

## Product Summary

$V_{(BR)DSS}$	$R_{DS(ON)} \text{ max}$	$I_D \text{ max}$ $T_A = +25^\circ\text{C}$
-30V	42mΩ @ $V_{GS} = -10\text{V}$	-5.1A
	65mΩ @ $V_{GS} = -4.5\text{V}$	-4.0A

## 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

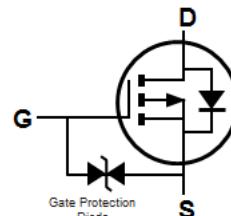
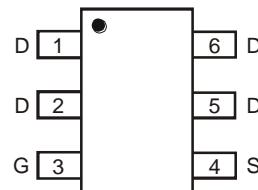
- Low On-Resistance
- Low Input Capacitance
- Fast Switching Speed
- ESD Protected Gate
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- Halogen and Antimony Free. "Green" Device (Note 3)
- Qualified to AEC-Q101 Standards for High Reliability

## 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 e3
- Weight: 0.015 grams (Approximate)



Top View



## Ordering Information (Note 4)

Part Number	Case	Packaging
DMP3065LVT-7	TSOT26	3,000/Tape & Reel
DMP3065LVT-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.
4. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

## Marking Information



65P = Product Type Marking Code  
 YM = Date Code Marking  
 Y or Y = Year (ex: A = 2013)  
 M = Month (ex: 9 = September)

Date Code Key

Year	2011	2012	2013	2014	2015	2016	2017	2018				
Code	Y	Z	A	B	C	D	E	F				
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 P-Channel** (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

Characteristic			Symbol	Value	Units
Drain-Source Voltage			$V_{DSS}$	-30	V
Gate-Source Voltage			$V_{GSS}$	$\pm 20$	V
Continuous Drain Current (Note 5) $V_{GS} = -10\text{V}$	Steady State	$T_A = +25^\circ\text{C}$ $T_A = +70^\circ\text{C}$	$I_D$	-5.1 -4.2	A
Continuous Drain Current (Note 5) $V_{GS} = -4.5\text{V}$	Steady State	$T_A = +25^\circ\text{C}$ $T_A = +70^\circ\text{C}$	$I_D$	-4.0 -3.2	A
Maximum Body Diode Continuous Current			$I_S$	-2.0	A

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

Characteristic			Symbol	Value	Units
Total Power Dissipation (Note 6)			$P_D$	1.2	W
Thermal Resistance, Junction to Ambient (Note 6)			$R_{\theta JA}$	102	$^\circ\text{C}/\text{W}$
Total Power Dissipation (Note 5)			$P_D$	1.6	W
Thermal Resistance, Junction to Ambient (Note 5)			$R_{\theta JA}$	78	$^\circ\text{C}/\text{W}$
Operating and Storage Temperature Range			$T_J, T_{STG}$	-55 to +150	$^\circ\text{C}$

