



**THE DATASHEET OF  
DMN3071LFR4-7**



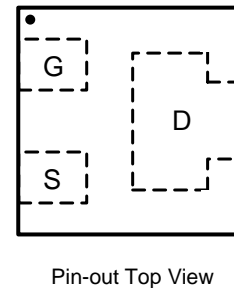
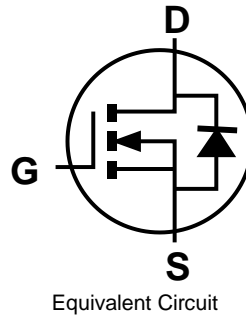
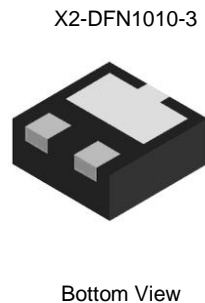
## Product Summary

$BV_{DSS}$	$R_{DS(ON)}$	$I_D$ $T_A = +25^\circ C$
30V	65m $\Omega$ @ $V_{GS} = 10V$	3.4A
	75m $\Omega$ @ $V_{GS} = 4.5V$	3.0A

## 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.

- Power Management Functions
- Backlighting
- Load Switch



## Features and Benefits

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

## Mechanical Data

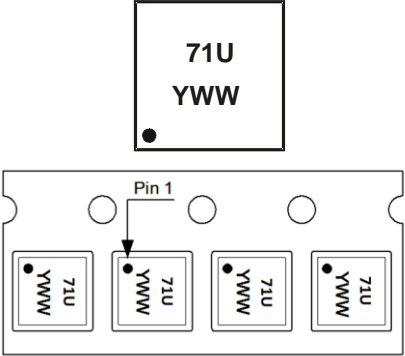
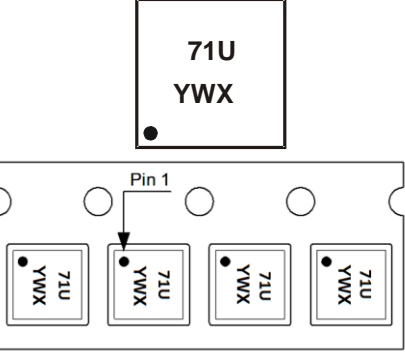
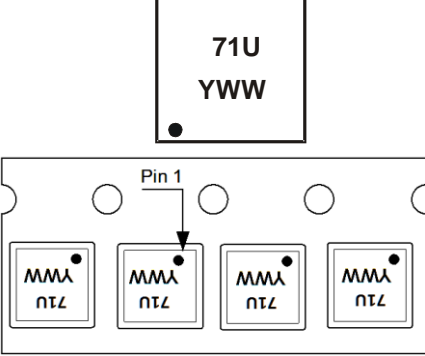
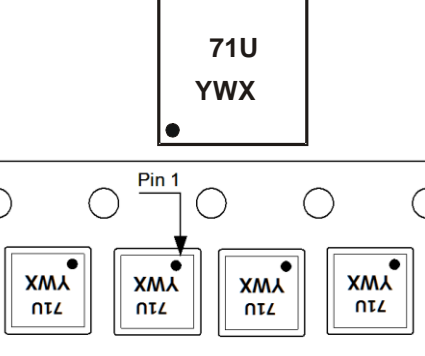
- Case: X2-DFN1010-3
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections: See Diagram
- Terminals: Finish — NiPdAu over Copper Leadframe; Solderable per MIL-STD-202, Method 208 **e4**
- Weight: 0.0015 Grams (Approximate)

## Ordering Information (Note 4)

Part Number	Case	Tape Width (mm)	Tape Pitch (mm)	Packaging
DMN3071LFR4-7	X2-DFN1010-3	8	4	3000/Tape & Reel
DMN3071LFR4-7R	X2-DFN1010-3	8	4	3000/Tape & Reel

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
  2. See <https://www.diodes.com/quality/lead-free/> 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 <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

