NEW PRODUCT

Product Summary

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D T_A = +25°C
-12V	100mΩ @ V_{GS} = -4.5 V	-2A
	160mΩ @ V_{GS} = -2.5V	-1A
	200mΩ @ V_{GS} = -1.8V	-0.5A
	380mΩ @ V_{GS} = -1.5V	-0.2A

Features and Benefits

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

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.

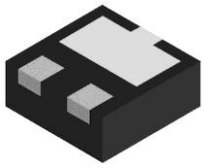
- Power Management Functions
- Backlighting
- Load Switch

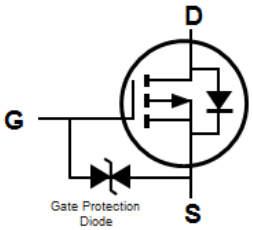
Mechanical Data

- 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 Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208 e4
- Weight: 0.0015 grams (Approximate)

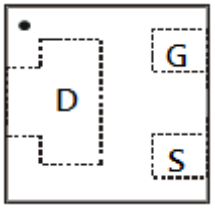
ESD PROTECTED

X2-DFN1010-3





Equivalent Circuit



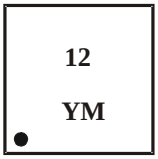
Pin-out Top view

Ordering Information (Note 4)

Part Number	Case	Packaging
DMP1200UFR4-7	X2-DFN1010-3	3000/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



12 = Product Type Marking Code
YM = Date Code Marking
Y = Year (ex: Y = 2011)
M = Month (ex: 9 = September)

Date Code Key

Year	2011	2012	2013	2014	2015	2016	2017
Code	Y	Z	A	B	C	D	E

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

NEW PRODUCT

Maximum Ratings (@T_A = +25°C unless otherwise specified.)

Characteristic			Symbol	Value	Units
Drain-Source Voltage			V_{DSS}	-12	V
Gate-Source Voltage			V_{GSS}	±8	V
Drain Current (Note 6)	Steady	T_A = +25°C	I_D	2	A

Thermal Characteristics

Characteristic	Symbol	Value	Units
Total Power Dissipation (Note 5)	P_D	0.48	W
Thermal Resistance, Junction to Ambient @T_A = +25°C (Note 5)	$R_{\theta JA}$	266	°C/W
Total Power Dissipation (Note 6)	P_D	1.26	W
Thermal Resistance, Junction to Ambient @T_A = +25°C (Note 6)	$R_{\theta JA}$	102	°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 7)						
Drain-Source Breakdown Voltage	BV_{DSS}	-12	—	—	V	V_{GS} = 0V, I_D = -250µA
Zero Gate Voltage Drain Current	I_{DSS}	—	—	-1	µA	V_{DS} = -9.6V, V_{GS} = 0V
Gate-Source Leakage	I_{GSS}	—	—	±10	µA	V_{GS} = ±6V, V_{DS} = 0V
ON CHARACTERISTICS (Note 7)						
Gate Threshold Voltage	$V_{GS(th)}$	-0.35	—	-1.0	V	V_{DS} = V_{GS}, I_D = -250µA
Static Drain-Source On-Resistance	$R_{DS\ (ON)}$	—	70 90 115 145	100 160 200 380	mΩ	V_{GS} = -4.5V, I_D = -2A V_{GS} = -2.5V, I_D = -1A V_{GS} = -1.8V, I_D = -0.5A V_{GS} = -1.5V, I_D = -0.2A
Forward Transfer Admittance	$\|Y_{fs}\|$	40	—	—	mS	V_{DS} = -5V, I_D = -0.5A
Diode Forward Voltage	V_{SD}	—	—	-1.2	V	V_{GS} = 0V, I_S = -0.2A
DYNAMIC CHARACTERISTICS (Note 8)						
Input Capacitance	C_{iss}	—	514	—	pF	V_{DS} = -5V, V_{GS} = 0V, f = 1.0MHz
Output Capacitance	C_{oss}	—	131	—	pF	
Reverse Transfer Capacitance	C_{rss}	—	60	—	pF	
Total Gate Charge	Q_g	—	5.8	—	nC	V_{GS} = -4.5V, V_{DS} = -5V, I_D = -2A
Gate-Source Charge	Q_{gs}	—	0.8	—	nC	
Gate-Drain Charge	Q_{gd}	—	1.2	—	nC	
Turn-On Delay Time	$t_{D(on)}$	—	15	—	nS	V_{DD} = -5V, V_{GEN} = -4.5V, R_{GEN} = 6Ω
Turn-On Rise Time	t_r	—	62	—	nS	
Turn-Off Delay Time	$t_{D(off)}$	—	332	—	nS	
Turn-Off Fall Time	t_f	—	166	—	nS	

