



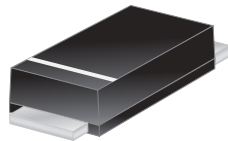
**THE DATASHEET OF
P6SMAJ13ADF-13**



NEW PRODUCT

Features

- Packaged in the Low Profile D-FLAT Package to Optimize Board Space
- Glass Passivated Die Construction
- Excellent Clamping Capability
- Fast Response Time
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**



Top View

Mechanical Data

- Case: D-FLAT
- Case Material: Molded Plastic.
UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin Annealed over Copper Leadframe.
Solderable per MIL-STD-202, Method 208 (E3)
- Polarity Indicator: Cathode Band
- Weight: 0.035 grams (Approximate)



1 = Cathode
2 = Anode

Device Schematic

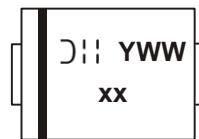
Ordering Information (Note 4)

Part Number	Compliance	Case	Packaging
P6SMAJXXADF-13	Commercial	D-FLAT	10,000/Tape & Reel

*XX = Device Voltage, for example: P6SMAJ17ADF-13.

- Notes:
1. EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. All applicable RoHS exemptions applied.
 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



xx = Product Type Marking Code
(See Electrical Characteristics Table)
DII = Manufacturers' Code Marking
YWW = Date Code Marking
Y = Last Digit of Year (ex: 7 for 2017)
WW = Week Code (01 to 53)

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

Characteristic	Symbol	Value	Unit
Peak Pulse Power Dissipation (Non Repetitive Current Pulse Derated Above T _A = +25°C) (Note 5)	P _{PK}	600	W
Peak Forward Surge Current, 8.3ms Single Half Sine Wave Superimposed on Rated Load (Notes 5 & 6)	I _{FSM}	60	A
Steady State Power Dissipation @ T _L = +75°C	PM _(AV)	1.5	W
Instantaneous Forward Voltage @ I _{PP} = 35A (Notes 5 & 6)	V _F	3.5	V

Notes: 5. Valid provided that terminals are kept at ambient temperature.
6. Measured with 8.3ms single half sine-wave. Duty cycle = 4 pulses per minute maximum.

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance, Junction to Terminal (Note 7)	R _{θJT}	64	°C/W
Typical Thermal Resistance, Junction to Terminal (Note 8)	R _{θJT}	57	°C/W
Typical Thermal Resistance, Junction to Ambient (Note 7)	R _{θJA}	115	°C/W
Typical Thermal Resistance, Junction to Ambient (Note 8)	R _{θJA}	92	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

Notes: 7. Device mounted on FR-4 substrate, 1" x 1", 2oz, single-sided, PC boards with 0.06" x 0.09" copper pad.
8. Device mounted on FR-4 substrate, 0.4" x 0.5", 2oz, single-sided, PC boards with 0.2" x 0.25" copper pad.

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

Part Number	Reverse Standoff Voltage	Breakdown Voltage V _{BR} @ I _T (Note 9)		Test Current I _T (mA)	Max. Reverse Leakage @ V _{RWM}	Max. Clamping Voltage @ I _{PP} (Note 10)	Max. Peak Pulse Current I _{PP} (Note 10)	Marking Code
	V _{RWM} (V)	Min (V)	Max (V)		I _R (µA)	V _C (V)	(A)	
P6SMAJ5.0ADF	5.0	6.40	7.23	10	800	9.2	65.2	KE
P6SMAJ6.0ADF	6.0	6.67	7.67	10	800	10.3	58.3	KG
P6SMAJ6.5ADF	6.5	7.22	8.30	10	500	11.2	53.6	KK
P6SMAJ7.0ADF	7.0	7.78	8.95	10	200	12.0	50.0	KM
P6SMAJ7.5ADF	7.5	8.33	9.58	1.0	100	12.9	46.5	KP
P6SMAJ8.0ADF	8.0	8.89	10.23	1.0	50	13.6	44.1	KR
P6SMAJ8.5ADF	8.5	9.44	10.82	1.0	10	14.4	41.7	KT
P6SMAJ9.0ADF	9.0	10.00	11.50	1.0	5.0	15.4	39.0	KV
P6SMAJ10ADF	10	11.10	12.80	1.0	5.0	17.0	35.3	KX
P6SMAJ11ADF	11	12.20	14.40	1.0	1.0	18.2	33.0	KZ
P6SMAJ12ADF	12	13.30	15.30	1.0	1.0	19.9	30.2	LE
P6SMAJ13ADF	13	14.40	16.50	1.0	1.0	21.5	27.9	LG
P6SMAJ14ADF	14	15.60	17.90	1.0	1.0	23.2	25.8	LK
P6SMAJ15ADF	15	16.70	19.20	1.0	1.0	24.4	24.0	LM
P6SMAJ16ADF	16	17.80	20.50	1.0	1.0	26.0	23.1	LP
P6SMAJ17ADF	17	18.90	21.70	1.0	1.0	27.6	21.7	LR
P6SMAJ18ADF	18	20.00	23.30	1.0	1.0	29.2	20.5	LT
P6SMAJ20ADF	20	22.20	25.50	1.0	1.0	32.4	18.5	LV
P6SMAJ22ADF	22	24.40	28.00	1.0	1.0	35.5	16.9	LX
P6SMAJ24ADF	24	26.70	30.70	1.0	1.0	38.9	15.4	LZ
P6SMAJ26ADF	26	28.90	33.20	1.0	1.0	42.1	14.2	ME
P6SMAJ28ADF	28	31.10	35.80	1.0	1.0	45.4	13.2	MG
P6SMAJ30ADF	30	33.30	38.30	1.0	1.0	48.4	12.4	MK
P6SMAJ33ADF	33	36.70	42.20	1.0	1.0	53.3	11.3	MM
P6SMAJ36ADF	36	40.00	46.00	1.0	1.0	58.1	10.3	MP

