

DESCRIPTION

The UPDS340 offers a small and powerful surface mount package for a high voltage 40 Volt, 3 Amp rated Schottky with low forward voltage and low leakage current. For critical applications requiring very fast switching, these higher voltage Schottkys with their “hot carrier” features provide extremely fast switching to replace conventional ultrafast rectifiers. The very low thermal resistance of the PowerDI™5 package design also permits cooler operating junction temperatures for minimal reverse leakage currents and lower power loss.

APPEARANCE



PowerDI™5

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

FEATURES

- Guard ring die construction for transient protection
- Low power loss, high efficiency
- Low forward voltage drop
- Low reverse leakage current
- High junction temperature capability
- High forward surge current capability
- Environmentally friendly molding compound (no Br, Sb)
- Low inductive parasitics for minimal Ldi/dt effects
- Lead-Free Finish & RoHS Compliant per EU Directive Rev 13.2.2003 (glass and high temperature solder exemptions per Annex Notes 5 and 7 therein)

APPLICATIONS / BENEFITS

- Silicon Schottky (hot carrier) rectifier for minimal t_{rr} and elimination of reverse-recovery oscillations to reduce need for EMI filtering
- For use in high-frequency switching power supplies, inverters, free wheeling, polarity protection, and “O-Ring” applications
- Low power loss and high efficiency
- Low profile package
- Robust package configuration for pick-and-place handling

MAXIMUM RATINGS

- Junction and Storage Temperature (T_J , T_{STG}): -65 to +150°C
- Average Rectified Output Current (I_O): 3 Amps for Single phase, half wave, 60 Hz, resistive or inductive load (also see Figure 5). For capacitive load, derate current by 20%.
- Peak Repetitive Reverse Voltage (V_{RRM}): 40 V Working Peak Reverse Voltage (V_{RWM}): 40 V DC Blocking Voltage (V_R): 40 V
- RMS Reverse Voltage ($V_{R(RMS)}$): 28 V
- Non-Repetitive Peak Forward Surge Current @ 8.3 ms single half sine-wave superimposed on rated load (I_{FSM}): 90A
- Thermal Resistance Junction to bottom of case ($R_{\theta JC}$) or Junction to Soldering Point ($R_{\theta JS}$): 6.0°C/W
- Thermal Resistance ($R_{\theta JA}$): 110°C/W (Note 1), 80°C/W (Note 2), 50°C/W (Note 3).

Notes: 1. FR-4 PCB, 2 oz. Copper, minimum recommended pad layout (pg 4)
2. Polyimide PCB, 2 oz. Copper, minimum recommended pad layout (pg 4)
3. Polyimide PCB, 2 oz. Copper with larger Cathode pad dimensions 9.4mm x 7.2mm and Anode pad dimensions 2.7mm x 1.6mm

MECHANICAL AND PACKAGING

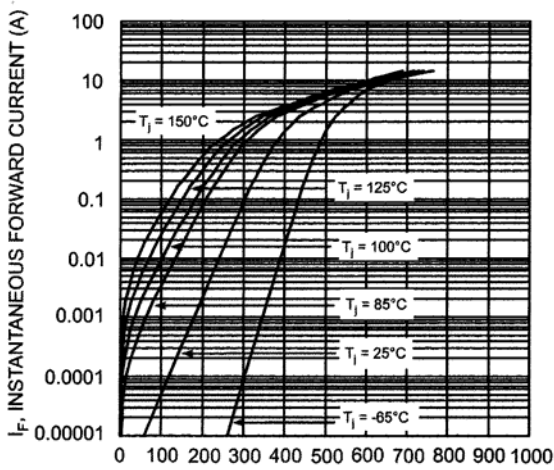
- Case Material: Molded Plastic, Environmentally Friendly “Green” Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture sensitivity: Level 1 per J-STD-020C.
- Terminals: Finish – Matte Tin annealed over Copper lead frame (**e3** per JESD97) Solderable per MIL-STD-202, Method 208
- Marking: See marking information on page 3
- Polarity: See Diagram
- Weight: 0.093 grams (approx.)
- Tape & Reel Option: 5000/reel (13”)

