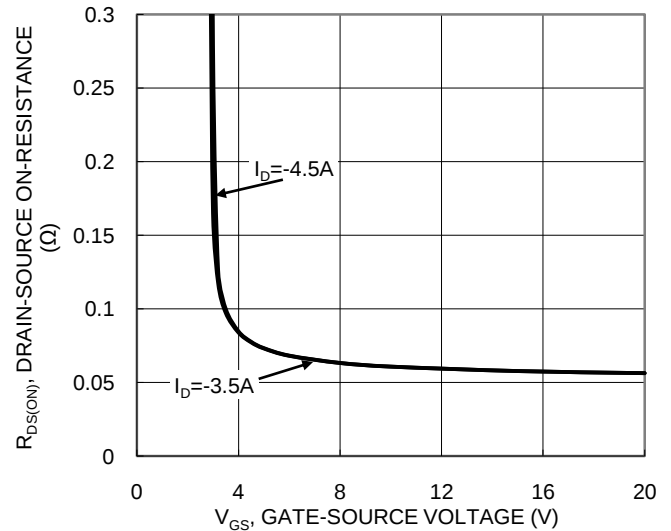


Figure 4. Typical Transfer Characteristic

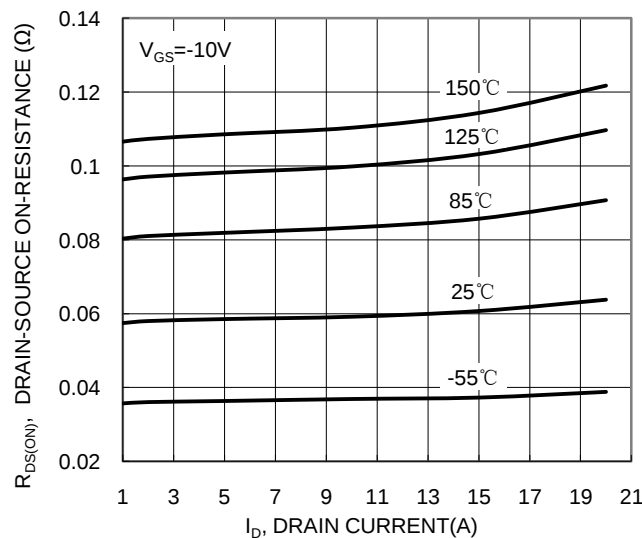


Figure 5. Typical On-Resistance vs. Drain Current and Temperature