**Electrical Characteristics P-Channel** (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
<b>OFF CHARACTERISTICS (Note 7)</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	-30	—	—	V	$V_{GS} = 0\text{V}, I_D = -250\mu\text{A}$
Zero Gate Voltage Drain Current @ $T_J = +25^\circ\text{C}$	$I_{DSS}$	—	—	-1	$\mu\text{A}$	$V_{DS} = -24\text{V}, V_{GS} = 0\text{V}$
Gate-Source Leakage	$I_{GS}$	—	—	$\pm 10$	$\mu\text{A}$	$V_{GS} = \pm 20\text{V}, V_{DS} = 0\text{V}$
<b>ON CHARACTERISTICS (Note 7)</b>						
Gate Threshold Voltage	$V_{GS(th)}$	-1	-1.7	-2.1	V	$V_{DS} = V_{GS}, I_D = -250\mu\text{A}$
Static Drain-Source On-Resistance	$R_{DS(\text{ON})}$	—	34	42	$\text{m}\Omega$	$V_{GS} = -10\text{V}, I_D = -4.9\text{A}$
		—	52	65		$V_{GS} = -4.5\text{V}, I_D = -3.7\text{A}$
Forward Transfer Admittance	$ Y_{fs} $	—	8.5	—	S	$V_{DS} = -5\text{V}, I_D = -4.9\text{A}$
Diode Forward Voltage	$V_{SD}$	—	-0.75	-1.2	V	$V_{GS} = 0\text{V}, I_S = -1\text{A}$
<b>DYNAMIC CHARACTERISTICS (Note 8)</b>						
Input Capacitance	$C_{iss}$	—	587	880	$\text{pF}$	$V_{DS} = -15\text{V}, V_{GS} = 0\text{V}, f = 1.0\text{MHz}$
Output Capacitance	$C_{oss}$	—	160	240		
Reverse Transfer Capacitance	$C_{rss}$	—	84	130		
Total Gate Charge ( $V_{GS} = -4.5\text{V}$ )	$Q_g$	—	6.3	10	$\text{nC}$	$V_{DS} = -15\text{V}, I_D = -4.9\text{A}$
Total Gate Charge ( $V_{GS} = -10\text{V}$ )	$Q_g$	—	12.3	20		
Gate-Source Charge	$Q_{gs}$	—	1.9	4		
Gate-Drain Charge	$Q_{gd}$	—	2.5	5		
Turn-On Delay Time	$t_{D(on)}$	—	5.7	10	$\text{ns}$	$V_{DD} = -15\text{V}, V_{GS} = -10\text{V}, I_D = -4.9\text{A}, R_G = 6\Omega$
Turn-On Rise Time	$t_r$	—	11.8	22		
Turn-Off Delay Time	$t_{D(off)}$	—	21.8	35		
Turn-Off Fall Time	$t_f$	—	23.9	40		

Notes:

