

## **UPS840e3**

## POWERMITE 3™ SURFACE MOUNT 8 AMP 40 V SCHOTTKY RECTIFIER

## **DESCRIPTION**

The UPS840e3 offers a small and powerful surface mount package that is RoHS compliant for a 40 Volt 8 Amp rated Schottky. These ratings are found only in much larger packages. They are ideal for surface mount applications that operate at high frequencies with their "hot carrier" features that provide extremely fast switching. The very low thermal resistance of the patented Powermite 3™ package design with a full metallic bottom and unique locking tab act as an efficient heat path to a heat sink mounting permitting cooler operating junction temperatures for minimal reverse leakage currents and lower power loss. It is also ideal for automatic insertion equipment.

## APPEARANCE



IMPORTANT: For the most current data, consult MICROSEMI's website: http://www.microsemi.com

#### **FEATURES**

- Low profile package (<1.1 mm)</li>
- Small footprint area of 32 mm<sup>2</sup> (4.826 x 6.604 mm) or 0.05 in<sup>2</sup> (0.190 x 0.260 inches) as also shown in mounting pad details on last page
- Plastic package has Underwriters Laboratory Flammability classification 94V-0
- Unique locking tab on bottom acts as integral efficient heat path to heat sink (mounting substrate)
- Metal to silicon rectifier, majority carrier conduction
- RoHS compliant with e3 suffix part number

#### **APPLICATIONS / BENEFITS**

- High current capability with low forward voltage
- Guard-ring-die construction for transient protection
- Silicon Schottky (hot carrier) rectifier for minimal t<sub>rr</sub> and minimal reverse recovery voltage
- Elimination of reverse-recovery oscillations to reduce need for EMI filtering
- For use in high-frequency switching power supplies, inverters, free wheeling, charge pump circuits and polarity protection applications
- Lower forward power loss and high efficiency
- Low inductive parasitics (<2nH) for minimal Ldi/dt effects</li>
- Robust package configuration for pick-and-place handling
- Full-metallic bottom eliminates flux entrapment

## MAXIMUM RATINGS

- Storage temperature (T<sub>STG</sub>): -55 °C to +150°C
- Operating junction temperature (T<sub>J</sub>): -55 °C to +125°C
- Average forward rectified current ( $I_O$ ) @ $T_C$ =100°C: 8.0 Amps
- Forward surge current (I<sub>FSM</sub>) 8.3 ms single half-sine waveform superimposed on rated load (JEDEC Method): 150 Amps
- Thermal resistance (R<sub>θ,IC</sub>): 2.5 °C/W
- Thermal resistance (R<sub>θJA</sub>): 65 °C/W on PCB with FR4 using 2 oz Copper and recommended mounting pad size (see pad layout next page)
- Typical junction capacitance ( $C_J$ ) at 1.0 MHz and  $V_R$  of 4.0 Volts: 700 pF
- Solder temperatures: 260 °C for 10 s (maximum)

## MECHANICAL AND PACKAGING

- Terminals: Copper with annealed matte-Tin plating for RoHS compliance solderable per MIL-STD-750 method 2026 (consult factory for Tin-Lead plating.)
- Polarity: Two-leads on side are internally connected together for anode and backside is cathode
- Marking: Body marked with S840•
- Molded epoxy package meets UL94V-0
- Weight: 0.072 grams (approximate)
- Tape & Reel packaging per EIA-481-2 with 16 mm tape and 5000 units/ 13 inch reel)
- See package dimensions on last page



## **UPS840e3**

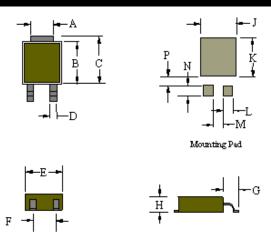
# POWERMITE 3™ SURFACE MOUNT 8 AMP 40 V SCHOTTKY RECTIFIER

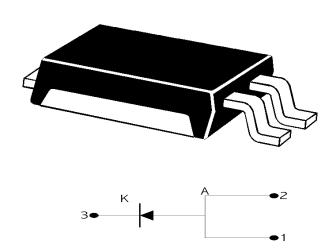
#### ELECTRICAL CHARACTERISTICS @ 25°C unless specified otherwise Maximum **Maximum Forward** Maximum Maximum Working Maximum Peak **RMS** Peak Voltage **Reverse Current** Voltage Rate of Reverse Voltage Repetitive (Note 1) IR @ VRWM Change Voltage Voltage Part $V_{RWM}$ **V**<sub>RMS</sub> $V_{RRM}$ **V**<sub>F</sub> @ **V**<sub>F</sub> @ V<sub>F</sub> @ $I_R$ dv/dt Number **3A 8**A 10A Volts Volts Volts Volts Volts Volts mΑ V/µs UPS840e3 40 40 1000 28 0.37 0.45 0.49 5

NOTES: (1) Pulse test, 1% duty cycle.

# PACKAGE DIMENSIONS AND PAD LAYOUT

	INCHES	MILLIMETERS
DIM	NOMINAL	NOMINAL
A	0.070	1.778
В	0.173	4.392
C	0.200	5.080
D	0.035	0.889
E	0.160	4.064
F	0.072	1.829
G	0.056	1.422
H	0.044	1.118
J	0.190	4.826
K	0.210	5.344
L	0.038	0.965
M	0.034	0.864
N	0.030	0.762
P	0.030	0.762







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