

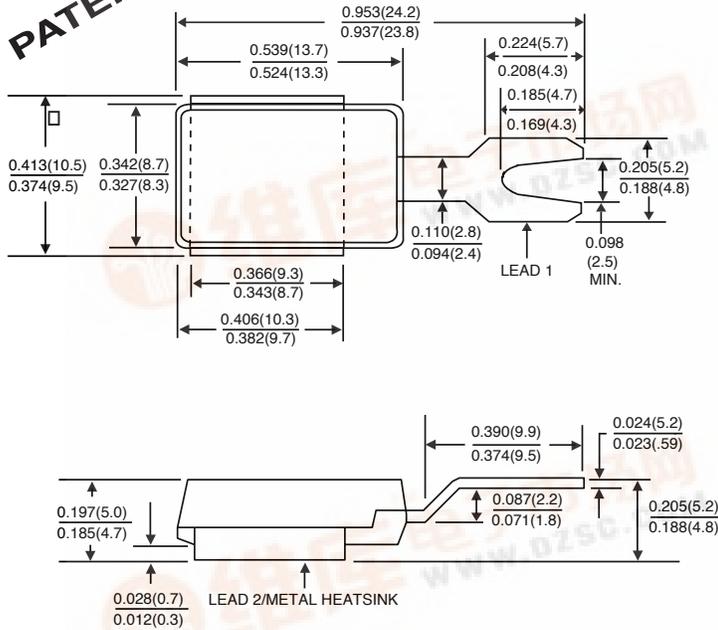
# AVALANCHE ALTERNATOR RECTIFIER AS4024 AND AS4028

## PASSIVATED ANISOTROPIC RECTIFIER TECHNOLOGY

Mean Breakdown Voltage - 24 and 28 volts Peak Pulse Current - 80 Amperes

**PATENTED\***

### CASE STYLE ASC



Dimensions in inches and (millimeters)

\*Patent #s 4,980,315  
5,166,769  
5,278,094

### FEATURES

- ◆ Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- ◆ High temperature stability due to unique oxide passivation
- ◆ Patented Passivated Anisotropic Rectifier (PAR) construction
- ◆ Integrally molded heatsink provides a very low thermal resistance for maximum heat dissipation
- ◆ Low leakage current at  $T_J=175^{\circ}\text{C}$
- ◆ Low forward voltage drop
- ◆ Ideally suited for alternator rectification and load dump protection
- ◆ High temperature soldering guaranteed:  $260^{\circ}\text{C}$  for 10 seconds at terminals



### MECHANICAL DATA

**Case:** Molded plastic body, surface mount with heatsink integrally mounted in the encapsulation  
**Terminals:** Plated, solderable per MIL-STD-750, Method 2026  
**Polarity:** Unidirectional as marked  
**Mounting Position:** Any  
**Weight:** 0.095 ounces, 2.68 grams

**For positive polarity use "P" suffix, for negative polarity use "N" suffix (Polarity refers to lead #1)**

## MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at  $25^{\circ}\text{C}$  ambient temperature unless otherwise specified.

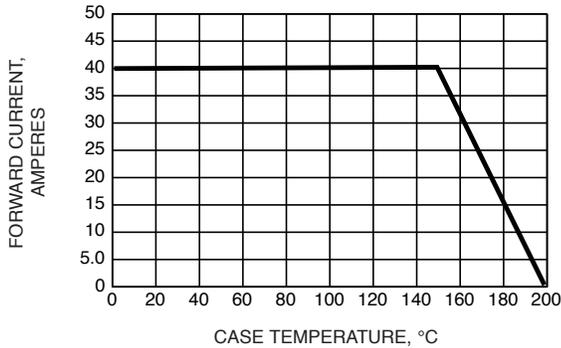
	SYMBOLS	AS4024	AS4028	UNITS
Maximum working peak standoff voltage	V <sub>WM</sub>	18.0	20.0	Volts
Minimum reverse breakdown voltage at 100mA	V <sub>(BR)</sub>	20.0	24.0	Volts
Maximum reverse breakdown voltage at 100mA	V <sub>(BR)</sub>	28.0	32.0	Volts
Maximum clamping voltage for 10μs/10ms exponentially decaying waveform at I <sub>PP</sub> =80A	V <sub>C</sub>	38.0	40.0	Volts
Maximum average rectified forward current at T <sub>C</sub> =150°C	I <sub>(AV)</sub>	40.0		Amps
Peak forward surge current, 8.3ms single half sine-wave	I <sub>FSM</sub>	700.0		Amps
Maximum instantaneous forward voltage at 100A (NOTE 1)	V <sub>F</sub>	0.99		Volts
Non-repetitive peak reverse surge current for 10μs/10ms exponentially decaying waveform	I <sub>RSM</sub>	75.0		Amps
Maximum reverse leakage current at rated V <sub>WM</sub> T <sub>J</sub> =25°C T <sub>J</sub> =175°C	I <sub>R</sub>	1.0 50.0		μA
Maximum thermal resistance junction to case (NOTE 2)	R <sub>θJC</sub>	0.9		°C/W
Operating junction and storage temperature range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +200		°C