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

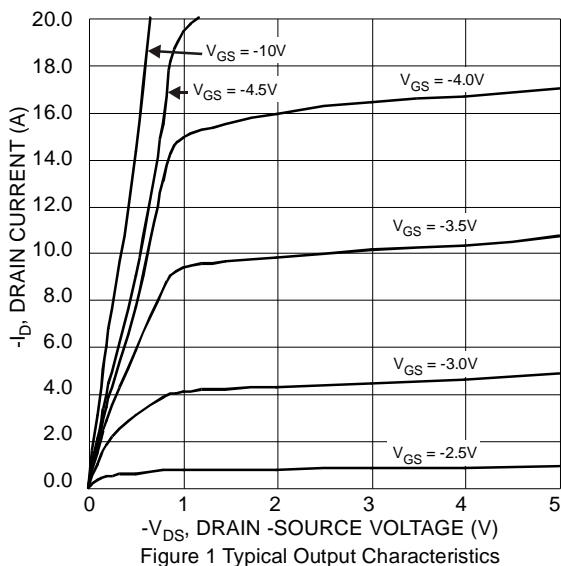


Figure 1 Typical Output Characteristics

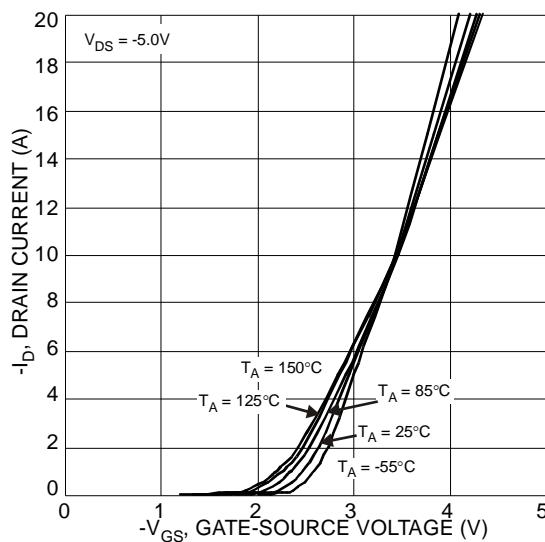


Figure 2 Typical Transfer Characteristics

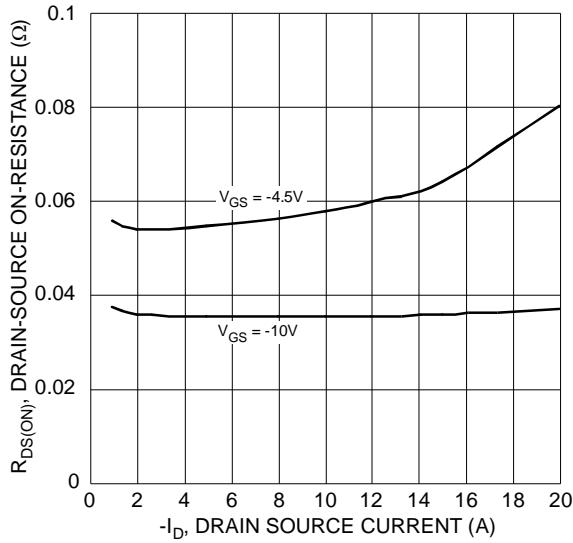


Figure 3 Typical On-Resistance vs.  
