DUAL P-CHANNEL ENHANCEMENT MODE MOSFET

Summary

BV_{DSS}	$R_{DS(ON)}$ max	I_D max
-20V	200mΩ @V_{GS} = -4.5V	-1.7A
	290mΩ @V_{GS} = -2.5V	-1.3A
	390mΩ @V_{GS} = -1.8V	-1.1A
	650mΩ @V_{GS} = -1.5V	-0.5A

Features

- Typical Off Board Profile of 0.5mm - Ideally Suited for Thin Applications
- Low $R_{DS(ON)}$ – Minimizes Conduction Losses
- PCB Footprint of 2.56mm^2
- **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**
- **ESD Protected Gate**

Description

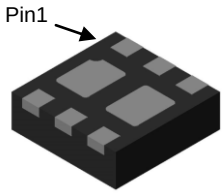
This device provides a high performance, low $R_{DS(ON)}$ P-Channel MOSFET in the thermally and spatially efficient U-DFN1616-6 (Type F) package. The low $R_{DS(ON)}$ of this MOSFET ensures conduction losses are kept making it ideal for use in the following applications.

Applications

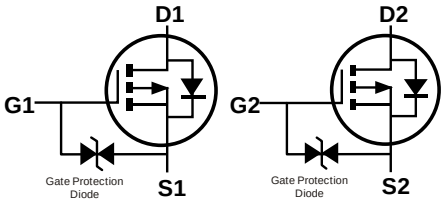
- Battery Disconnect Switch
- Load Switch for Power Management Functions

Mechanical Data

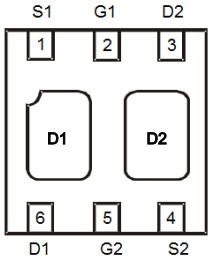
- Case: U-DFN1616-6 (Type F)
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish – NiPdAu. Solderable per MIL-STD-202, Method 208 e4
- Weight: 0.04 grams (Approximate)



Bottom View



Device Symbol



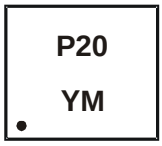
Pin Configuration
Bottom View

Ordering Information (Note 4)

Part Number	Reel Size (inches)	Tape Width (mm)	Quantity per Reel
DMP2200UFCL-7	7	8	3,000

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 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



P20 = Product Type Marking Code
YM = Date Code Marking
Y = Year (ex: E = 2017)
M = Month (ex: 9 = September)

Date Code Key

Year	2017	2018	2019	2020	2021	2022	2023	2024	2025
Code	E	F	G	H	I	J	K	L	M

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}	-20	V
Gate-Source Voltage		V_{GSS}	±8	V
Continuous Drain Current (Note 6)	@T_A = +25°C @T_A = +85°C	I_D	-1.7 -1.2	A
Pulsed Drain Current (10µs Pulse, Duty Cycle = 1%)		I_{DM}	-8	A