Notes: 5. Device mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout.
6. Device mounted on 1" x 1" FR-4 PCB with high coverage 2oz. Copper, single sided.
7. Short duration pulse test used to minimize self-heating effect.
8. Guaranteed by design. Not subject to production testing.

NEW PRODUCT

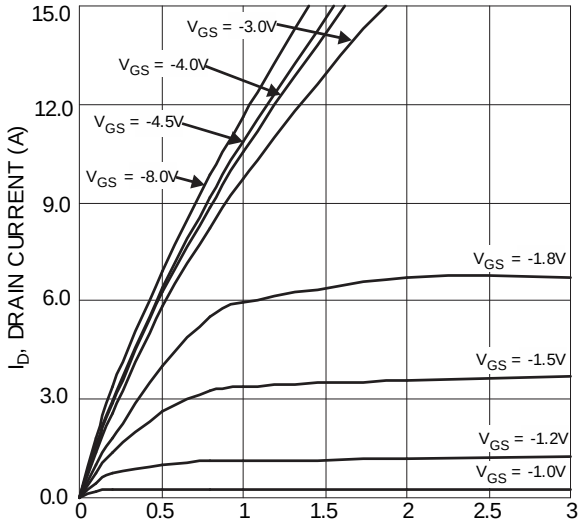


Figure 1 Typical Output Characteristics