Notes: 9. V_{BR} measured with I_T current pulse = 10 ~ 15ms.
10. Per 10 x 1000µs waveform. See Figure 4.

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

Part Number	Reverse Standoff Voltage	Breakdown Voltage		Test Current	Max. Reverse Leakage @	Max. Clamping Voltage @ I_{PP}	Max. Peak Pulse Current	Marking Code
	V_{RWM} (V)	V_{BR} @ I_T (Note 9)	Min (V)		Max (V)	I_R (μA)	V_C (V)	
P6SMAJ40ADF	40.0	44.40	51.10	1.0	1.0	64.5	9.3	MR
P6SMAJ43ADF	43.0	47.80	54.90	1.0	1.0	69.4	8.6	MT
P6SMAJ45ADF	45.0	50.00	57.50	1.0	1.0	72.7	8.3	MV
P6SMAJ48ADF	48.0	53.30	61.30	1.0	1.0	77.4	7.7	MX
P6SMAJ51ADF	51.0	56.70	65.20	1.0	1.0	82.4	7.3	MZ
P6SMAJ54ADF	54.0	60.00	69.00	1.0	1.0	87.1	6.9	NE
P6SMAJ58ADF	58.0	64.40	74.60	1.0	1.0	93.6	6.4	NG
P6SMAJ60ADF	60.0	66.70	76.70	1.0	1.0	96.8	6.2	NK
P6SMAJ64ADF	64.0	71.10	81.80	1.0	1.0	103.0	5.8	NM
P6SMAJ70ADF	70.0	77.80	89.50	1.0	1.0	113.0	5.3	NP
P6SMAJ75ADF	75.0	83.30	95.80	1.0	1.0	121.0	4.9	NR
P6SMAJ78ADF	78.0	86.70	99.70	1.0	1.0	126.0	4.7	NT
P6SMAJ85ADF	85.0	94.40	108.20	1.0	1.0	137.0	4.4	NV

Notes: 9. V_{BR} measured with I_T current pulse = 10 ~ 15ms.
 10. Per 10 x 1000 μs waveform. See Figure 4.