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

Characteristic		Symbol	Value	Unit
Total Power Dissipation	(Note 5)	P_D	0.66	W
	(Note 6)		1.58	W
Thermal Resistance, Junction to Ambient	(Note 5)	$R_{\theta JA}$	193	°C/W
	(Note 6)		80	
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}	-20	—	—	V	V_{GS} = 0V, I_D = -250µA
Zero Gate Voltage Drain Current	I_{DSS}	—	—	-1	µA	V_{DS} = -20V, V_{GS} = 0V
Gate-Body Leakage	I_{GSS}	—	—	±10	µA	V_{GS} = ±8V, V_{DS} = 0V
ON CHARACTERISTICS (Note 7)						
Gate Threshold Voltage	$V_{GS(TH)}$	-0.4	—	-1.2	V	V_{DS} = V_{GS}, I_D = -250µA
Static Drain-Source On-Resistance	$R_{DS(ON)}$	—	153 220 260 360	200 290 390 650	mΩ	V_{GS} = -4.5V, I_D = -2.0A V_{GS} = -2.5V, I_D = -1.2A V_{GS} = -1.8V, I_D = -0.24A V_{GS} = -1.5V, I_D = -0.18A
Diode Forward Voltage (Note 7)	V_{SD}	—	—	-1.2	V	V_{GS} = 0V, I_S = -0.6A
DYNAMIC CHARACTERISTICS (Note 8)						
Input Capacitance	C_{iss}	—	184	—	pF	V_{DS} = -10V, V_{GS} = 0V f = 1.0MHz
Output Capacitance	C_{oss}	—	25.8	—	pF	
Reverse Transfer Capacitance	C_{rss}	—	18.6	—	pF	
Total Gate Charge	Q_g	—	2.2	—	nC	V_{GS} = -4.5V, V_{DS} = -10V, I_D = -1.7A
Gate-Source Charge	Q_{gs}	—	0.4	—	nC	
Gate-Drain Charge	Q_{gd}	—	0.5	—	nC	
SWITCHING CHARACTERISTICS (Note 8)						
Turn-On Delay Time	$t_{D(ON)}$	—	9.8	—	ns	V_{DD} = -10V, I_D = -1.5A, V_{GS} = -4.5V, R_{GEN} = 1Ω
Turn-Off Delay Time	$t_{D(OFF)}$	—	23	—	ns	
Turn-On Rise Time	t_R	—	87	—	ns	
Turn-Off Fall Time	t_F	—	41	—	ns	
Bodyy Diode Reverse Recovery Time	t_{RR}	—	21.5	—	ns	I_F = -2A, di/dt = 100A/µs
Body Diode Reverse Recovery Charge	Q_{RR}	—	4.2	—	nC	

