

Surface Mount Power Voltage-Regulating Diodes

eSMP™ Series



DO-220AA (SMP)

FEATURES

- Very low profile - typical height of 1.0 mm
- Ideal for automated placement
- Low Zener impedance
- Meets MSL level 1, per J-STD-020C, LF max peak of 260 °C
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



TYPICAL APPLICATIONS

For general voltage regulation, voltage limiting and voltage surge absorption.

MECHANICAL DATA

Case: DO-220AA (SMP)

Epoxy meets UL 94V-0 flammability rating

Terminals: Matte tin plated leads, solderable per J-STD-002B and JESD22-B102D

E3 suffix for commercial grade

Polarity: Color band denotes cathode end

PRIMARY CHARACTERISTICS	
V_Z	5.1 V to 36 V
P_D at $T_L = 75\text{ °C}$	1.5 W
P_D at $T_A = 25\text{ °C}$	0.6 W
T_J max.	150 °C

MAXIMUM RATINGS ($T_A = 25\text{ °C}$, unless otherwise noted)			
PARAMETER	SYMBOL	VALUE	UNIT
Power dissipation at $T_L = 75\text{ °C}$ (Fig. 1) ⁽¹⁾	P_D	1.5	W
Power dissipation at $T_A = 25\text{ °C}$ (Fig. 1) ⁽²⁾	P_D	0.6	W
Maximum instantaneous forward voltage at 200 mA for all types ⁽³⁾	V_F	1.5	V
Operating junction temperature	T_J	150	°C
Storage temperature range	T_{STG}	- 55 to + 150	°C

Notes:

(1) Mounted on P.C.B. with 5.0 x 5.0 mm copper pads attached to each terminal

(2) Mounted on minimum recommended pad layout

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



ELECTRICAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)								
PART NUMBER	DEVICE MARKING CODE	ZENER VOLTAGE			MAXIMUM ZENER DYNAMIC IMPEDANCE		MAXIMUM REVERSE LEAKAGE CURRENT	
		V_Z (V)		I_{ZT} (mA)	Z_{ZT} (Ω)	I_{ZT} (mA)	I_R (μA)	V_R (V)
		MIN	MAX					
PTV 5.1B	VE	5.10	5.70	40	8	40	20	1.0
PTV 5.6B	VF	5.60	6.30	40	8	40	20	1.5
PTV 6.2B	VG	6.20	7.00	40	6	40	20	3.0
PTV 6.8B	VH	6.80	7.70	40	6	40	50	3.5
PTV 7.5B	VI	7.50	8.40	40	4	40	20	4.0
PTV 8.2B	VJ	8.20	9.30	40	4	40	20	5.0
PTV 9.1B	VK	9.10	10.2	40	6	40	20	6.0
PTV 10B	VL	10.0	11.2	40	6	40	10	7.0
PTV 11B	VM	11.0	12.3	20	8	20	10	8.0
PTV 12B	VN	12.0	13.5	20	8	20	10	9.0
PTV 13B	VO	13.3	15.0	20	10	20	10	10.0
PTV 15B	VP	14.7	16.5	20	10	20	10	11.0
PTV 16B	VQ	16.2	18.3	20	12	20	10	12.0
PTV 18B	VR	18.0	20.3	20	12	20	10	13.0
PTV 20B	VS	20.0	22.4	20	14	20	10	15.0
PTV 22B	VT	22.0	24.5	10	14	10	10	17.0
PTV 24B	VU	24.0	27.6	10	16	10	10	19.0
PTV 27B	VV	27.0	30.8	10	16	10	10	21.0
PTV 30B	VX	30.0	34.0	10	18	10	10	23.0
PTV 33B	VY	33.0	37.0	10	18	10	10	25.0
PTV 36B	VZ	36.0	40.0	10	20	10	10	27.0

THERMAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)			
PARAMETER	SYMBOL	LIMIT	UNIT
Typical thermal resistance, junction to lead ⁽¹⁾	$R_{\theta JL}$	50	$^\circ\text{C/W}$
Typical thermal resistance, junction to ambient ⁽²⁾	$R_{\theta JA}$	208	$^\circ\text{C/W}$

Notes:

- (1) Mounted on P.C.B. with 5.0 x 5.0 mm copper pads 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
PTV7.5B-E3/84A	0.024	84A	3000	7" diameter plastic tape and reel
PTV7.5B-E3/85A	0.024	85A	10000	13" diameter plastic tape and reel

