



Schottky Barrier Rectifier 1.0 Amp, 20 and 40 Volt

DESCRIPTION

Single schottky rectifier assembled in Powermite 1 package which features a full metallic bottom that eliminates the possibility of solder flux entrapment during assembly. The package also incorporates a unique locking tab which acts as an efficient heat path from the die to the mounting plane for external heat sinking with very low thermal resistance junction to case (bottom). This product is suitable for use in switching and regulating power supplies and also charge pump circuits.

Important: For the latest information, visit our website <http://www.microsemi.com>.

FEATURES

- Ultra low forward voltage drop.
- Efficient heat path with integral locking bottom metal tab.
- Supplied in 8mm tape and reel.
- RoHS compliant.

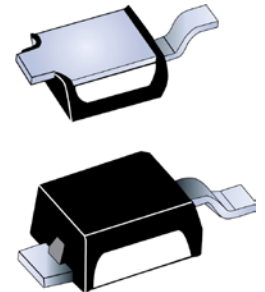
APPLICATIONS / BENEFITS

- High power surface mount package.
- Guard ring construction for transient protection.
- Compatible with Automatic Insertion Equipment.
- Full-metallic bottom eliminates flux entrapment.
- High surge capacity.
- Ideal for OR'ing diode.

MAXIMUM RATINGS @ 25 °C unless otherwise stated

| Parameters/Test Conditions | Symbol | Value | | Unit |
|---|---------------------|-------------|---------|------------|
| | | UPS5817 | UPS5819 | |
| Peak Repetitive Reverse Voltage and also Working Peak Reverse Voltage | V_{RRM} | 20 | 40 | V |
| DC Blocking Voltage | V_{RWM} V_R | | | |
| RMS Reverse Voltage | $V_{R(RMS)}$ | 14 | 28 | V |
| Junction and Storage Temperature | T_J and T_{STG} | -55 to +150 | | °C |
| Thermal Resistance Junction-to-Case | $R_{\theta JC}$ | 15 | | °C/W |
| Thermal Resistance Junction-to-Ambient ⁽¹⁾ | $R_{\theta JA}$ | 240 | | °C/W |
| Average Rectified Output Current @ $T_C = 135$ °C | I_O | 1.0 | | A |
| Repetitive Peak Forward Current | I_{FRM} | 2.0 | | A |
| Surge Peak Forward Current | I_{FSM} | 50 | | A |
| Voltage Rate of Change @ Rated V_R and $T_J = 25$ °C | dv/dt | 10,000 | | V/ μ s |
| Solder Temperature @ 10 s | T_{SP} | 260 | | °C |

Notes: 1. Mounted on FR-4 PC board using 1 oz copper with recommended minimum foot print.



**Powermite 1
(DO-216AA)
Package**

MSC – Lawrence

6 Lake Street,
Lawrence, MA 01841
Tel: 1-800-446-1158 or
(978) 620-2600
Fax: (978) 689-0803

MSC – Ireland

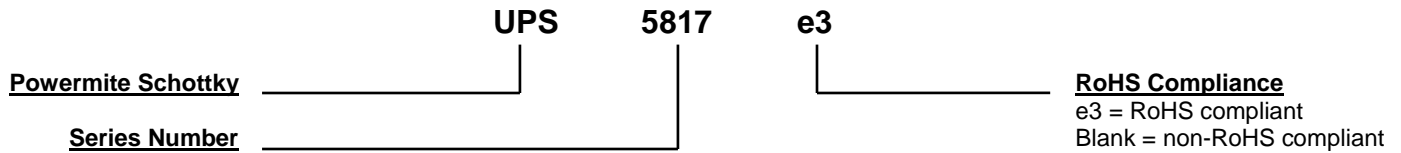
Gort Road Business Park,
Ennis, Co. Clare, Ireland
Tel: +353 (0) 65 6840044
Fax: +353 (0) 65 6822298

Website:

www.microsemi.com

MECHANICAL and PACKAGING

- CASE: Molded epoxy package meets UL94V-0.
- TERMINALS: Copper with annealed matte-tin plating for RoHS compliance. Solderable per MIL-STD-750 method 2026. (Consult factory for tin-lead plating).
- MARKING: Body marked with "S17" or "S19".
- POLARITY: Cathode designated by Tab 1 (bottom).
- TAPE & REEL option: Packaging per EIA-481-B with 8 mm tape. Consult factory for quantities.
- WEIGHT: Approximately 0.016 grams.
- See [Package Dimensions](#) on last page.

PART NOMENCLATURE

ELECTRICAL CHARACTERISTICS

| RATING (Conditions) | SYMBOL | VALUE | | UNIT |
|--|-----------------|---------|---------|-------|
| | | UPS5817 | UPS5819 | |
| Maximum Instantaneous Forward Voltage ⁽²⁾ (I _F = 1.0 A, T _J = +25 °C) | V _F | 0.45 | 0.55 | Volts |
| Maximum Instantaneous Reverse Current ⁽²⁾ (V _R = 20 V, T _J = +25 °C) | I _{RM} | 1.0 | 1.0 | mA |
| Typical Junction Capacitance (V _R = 5V, f = 1 MHz) | C _J | 105 | 60 | pF |

Notes: 2. Measured with a test pulse of 380 μs to minimize self-heating effect.