**Marking Information**

<p>DMN3071LFR4-7</p>	<p>Site 1:</p>  <p>71U = Product Type Marking Code YWW = Date Code Marking Y = Year (ex: G = 2019) WW = Number of Week</p> <p>Site 2:</p>  <p>71U = Product Type Marking Code YWX = Date Code Marking Y = Year (ex: 9 = 2019) W = Week (ex: a = week 27; z represents week 52 and 53) X = Internal Code (ex: U = Monday)</p>
<p>DMN3071LFR4-7R</p>	<p>Site 1:</p>  <p>71U = Product Type Marking Code YWW = Date Code Marking Y = Year (ex: G = 2019) WW = Number of Week</p> <p>Site 2:</p>  <p>71U = Product Type Marking Code YWX = Date Code Marking Y = Year (ex: 9 = 2019) W = Week (ex: a = week 27; z represents week 52 and 53) X = Internal Code (ex: U = Monday)</p>

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**Marking Information** (Cont.)
 

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Site 1:

<b>Year</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>
<b>Code</b>	F	G	H	I	J	K	L	M

Site 2:

<b>Year</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>
<b>Code</b>	8	9	0	1	2	3	4	5

<b>Month</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sep</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>
<b>Code</b>	1	2	3	4	5	6	7	8	9	O	N	D

<b>Week</b>	<b>1-26</b>	<b>27-52</b>	<b>53</b>
<b>Code</b>	A-Z	a-z	z

<b>Internal Code</b>	<b>Sun</b>	<b>Mon</b>	<b>Tue</b>	<b>Wed</b>	<b>Thu</b>	<b>Fri</b>	<b>Sat</b>
<b>Code</b>	T	U	V	W	X	Y	Z

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

Characteristic			Symbol	Value	Unit
Drain-Source Voltage			V <sub>DSS</sub>	30	V
Gate-Source Voltage			V <sub>GSS</sub>	±20	V
Continuous Drain Current (Note 6) V <sub>GS</sub> = 10V	Steady State	T <sub>A</sub> = +25°C	I <sub>D</sub>	3.4	A
		T <sub>A</sub> = +100°C		2.7	
Maximum Continuous Body Diode Forward Current (Note 6)			I <sub>S</sub>	1.5	A
Pulsed Drain Current (10µs Pulse, Duty Cycle = 1%)			I <sub>DM</sub>	15	A

**Thermal Characteristics**

Characteristic			Symbol	Value	Unit
Total Power Dissipation (Note 5)			P <sub>D</sub>	0.5	W
Thermal Resistance, Junction to Ambient (Note 5)		Steady State	R <sub>θJA</sub>	221	°C/W
Total Power Dissipation (Note 6)			P <sub>D</sub>	1.1	W
Thermal Resistance, Junction to Ambient (Note 6)		Steady State	R <sub>θJA</sub>	107	°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 7)</b>						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	30	—	—	V	V <sub>GS</sub> = 0V, I <sub>D</sub> = 250µA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	—	—	1	µA	V <sub>DS</sub> = 30V, V <sub>GS</sub> = 0V
Gate-Source Leakage	I <sub>GSS</sub>	—	—	±100	nA	V <sub>GS</sub> = ±20V, V <sub>DS</sub> = 0V
<b>ON CHARACTERISTICS (Note 7)</b>						
Gate Threshold Voltage	V <sub>GS(TH)</sub>	1.0	—	2.5	V	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250µA
Static Drain-Source On-Resistance	R <sub>DS(ON)</sub>	—	—	65	mΩ	V <sub>GS</sub> = 10V, I <sub>D</sub> = 3.2A
				75		V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 3.2A
Diode Forward Voltage	V <sub>SD</sub>	—	0.8	1.2	V	V <sub>GS</sub> = 0V, I <sub>S</sub> = 1A
<b>DYNAMIC CHARACTERISTICS (Note 8)</b>						
Input Capacitance	C <sub>iSS</sub>	—	190	—	pF	V <sub>DS</sub> = 15V, V <sub>GS</sub> = 0V f = 1.0MHz
Output Capacitance	C <sub>oss</sub>	—	36	—		
Reverse Transfer Capacitance	C <sub>rSS</sub>	—	26	—		
Gate Resistance	R <sub>g</sub>	—	4.2	—	Ω	V <sub>DS</sub> = 0V, V <sub>GS</sub> = 0V, f = 1MHz
Total Gate Charge (V <sub>GS</sub> = 4.5V)	Q <sub>g</sub>	—	2.1	—	nC	V <sub>DS</sub> = 15V, I <sub>D</sub> = 4A
Total Gate Charge (V <sub>GS</sub> = 10V)	Q <sub>g</sub>	—	4.5	—		
Gate-Source Charge	Q <sub>gs</sub>	—	0.5	—		
Gate-Drain Charge	Q <sub>gd</sub>	—	0.8	—		
Turn-On Delay Time	t <sub>D(ON)</sub>	—	1.7	—	ns	V <sub>DS</sub> = 15V, V <sub>GS</sub> = 10V, R <sub>G</sub> = 3Ω, I <sub>D</sub> = 4A
Turn-On Rise Time	t <sub>R</sub>	—	5.7	—		
Turn-Off Delay Time	t <sub>D(OFF)</sub>	—	6.0	—		
Turn-Off Fall Time	t <sub>F</sub>	—	1.6	—		
Reverse Recovery Time	t <sub>RR</sub>	—	4.2	—	ns	I <sub>F</sub> = 4A, di/dt = 100A/µs
Reverse Recovery Charge	Q <sub>RR</sub>	—	0.5	—	nC	

