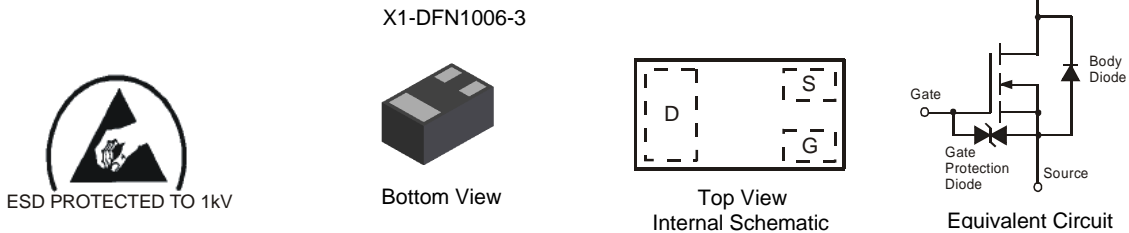


### Features

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

### Mechanical Data

- Case: X1-DFN1006-3
- Case Material: Molded Plastic, "Green" Molding Compound; UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish – NiPdAu over Copper Leadframe; Solderable per MIL-STD-202, Method 208 (e4)
- Weight: 0.001 grams (Approximate)

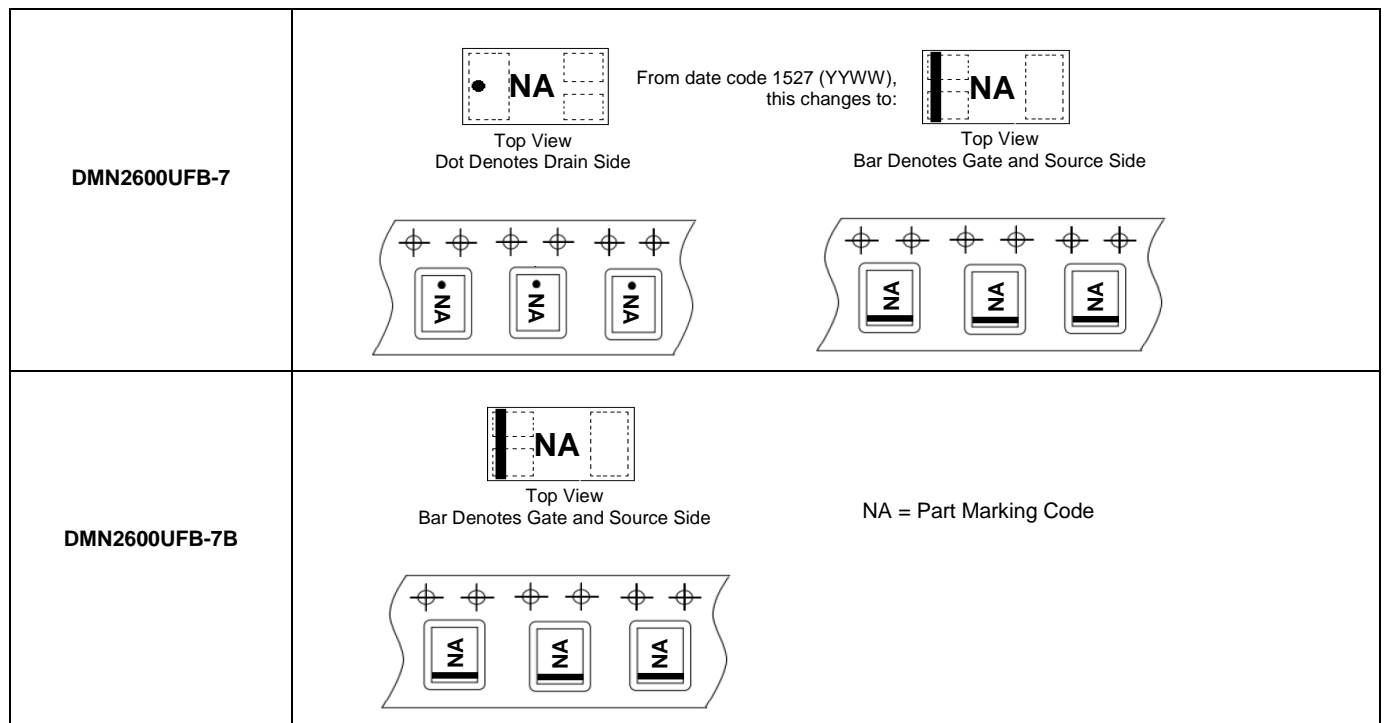


### Ordering Information (Note 3)

Part Number	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
DMN2600UFB-7	NA	7	8	3000
DMN2600UFB-7B	NA	7	8	10,000