Drain Current and Gate Voltage

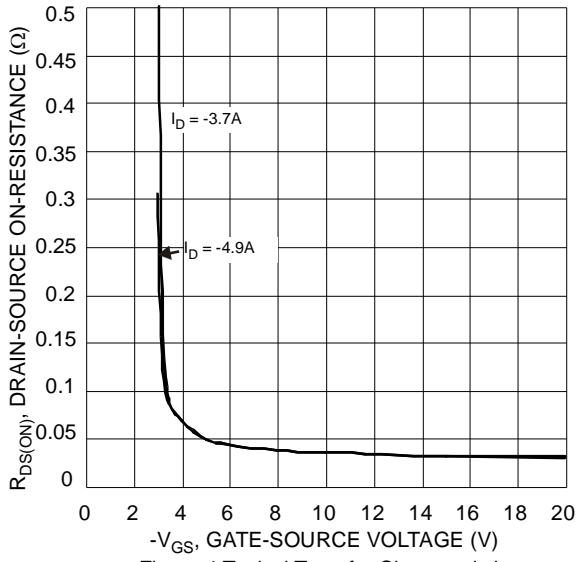


Figure 4 Typical Transfer Characteristic

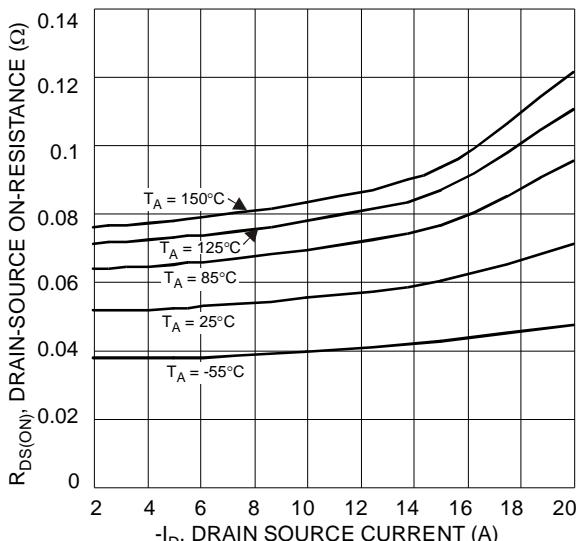


Figure 5 Typical On-Resistance vs.  
Drain Current and Temperature

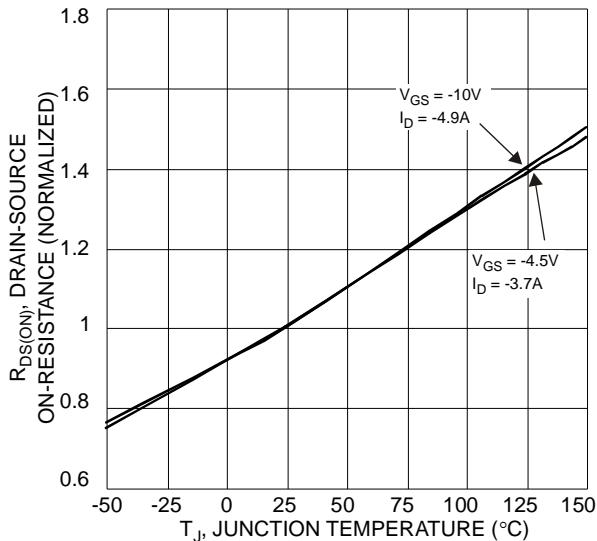