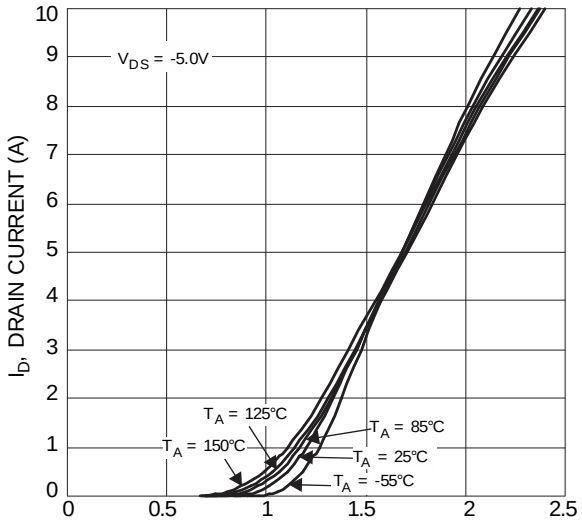


Figure 2 Typical Transfer Characteristics

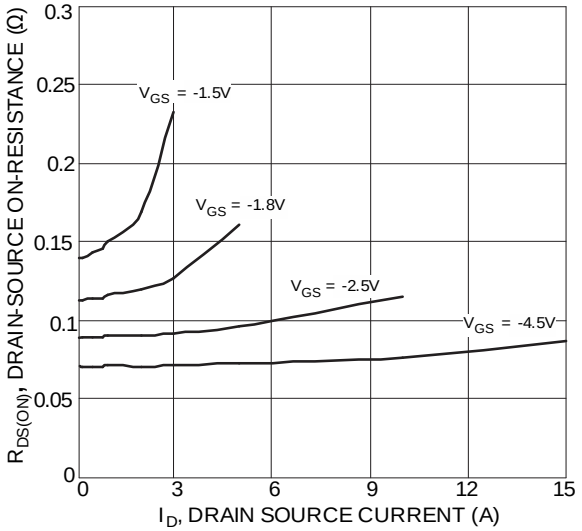


Figure 3 Typical On-Resistance vs.
Drain Current and Gate Voltage

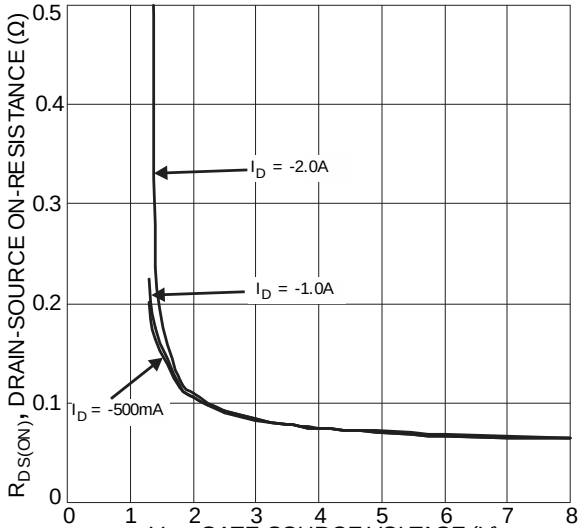


Figure 4 Typical Transfer Characteristic

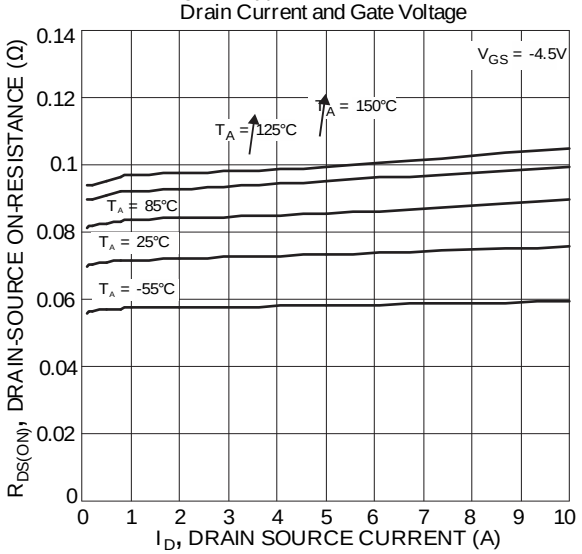


Figure 5 Typical On-Resistance vs.