- 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



**Maximum Ratings** (@T<sub>A</sub> = +25°C unless otherwise specified.)

Characteristic			Symbol	Value	Unit
Drain-Source Voltage			V <sub>DSS</sub>	25	V
Gate-Source Voltage			V <sub>GSS</sub>	±8	V
Continuous Drain Current (Note 4)	Steady State	T <sub>A</sub> = +25°C	I <sub>D</sub>	1.3	A
		T <sub>A</sub> = +85°C		0.9	
Pulsed Drain Current			I <sub>DM</sub>	3.0	A

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

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 4)	P <sub>D</sub>	0.54	W
Thermal Resistance, Junction to Ambient @T <sub>A</sub> = +25°C	R <sub>θJA</sub>	234	°C/W
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>OFF CHARACTERISTICS (Note 5)</b>						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	25	-	-	V	V <sub>GS</sub> = 0V, I <sub>D</sub> = 250μA
Zero Gate Voltage Drain Current T <sub>J</sub> = +25°C	I <sub>DSS</sub>	-	-	1	μA	V <sub>DS</sub> = 25V, V <sub>GS</sub> = 0V
Gate-Source Leakage	I <sub>GSS</sub>	-	-	10	μA	V <sub>GS</sub> = ±8V, V <sub>DS</sub> = 0V
<b>ON CHARACTERISTICS (Note 5)</b>						
Gate Threshold Voltage	V <sub>GS(th)</sub>	0.45	-	1.0	V	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250μA
Static Drain-Source On-Resistance	R <sub>DS(on)</sub>	-	-	350	mΩ	V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 200mA
				450		V <sub>GS</sub> = 2.5V, I <sub>D</sub> = 100mA
				600		V <sub>GS</sub> = 1.8V, I <sub>D</sub> = 75mA
Forward Transfer Admittance	Y <sub>fs</sub>	40	-	-	mS	V <sub>DS</sub> = 3V, I <sub>D</sub> = 200mA
Diode Forward Voltage	V <sub>SD</sub>	-	-	1.2	V	V <sub>GS</sub> = 0V, I <sub>S</sub> = 300mA
<b>DYNAMIC CHARACTERISTICS (Note 6)</b>						
Input Capacitance	C <sub>iss</sub>	-	70.13	-	pF	V <sub>DS</sub> = 15V, V <sub>GS</sub> = 0V, f = 1.0MHz
Output Capacitance	C <sub>oss</sub>	-	7.56	-	pF	
Reverse Transfer Capacitance	C <sub>rss</sub>	-	5.59	-	pF	
Gate Resistance	R <sub>g</sub>	-	72.3	-	Ω	V <sub>DS</sub> = 0V, V <sub>GS</sub> = 0V, f = 1MHz
Total Gate Charge	Q <sub>g</sub>	-	0.85	-	nC	V <sub>GS</sub> = 4.5V, V <sub>DS</sub> = 15V, I <sub>D</sub> = 1A
Gate-Source Charge	Q <sub>gs</sub>	-	0.16	-	nC	
Gate-Drain Charge	Q <sub>gd</sub>	-	0.11	-	nC	
Turn-On Delay Time	t <sub>D(on)</sub>	-	4.1	-	ns	V <sub>DS</sub> = 15V, R <sub>L</sub> = 15Ω V <sub>GS</sub> = 10V, R <sub>G</sub> = 6Ω
Turn-On Rise Time	t <sub>r</sub>	-	11.5	-	ns	
Turn-Off Delay Time	t <sub>D(off)</sub>	-	34.8	-	ns	
Turn-Off Fall Time	t <sub>f</sub>	-	20.9	-	ns	

- Notes:
- Device mounted on FR-4 substrate PCB board, with minimum recommended pad layout.
  - Short duration pulse test used to minimize self-heating effect.
  - Guaranteed by design. Not subject to production testing.

