NEW PRODUCT

P4SMAJ5.0ADF – P4SMAJ85ADF

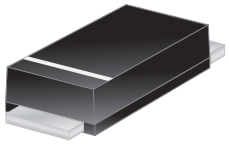
400W SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR

Features

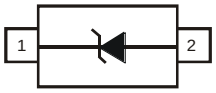
- Packaged in the Low Profile D-FLAT to Optimize Board Space
- Glass Passivated Die Construction
- Excellent Clamping Capability
- IEC 61000-4-2 (ESD): Air ±30kV, Contact ±30kV
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

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)



Top View



1 = Cathode
2 = Anode

Device Schematic

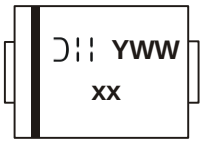
Ordering Information (Note 4)

Part Number	Qualification	Case	Packaging
P4SMAJXXADF-13	Commercial	D-FLAT	10,000/Tape & Reel

*XX = Device Voltage, for example: P4SMAJ17ADF-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 http://www.diodes.com/products/packages.html.

Marking Information



xx = Product Type Marking Code
(See Electrical Characteristics Table)
= Manufacturers' Code Marking
YWW = Date Code Marking
Y = Last Digit of Year (ex: 6 for 2016)
WW = Week Code (01 to 53)

NEW PRODUCT

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}	400	W
Peak Forward Surge Current, 8.3ms Single Half Sine Wave Superimposed on Rated Load (Notes 5 & 6)	I_{FSM}	40	A
Steady State Power Dissipation @ T_L = +75°C	$PM_{(AV)}$	1.0	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)	$R_{\theta JT}$	37	°C/W
Typical Thermal Resistance, Junction to Terminal (Note 8)	$R_{\theta JT}$	39	°C/W
Typical Thermal Resistance, Junction to Ambient (Note 7)	$R_{\theta JA}$	114	°C/W
Typical Thermal Resistance, Junction to Ambient (Note 8)	$R_{\theta JA}$	88	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°C

Notes: 7. Device mounted on FR-4 substrate, 1"*1", 2oz, single-sided, PC boards with 0.06"*0.09" copper pad.
8. Device mounted on FR-4 substrate, 0.4"*0.5", 2oz, single-sided, PC boards with 0.2"*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	Max. Reverse Leakage @ V_{RWM}	Max. Clamping Voltage @ I_{PP} (Note 10)	Max. Peak Pulse Current (Note 10)	Marking Code
	V_{RWM} (V)	Min (V)	Max (V)	I_T (mA)	I_R (µA)	V_C (V)	I_{PP} (A)	
P4SMAJ5.0ADF	5.0	6.40	7.25	10	400	9.2	43.5	HE
P4SMAJ6.0ADF	6.0	6.67	7.37	10	400	10.3	38.8	HG
P4SMAJ6.5ADF	6.5	7.22	7.98	10	250	11.2	35.7	HK
P4SMAJ7.0ADF	7.0	7.78	8.60	10	100	12.0	33.3	HM
P4SMAJ7.5ADF	7.5	8.33	9.21	1.0	50	12.9	31.0	HP
P4SMAJ8.0ADF	8.0	8.89	9.83	1.0	25	13.6	29.4	HR
P4SMAJ8.5ADF	8.5	9.44	10.82	1.0	10	14.4	27.7	HT
P4SMAJ9.0ADF	9.0	10.0	11.5	1.0	5.0	15.4	26.0	HV
P4SMAJ10ADF	10	11.1	12.3	1.0	1.0	17.0	23.5	HX
P4SMAJ11ADF	11	12.2	13.5	1.0	1.0	18.2	22.0	HZ
P4SMAJ12ADF	12	13.3	14.7	1.0	1.0	19.9	20.1	IE
P4SMAJ13ADF	13	14.4	15.9	1.0	1.0	21.5	18.6	IG
P4SMAJ14ADF	14	15.6	17.2	1.0	1.0	23.2	17.2	IK
P4SMAJ15ADF	15	16.7	18.5	1.0	1.0	24.4	16.4	IM
P4SMAJ16ADF	16	17.8	19.7	1.0	1.0	26.0	15.3	IP
P4SMAJ17ADF	17	18.9	20.9	1.0	1.0	27.6	14.5	IR
P4SMAJ18ADF	18	20.0	22.1	1.0	1.0	29.2	13.7	IT
P4SMAJ20ADF	20	22.2	24.5	1.0	1.0	32.4	12.3	IV
P4SMAJ22ADF	22	24.4	26.9	1.0	1.0	35.5	11.2	IX
P4SMAJ24ADF	24	26.7	29.5	1.0	1.0	38.9	10.3	IZ
P4SMAJ26ADF	26	28.9	31.9	1.0	1.0	42.1	9.5	JE
P4SMAJ28ADF	28	31.1	34.4	1.0	1.0	45.4	8.8	JG
P4SMAJ30ADF	30	33.3	36.8	1.0	1.0	48.4	8.3	JK
P4SMAJ33ADF	33	36.7	40.6	1.0	1.0	53.3	7.5	JM
P4SMAJ36ADF	36	40.0	44.2	1.0	1.0	58.1	6.9	JP