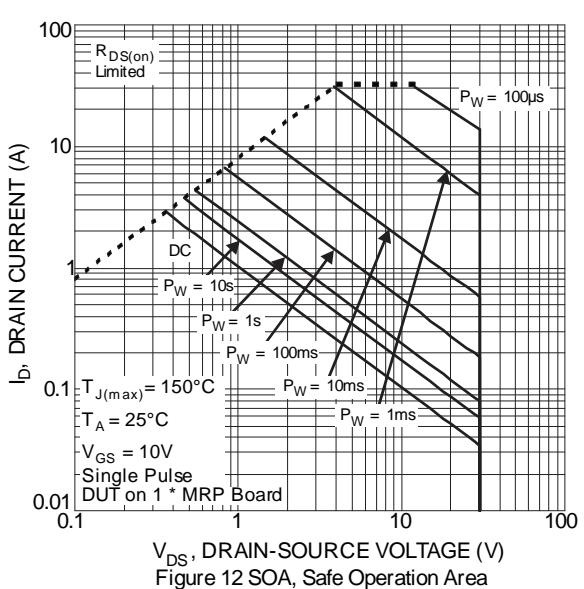
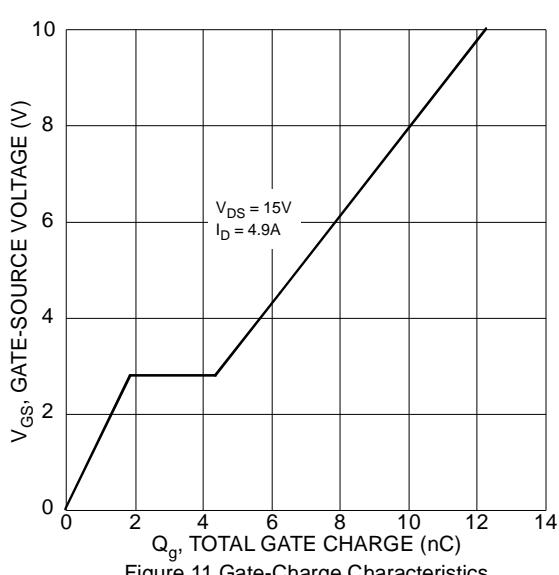
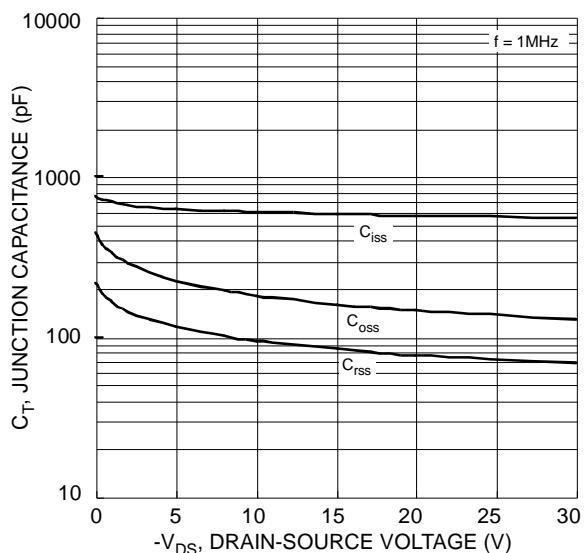
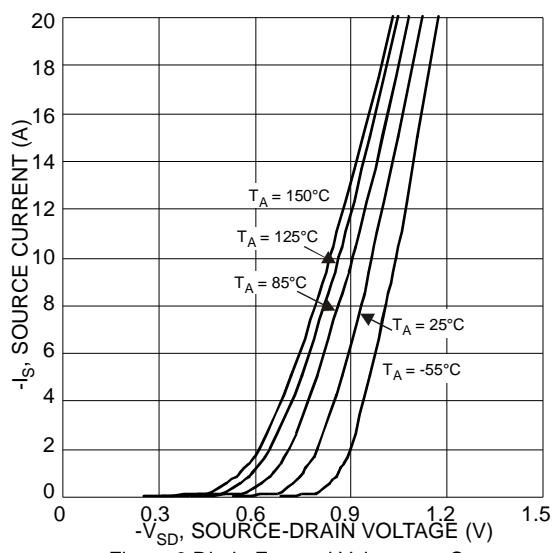
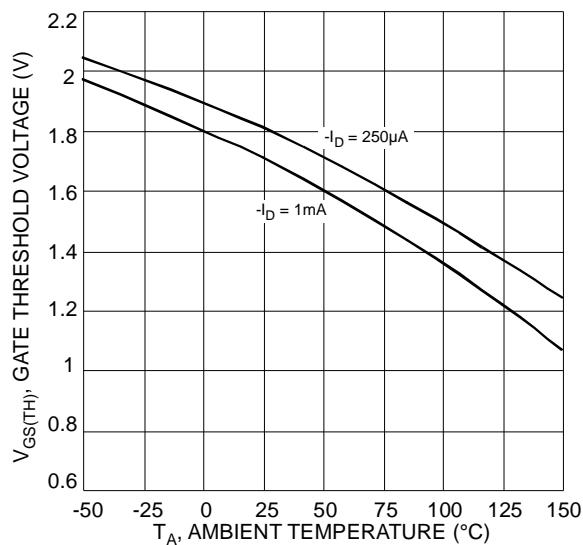
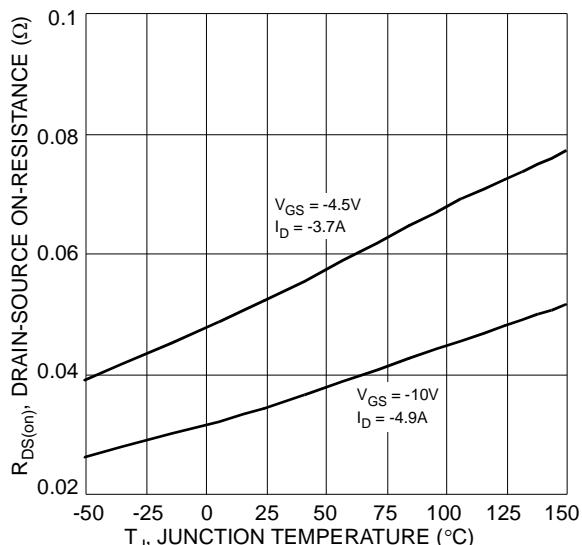
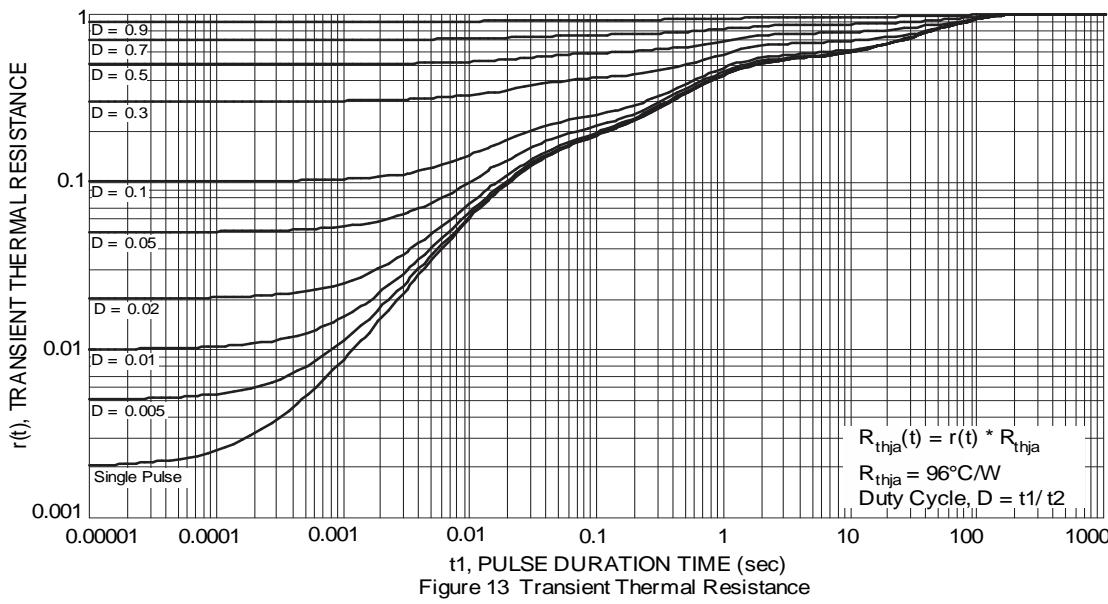


