



# P4FL SERIES

Surface Mount Transient Voltage Suppressor

## Features

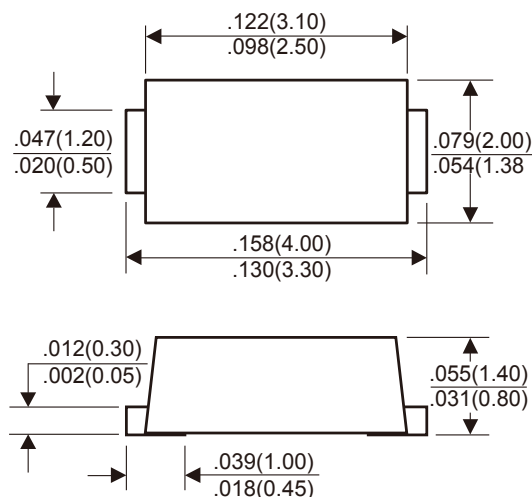
- ★ High reliability application and automotive grade AEC-Q101 qualified
- ★ 400W peak pulse power capability at 10/1000 $\mu$ s waveform, repetition rate (duty cycles):0.01%
- ★ Low leakage
- ★ Excellent clamping capability
- ★ Very fast response time
- ★ RoHS compliant
- ★ IEC 61000-4-2 ESD 30kV(Air), 30kV(Contact)
- ★ ESD protection of data lines in accordance with IEC 61000-4-2
- ★ EFT protection of data lines in accordance with IEC 61000-4-4

## Mechanical Data

- ★ Case: Molded plastic, SOD-123FL
- ★ Epoxy: UL 94V-0 rate flame retardant
- ★ Terminals: Solderable per MIL-STD-750, method 2026
- ★ Polarity: Color band denotes cathode end

**Working Voltage 5.0 to 85 V**  
**Peak Pulse Power 400W**

### SOD-123FL



Dimensions in inches and (millimeters)

## MAXIMUM RATINGS AND THERMAL CHARACTERISTICS

$T_A = 25^\circ\text{C}$  unless otherwise noted

PARAMETER	SYMBOL	VALUE	UNIT
Peak power dissipation with a 10/1000 $\mu$ s waveform (Note 1,2)	$P_{PPM}$	400	W
Peak forward surge current, 8.3 ms single half sine-wave (Note 3)	$I_{FSM}$	30	A
Power dissipation on infinite heatsink at $T_L=50^\circ\text{C}$	$P_D$	1.0	W
Maximum instantaneous forward voltage at 25A for unidirectional only	$V_F$	3.5	V
Typical thermal resistance junction to ambient	$R_{\theta JA}$	220	$^\circ\text{C}/\text{W}$
Typical thermal resistance junction to lead	$R_{\theta JL}$	110	$^\circ\text{C}/\text{W}$
Operating junction and storage temperature range	$T_J, T_{STG}$	-55 to +150	$^\circ\text{C}$

NOTES : (1) Non-repetitive current pulse, per Fig. 3 and derated above  $T_A=25^\circ\text{C}$  per Fig. 2  
 (2) P4FL5.0A(CA)~P4FL9.0A(CA) Peak Pulse Power Dissipation is 370W min, 400W typical @10/1000 $\mu$ s  
 (3) Measured on 8.3ms single half sine wave or equivalent square wave for unidirectional device only, duty cycle=4 per minute maximum

# P4FL SERIES

Electrical Characteristics ( $T_A=25^\circ\text{C}$  unless otherwise noted)