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

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

Part Number	Reverse Standoff Voltage	Breakdown Voltage V_{BR} @ I_T (Note 9)		Test Current	Max. Reverse Leakage @ V_{RWM}	Max. Clamping Voltage @ I_{PP} (Note 10)	Max. Peak Pulse Current (Note 10)	Marking Code
	V_{RWM} (V)	Min (V)	Max (V)	I_T (mA)	I_R (µA)	V_C (V)	I_{PP} (A)	
P4SMAJ40ADF	40	44.4	49.1	1.0	1.0	64.5	6.2	JR
P4SMAJ43ADF	43	47.8	52.8	1.0	1.0	69.4	5.7	JT
P4SMAJ45ADF	45	50.0	55.3	1.0	1.0	72.7	5.5	JV
P4SMAJ48ADF	48	53.3	58.9	1.0	1.0	77.4	5.2	JX
P4SMAJ51ADF	51	56.7	62.7	1.0	1.0	82.4	4.9	JZ
P4SMAJ54ADF	54	60.0	66.3	1.0	1.0	87.1	4.6	RE
P4SMAJ58ADF	58	64.4	71.2	1.0	1.0	93.6	4.3	RG
P4SMAJ60ADF	60	66.7	73.7	1.0	1.0	96.8	4.1	RK
P4SMAJ64ADF	64	71.1	78.6	1.0	1.0	103	3.9	RM
P4SMAJ70ADF	70	77.8	86.0	1.0	1.0	113	3.5	RP
P4SMAJ75ADF	75	83.3	92.1	1.0	1.0	121	3.3	RR
P4SMAJ78ADF	78	86.7	95.8	1.0	1.0	126	2.2	RT
P4SMAJ85ADF	85	94.4	104	1.0	1.0	137	2.9	RV

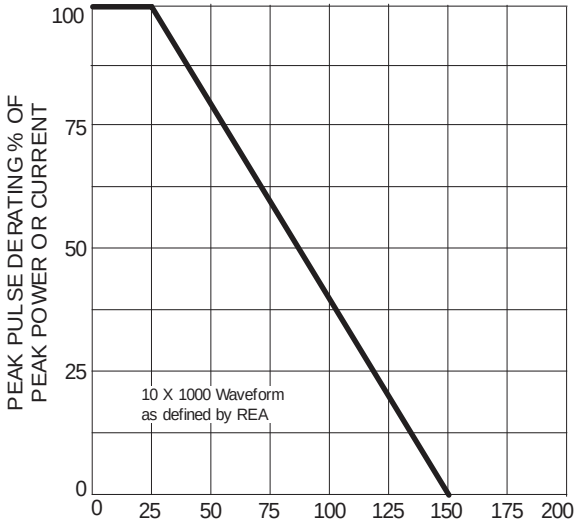

Figure 1 Power Dissipation vs. Ambient Temperature

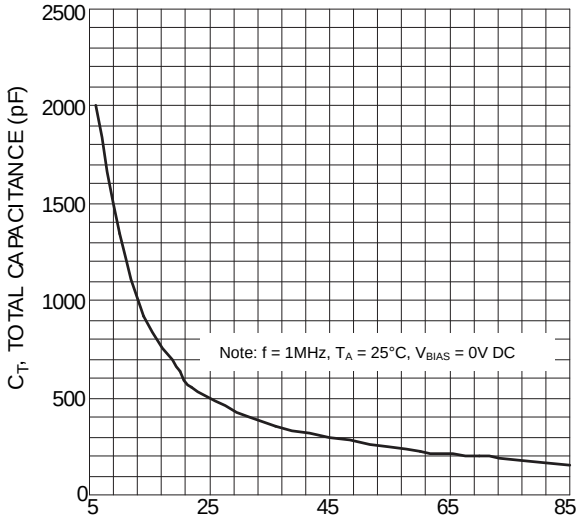

Figure 2 Typical Total Capacitance

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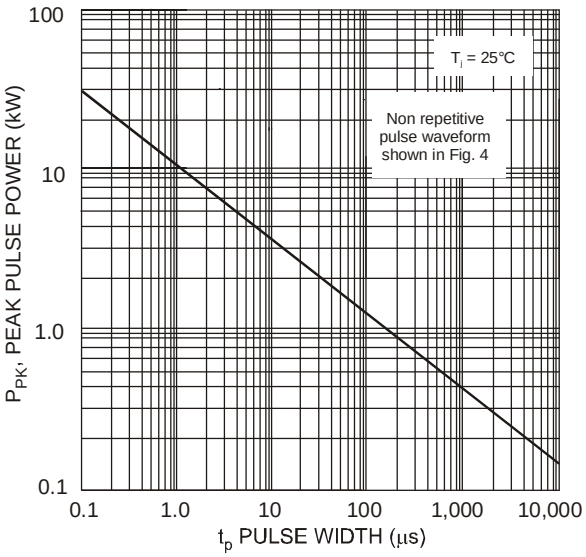


