



# TAYCHIPST Surface Mount Ultrafast Rectifiers

UH1A THRU UH1D

100V-200V 1.0A

## FEATURES

- Low profile package
- Ideal for automated placement
- Oxide planar chip junction
- Ultrafast recovery times for high frequency
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- Solder dip 260 °C, 40 s
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC

## Mechanical Data

**Case:** DO-214AC (SMA)

Epoxy meets UL 94V-0 flammability rating

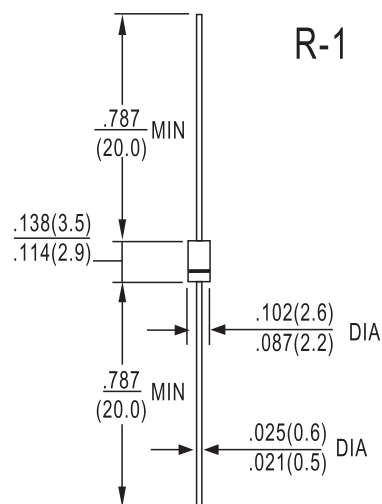
**Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD22-B102

E3 suffix for consumer grade, meets JESD 201 class

1A whisker test, HE3 suffix for high reliability grade

(AEC Q101 qualified), meets JESD 201 class 2 whisker test

**Polarity:** Color band denotes cathode end



## MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

### MAXIMUM RATINGS ( $T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)

| PARAMETER                                                                          | SYMBOL         | UH1B          | UH1C | UH1D | UNIT               |
|------------------------------------------------------------------------------------|----------------|---------------|------|------|--------------------|
| Device marking code                                                                |                | HB            | HC   | HD   |                    |
| Maximum repetitive peak reverse voltage                                            | $V_{RRM}$      | 100           | 150  | 200  | V                  |
| Maximum average forward rectified current (Fig. 1)                                 | $I_{F(AV)}$    | 1.0           |      |      | A                  |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load | $I_{FSM}$      | 30            |      |      | A                  |
| Operating junction and storage temperature range                                   | $T_J, T_{STG}$ | - 55 to + 175 |      |      | $^{\circ}\text{C}$ |

### ELECTRICAL CHARACTERISTICS ( $T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)

| PARAMETER                                    | TEST CONDITIONS                                                                                      | SYMBOL   | TYP.         | MAX.      | UNIT          |
|----------------------------------------------|------------------------------------------------------------------------------------------------------|----------|--------------|-----------|---------------|
| Instantaneous forward voltage <sup>(1)</sup> | $I_F = 0.6\text{ A}$<br>$I_F = 1.0\text{ A}$                                                         | $V_F$    | 0.90<br>0.96 | -<br>1.05 | V             |
|                                              | $I_F = 0.6\text{ A}$<br>$I_F = 1.0\text{ A}$                                                         |          | 0.70<br>0.76 | -<br>0.90 |               |
| Reverse current <sup>(2)</sup>               | rated $V_R$                                                                                          | $I_R$    | -<br>7.5     | 1.0<br>25 | $\mu\text{A}$ |
| Maximum reverse recovery time                | $I_F = 0.5\text{ A}, I_R = 1.0\text{ A},$<br>$I_{rr} = 0.25\text{ A}$                                | $t_{rr}$ | 13           | 25        | ns            |
| Typical reverse recovery time                | $I_F = 1.0\text{ A}, dI/dt = 50\text{ A}/\mu\text{s},$<br>$V_R = 30\text{ V}, I_{rr} = 0.1\text{ A}$ |          | 21           | 30        |               |
| Typical softness factor ( $t_b/t_a$ )        | $I_F = 1.0\text{ A}, dI/dt = 200\text{ A}/\mu\text{s},$<br>$V_R = 200\text{ V}$                      | S        | 0.8          | -         | -             |
| Typical reverse recovery current             |                                                                                                      | $I_{RM}$ | 2.7          | 4.0       | A             |
| Typical stored charge                        |                                                                                                      | $Q_{rr}$ | 35           | -         | nC            |
| Typical junction capacitance                 |                                                                                                      | $C_J$    | 17           | -         | pF            |



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**RATINGS AND CHARACTERISTIC CURVES**