ELECTRICAL CHARACTERISTICS @ 25°C unless specified otherwise

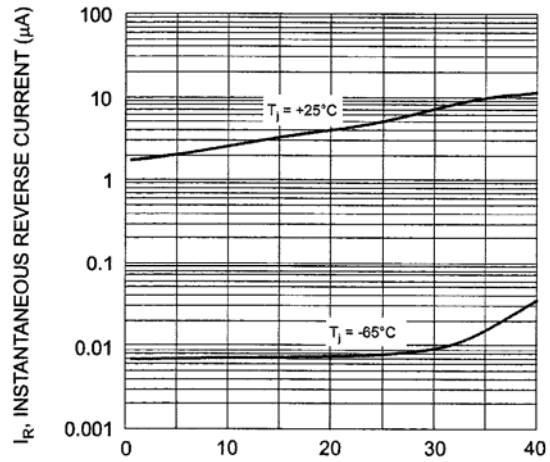
Part Number	Working Peak Reverse Voltage	Maximum RMS Voltage	Minimum Reverse Breakdown Voltage (Note 1)	Maximum Forward Voltage (Note 3)		Maximum Reverse Current I_R @ V_{RWM} (Notes 1 & 2)		
	V_{RWM} Volts	$V_{R(RMS)}$ Volts	V_{BR} @ 0.5 mA Volts	V_F @ 3 A Volts	V_F @ 6 A Volts	I_R @ 25°C mA	I_R @ 100°C mA	I_R @ 125°C mA
UPDS340	40	28	40	0.49	0.61	0.500	20	25

NOTE 1: Short duration test pulse used to minimize self-heating effect.
NOTE 2: See Figures 2 & 3 for typical values at other voltages and temperatures.
NOTE 3: See Figure 1 for typical values at various temperatures

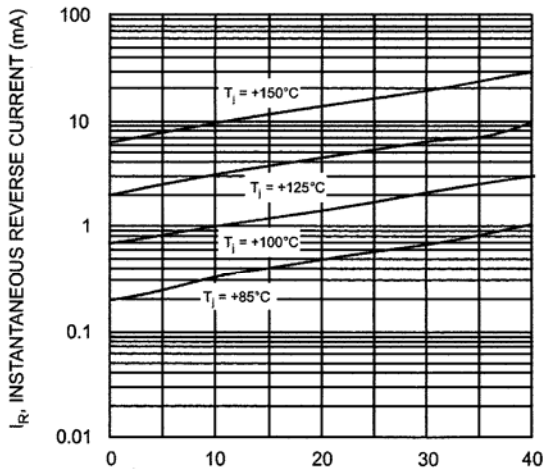
GRAPHS



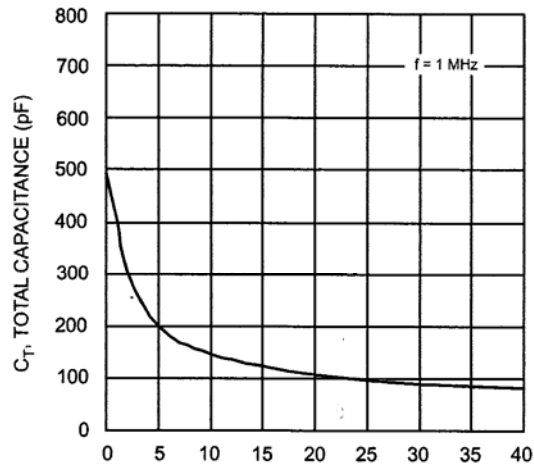
V_F , INSTANTANEOUS FORWARD VOLTAGE (mV)
Fig. 1 Typical Forward Characteristics