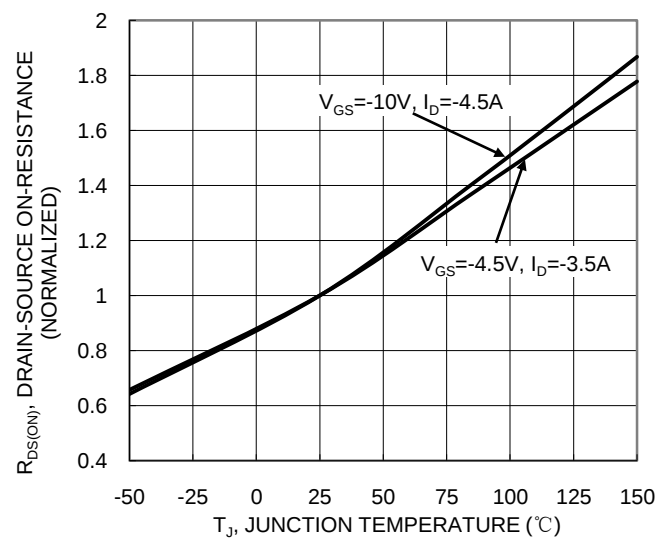
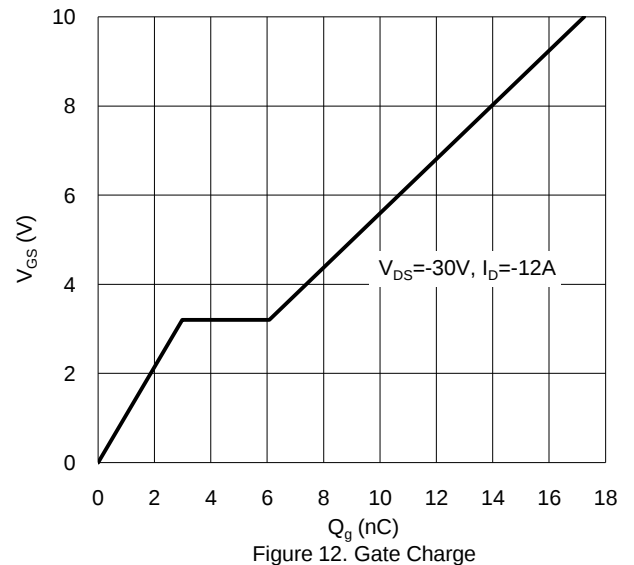
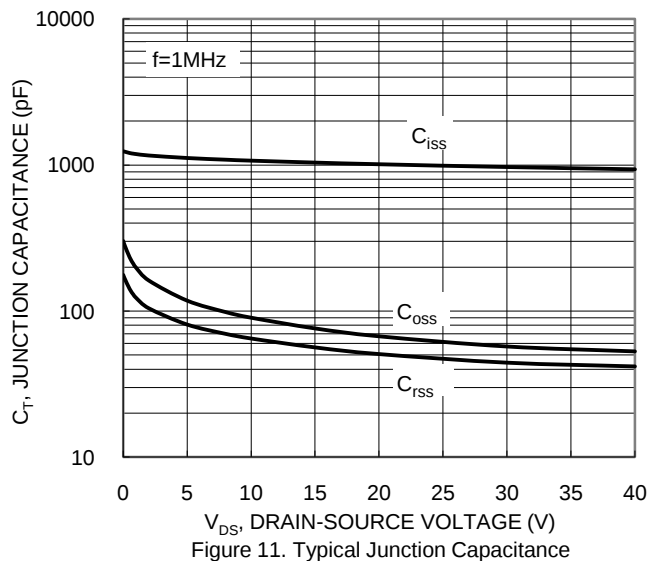
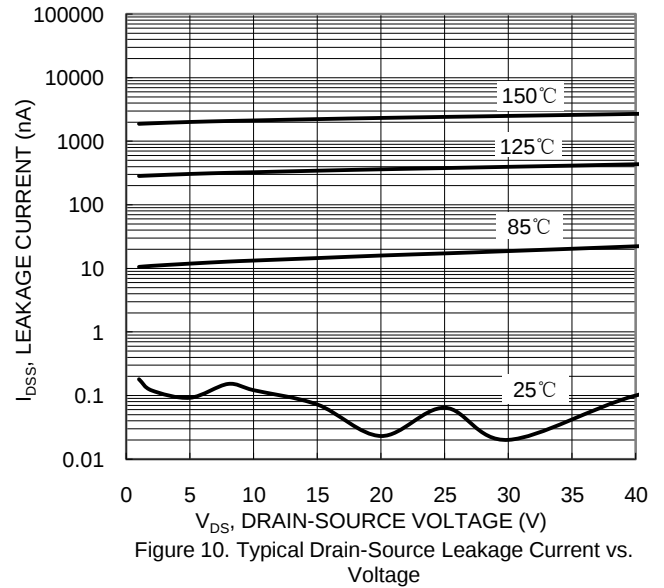
