# 10A, 100V - 200V Ultra Fast Surface Mount Rectifier

## FEATURES

- AEC-Q101 qualified
- Planar technology
- Low power loss, high efficiency
- Ideal for automated placement
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free

## APPLICATIONS

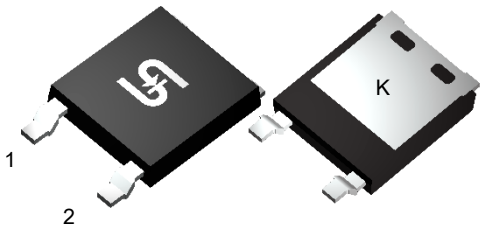
- High frequency switching
- DC/DC
- Snubber

## MECHANICAL DATA

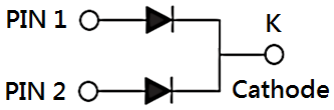
- Case: ThinDPAK
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 2 whisker test
- Polarity: As marked
- Weight: 0.194g (approximately)

| KEY PARAMETERS | | |
|---|---|---|
| **PARAMETER** | **VALUE** | **UNIT** |
| $I_F$ | 10 | A |
| $V_{RRM}$ | 100 - 200 | V |
| $I_{FSM}$ | 130 | A |
| $T_{J\ MAX}$ | 175 | °C |
| Package | ThinDPAK | |
| Configuration | Common cathode | |

Pb-Free RoHS COMPLIANT HALOGEN FREE ThinDPAK®




**ThinDPAK**




| ABSOLUTE MAXIMUM RATINGS ($T_A$ = 25°C unless otherwise noted) | | | | | |
|---|---|---|---|---|---|
| **PARAMETER** | | **SYMBOL** | **PUAD10BCH** | **PUAD10DCH** | **UNIT** |
| Marking code on the device | | | UAD10BC | UAD10DC | |
| Repetitive peak reverse voltage | | $V_{RRM}$ | 100 | 200 | V |
| Reverse voltage, total rms value | | $V_{R(RMS)}$ | 70 | 140 | V |
| Forward current per device | | $I_F$ | 10 | | A |
| Surge peak forward current single half sine-wave superimposed on rated load per diode | t = 8.3ms | $I_{FSM}$ | 130 | | A |
| | t = 1.0ms | | 270 | | |
| Junction temperature | | $T_J$ | -55 to +175 | | °C |
| Storage temperature | | $T_{STG}$ | -55 to +175 | | °C |

## THERMAL PERFORMANCE

| PARAMETER | SYMBOL | TYP | UNIT |
|---|---|---|---|
| Junction-to-lead thermal resistance | $R_{\Theta JL}$ | 3.5 | °C/W |
| Junction-to-ambient thermal resistance | $R_{\Theta JA}$ | 11.8 | °C/W |
| Junction-to-case thermal resistance | $R_{\Theta JC}$ | 2.0 | °C/W |

**Thermal Performance Note:** Mounted on heat sink with 2" x 3" x 0.25" Al-Plate

## ELECTRICAL SPECIFICATIONS ($T_A$ = 25°C unless otherwise noted)

| PARAMETER | CONDITIONS | SYMBOL | TYP | MAX | UNIT |
|---|---|---|---|---|---|
| Forward voltage per diode(1) | $I_F$ = 2.5A, $T_J$ = 25°C | $V_F$ | 0.81 | - | V |
| | $I_F$ = 2.5A, $T_J$ = 125°C | | 0.66 | - | V |
| | $I_F$ = 5.0A, $T_J$ = 25°C | | 0.88 | 0.95 | V |
| | $I_F$ = 5.0A, $T_J$ = 125°C | | 0.74 | - | V |
| Reverse current @ rated $V_R$ per diode(2) | $T_J$ = 25°C | $I_R$ | - | 2 | μA |
| | $T_J$ = 125°C | | 2 | - | μA |
| Junction capacitance per diode | 1MHz, $V_R$ = 4.0V | $C_J$ | 74 | - | pF |
| Reverse recovery time | $I_F$ = 0.5A, $I_R$ = 1.0A, $I_{rr}$ = 0.25A | $t_{rr}$ | - | 25 | ns |
| | $I_F$ = 1.0A, di/dt = 50A/μs, $V_R$ = 30V | | 24 | - | |
| Reverse recovery current | $I_F$ = 5.0A, di/dt = 200A/μs, $V_R$ = 100V | $I_{RM}$ | 2.9 | - | A |
| Reverse recovery charge | | $Q_{rr}$ | 41 | - | nC |
| Reverse recovery time | | $t_{rr}$ | 20 | - | ns |