**UH1A THRU UH1D**

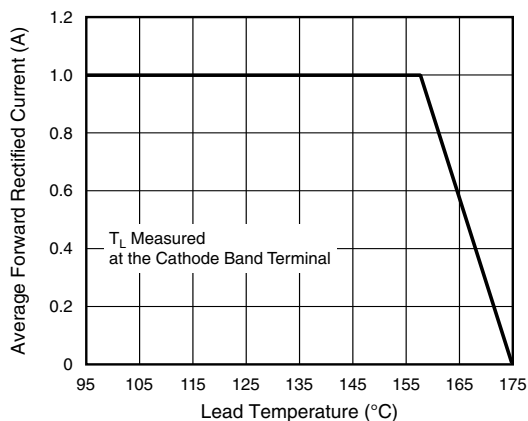


Figure 1. Maximum Forward Current Derating Curve

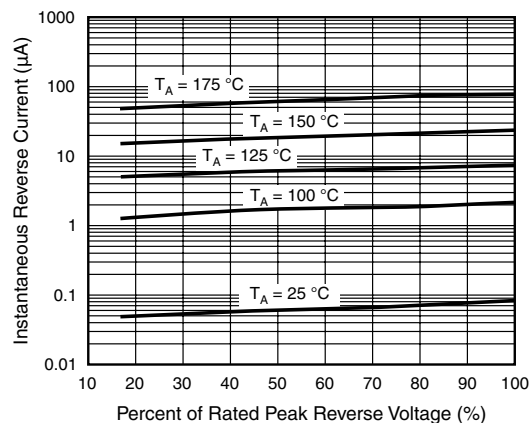


Figure 4. Typical Reverse Characteristics

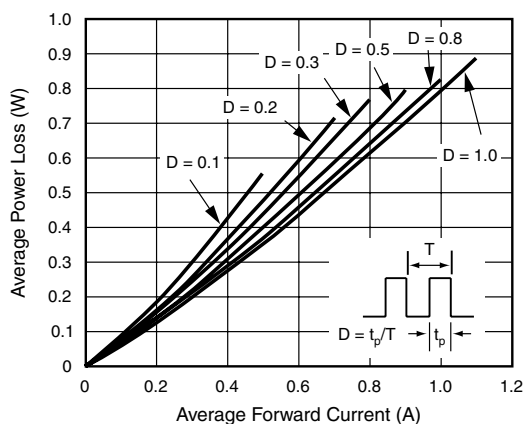


Figure 2. Forward Power Loss Characteristics

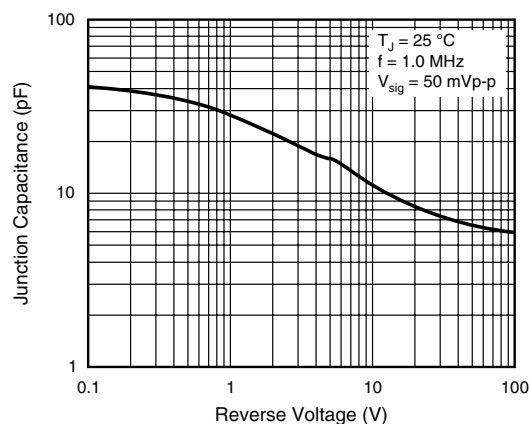


Figure 5. Typical Junction Capacitance

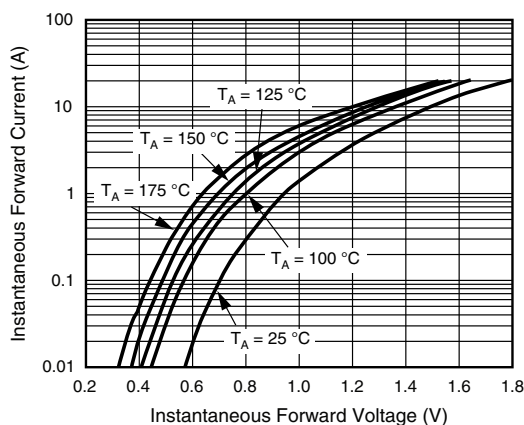


Figure 3. Typical Instantaneous Forward Characteristics

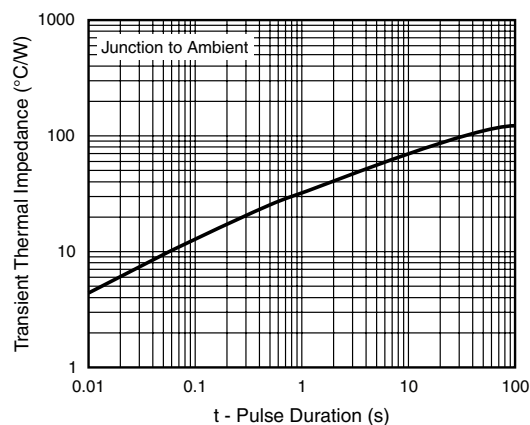


Figure 6. Typical Transient Thermal Impedance