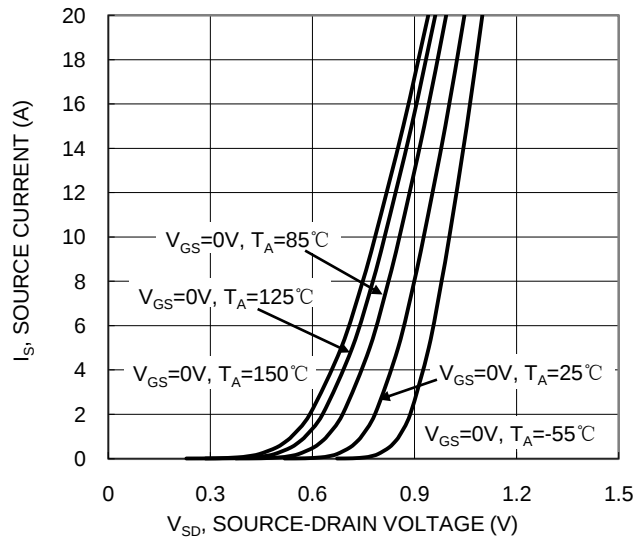
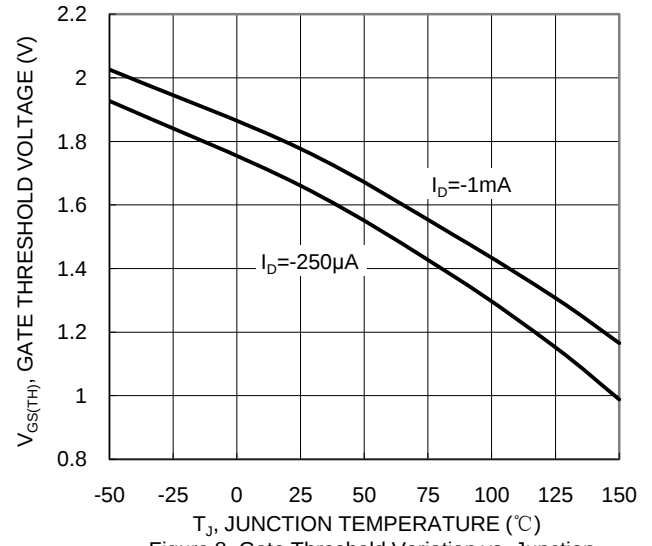
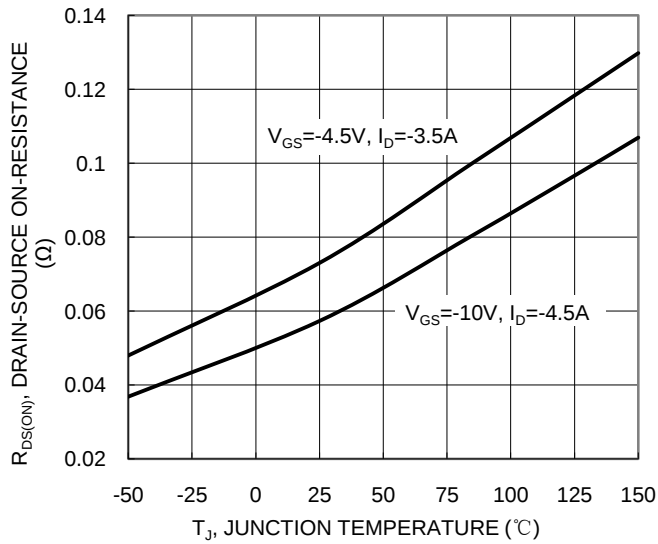
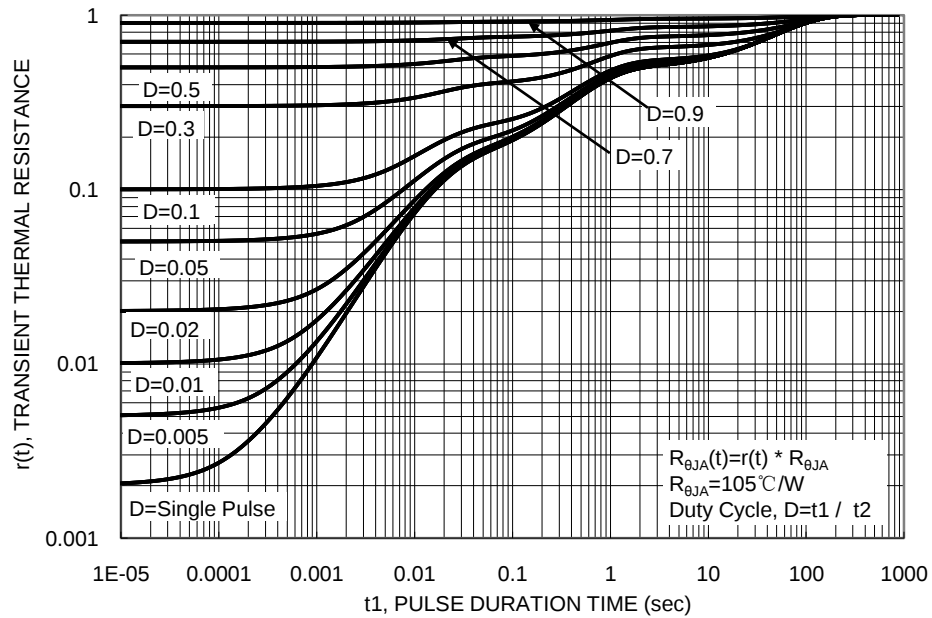
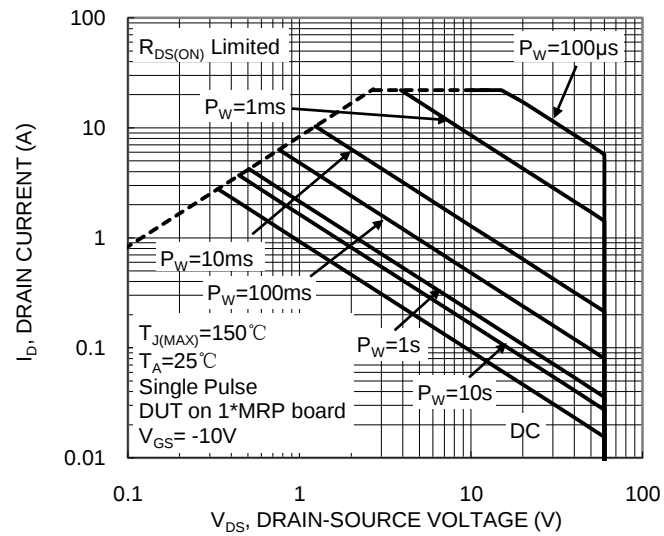