**Notes:**

1. Pulse test with PW = 0.3ms
2. Pulse test with PW = 30ms

## ORDERING INFORMATION

| ORDERING CODE(1) | PACKAGE | PACKING |
|---|---|---|
| PUAD10xCH | ThinDPAK | 4,500 / Tape & Reel |

**Notes:**

1. “x” defines voltage from 100V(PUAD10BCH) to 200V(PUAD10DCH)

## CHARACTERISTICS CURVES

($T_A$ = 25°C unless otherwise noted)

**Fig.1 Forward Current Derating Curve**

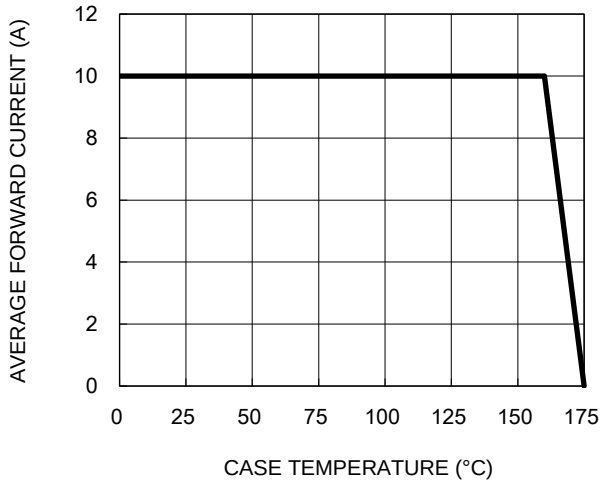



**Fig.2 Typical Junction Capacitance**

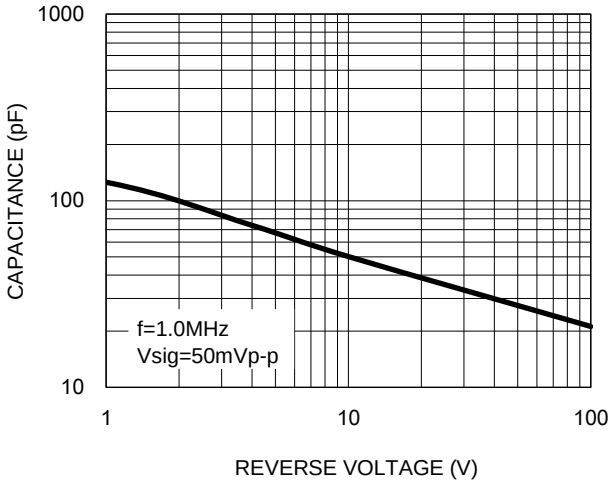



**Fig.3 Typical Reverse Characteristics**

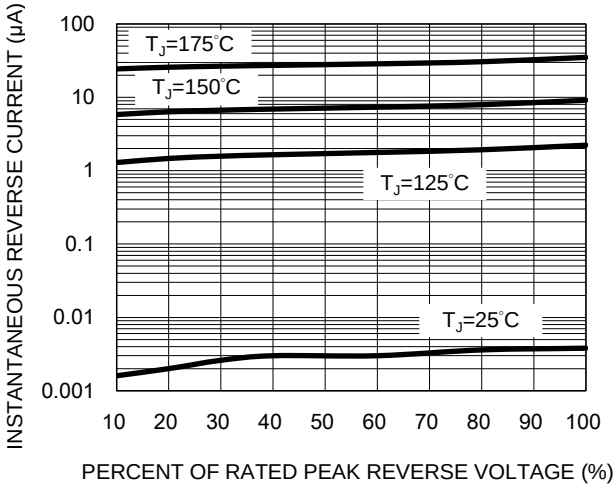



**Fig.4 Typical Forward Characteristics**

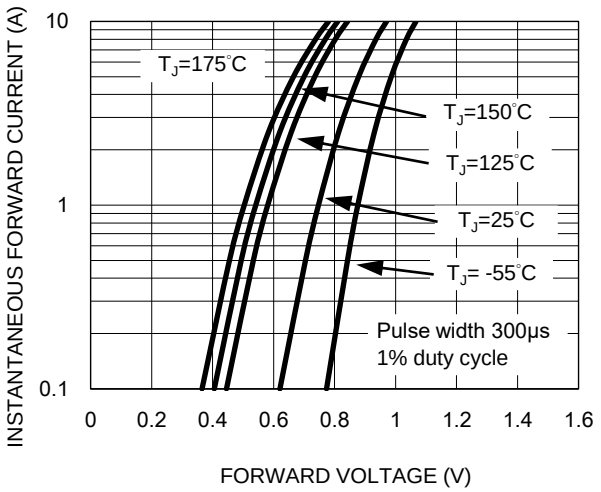
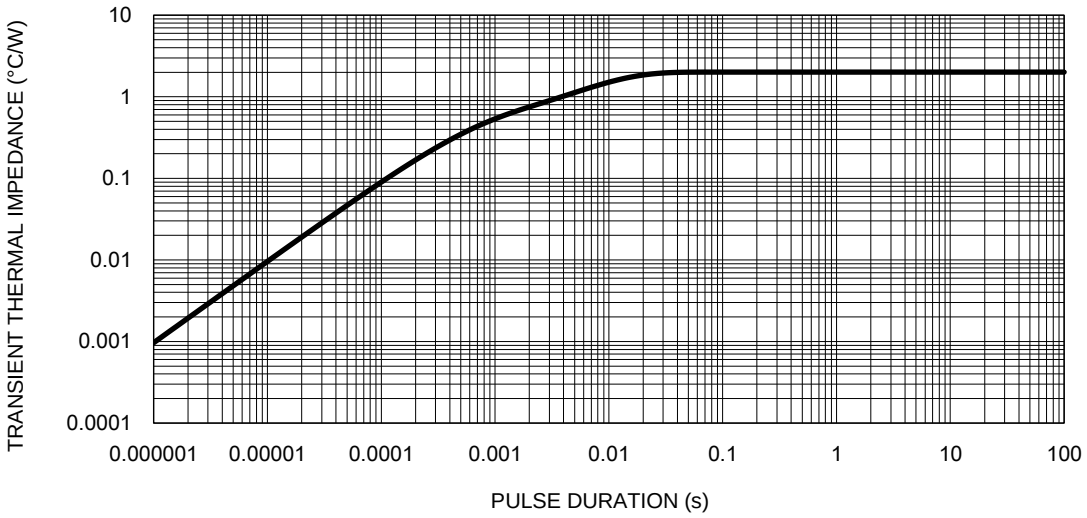
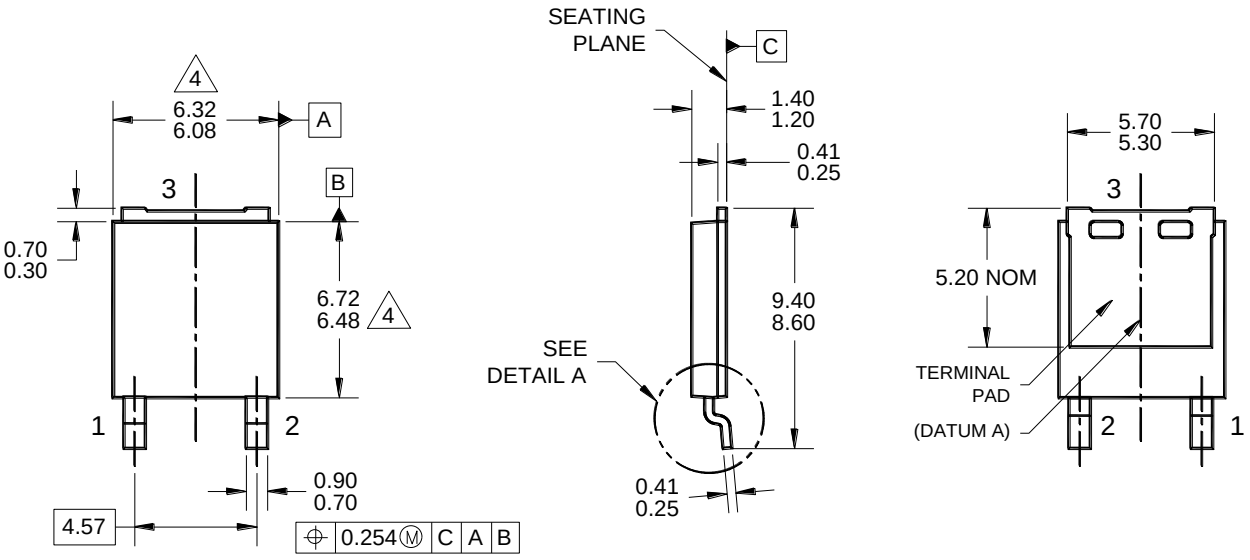