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

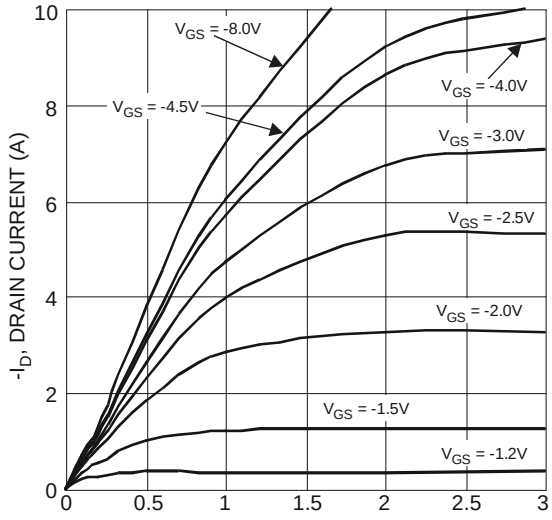


Figure 1 Typical Output Characteristics

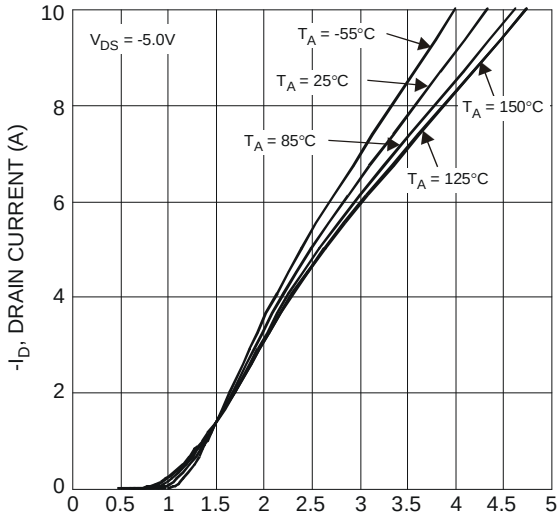


Figure 2 Typical Transfer Characteristics

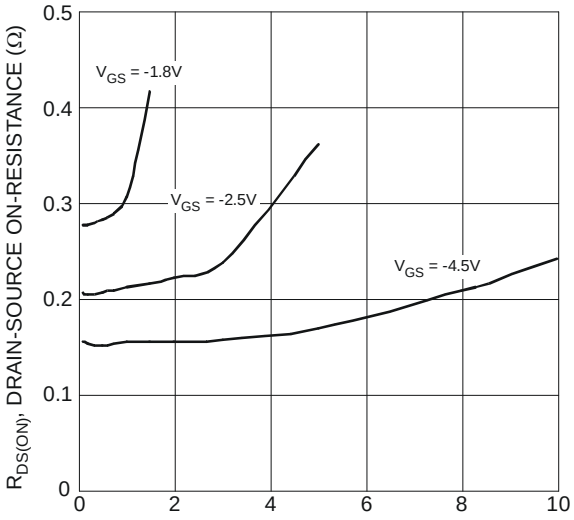


Figure 3 Typical On-Resistance vs. Drain Current and Gate Voltage

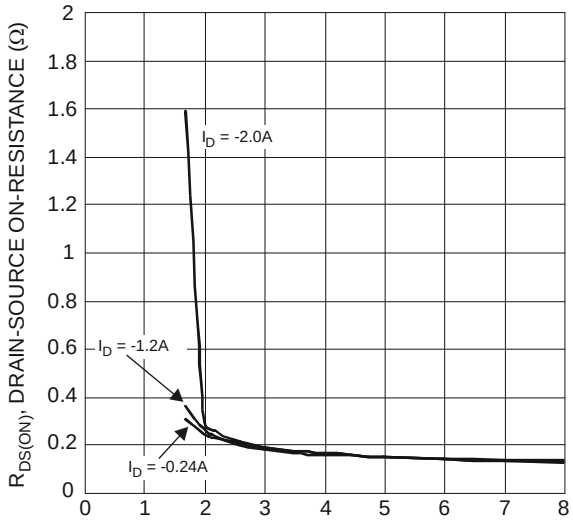


Figure 4 Typical Transfer Characteristics