Part Number (Uni)	Part Number (Bi)	Device Marking Code		Breakdown Voltage $V_{BR}@I_T$			Maximum Reverse Leakage $I_R@V_{RWM}$ ( $\mu\text{A}$ )	Working Peak Reverse Voltage $V_{RWM}$ (V)	Maximum Reverse Surge Current $I_{PP}$ (A)	Maximum Clamping Voltage $V_C@I_{PP}$ (V)
		Uni	Bi	Min (V)	Max (V)	$I_T$ (mA)				
P4FL5.0A-A	P4FL5.0CA-A	AEA	WEA	6.40	7.00	10	800	5	40.1	9.2
P4FL6.0A-A	P4FL6.0CA-A	AGA	WGA	6.67	7.37	10	800	6	35.9	10.3
P4FL6.5A-A	P4FL6.5CA-A	AKA	WKA	7.22	7.98	10	500	6.5	33.1	11.2
P4FL7.0A-A	P4FL7.0CA-A	AMA	WMA	7.78	8.60	10	200	7	30.9	12.0
P4FL7.5A-A	P4FL7.5CA-A	APA	WPA	8.33	9.21	1	100	7.5	28.7	12.9
P4FL8.0A-A	P4FL8.0CA-A	ARA	WRA	8.89	9.83	1	50	8	27.2	13.6
P4FL9.0A-A	P4FL9.0CA-A	AVA	WVA	10.0	11.1	1	5	9	26.4	15.4
P4FL10A-A	P4FL10CA-A	AXA	WXA	11.1	12.3	1	5	10	23.5	17.0
P4FL11A-A	P4FL11CA-A	AZA	WZA	12.2	13.5	1	1	11	22.0	18.2
P4FL12A-A	P4FL12CA-A	BEA	XEA	13.3	14.7	1	1	12	20.1	19.9
P4FL13A-A	P4FL13CA-A	BGA	XGA	14.4	15.9	1	1	13	18.6	21.5
P4FL14A-A	P4FL14CA-A	BKA	XKA	15.6	17.2	1	1	14	17.2	23.2
P4FL15A-A	P4FL15CA-A	BMA	XMA	16.7	18.5	1	1	15	16.4	24.4
P4FL16A-A		BPA		17.8	19.7	1	1	16	15.4	26.0
P4FL17A-A		BRA		18.9	20.9	1	1	17	14.5	27.6
P4FL18A-A	P4FL18CA-A	BTA	XTA	20.0	22.1	1	1	18	13.7	29.2
P4FL20A-A	P4FL20CA-A	BVA	XVA	22.2	24.5	1	1	20	12.3	32.4
P4FL22A-A	P4FL22CA-A	BXA	XXA	24.4	26.9	1	1	22	11.3	35.5
P4FL24A-A	P4FL24CA-A	BZA	XZA	26.7	29.5	1	1	24	10.3	38.9
P4FL26A-A	P4FL26CA-A	CEA	YEA	28.9	31.9	1	1	26	9.5	42.1
P4FL28A-A	P4FL28CA-A	CGA	YGA	31.1	34.4	1	1	28	8.8	45.4
P4FL30A-A	P4FL30CA-A	CKA	YKA	33.3	36.8	1	1	30	8.3	48.4
P4FL33A-A	P4FL33CA-A	CMA	YMA	36.7	40.6	1	1	33	7.5	53.3
P4FL36A-A	P4FL36CA-A	CPA	YPA	40.0	44.2	1	1	36	6.9	58.1
P4FL40A-A	P4FL40CA-A	CRA	YRA	44.4	49.1	1	1	40	6.2	64.5
P4FL43A-A	P4FL43CA-A	CTA	YTA	47.8	52.8	1	1	43	5.8	69.4
P4FL45A-A	P4FL45CA-A	CVA	YVA	50.0	55.3	1	1	45	5.5	72.7
P4FL48A-A	P4FL48CA-A	CXA	YXA	53.3	58.9	1	1	48	5.2	77.4
P4FL51A-A		CZA		56.7	62.7	1	1	51	4.9	82.4
P4FL54A-A		REA		60.0	66.3	1	1	54	4.6	87.1
P4FL58A-A		RGA		64.4	71.2	1	1	58	4.3	93.6
P4FL60A-A		RKA		66.7	73.7	1	1	60	4.1	96.8
P4FL64A-A		RMA		71.1	78.6	1	1	64	3.9	103
P4FL70A-A		RPA		77.8	86.0	1	1	70	3.5	113
P4FL75A-A		RRA		83.3	92.1	1	1	75	3.3	121
P4FL78A-A		RTA		86.7	95.8	1	1	78	3.2	126
P4FL85A-A		RVA		94.4	104.0	1	1	85	2.9	137

For Bi-directional type having  $V_{RWM}$  of 10 volts and less, the  $I_R$  limit is double.