Fig. 3 Pulse Rating Curve

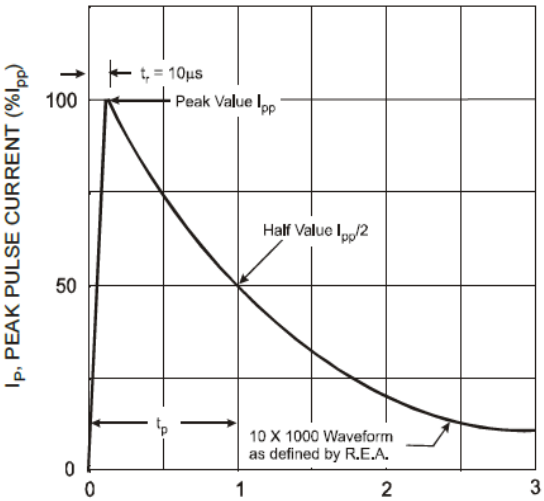


Fig. 4 Pulse Waveform

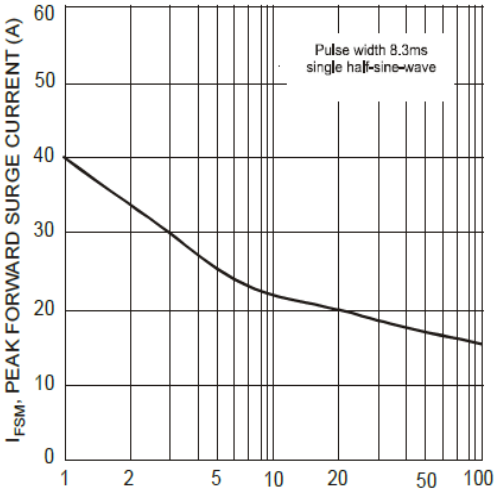


Fig. 5 Maximum Non-Repetitive Surge Current

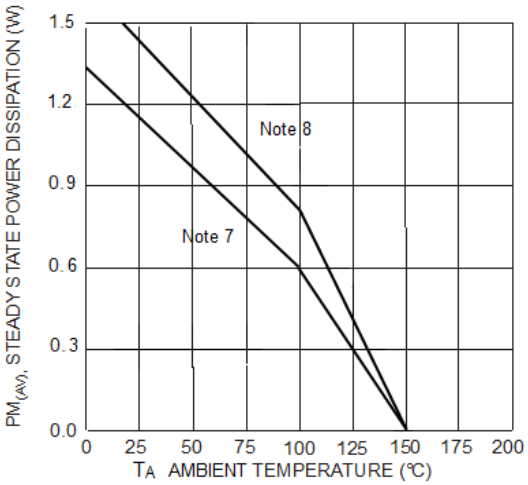


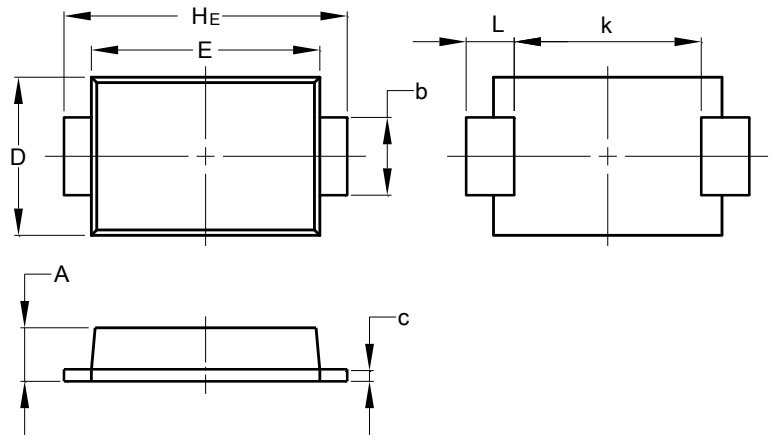
Fig. 6 Steady State Power Derating Curve

NEW PRODUCT

Package Outline Dimensions

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

D-FLAT

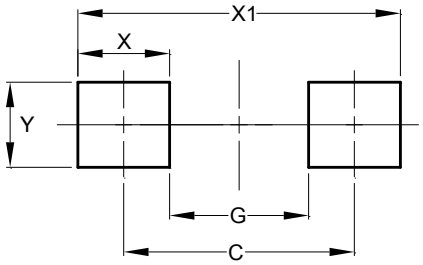


D-FLAT		
Dim	**Min**	**Max**
A	0.90	1.10
b	1.25	1.65
c	0.10	0.40
D	2.25	2.95
E	3.95	4.60
k	2.80	-
H_E	5.00	5.60
L	0.50	1.30
All Dimensions in mm		

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

NEW PRODUCT

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