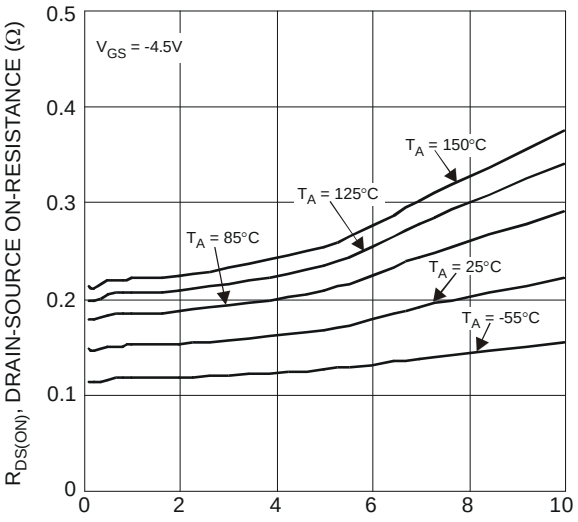


Figure 5 Typical On-Resistance vs. Drain Current and Temperature

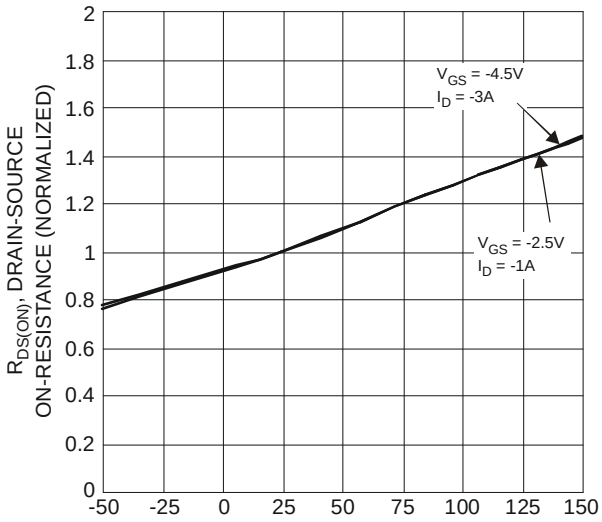


Figure 6 On-Resistance Variation with Temperature

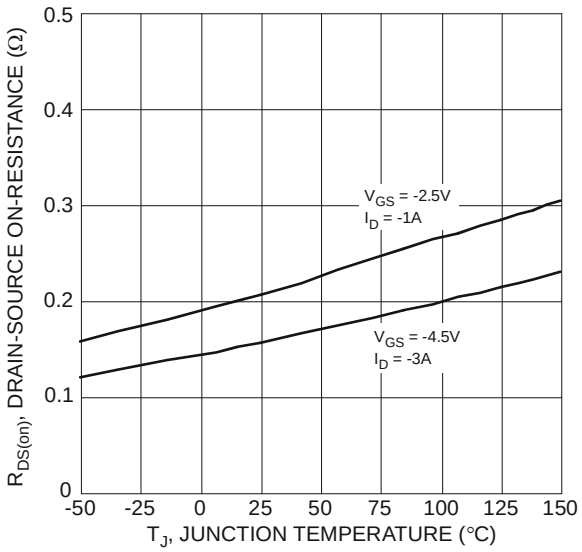


Figure 7 On-Resistance Variation with Temperature

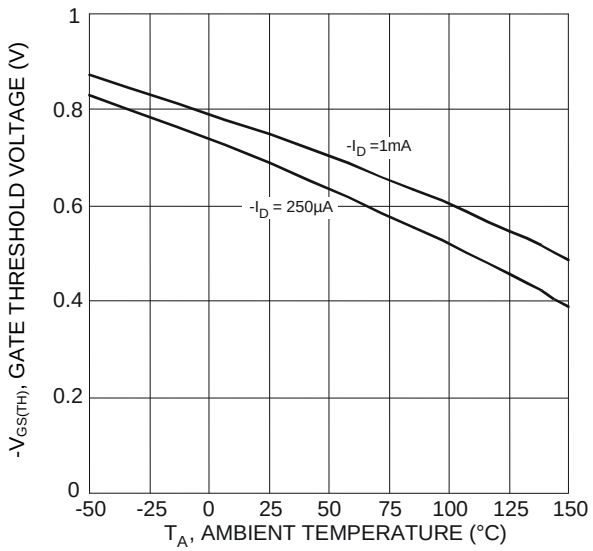


Figure 8 Gate Threshold Variation vs. Ambient Temperature