**NOTE:**

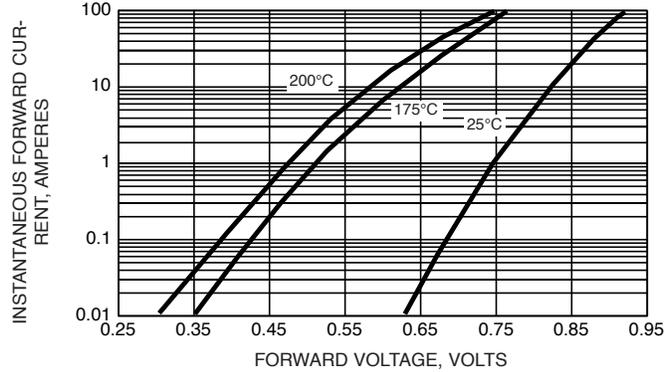
- (1) Measured on a 300μs square pulse width
- (2) Mounted on alternator heat sink

**RATING AND CHARACTERISTIC CURVES AVALANCHE ALTERNATOR RECTIFIER - AS4024 AND AS4028**

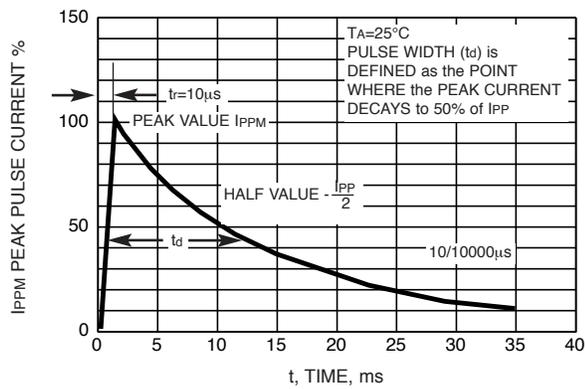
**FIG. 1 - FORWARD CURRENT DERATING CURVE**



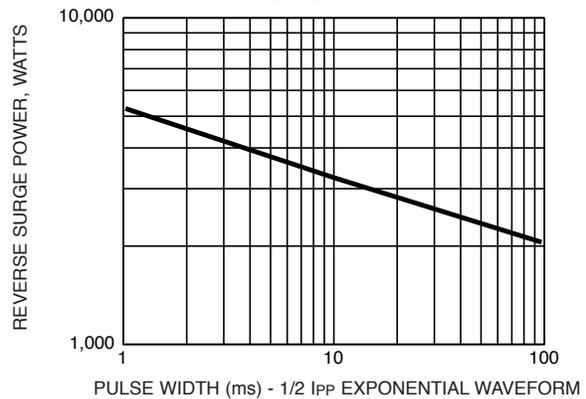
**FIG. 2 - TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS**



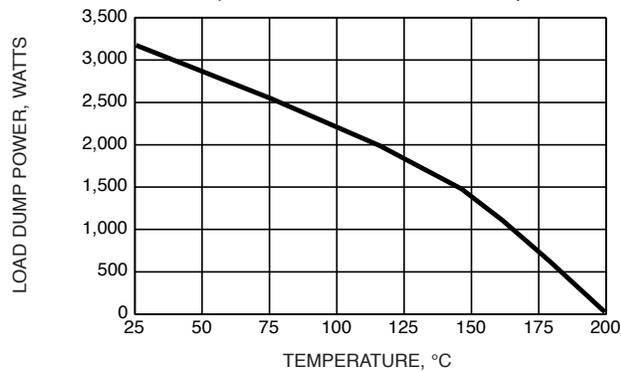
**FIG. 3 - PULSE WAVEFORM**



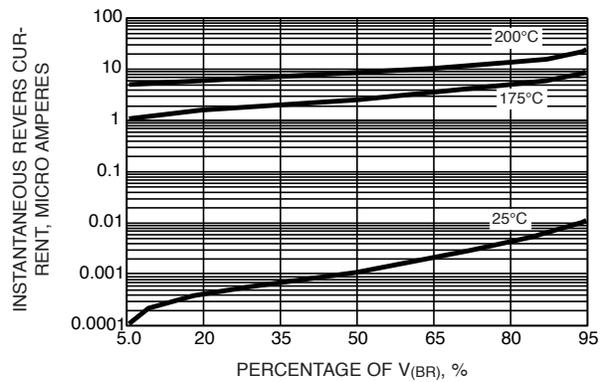
**FIG. 4 - REVERSE POWER CAPABILITY**



**FIG. 5 - LOAD DUMP POWER CHARACTERISTICS (10ms EXPONENTIAL WAVEFORM)**



**FIG. 6 - TYPICAL REVERSE CHARACTERISTICS**



**FIG. 7 - TYPICAL TRANSIENT THERMAL IMPEDANCE**