Drain Current and Temperature

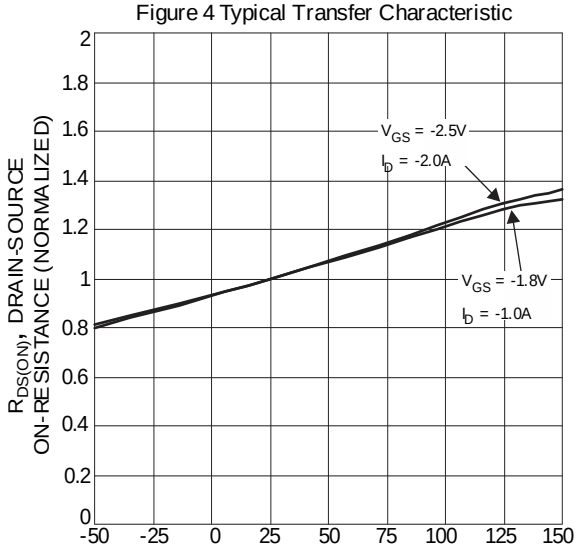


Figure 6 On-Resistance Variation with Temperature

NEW PRODUCT

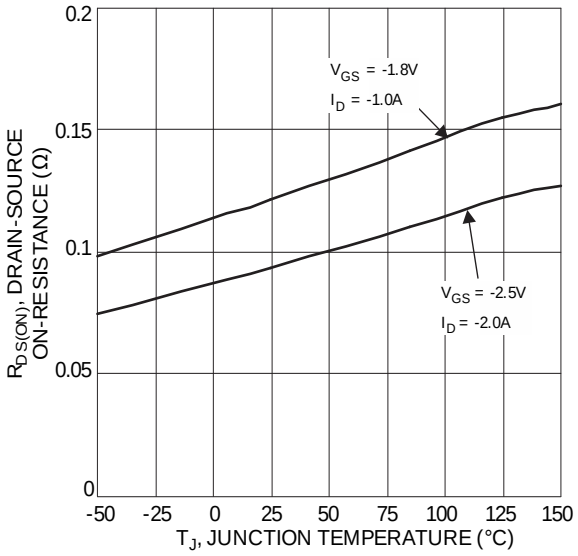


Figure 7 On-Resistance Variation with Temperature

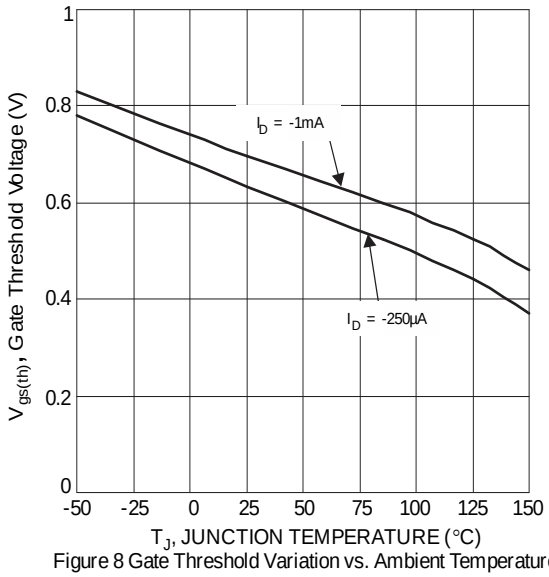


Figure 8 Gate Threshold Variation vs. Ambient Temperature

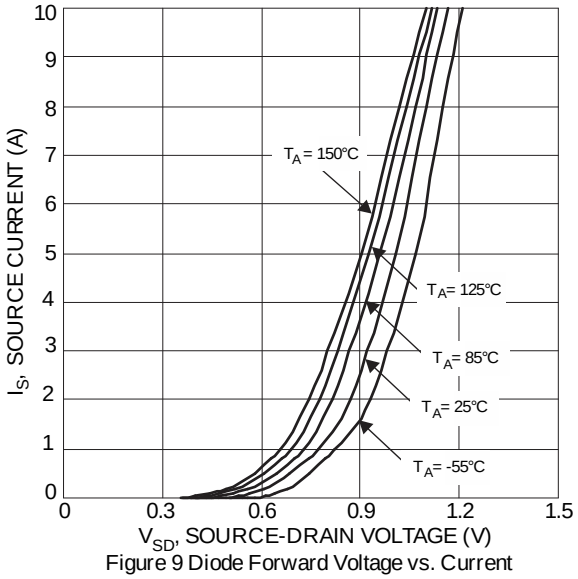