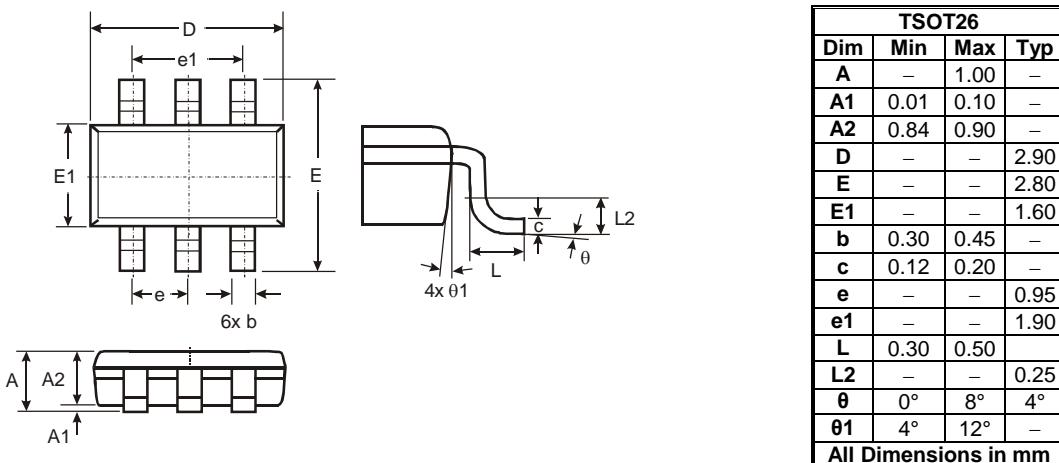
Figure 6 On-Resistance Variation with Temperature





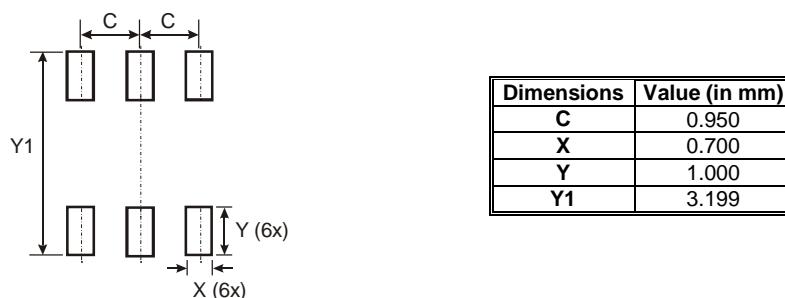
## Package Outline Dimensions

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



## Suggested Pad Layout

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



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