

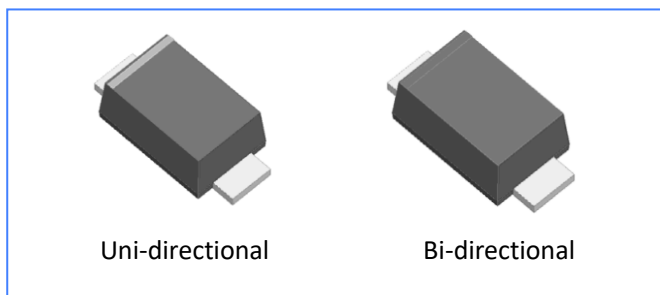
P4SMF-H Series

Description

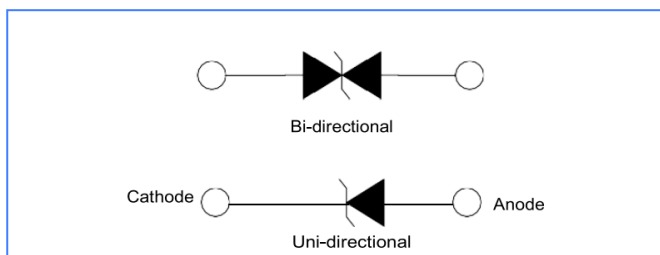
The P4SMF-H series is designed specifically to protect sensitive electronic equipment from voltage transients induced by lightning and other transient voltage events. They have excellent clamping capability, high surge capability, low zener impedance and fast response time. The P4SMF series is supplied in YINT Semiconductor's exclusive, cost-effective, highly reliable and is ideally suited for use in communication systems, automotive, numerical controls, process controls, medical equipment, business machines, power supplies and many other industrial/consumer Applications.

Features

- Case: SOD123FL
- Excellent clamping capability
- 400 W peak pulse power capability with a 10/1000 μ s waveform
- Typical failure mode is a short circuit condition for current events exceeding component rating
- Fast response time: typically less than 1.0ps from 0 Volts to VB min.
- IEC61000-4-2 (ESD) $\pm$ 30kV (air), $\pm$ 30kV (contact).
- Meet MSL level1, per J-STD-020, lead-frame maximum peak of 260°C
- AEC-Q101 qualified



Functional Diagram



Applications

TVS devices are ideal for the transient voltage clamp protection of I/O Interfaces, DC power line bus and other circuits used in Telecom, Computer, Industrial and Consumer electronic applications.

Maximum Ratings (TA=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation at TA=25°C by 10/1000 μ s Waveform	P _{PK}	400	W
Power Dissipation on Infinite Heat Sink at T _L =50°C	P _D	1	W
Peak Forward Surge Current, 8.3ms Single Half Sine Wave ¹	I _{FSM}	30	A
Maximum Instantaneous Forward Voltage at 50A for Unidirectional Only	V _F	3.5	V
Operating Temperature Range	T _J	-55 to +150	°C
Storage Temperature Range	T _{STG}	-55 to +150	°C

NOTES:

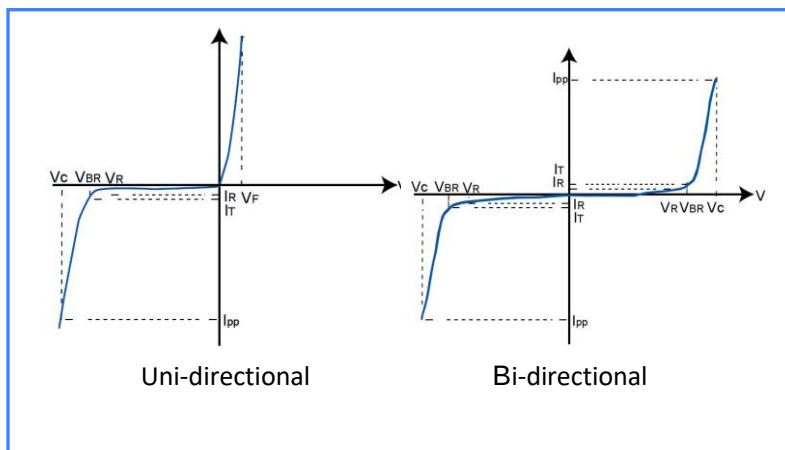
1. Measured on 8.3ms single half sine wave or equivalent square wave for unidirectional device only, duty cycle=4 per minute maximum.