- Notes:
- Device mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout.
  - Device mounted on 1" x 1" FR-4 PCB with high coverage 2oz. Copper, single sided.
  - Short duration pulse test used to minimize self-heating effect.
  - Guaranteed by design. Not subject to production testing.

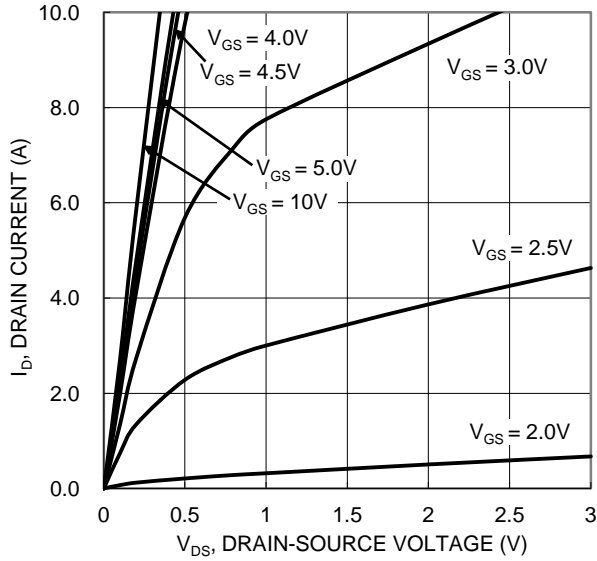


Figure 1. Typical Output Characteristic

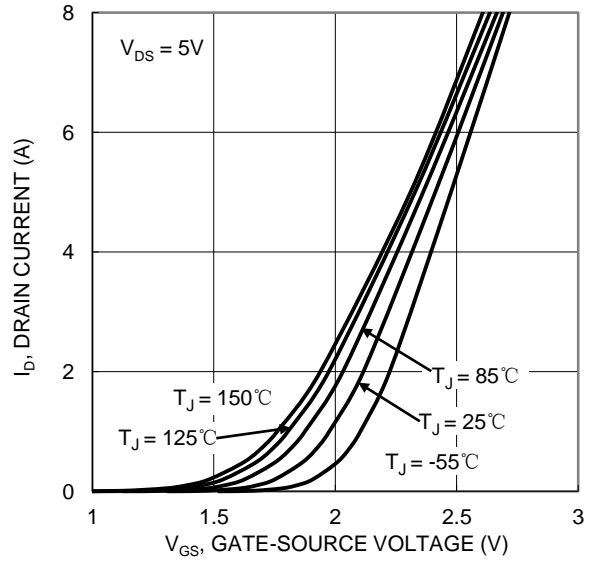


Figure 2. Typical Transfer Characteristic

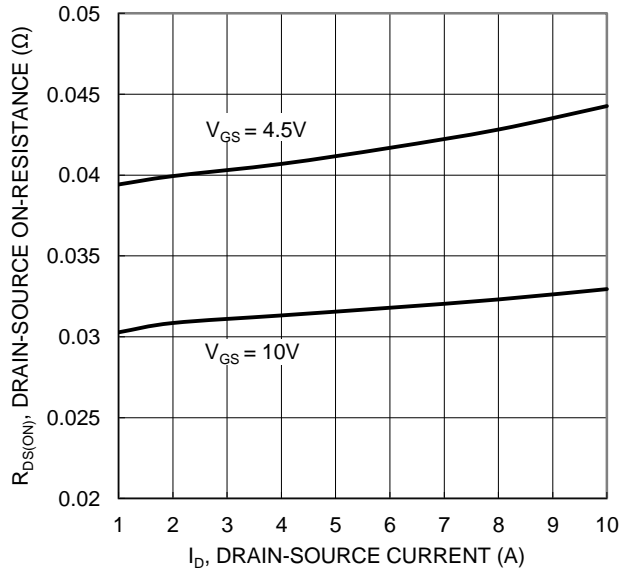