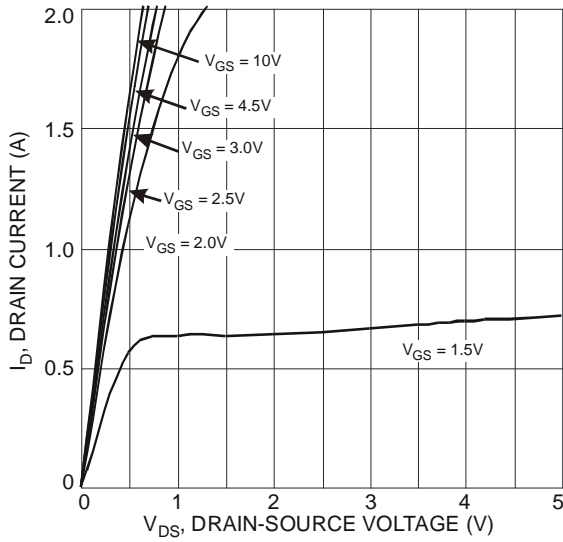


Fig. 1 Typical Output Characteristic

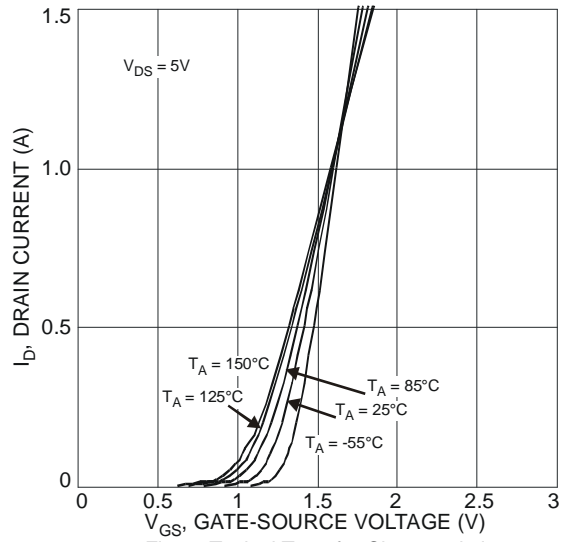


Fig. 2 Typical Transfer Characteristic

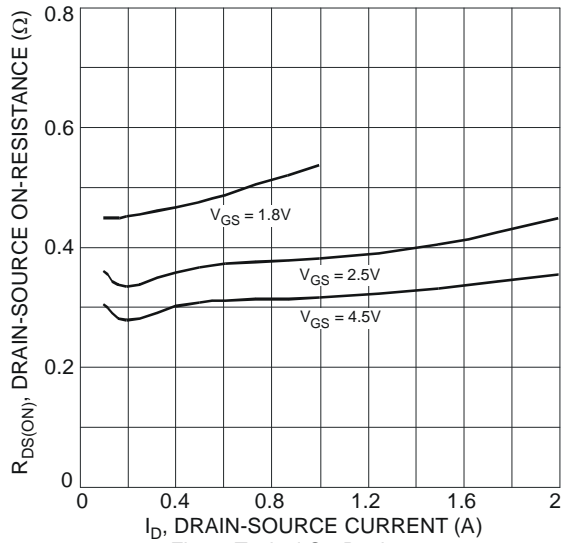


Fig. 3 Typical On-Resistance vs. Drain Current and Gate Voltage

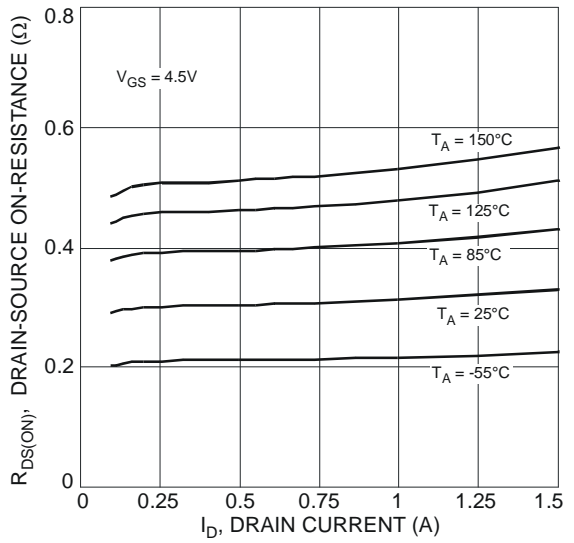


Fig. 4 Typical On-Resistance vs. Drain Current and Temperature

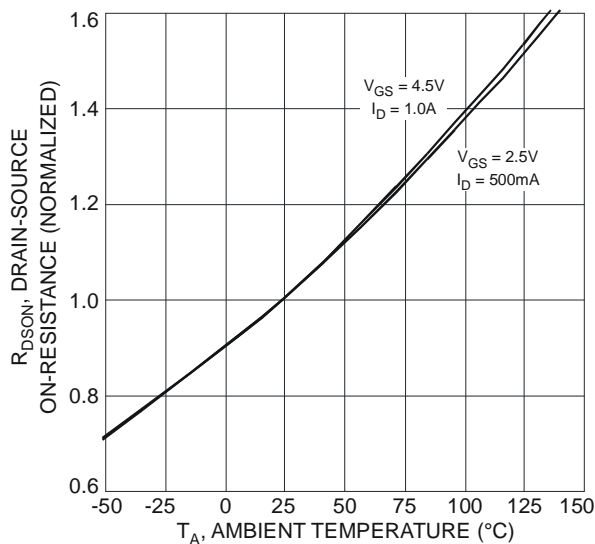