RATINGS AND CHARACTERISTICS CURVES

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

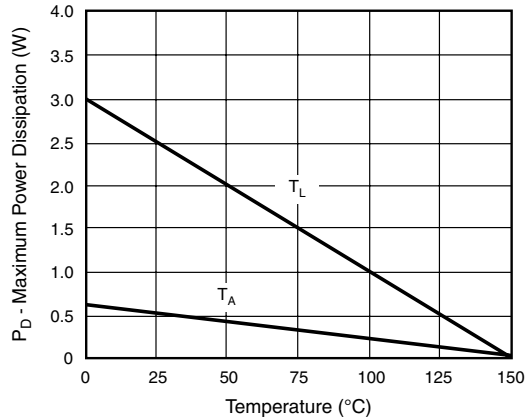


Figure 1. Steady State Power During

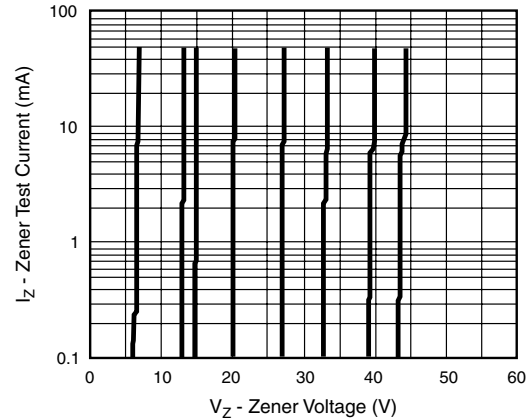


Figure 3. Typical Zener Voltage

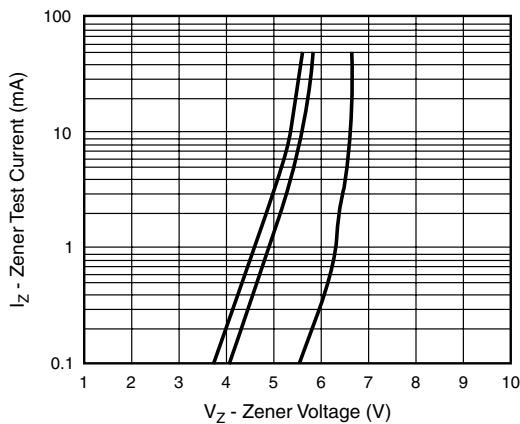
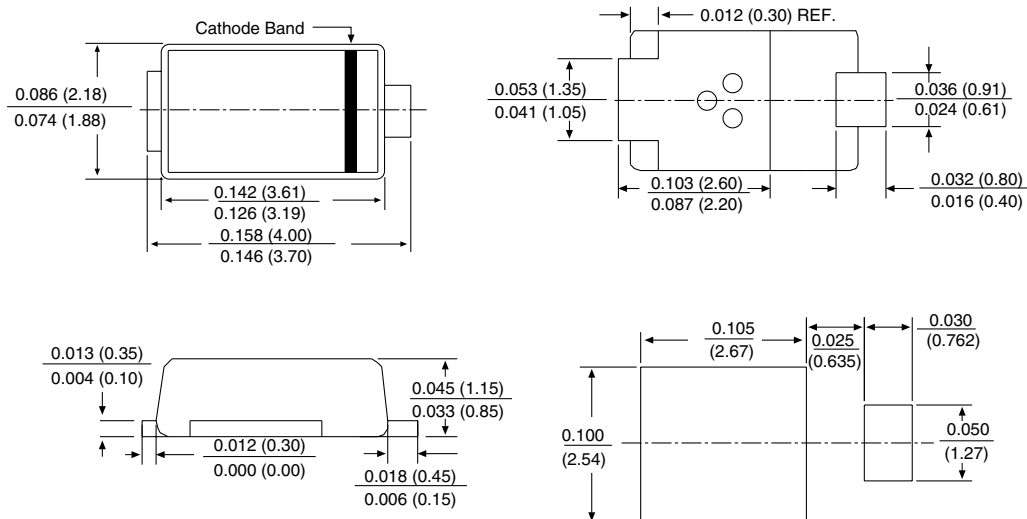


Figure 2. Typical Zener Voltage

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-220AA (SMP)





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