Figure 3. Typical On-Resistance vs. Drain Current and Gate Voltage

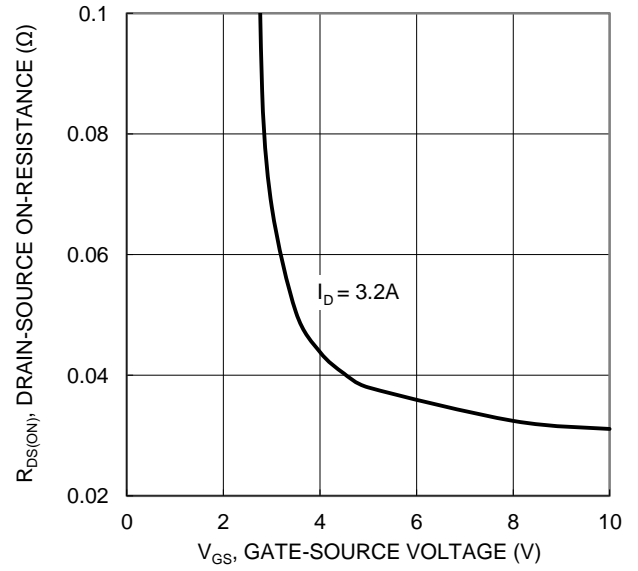


Figure 4. Typical Transfer Characteristic

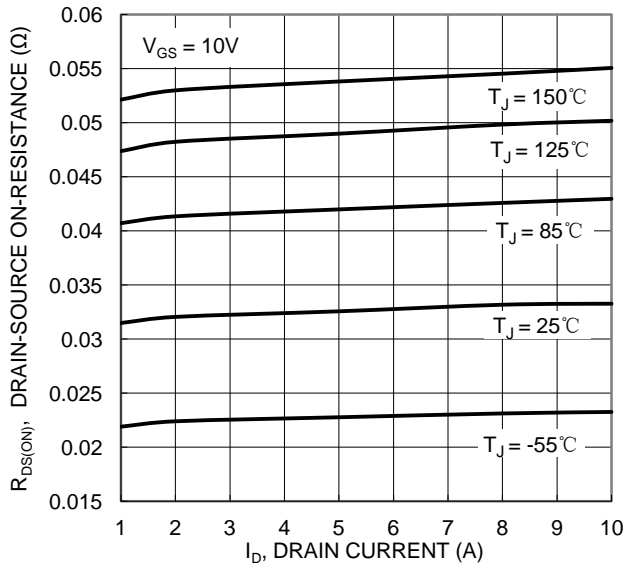


Figure 5. Typical On-Resistance vs. Drain Current and Junction Temperature

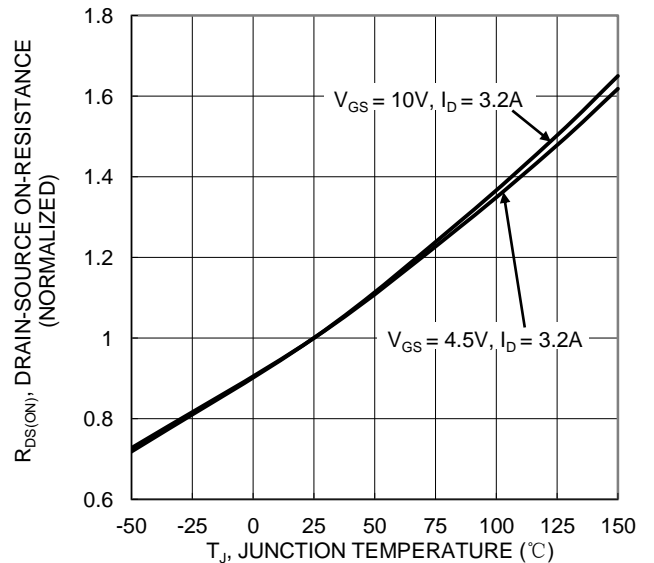