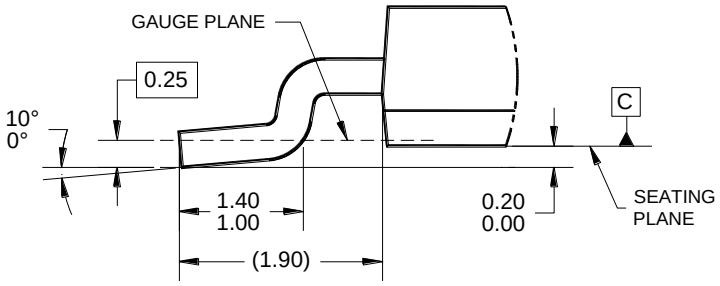

**Fig.5 Typical Transient Thermal Impedance**



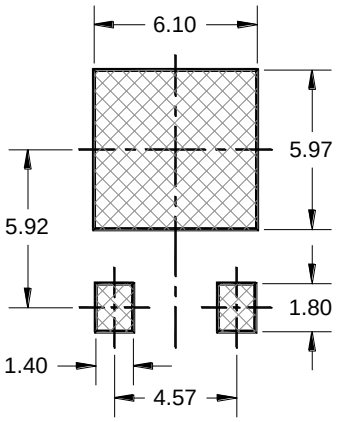
## PACKAGE OUTLINE DIMENSIONS

**ThinDPAK**

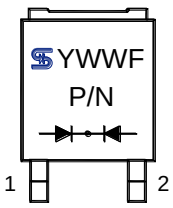



DETAIL A, ROTATED -90°
(SCALE 4:1)




SUGGESTED PAD LAYOUT




MARKING DIAGRAM

| | | |
|---|---|---|
| YWW | = | DATE CODE |
| F | = | FACTORY CODE |
| P/N | = | MARKING CODE |

NOTES: UNLESS OTHERWISE SPECIFIED

1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. DIMENSIONING AND TOLERANCING PER ASME Y14.5M-1994.
3. PACKAGE OUTLINE REFERENCE: JEDEC TO-252, VARIATION AE, ISSUE F.
4. MOLDED PLASTIC BODY DIMENSIONS DO NOT INCLUDE MOLD FLASH, PROTRUSION, OR GATE BURRS.
5. DWG NO. REF: HQ2SD07-TDPAK-065 REV A.

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