Electrical characteristics (TA = 25 °C unless otherwise noted)

Part Number (Bi)	Part Number (Uni)	MARKING		Reverse Stand off Voltage V _R (Volts)	Breakdown Voltage V _{BR} (Volts)@I _T		Test Current I _T (mA)	Maximum Reverse Leakage I _R @ V _R (μA)	Maximum Peak Pulse Current I _{pp} (A)	Maximum Clamping Voltage V _C @ I _{pp} (V)
		BI	UNI		Min .V	Max .V				
P4SMF5.0CA-H	P4SMF5.0A-H	TEH	HEH	5.0	6.40	7.00	10	800	40.1	9.2
P4SMF6.0CA-H	P4SMF6.0A-H	TGH	HGH	6.0	6.67	7.37	10	800	35.9	10.3
P4SMF6.5CA-H	P4SMF6.5A-H	TKH	HKH	6.5	7.22	7.98	10	500	33.1	11.2
P4SMF7.0CA-H	P4SMF7.0A-H	TMH	HMH	7.0	7.78	8.60	10	200	30.9	12.0
P4SMF7.5CA-H	P4SMF7.5A-H	TPH	HPH	7.5	8.33	9.21	1	100	28.7	12.9
P4SMF8.0CA-H	P4SMF8.0A-H	TRH	HRH	8.0	8.89	9.83	1	50	27.2	13.6
P4SMF8.5CA-H	P4SMF8.5A-H	TTH	HTH	8.5	9.44	10.40	1	20	25.7	14.4
P4SMF9.0CA-H	P4SMF9.0A-H	TVH	HVH	9.0	10.00	11.10	1	5	26.4	15.4
P4SMF10CA-H	P4SMF10A-H	TXH	HXH	10	11.10	12.30	1	5	23.5	17.0
P4SMF11CA-H	P4SMF11A-H	TZH	HZH	11	12.20	13.50	1	1	22.0	18.2
P4SMF12CA-H	P4SMF12A-H	UEH	IEH	12	13.30	14.70	1	1	20.1	19.9
P4SMF13CA-H	P4SMF13A-H	UGH	IGH	13	14.40	15.90	1	1	18.6	21.5
P4SMF14CA-H	P4SMF14A-H	UKH	IKH	14	15.60	17.20	1	1	17.2	23.2
P4SMF15CA-H	P4SMF15A-H	UMH	IMH	15	16.70	18.50	1	1	16.4	24.4
P4SMF16CA-H	P4SMF16A-H	UPH	IPH	16	17.80	19.70	1	1	15.4	26.0
P4SMF17CA-H	P4SMF17A-H	URH	IRH	17	18.90	20.90	1	1	14.5	27.6
P4SMF18CA-H	P4SMF18A-H	UTH	ITH	18	20.00	22.10	1	1	13.7	29.2
P4SMF20CA-H	P4SMF20A-H	UVH	IVH	20	22.20	24.50	1	1	12.3	32.4
P4SMF22CA-H	P4SMF22A-H	UXH	IXH	22	24.40	26.90	1	1	11.3	35.5
P4SMF24CA-H	P4SMF24A-H	UZH	IZH	24	26.70	29.50	1	1	10.3	38.9
P4SMF26CA-H	P4SMF26A-H	VEH	JEH	26	28.90	31.90	1	1	9.5	42.1
P4SMF28CA-H	P4SMF28A-H	VGH	JGH	28	31.10	34.40	1	1	8.8	45.4
P4SMF30CA-H	P4SMF30A-H	VKH	JKH	30	33.30	36.80	1	1	8.3	48.4
P4SMF33CA-H	P4SMF33A-H	VMH	JMH	33	36.70	40.60	1	1	7.5	53.3
P4SMF36CA-H	P4SMF36A-H	VPH	JPH	36	40.00	44.20	1	1	6.9	58.1
P4SMF40CA-H	P4SMF40A-H	VRH	JRH	40	44.40	49.10	1	1	6.2	64.5
P4SMF43CA-H	P4SMF43A-H	VTH	JTH	43	47.80	52.80	1	1	5.8	69.4
P4SMF45CA-H	P4SMF45A-H	VVH	JVH	45	50.00	55.30	1	1	5.5	72.7
P4SMF48CA-H	P4SMF48A-H	VXH	JXH	48	53.30	58.90	1	1	5.2	77.4
P4SMF51CA-H	P4SMF51A-H	VZH	JZH	51	56.70	62.70	1	1	4.9	82.4
P4SMF54CA-H	P4SMF54A-H	WEH	KEH	54	60.00	66.30	1	1	4.6	87.1
P4SMF58CA-H	P4SMF58A-H	WGH	KGH	58	64.40	71.20	1	1	4.3	93.6
P4SMF60CA-H	P4SMF60A-H	WKH	KKH	60	66.70	73.70	1	1	4.1	96.8
P4SMF64CA-H	P4SMF64A-H	WMH	KMH	64	71.10	78.60	1	1	3.9	103.0
P4SMF70CA-H	P4SMF70A-H	WPH	KPH	70	77.80	86.00	1	1	3.5	113.0
P4SMF75CA-H	P4SMF75A-H	WRH	KRH	75	83.30	92.10	1	1	3.3	121.0