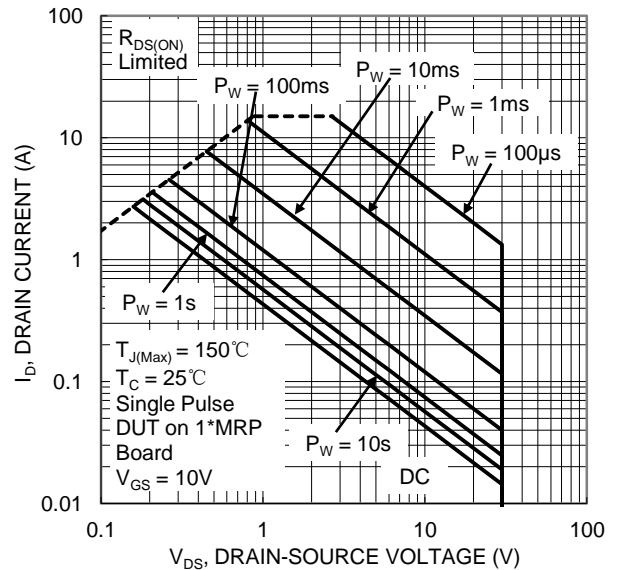
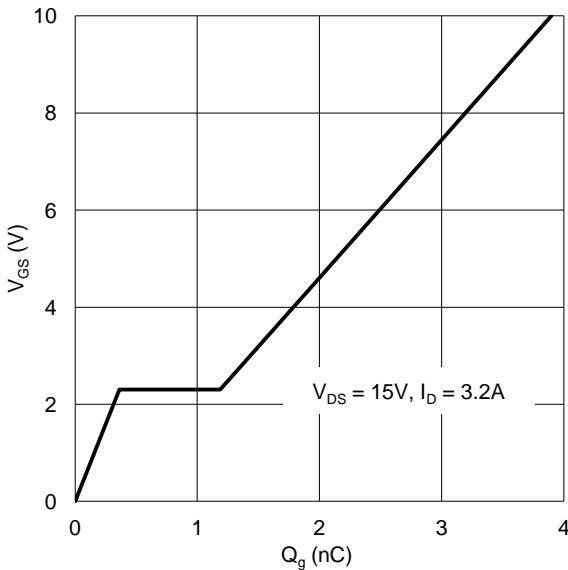
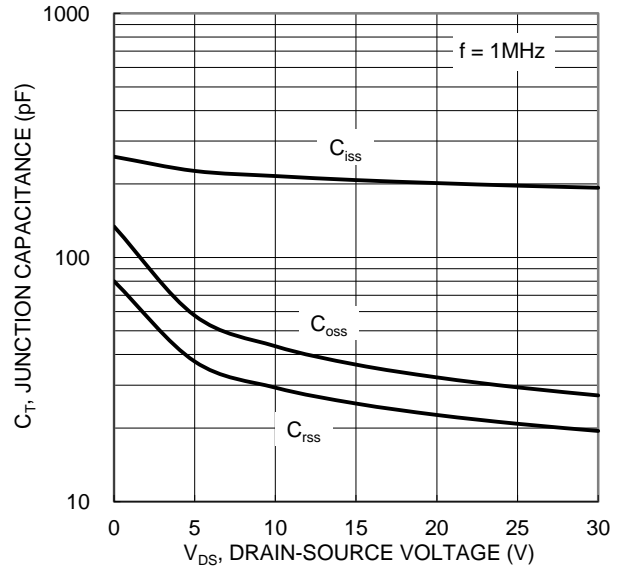
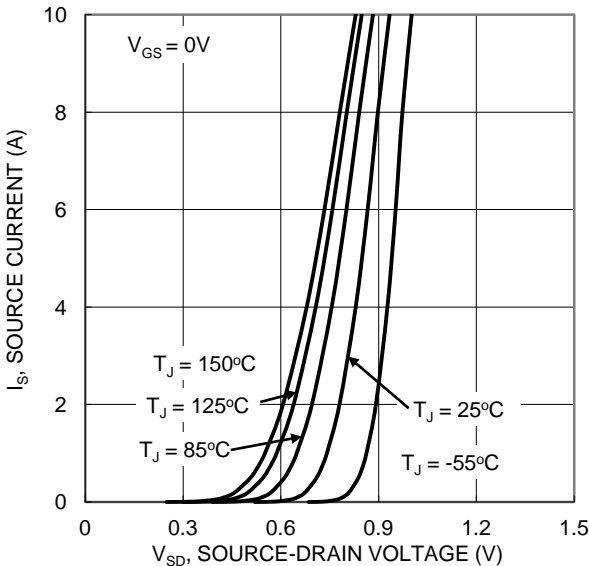
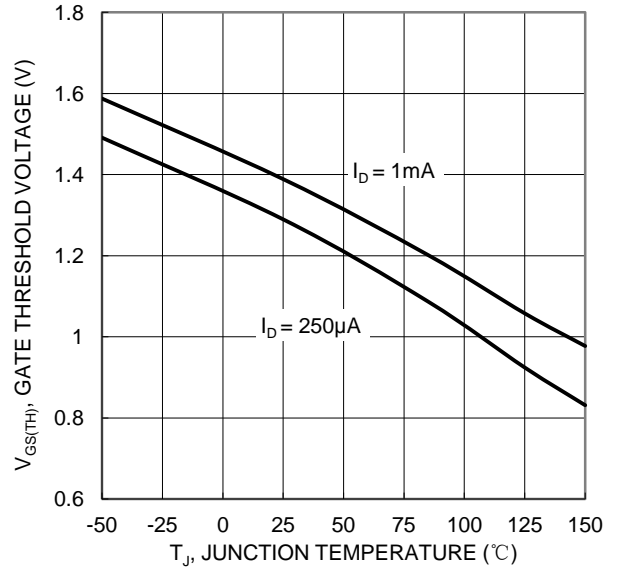
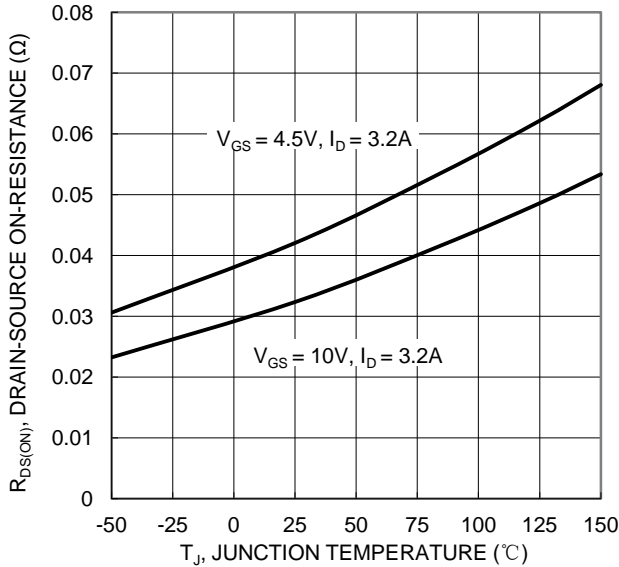