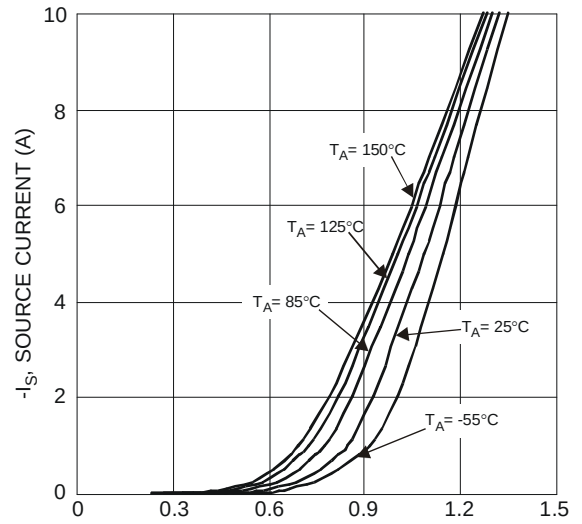


Figure 9 Diode Forward Voltage vs. Current

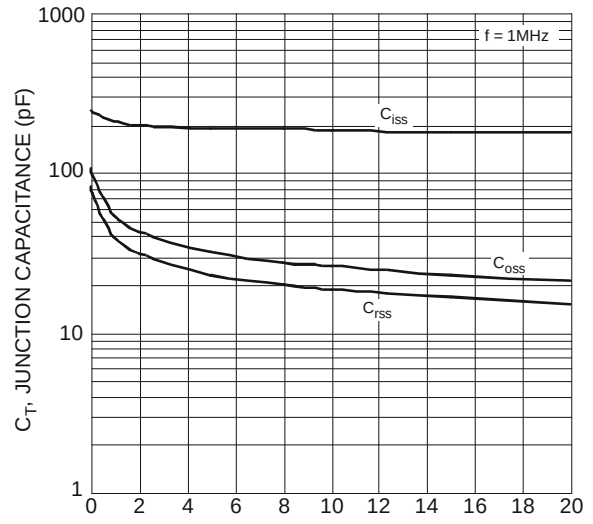


Figure 10 Typical Junction Capacitance

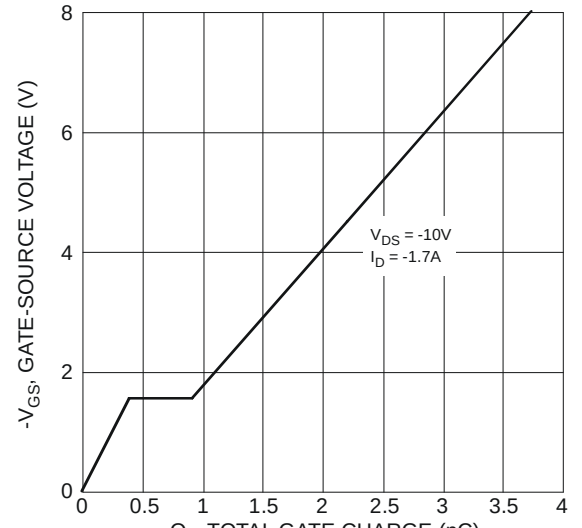


Figure 11 Gate-Charge Characteristics

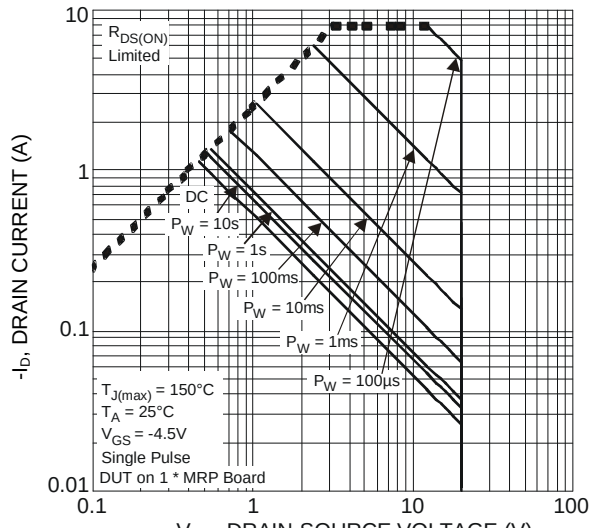


Figure 12 SOA, Safe Operation Area

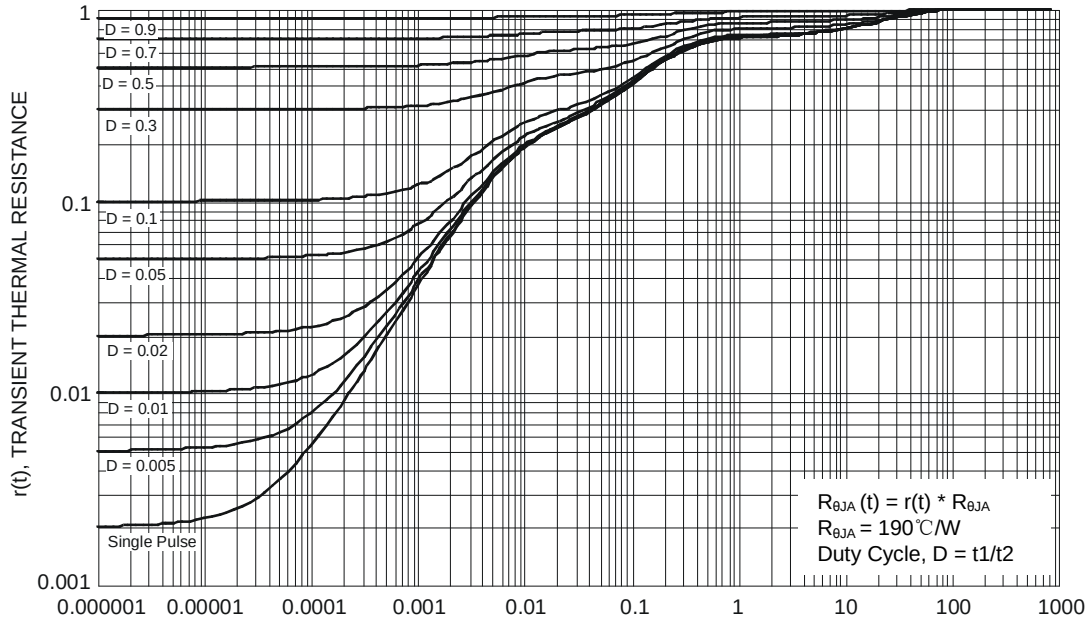
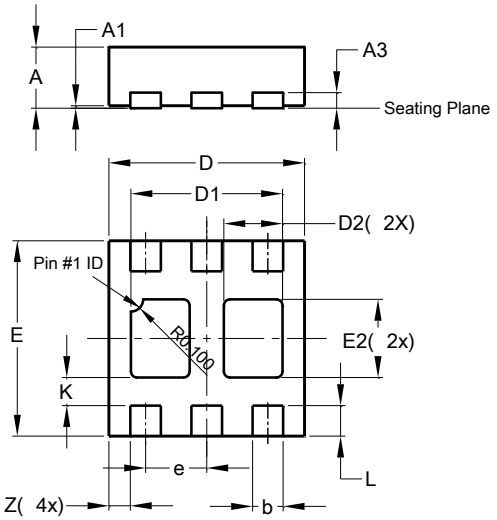


