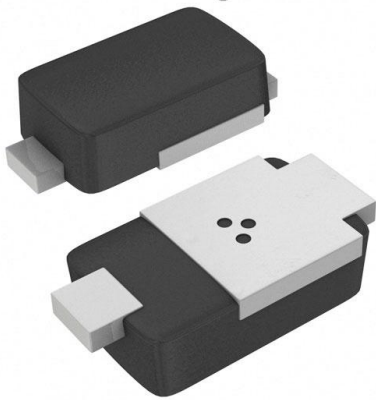


SMP33A-M3/84A Datasheet

www.digi-electronics.com



<https://www.DiGi-Electronics.com>

DiGi Electronics Part Number	SMP33A-M3/84A-DG
Manufacturer	Vishay General Semiconductor - Diodes Division
Manufacturer Product Number	SMP33A-M3/84A
Description	TVS DIODE 33VWM 53.3VC DO220AA
Detailed Description	53.3V Clamp 7.5A Ipp Tvs Diode Surface Mount DO-220AA (SMP)

This model SMP33A-M3/84A is available at DiGi Electronics.

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Purchase and inquiry

Manufacturer Product Number:

SMP33A-M3/84A

Series:

TransZorb®, eSMP®

Type:

Zener

Voltage - Reverse Standoff (Typ):

33V

Voltage - Clamping (Max) @ Ipp:

53.3V

Power - Peak Pulse:

400W

Applications:

General Purpose

Operating Temperature:

-55°C ~ 150°C (Tj)

Package / Case:

DO-220AA

Base Product Number:

SMP33

Manufacturer:

Vishay General Semiconductor - Diodes Division

Product Status:

Active

Unidirectional Channels:

1

Voltage - Breakdown (Min):

36.7V

Current - Peak Pulse (10/1000µs):

7.5A

Power Line Protection:

No

Capacitance @ Frequency:

-

Mounting Type:

Surface Mount

Supplier Device Package:

DO-220AA (SMP)

Environmental & Export classification

RoHS Status:

ROHS3 Compliant

REACH Status:

REACH Unaffected

HTSUS:

8541.10.0080

Moisture Sensitivity Level (MSL):

1 (Unlimited)

ECCN:

EAR99


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SMP3V3 thru SMP36A

Vishay General Semiconductor

Surface Mount TRANSZORB® Transient Voltage Suppressors

eSMP® Series



SMP (DO-220AA)

 Anode  Cathode

LINKS TO ADDITIONAL RESOURCES



PRIMARY CHARACTERISTICS	
V_{BR} uni-directional	4.10 V to 44.2 V
V_{WM}	3.3 V to 36 V
P_{PPM}	400 W
I_{FSM}	40 A
T_J max.	150 °C
Polarity	Unidirectional
Package	SMP (DO-220AA)

FEATURES

- Very low profile - typical height of 1.0 mm
- Ideal for automated placement
- Available in unidirectional
- 400 W peak pulse power capability with a 10/1000 μ s waveform
- Excellent clamping capability
- Very fast response time
- Low incremental surge resistance
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912


 RoHS
COMPLIANT
HALOGEN
FREE

TYPICAL APPLICATIONS

Use in sensitive electronics protection against voltage transients induced by inductive load switching and lighting on ICs, MOSFET, signal lines of sensor units for consumer, computer, industrial, and telecommunication.

MECHANICAL DATA

Case: SMP (DO-220AA)

Molding compound meets UL 94 V-0 flammability rating Base P/N-M3 - halogen-free, RoHS-compliant, and industrial grade

Terminals: matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

M3 suffix meets JESD 201 class 2 whisker test

Polarity: color band denotes cathode end

MAXIMUM RATINGS ($T_A = 25$ °C unless otherwise noted)			
PARAMETER	SYMBOL	VALUE	UNIT
Peak pulse power dissipation with a 10/1000 μ s waveform (fig. 1) ⁽¹⁾⁽²⁾	P_{PPM}	400	W
Peak pulse current with a 10/1000 μ s waveform ⁽¹⁾	I_{PPM}	See table next page	A
Peak forward surge current 10 ms single half sine-wave ⁽²⁾	I_{FSM}	40	A
Maximum instantaneous forward voltage at 25 A ⁽³⁾	V_F	2.5	V
Operating junction and storage temperature range	T_J, T_{STG}	-55 to +150	°C

Notes

⁽¹⁾ Non-repetitive current pulse, per fig. 3 and derated above $T_A = 25$ °C per fig. 2