GRAPHS

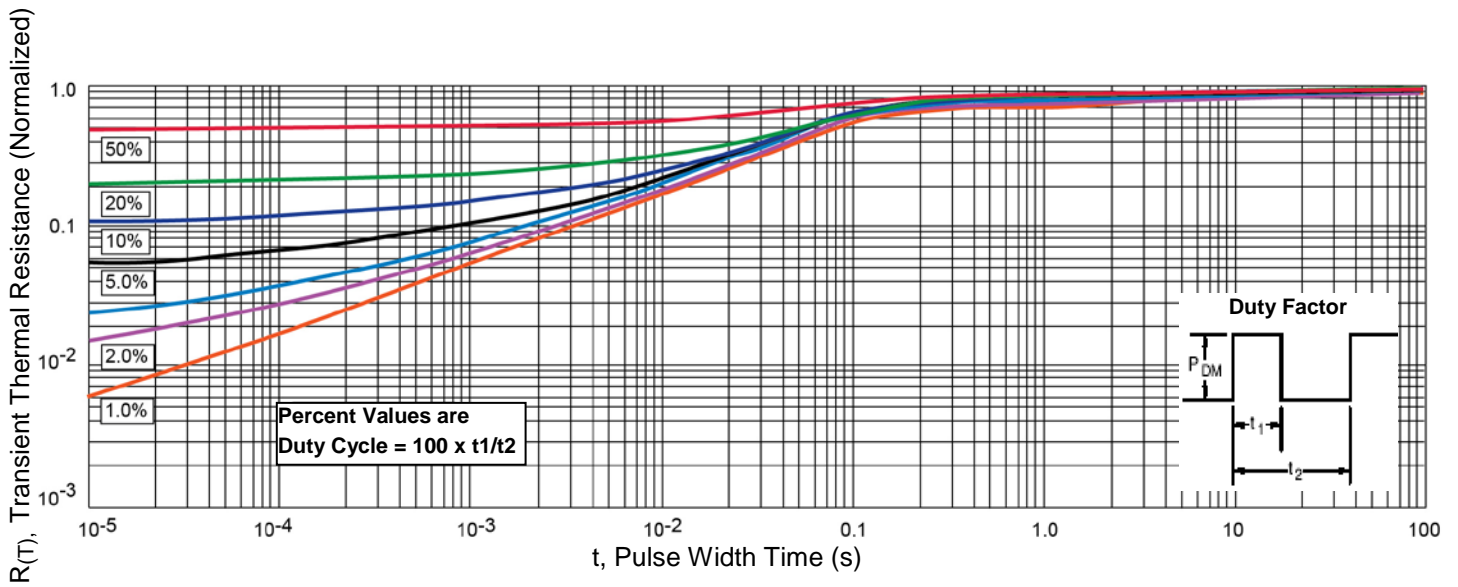


FIGURE 1
Thermal Impedance Junction to Case

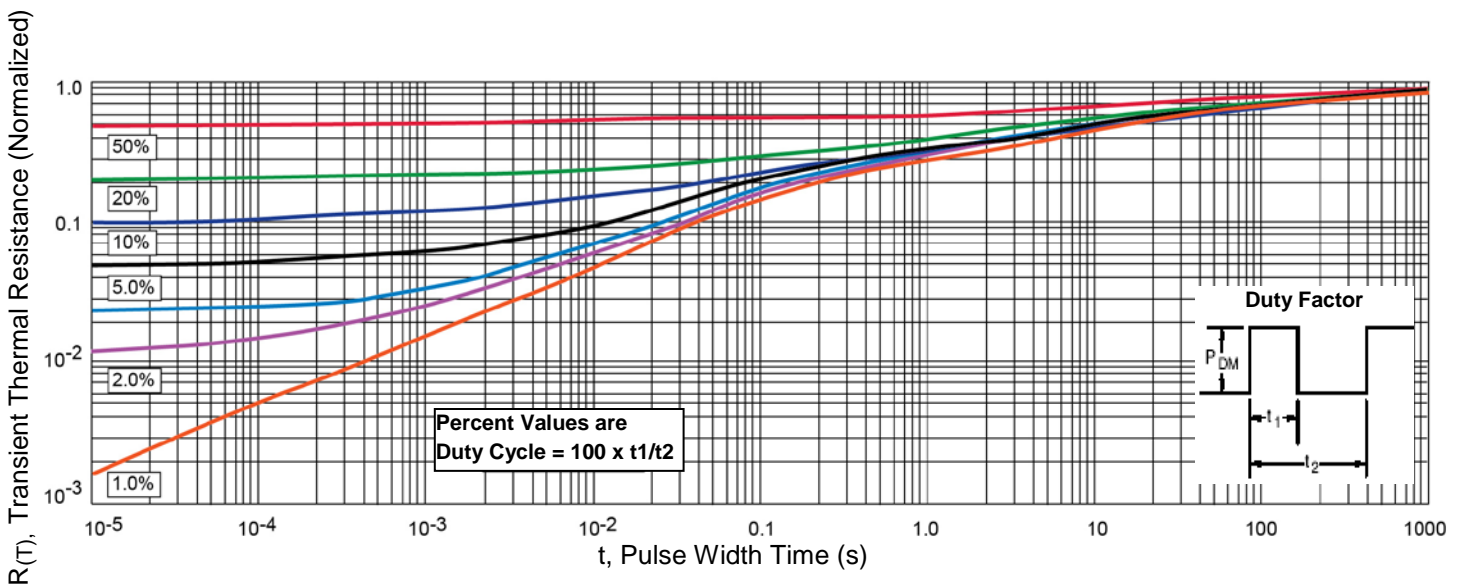
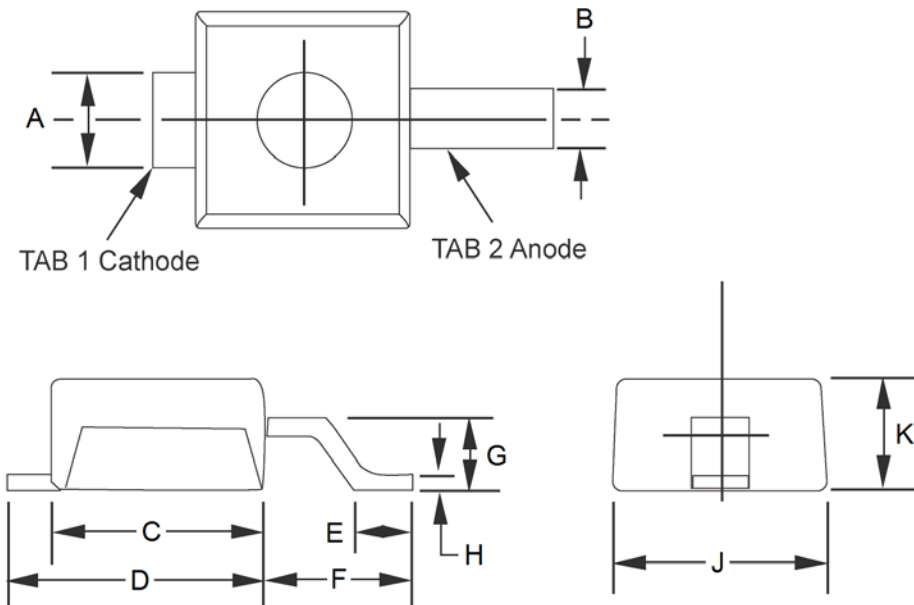
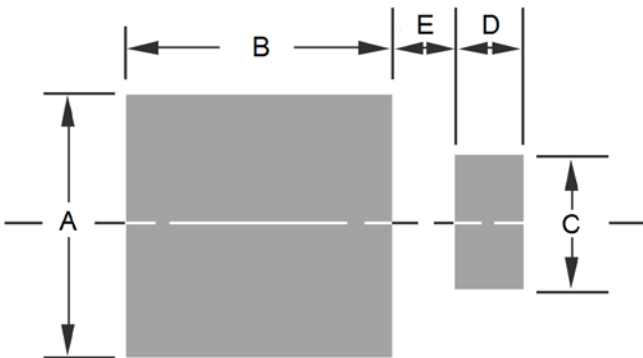


FIGURE 2
Thermal Impedance Junction to Ambient

PACKAGE DIMENSIONS


| Ltr | Dimensions | | | |
|----------|------------|-------|-------------|------|
| | Inch | | Millimeters | |
| | Min | Max | Min | Max |
| A | 0.029 | 0.039 | 0.73 | 0.99 |
| B | 0.016 | 0.026 | 0.40 | 0.66 |
| C | 0.070 | 0.080 | 1.77 | 2.03 |
| D | 0.087 | 0.097 | 2.21 | 2.46 |
| E | 0.020 | 0.030 | 0.50 | 0.76 |
| F | 0.051 | 0.061 | 1.29 | 1.54 |
| G | 0.021 | 0.031 | 0.53 | 0.78 |
| H | 0.004 | 0.008 | 0.10 | 0.20 |
| J | 0.070 | 0.080 | 1.77 | 2.03 |
| K | 0.035 | 0.045 | 0.89 | 1.14 |

PAD LAYOUT


| Ltr | Dimensions | |
|----------|------------|-------------|
| | Inch | Millimeters |
| A | 0.100 | 2.54 |
| B | 0.105 | 2.67 |
| C | 0.050 | 1.27 |
| D | 0.030 | 0.76 |
| E | 0.025 | 0.64 |

SCHEMATIC


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