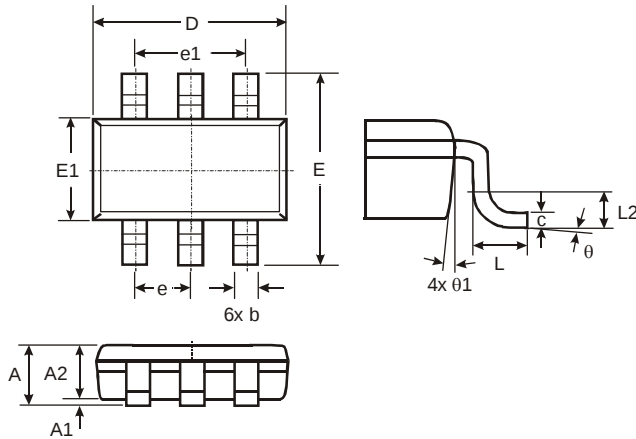
Figure 6. On-Resistance Variation with Temperature





Package Outline Dimensions

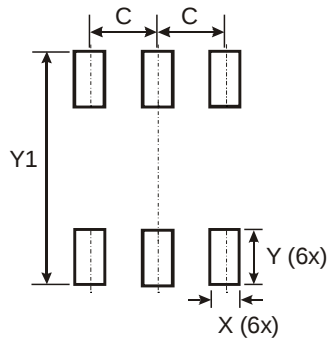
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for the latest version.



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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