⁽²⁾ Mounted on 0.2" x 0.2" (5.0 mm x 5.0 mm) copper pads to each terminal

⁽³⁾ Pulse test: 300 μ s pulse width, 1 % duty cycle



ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)								
DEVICE TYPE	DEVICE MARKING CODE	BREAKDOWN VOLTAGE V _{BR} AT I _T ⁽¹⁾ (V)		TEST CURRENT I _T (mA)	STAND-OFF VOLTAGE V _{WM} (V)	MAXIMUM REVERSE LEAKAGE AT V _{WM} I _D (μA) ⁽³⁾	MAXIMUM PEAK PULSE SURGE CURRENT I _{PPM} (A) ⁽²⁾	MAXIMUM CLAMPING VOLTAGE AT I _{PPM} V _C (V)
		MIN.	MAX.					
SMP3V3	AC	4.10	5.10	1.0	3.3	200	54.8	7.3
SMP5.0A	AE	6.40	7.07	10	5.0	150	43.5	9.2
SMP6.0A	AG	6.67	7.37	10	6.0	600	38.8	10.3
SMP6.5A	AK	7.22	7.98	10	6.5	100	35.7	11.2
SMP7.0A	AM	7.78	8.60	10	7.0	50	33.3	12.0
SMP7.5A	AN	8.33	9.21	1.0	7.5	50	31.0	12.9
SMP8.0A	AR	8.89	9.83	1.0	8.0	20	29.4	13.6
SMP11A	AZ	12.2	13.5	1.0	11	1.0	22.0	18.2
SMP12A	BE	13.3	14.7	1.0	12	1.0	20.1	19.9
SMP13A	BG	14.4	15.9	1.0	13	1.0	18.6	21.5
SMP14A	BK	15.6	17.2	1.0	14	1.0	17.2	23.2
SMP15A	BM	16.7	18.5	1.0	15	1.0	16.4	24.4
SMP16A	BP	17.8	19.7	1.0	16	1.0	15.4	26.0
SMP17A	BR	18.9	20.9	1.0	17	1.0	14.5	27.6
SMP18A	BT	20.0	22.1	1.0	18	1.0	13.7	29.2
SMP20A	BV	22.2	24.5	1.0	20	1.0	12.3	32.4
SMP22A	BX	24.4	26.9	1.0	22	1.0	11.3	35.5
SMP24A	BZ	26.7	29.5	1.0	24	1.0	10.3	38.9
SMP26A	CE	28.9	31.9	1.0	26	1.0	9.5	42.1
SMP28A	CG	31.1	34.4	1.0	28	1.0	8.8	45.4
SMP30A	CK	33.3	36.8	1.0	30	1.0	8.3	48.4
SMP33A	CM	36.7	40.6	1.0	33	1.0	7.5	53.3
SMP36A	CP	40.0	44.2	1.0	36	1.0	6.9	58.1

Notes

- (1) V_{BR} measured after I_T applied for 300 μs, I_T = square wave pulse or equivalent
 (2) Surge current waveform per fig. 3 and derate per fig. 2
 (3) All terms and symbols are consistent with ANSI/IEEE C62.35

THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)			
PARAMETER	SYMBOL	LIMIT	UNIT
Typical thermal resistance, junction to lead ⁽¹⁾	R _{θJL}	50	°C/W
Typical thermal resistance, junction to ambient ⁽²⁾	R _{θJA}	250	°C/W

Notes

- (1) Mounted on PCB with 5.0 mm x 5.0 mm copper pad areas attached to each terminal
 (2) Mounted on minimum recommended pad layout

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
SMP3V3-M3/84A	0.024	84A	3000	7" diameter plastic tape and reel
SMP3V3-M3/85A	0.024	85A	10 000	13" diameter plastic tape and reel
SMP11A-M3/84A	0.024	84A	3000	7" diameter plastic tape and reel
SMP11A-M3/85A	0.024	85A	10 000	13" diameter plastic tape and reel



SMP3V3 thru SMP36A

Vishay General Semiconductor

RATINGS AND CHARACTERISTICS CURVES ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)