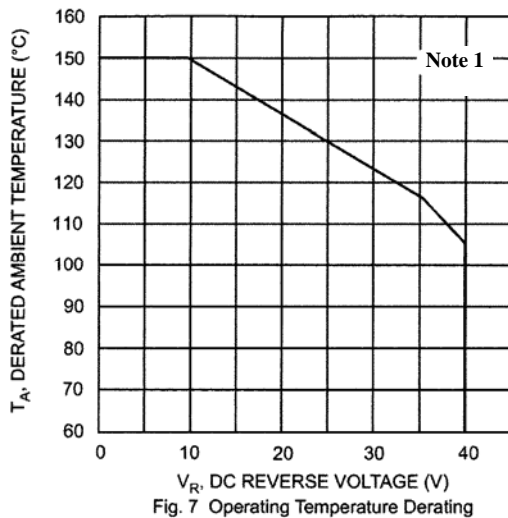
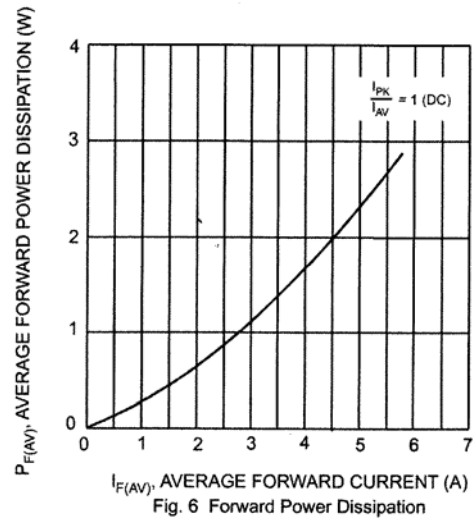
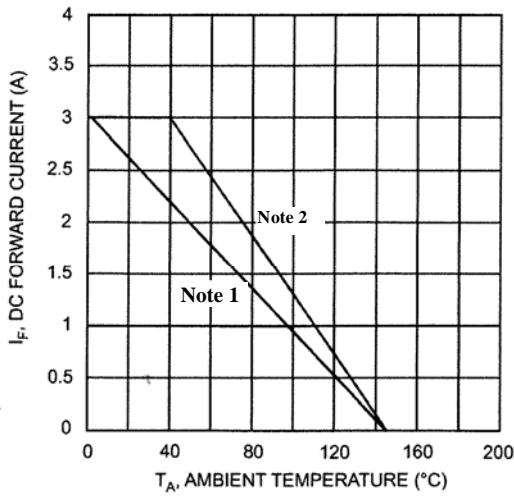
V_R , INSTANTANEOUS REVERSE VOLTAGE (V)
Fig. 2 Typical Reverse Characteristics



V_R , INSTANTANEOUS REVERSE VOLTAGE (V)
Fig. 3 Typical Reverse Characteristics



V_R , REVERSE VOLTAGE (V)
Fig. 4 Typical Total Capacitance vs. Reverse Voltage



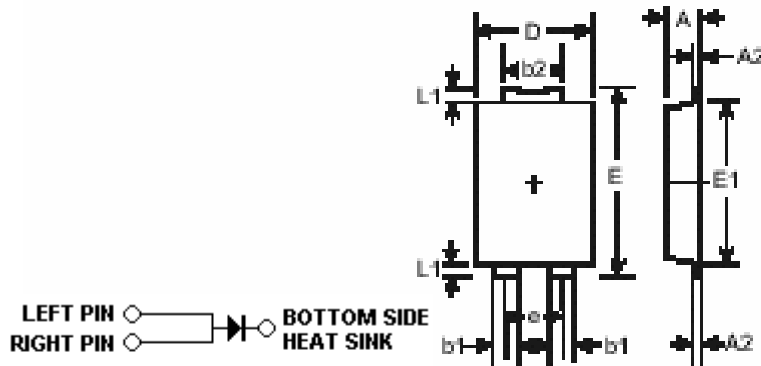
- Notes:
- FR-4 PCB, 2 oz. Copper, minimum recommended pad layout (see mounting pad illustration).
 - Polyimide PCB, 2 oz. Copper, minimum recommended pad layout (see mounting pad illustration).

MARKING INFORMATION

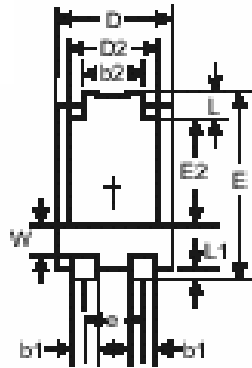


S340 = Product type marking code.
 MSC = Manufacturers' code marking
 YYWW = Date code marking
 YY = Last digit of year ex: 04 for 2004
 WW = Week code 01 to 52

DIMENSIONS AND SCHEMATIC



Note: Pins Left & Right must be electrically connected at the printed circuit board



Dim	Min	Max
A	1.05	1.15
A2	0.33	0.43
b1	0.80	0.99
b2	1.70	1.88
D	3.90	4.05
D2	3.05 NOM	
E	6.40	6.60
e	1.84 NOM	
E1	5.30	5.45
E2	3.55 NOM	
L	0.75	0.95
L1	0.50	0.65
W	1.20	1.50
All Dimensions in mm		

PowerDI™5

MOUNTING PAD DIMENSIONS

PAD dimensions (mm)	
Z	6.6
X1	1.4
X2	3.6
Y1	0.8
Y2	4.7
C	3.87
E1	0.9