Fig. 5 On-Resistance Variation with Temperature

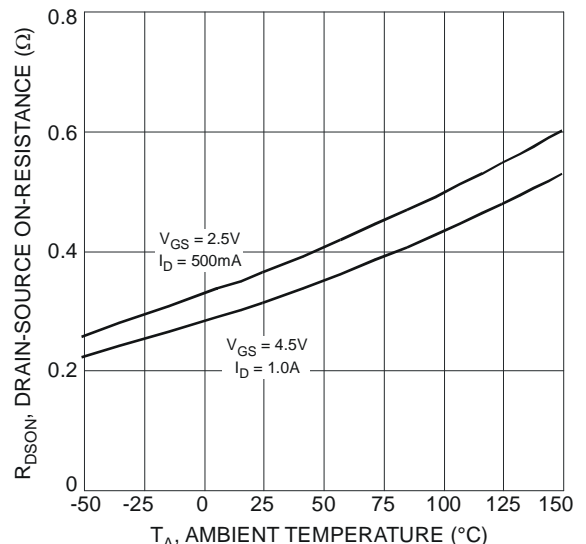


Fig. 6 On-Resistance Variation with Temperature

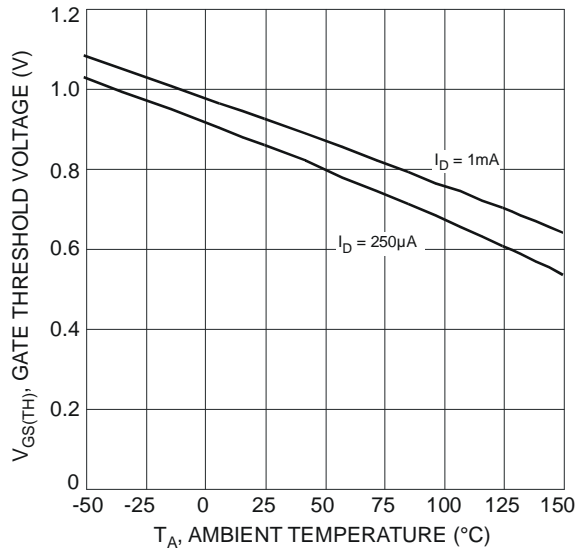


Fig. 7 Gate Threshold Variation vs. Ambient Temperature

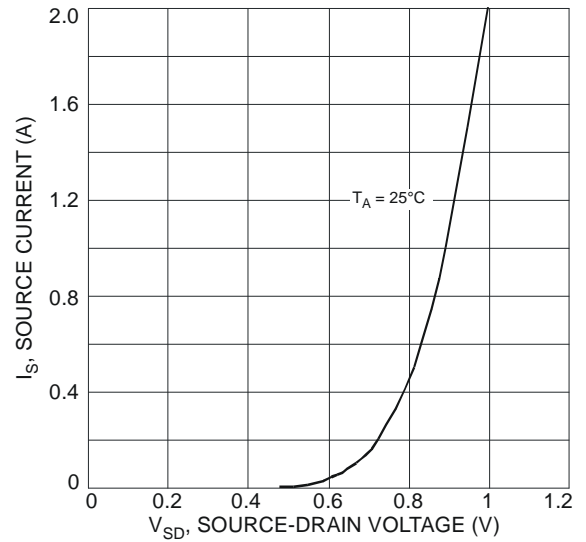


Fig. 8 Diode Forward Voltage vs. Current

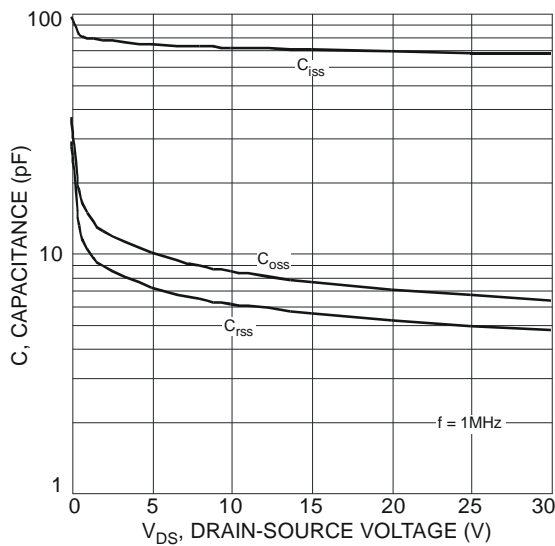


Fig. 9 Typical Total Capacitance

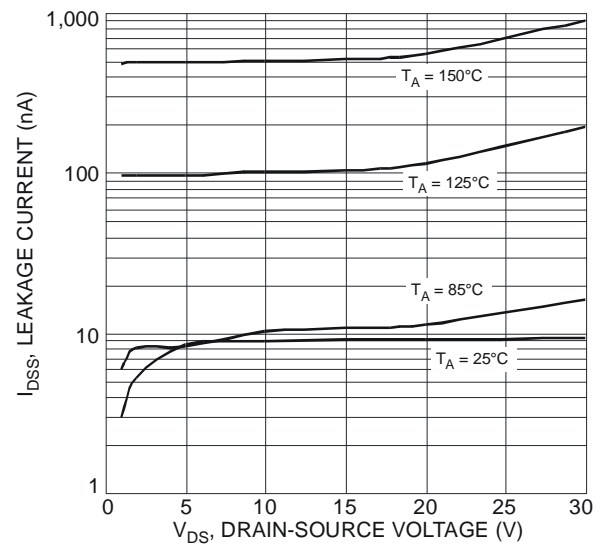


