

**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)
- Small footprint area of 16.51 mm<sup>2</sup>
- 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
- Options for screening in accordance with MIL-PRF-19500 for JAN, JANTX, and JANTXV are available by adding MQ, MX, or MV prefixes respectively to part numbers. For example, designate a MXUPS840e3 for a JANTX screen. Consult factory for Tin-Lead plating.
- Optional avionics screening available by adding MA prefix for 100% temperature cycling, thermal impedance testing, and 24 hours HTRB. For example, designate a MAUPS840e3. Consult factory for Tin-Lead plating.

**APPLICATIONS / BENEFITS**

- High current capability with low forward voltage
- Guard-ring-die construction for transient protection
- Silicon Schottky (hot carrier) rectifier for minimal  $t_{rr}$  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
- Robust package configuration for pick-and-place handling
- Full-metallic bottom eliminates flux entrapment
- Small foot print with 0.190 x 0.270 inches (see mounting pad details on last page)

**MAXIMUM RATINGS**

- Storage temperature ( $T_{STG}$ ): -55 °C to +150 °C
- Operating junction temperature ( $T_J$ ): -55 °C to +125 °C
- Average forward rectified current ( $I_O$ ) @  $T_C=100^\circ\text{C}$ : 8.0 Amps
- Forward surge current ( $I_{FSM}$ ) 8.3 ms single half-sine waveform superimposed on rated load (JEDEC Method): 150 Amps
- Thermal resistance ( $R_{\theta JC}$ ): 2.5 °C/W
- Thermal resistance ( $R_{\theta JA}$ ): 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

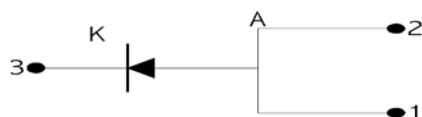
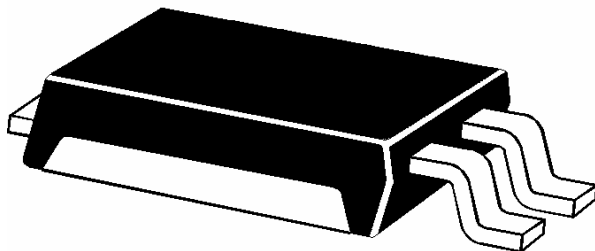
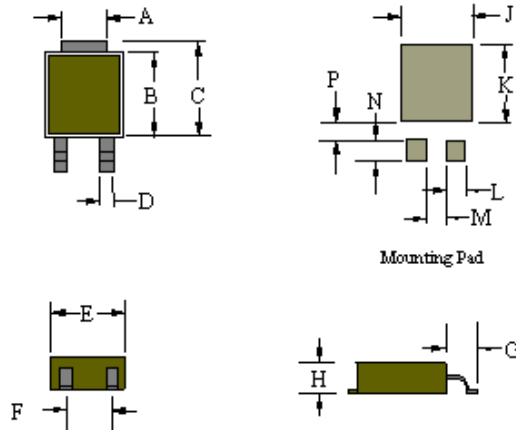
**ELECTRICAL CHARACTERISTICS @ 25°C unless specified otherwise**

Part Number	Working Peak Reverse Voltage	Maximum RMS Voltage	Maximum Peak Repetitive Voltage	Maximum Forward Voltage (Note 1)			Maximum Reverse Current $I_R$ @ $V_{RWM}$	Maximum Voltage Rate of Change
	$V_{RWM}$ Volts	$V_{RMS}$ Volts	$V_{RRM}$ Volts	$V_F$ @ 3A Volts	$V_F$ @ 8A Volts	$V_F$ @ 10A Volts	$I_R$ mA	dv/dt V/ $\mu$ s
UPS840e3	40	28	40	0.37	0.45	0.49	5	1000

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

**PACKAGE DIMENSIONS AND PAD LAYOUT**

DIM	INCHES	MILLIMETERS
	NOMINAL	NOMINAL
A	0.070	1.778
B	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





UPS840e3

POWERMITE 3™ SURFACE MOUNT  
8 AMP 40 V SCHOTTKY RECTIFIER