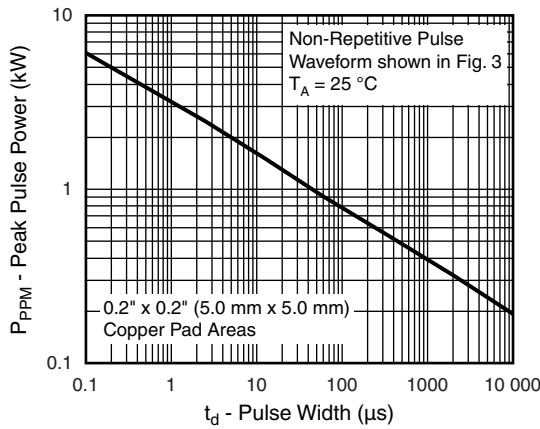


Fig. 1 - Peak Pulse Power Rating Curve

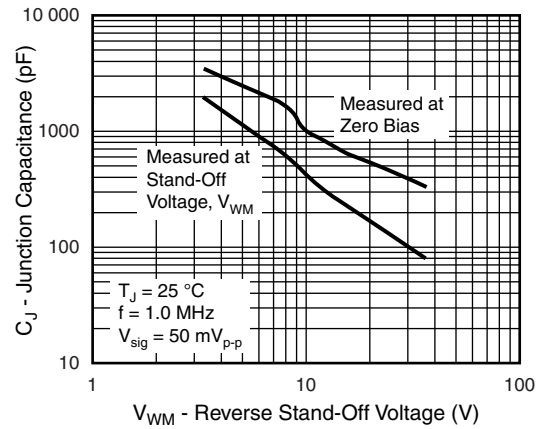


Fig. 4 - Typical Junction Capacitance

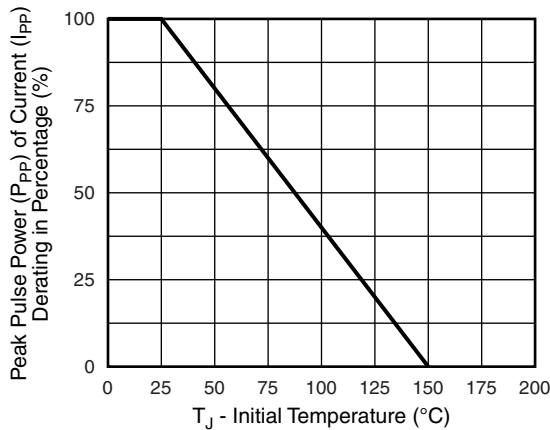


Fig. 2 - Pulse Derating Curve

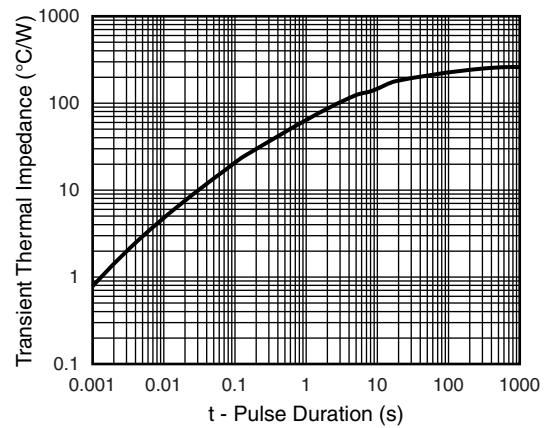


Fig. 5 - Typical Transient Thermal Impedance

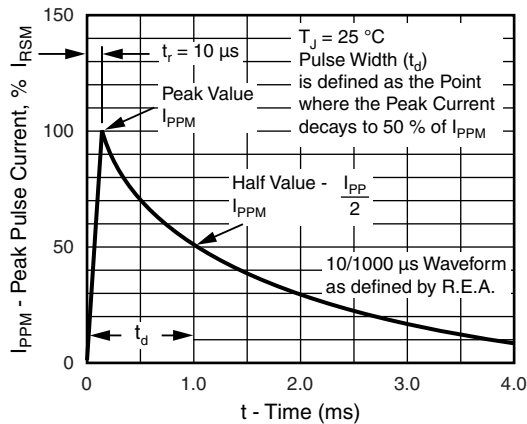


Fig. 3 - Pulse Waveform



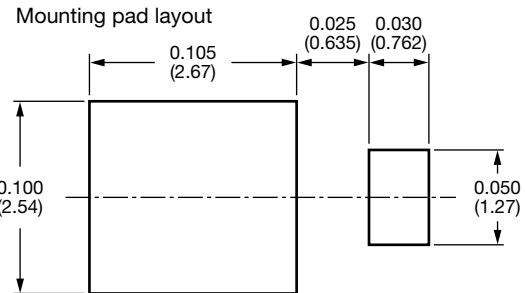
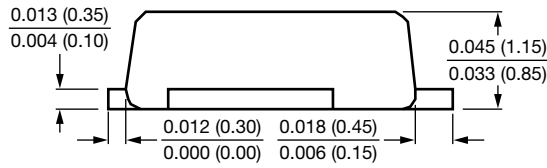
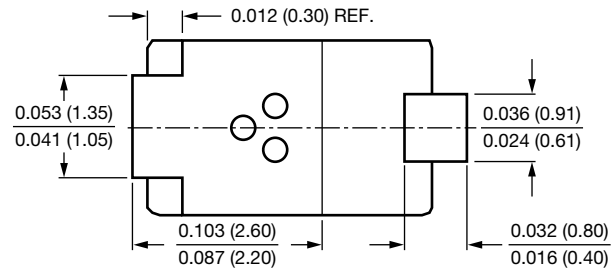
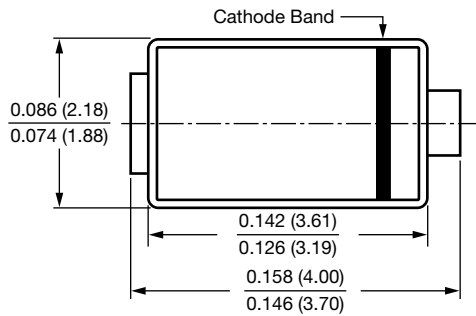
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SMP3V3 thru SMP36A

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PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

SMP (DO-220AA)





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