Figure 9 Diode Forward Voltage vs. Current

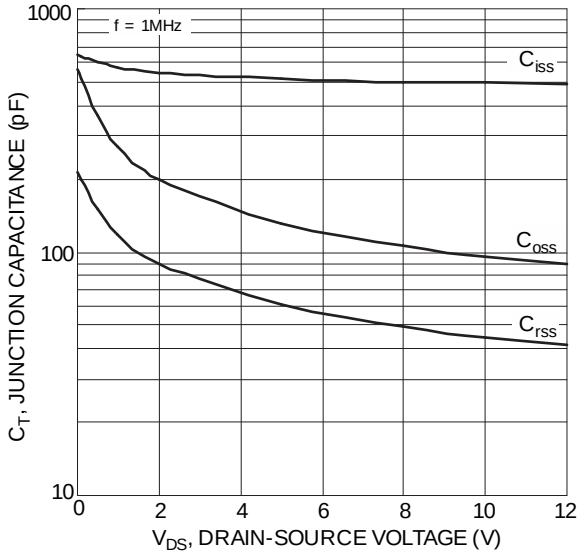


Figure 10 Typical Junction Capacitance

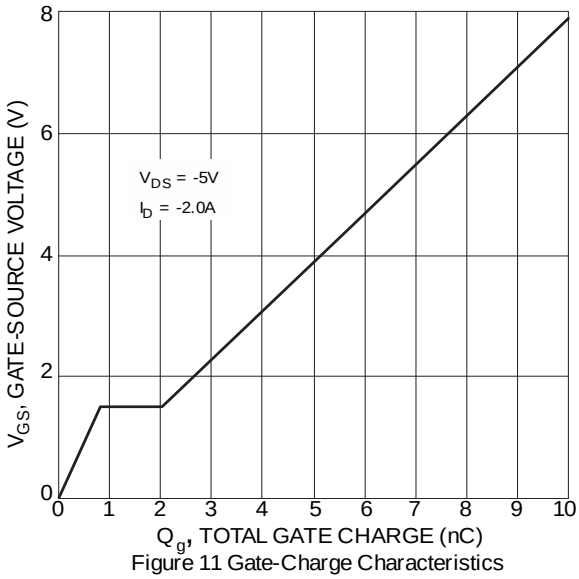


Figure 11 Gate-Charge Characteristics

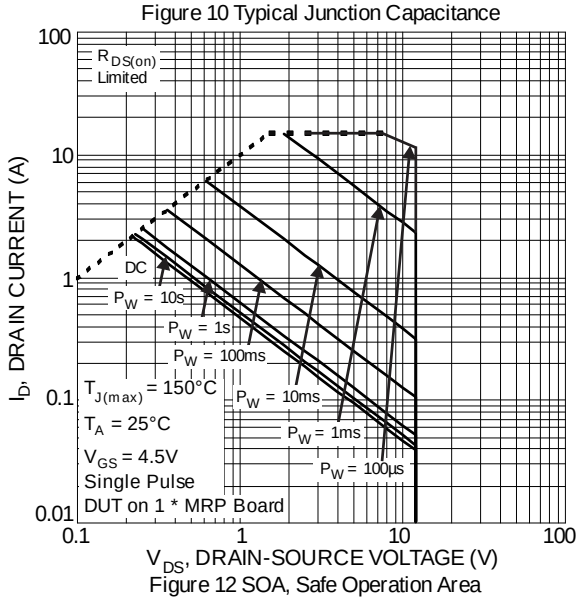


Figure 12 SOA, Safe Operation Area

NEW PRODUCT

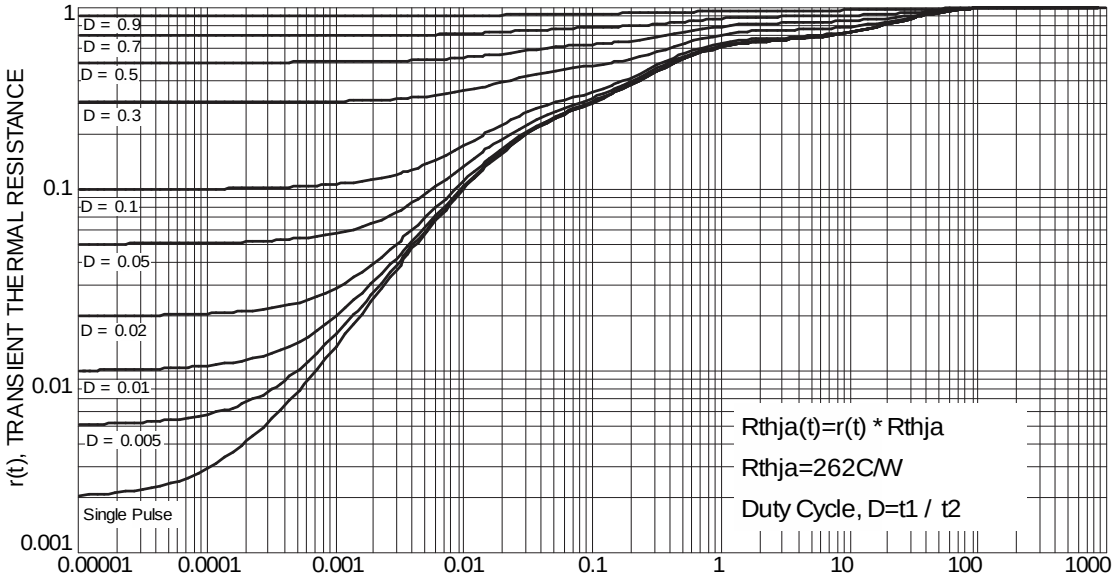
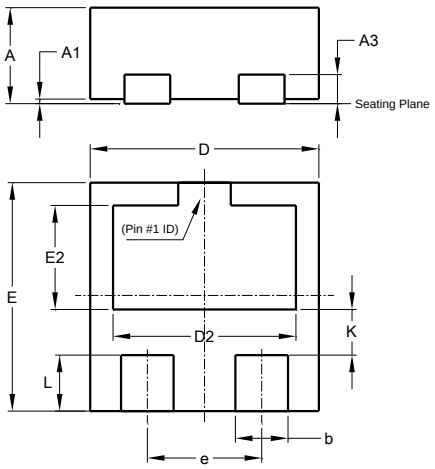