NEW PRODUCT

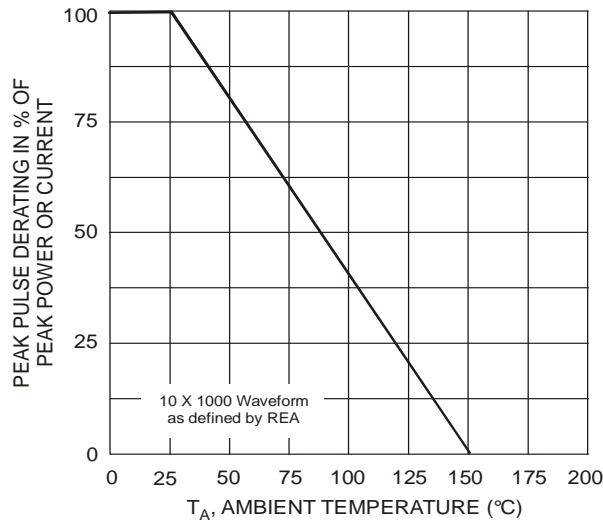


Fig. 1 Pulse Derating Curve

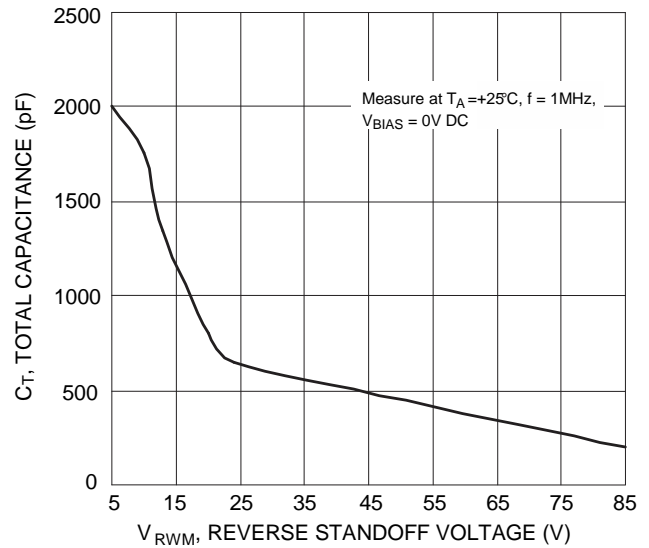
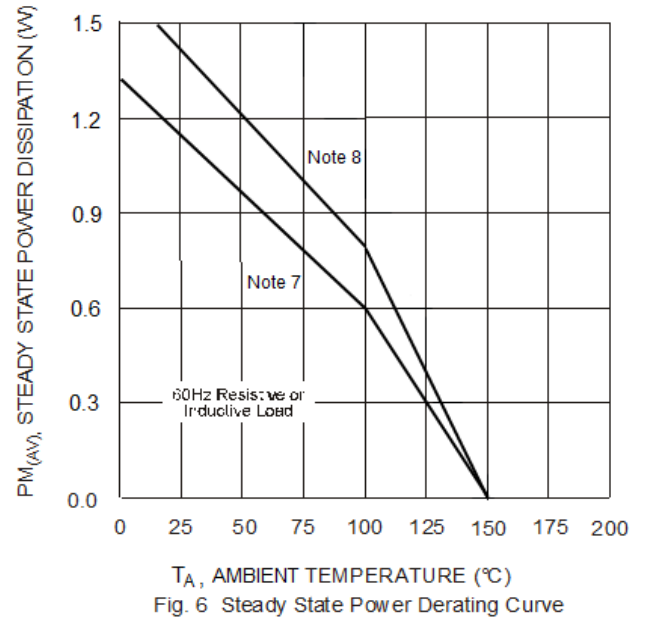
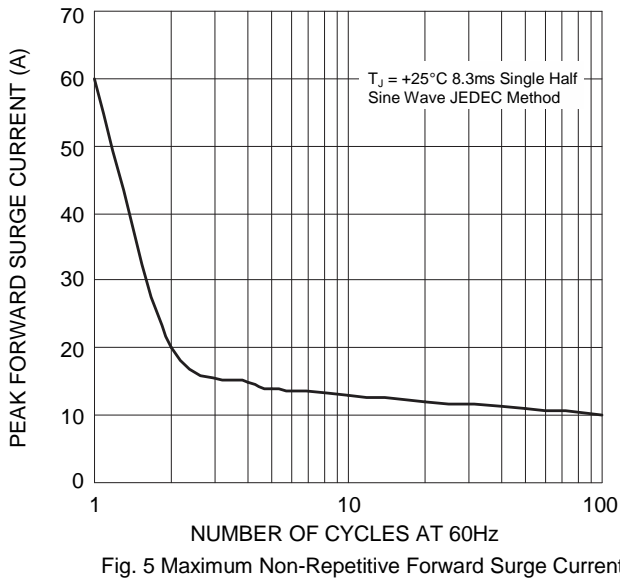
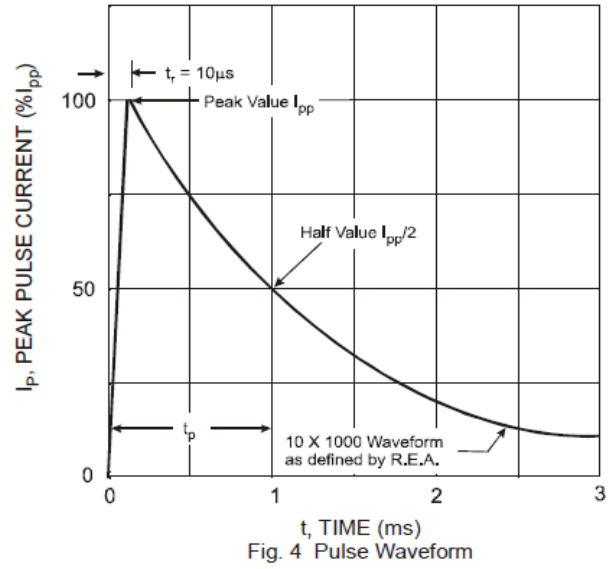
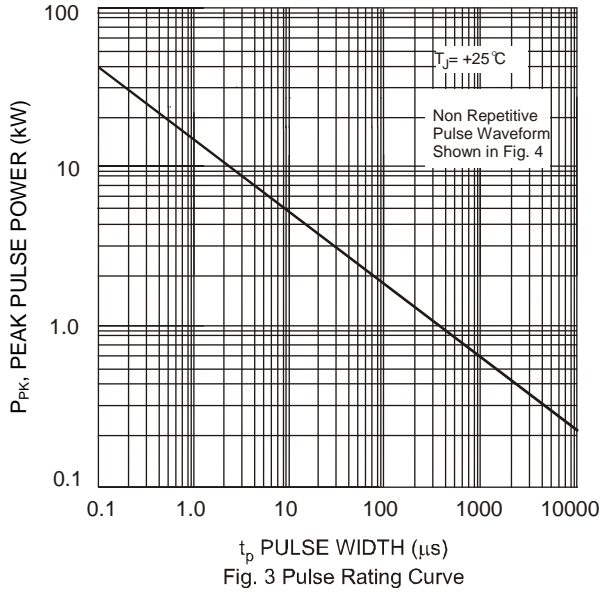