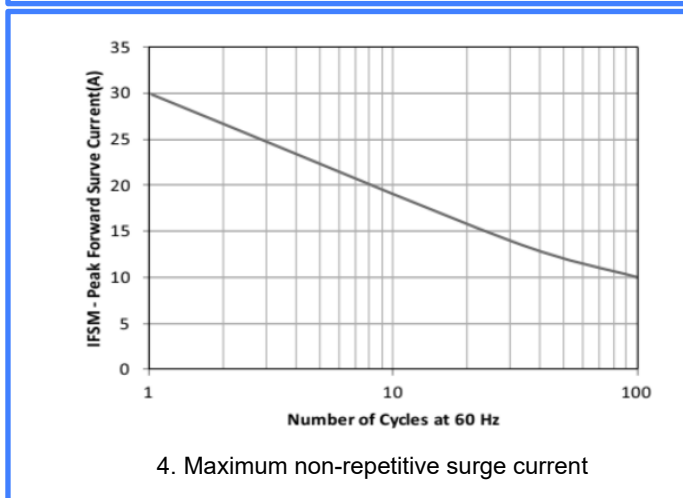
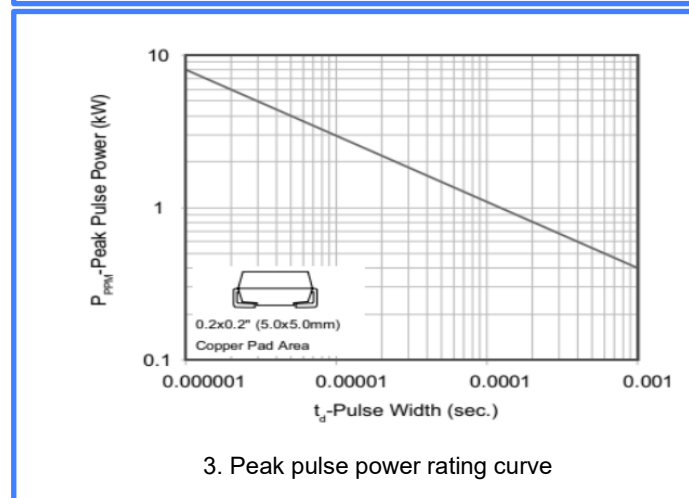
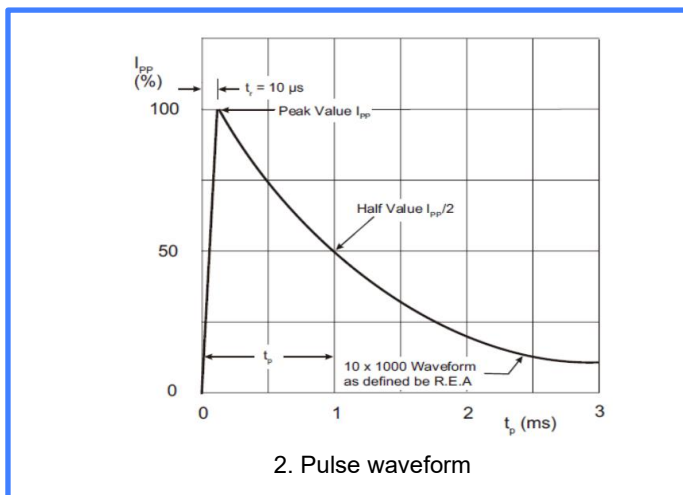
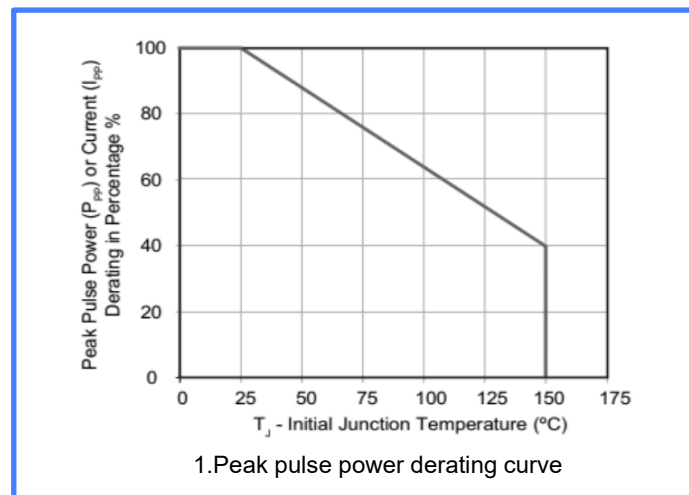
P4SMF78CA-H	P4SMF78A-H	WTH	KTH	78	86.70	95.80	1	1	3.2	126.0
P4SMF85CA-H	P4SMF85A-H	WVH	KVH	85	94.40	104.0	1	1	2.9	137.0