# RATINGS AND CHARACTERISTICS CURVES

Fig.1 - Peak Pulse Power Rating Curve

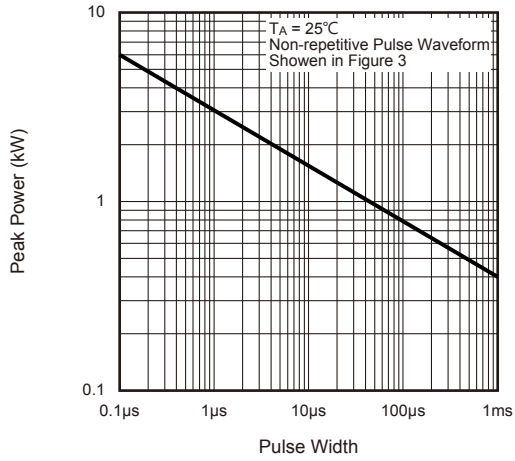


Fig.2 - Pulse Derating Curve

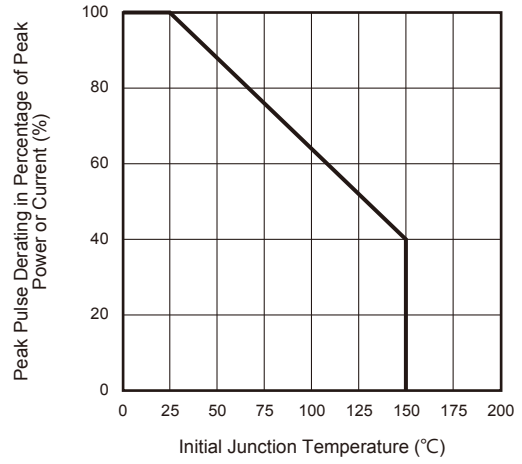


Fig.3 - Pulse Waveform

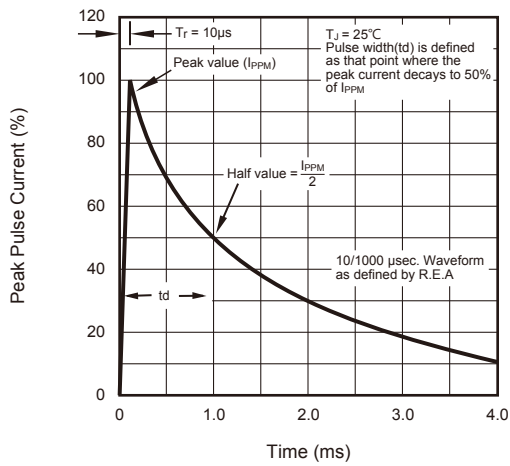


Fig.4 - Typical Junction Capacitance

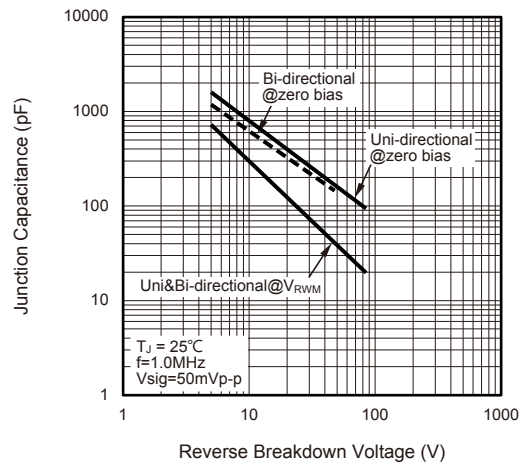


Fig.5 - Steady State Power Derating Curve

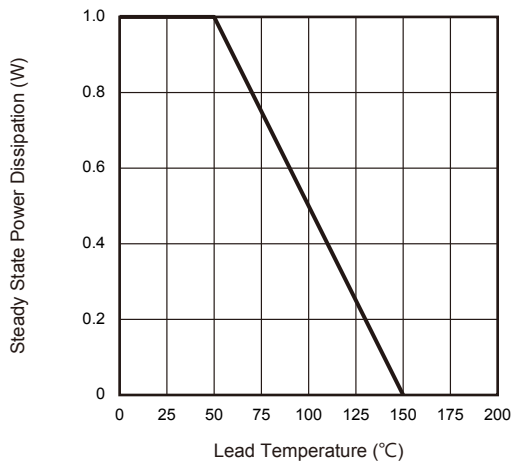


Fig.6 - Maximum Non-Repetitive Surge Current