Fig. 10 Typical Leakage Current vs. Drain-Source Voltage

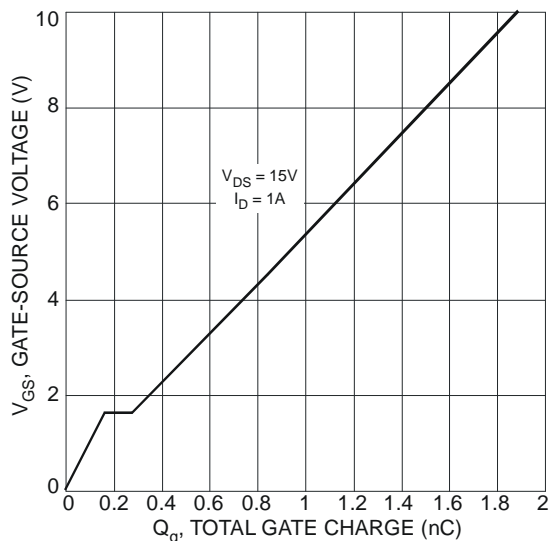


Fig. 11 Gate-Charge Characteristics

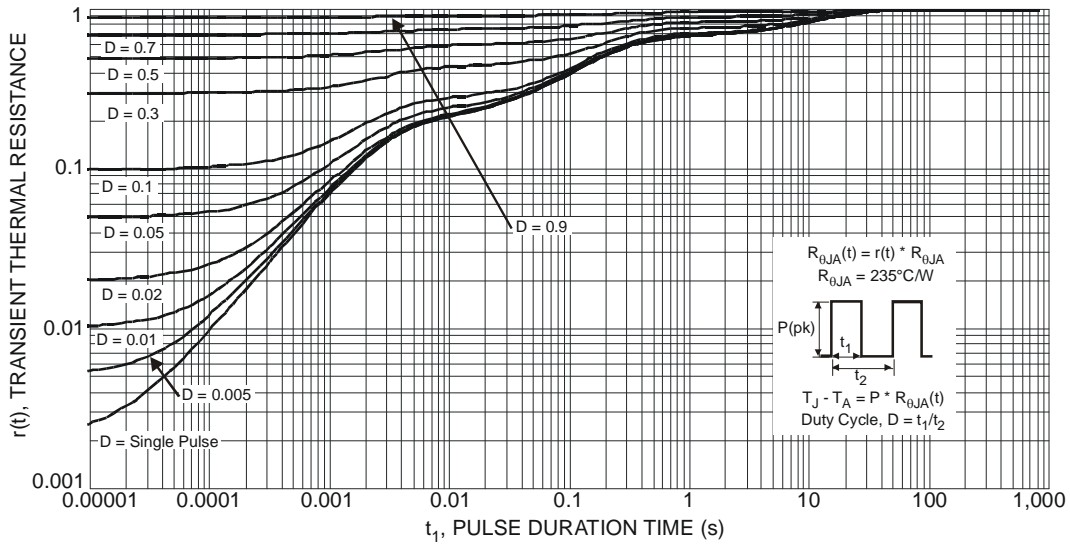
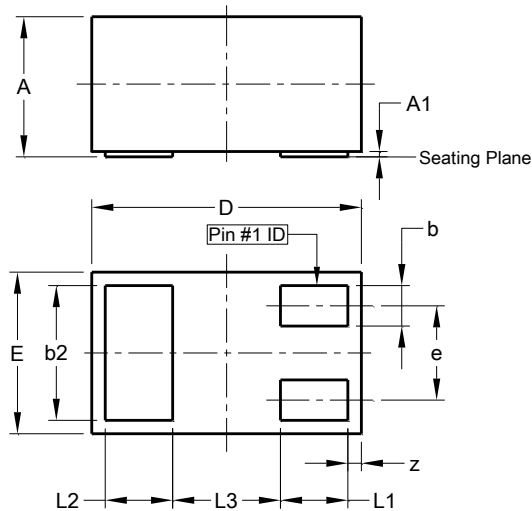


Fig. 12 Transient Thermal Response

**Package Outline Dimensions**

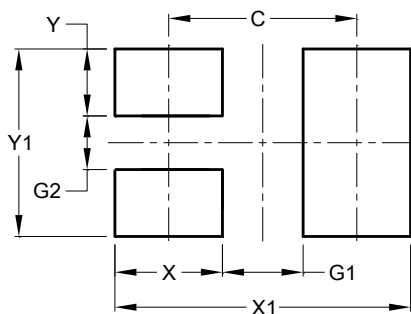
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for the latest version.



X1-DFN1006-3			
Dim	Min	Max	Typ
A	0.47	0.53	0.50
A1	0.00	0.05	0.03
b	0.10	0.20	0.15
b2	0.45	0.55	0.50
D	0.95	1.075	1.00
E	0.55	0.675	0.60
e	-	-	0.35
L1	0.20	0.30	0.25
L2	0.20	0.30	0.25
L3	-	-	0.40
z	0.02	0.08	0.05
<b>All Dimensions in mm</b>			

**Suggested Pad Layout**

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



Dimensions	Value (in mm)
C	0.70
G1	0.30
G2	0.20
X	0.40
X1	1.10
Y	0.25
Y1	0.70

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