Fig. 2 Typical Total Capacitance vs. Reverse Standoff Voltage

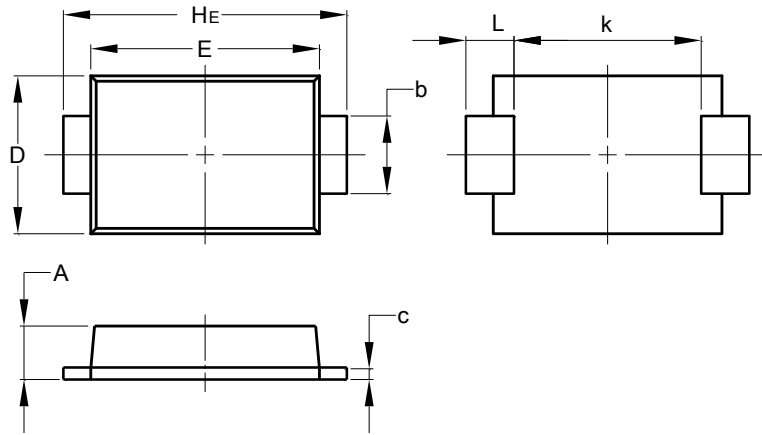


- Notes:
- 7. Device mounted on FR-4 substrate, 1" x 1", 2oz, single-sided, PC boards with 0.06" x 0.09" copper pad.
 - 8. Device mounted on FR-4 substrate, 0.4" x 0.5", 2oz, single-sided, PC boards with 0.2" x 0.25" copper pad.

Package Outline Dimensions

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

D-FLAT

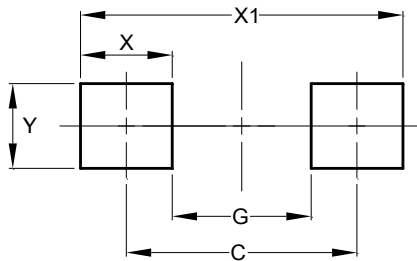


D-FLAT		
Dim	Min	Max
A	0.90	1.10
b	1.25	1.65
c	0.10	0.40
D	2.25	2.95
E	3.95	4.60
k	2.80	-
HE	5.00	5.60
L	0.50	1.30
All Dimensions in mm		

Suggested Pad Layout

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

D-FLAT



Dimensions	Value (in mm)
C	4.65
G	2.80
X	1.85
X1	6.50
Y	1.70

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.

Copyright © 2017, Diodes Incorporated

www.diodes.com

Looking for pricing, stock, or lifecycle information?

Click below to explore more details on WIN SOURCE:

-  [View P6SMAJ13ADF-13 on WIN SOURCE](#)
-  [Diodes Incorporated Information](#)

Optimize Your Supply Chain with WIN SOURCE Solutions

-  Global Sourcing Solution
-  Obsolete Management
-  Cost Control Management
-  Shortage Management
-  Alternative Solution
-  Excess Inventory Management