Figure 13 Transient Thermal Resistance

Package Outline Dimensions

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

U-DFN1616-6 (Type F)

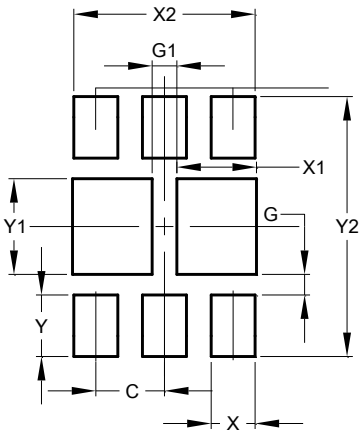


U-DFN1616-6 Type F			
Dim	**Min**	**Max**	**Typ**
A	0.45	0.55	0.50
A1	0	0.05	0.02
A3	—	—	0.127
b	0.20	0.30	0.25
D	1.55	1.65	1.60
D1	1.14	1.34	1.24
D2	0.38	0.58	0.48
E	1.55	1.65	1.60
E2	0.54	0.74	0.64
e	—	—	0.50
K	—	—	0.23
L	0.15	0.35	0.25
Z	—	—	0.175
All Dimensions in mm			

Suggested Pad Layout

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

U-DFN1616-6 (Type F)



Dimensions	Value (in mm)
C	0.500
G	0.150
G1	0.180
X	0.320
X1	0.580
X2	1.320
Y	0.450
Y1	0.700
Y	1.900

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

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for Diodes Incorporated ***manufacturer:***

Other Similar products are found below :

004419CB 069117AB 1.5KE15A-T 1.5KE15CA-T 1.5KE200A-T 1.5KE20CA-T 1.5KE24A-T 1.5KE250CA-T 1.5KE27CA-T 1.5KE30A-T 1.5KE30CA-T 1.5KE33A-T 1.5KE350A-T 1.5KE36CA-T 1.5KE47A-T 1.5KE47CA-T 1.5KE51CA-T 1.5KE62A-T 1.5KE68A-T 1.5KE68CA 1.5KE68CA-T 1.5KE7V5A-T 1.5KE82CA-T 1.5KE9V1A-T 1N4001G-T 1N4001-T 1N4002 1N4002G-T 1N4002-T 1N4003G-T 1N4003-T 1N4004 1N4004G-T 1N4004-T 1N4005-B 1N4005G-T 1N4005-T 1N4005-TR 1N4006-B 1N4006G-T 1N4006-T 1N4007G-T 1N4007-T 1N4148-T 1N4148W-13-F 1N4148W-7-F 1N4148WQ-13-F 1N4148WQ-7-F 1N4148WS-13-F 1N4148WS-7-F