I-V Curve characteristics

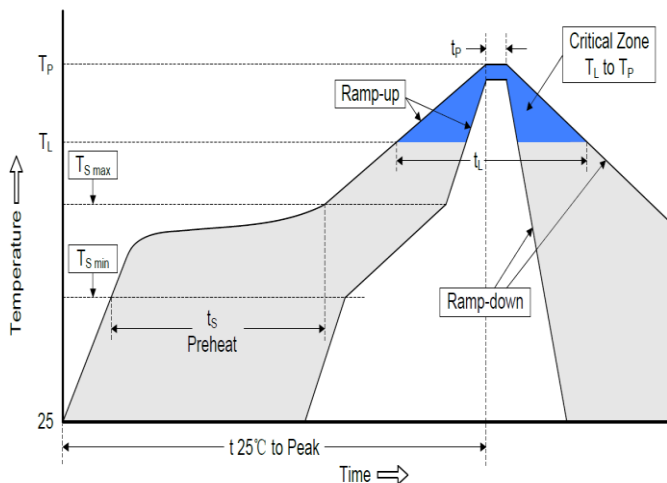


Symbol	Parameter
I_{PP}	Maximum Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}
V_{RWM}	Working Peak Reverse Voltage
I_R	Maximum Reverse Leakage Current @ V_{RWM}
V_{BR}	Breakdown Voltage @ I_T (Test Current)

Rating & Characteristic Curves

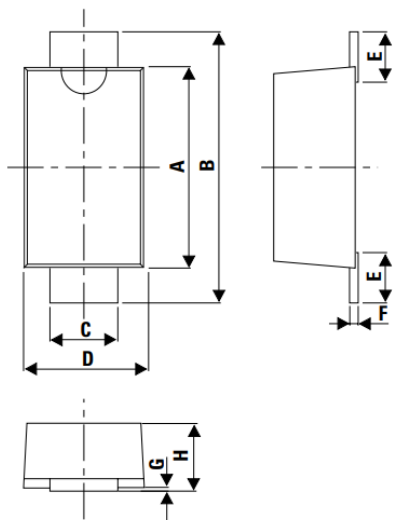


Soldering parameters



Profile Feature	Pb-Free Assembly
Average ramp-up rate (T_L to T_P)	3°C/second max.
Preheat -Temperature Min ($T_{S\min}$) -Temperature Max ($T_{S\max}$) -Time (min to max)(t_s)	150°C 200°C 60-180 seconds
$T_{S\max}$ to T_L -Ramp-up Rate	3°C/second max.
Time maintained above: - Temperature (T_L) - Time (t_L)	217°C 60-150 seconds
Peak Temperature (T_P)	260°C
Time within 5°C of actual Peak Temperature (t_P)	20-40 seconds
Ramp-down Rate	6°C /second max.
Time 25°C to Peak Temperature	8 minutes max.

Package outline dimensions in millimeters



Dimensions	Millimeter	
	Min	Max
A	2.50	3.10
B	3.40	3.90
C	0.70	1.20
D	1.50	2.00
E	0.35	0.90
F	0.05	0.26
G	0.00	0.10
H	0.90	1.25

Mounting Pad Layout