Figure 6. On-Resistance Variation with Junction Temperature



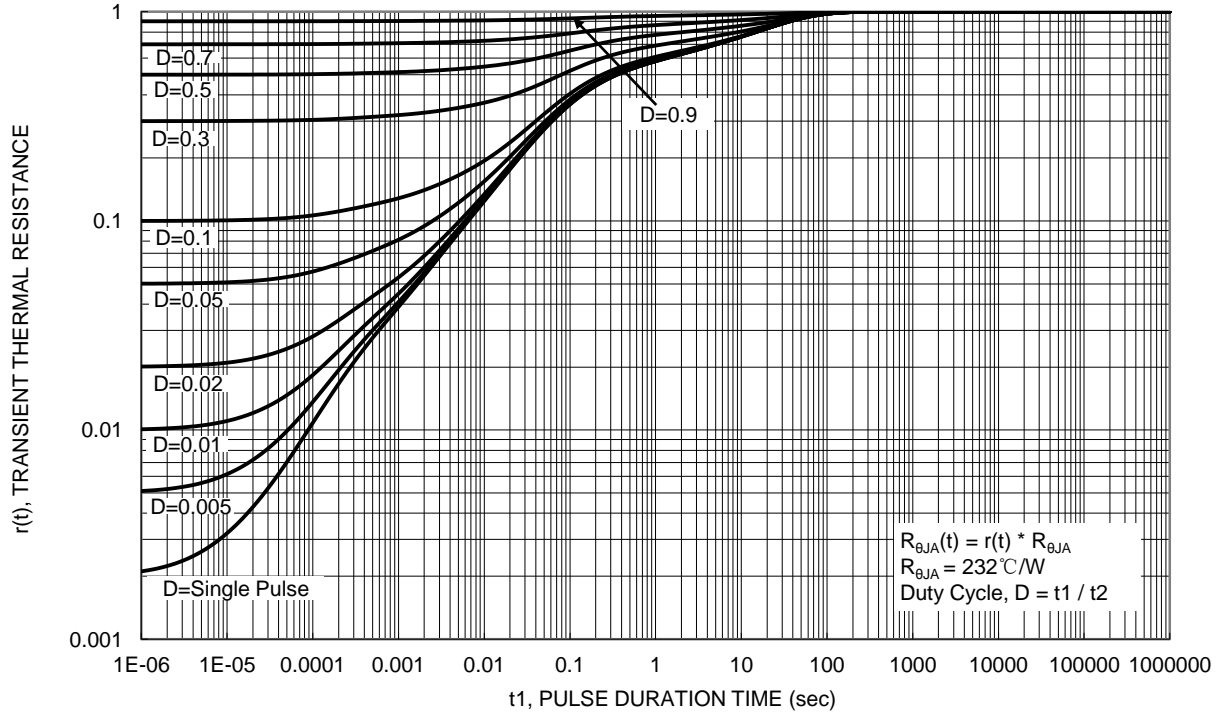
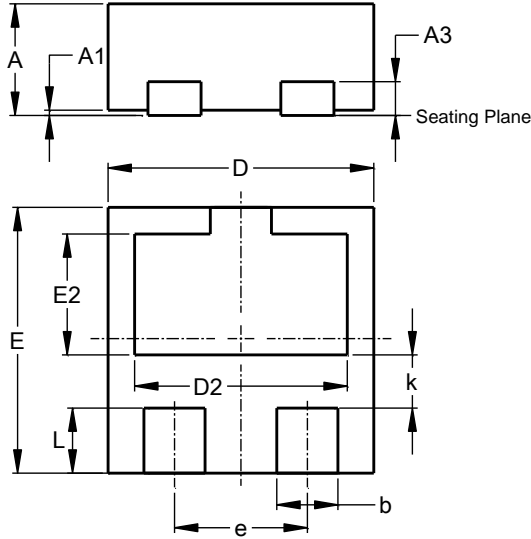


Figure 13. Transient Thermal Resistance

## Package Outline Dimensions

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

X2-DFN1010-3

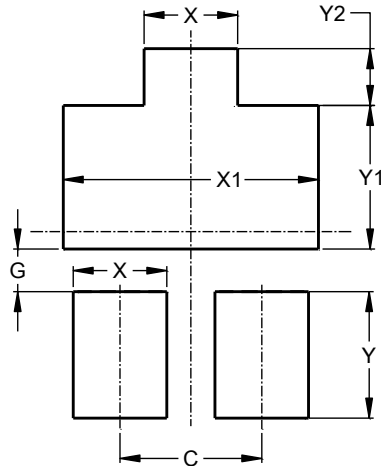


X2-DFN1010-3			
Dim	Min	Max	Typ
A	-	0.40	0.39
A1	0.00	0.05	0.02
A3	-	-	0.13
b	0.18	0.28	0.23
D	0.95	1.05	1.00
D2	0.70	0.90	0.80
E	0.95	1.05	1.00
E2	0.36	0.56	0.46
e	-	-	0.50
k	-	-	0.20
L	0.195	0.295	0.245
All Dimensions in mm			

## Suggested Pad Layout

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

X2-DFN1010-3



Dimensions	Value (in mm)
C	0.500
G	0.150
X	0.330
X1	0.900
Y	0.445
Y1	0.505
Y2	0.200

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