Figure 13 Transient Thermal Resistance

Package Outline Dimensions

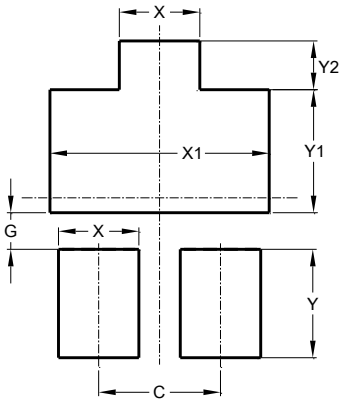
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for the latest version.



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



X2-DFN1010-3	
Dimensions	**Value**
C	0.500
G	0.150
X	0.330
X1	0.900
Y	0.445
Y1	0.505
Y2	0.200
All Dimensions in mm	

NEW PRODUCT

IMPORTANT NOTICE

DIODES INCORPORATED MAKES NO WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, WITH REGARDS TO THIS DOCUMENT, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE (AND THEIR EQUIVALENTS UNDER THE LAWS OF ANY JURISDICTION).

Diodes Incorporated and its subsidiaries reserve the right to make modifications, enhancements, improvements, corrections or other changes without further notice to this document and any product described herein. Diodes Incorporated does not assume any liability arising out of the application or use of this document or any product described herein; neither does Diodes Incorporated convey any license under its patent or trademark rights, nor the rights of others. Any Customer or user of this document or products described herein in such applications shall assume all risks of such use and will agree to hold Diodes Incorporated and all the companies whose products are represented on Diodes Incorporated website, harmless against all damages.

Diodes Incorporated does not warrant or accept any liability whatsoever in respect of any products purchased through unauthorized sales channel. Should Customers purchase or use Diodes Incorporated products for any unintended or unauthorized application, Customers shall indemnify and hold Diodes Incorporated and its representatives harmless against all claims, damages, expenses, and attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized application.

Products described herein may be covered by one or more United States, international or foreign patents pending. Product names and markings noted herein may also be covered by one or more United States, international or foreign trademarks.

This document is written in English but may be translated into multiple languages for reference. Only the English version of this document is the final and determinative format released by Diodes Incorporated.

LIFE SUPPORT

Diodes Incorporated products are specifically not authorized for use as critical components in life support devices or systems without the express written approval of the Chief Executive Officer of Diodes Incorporated. As used herein:

A. Life support devices or systems are devices or systems which:

1. are intended to implant into the body, or

2. support or sustain life and whose failure to perform when properly used in accordance with instructions for use provided in the labeling can be reasonably expected to result in significant injury to the user.

B. A critical component is any component in a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or to affect its safety or effectiveness.

Customers represent that they have all necessary expertise in the safety and regulatory ramifications of their life support devices or systems, and acknowledge and agree that they are solely responsible for all legal, regulatory and safety-related requirements concerning their products and any use of Diodes Incorporated products in such safety-critical, life support devices or systems, notwithstanding any devices- or systems-related information or support that may be provided by Diodes Incorporated. Further, Customers must fully indemnify Diodes Incorporated and its representatives against any damages arising out of the use of Diodes Incorporated products in such safety-critical, life support devices or systems.

www.diodes.com

Общество с ограниченной ответственностью «МосЧип» ИНН 7719860671 / КПП 771901001
Адрес: 105318, г.Москва, ул.Щербаковская д.3, офис 1107

Данный компонент на территории Российской Федерации

Вы можете приобрести в компании MosChip.

Для оперативного оформления запроса Вам необходимо перейти по данной ссылке:

http://moschip.ru/get-element

Вы можете разместить у нас заказ для любого Вашего проекта, будь то серийное производство или разработка единичного прибора.

В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

Офис по работе с юридическими лицами:

105318, г.Москва, ул.Щербаковская д.3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: info@moschip.ru

Skype отдела продаж:
moschip.ru
moschip.ru_4
moschip.ru_6
moschip.ru_9