

## 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

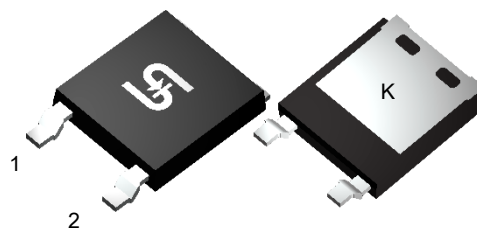
### APPLICATIONS

- High frequency switching
- DC/DC
- Snubber

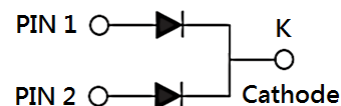
### MECHANICAL DATA

- 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	



ThinDPAK



ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ 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	$t = 8.3\text{ms}$	130		A
	$t = 1.0\text{ms}$	270		
Junction temperature	$T_J$	-55 to +175		°C
Storage temperature	$T_{STG}$	-55 to +175		°C

<b>THERMAL PERFORMANCE</b>			
<b>PARAMETER</b>	<b>SYMBOL</b>	<b>TYP</b>	<b>UNIT</b>
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

<b>ELECTRICAL SPECIFICATIONS</b> ( $T_A = 25^\circ\text{C}$ unless otherwise noted)					
<b>PARAMETER</b>	<b>CONDITIONS</b>	<b>SYMBOL</b>	<b>TYP</b>	<b>MAX</b>	<b>UNIT</b>
Forward voltage per diode <sup>(1)</sup>	$I_F = 2.5\text{A}, T_J = 25^\circ\text{C}$	$V_F$	0.81	-	V
	$I_F = 2.5\text{A}, T_J = 125^\circ\text{C}$		0.66	-	V
	$I_F = 5.0\text{A}, T_J = 25^\circ\text{C}$		0.88	0.95	V
	$I_F = 5.0\text{A}, T_J = 125^\circ\text{C}$		0.74	-	V
Reverse current @ rated $V_R$ per diode <sup>(2)</sup>	$T_J = 25^\circ\text{C}$	$I_R$	-	2	$\mu\text{A}$
	$T_J = 125^\circ\text{C}$		2	-	$\mu\text{A}$
Junction capacitance per diode	1MHz, $V_R = 4.0\text{V}$	$C_J$	74	-	pF
Reverse recovery time	$I_F = 0.5\text{A}, I_R = 1.0\text{A}, I_{rr} = 0.25\text{A}$	$t_{rr}$	-	25	ns
	$I_F = 1.0\text{A}, di/dt = 50\text{A}/\mu\text{s}, V_R = 30\text{V}$		24	-	
Reverse recovery current	$I_F = 5.0\text{A}, di/dt = 200\text{A}/\mu\text{s}, V_R = 100\text{V}$	$I_{RM}$	2.9	-	A
Reverse recovery charge		$Q_{rr}$	41	-	nC
Reverse recovery time		$t_{rr}$	20	-	ns

**Notes:**

1. Pulse test with  $PW = 0.3\text{ms}$
2. Pulse test with  $PW = 30\text{ms}$

<b>ORDERING INFORMATION</b>		
<b>ORDERING CODE<sup>(1)</sup></b>	<b>PACKAGE</b>	<b>PACKING</b>
PUAD10xCH	ThinDPAK	4,500 / Tape & Reel

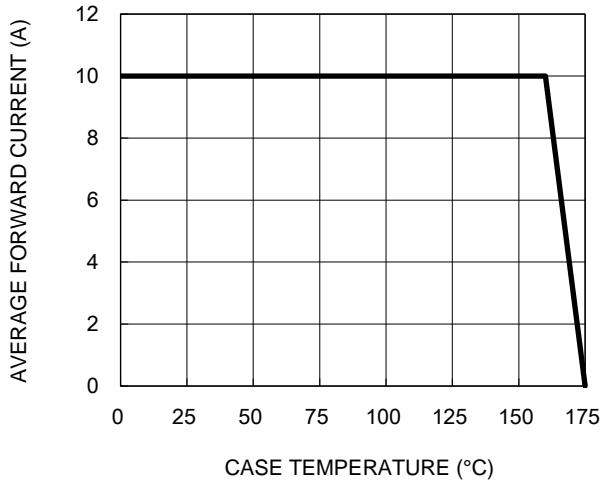
**Notes:**

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

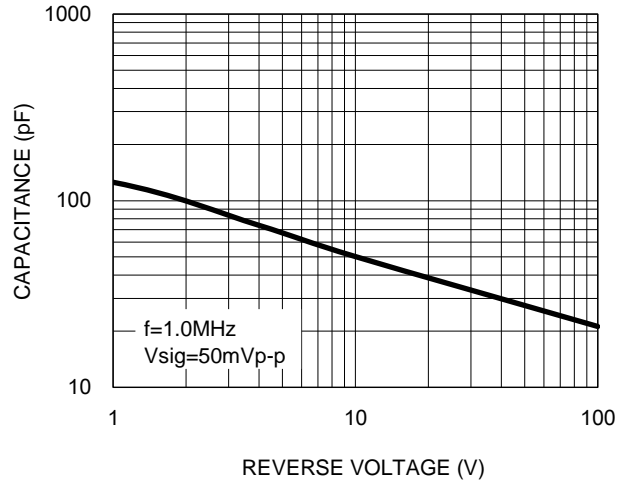
**CHARACTERISTICS CURVES**

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

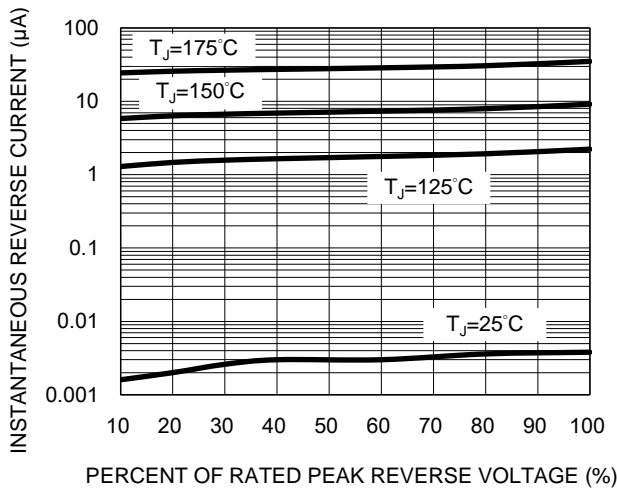
**Fig.1 Forward Current Derating Curve**



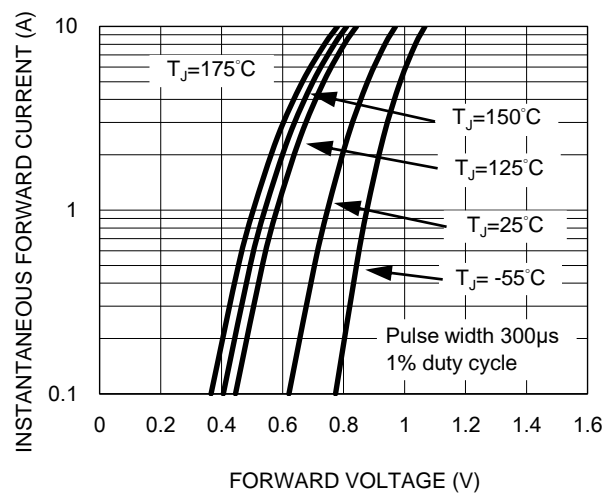
**Fig.2 Typical Junction Capacitance**



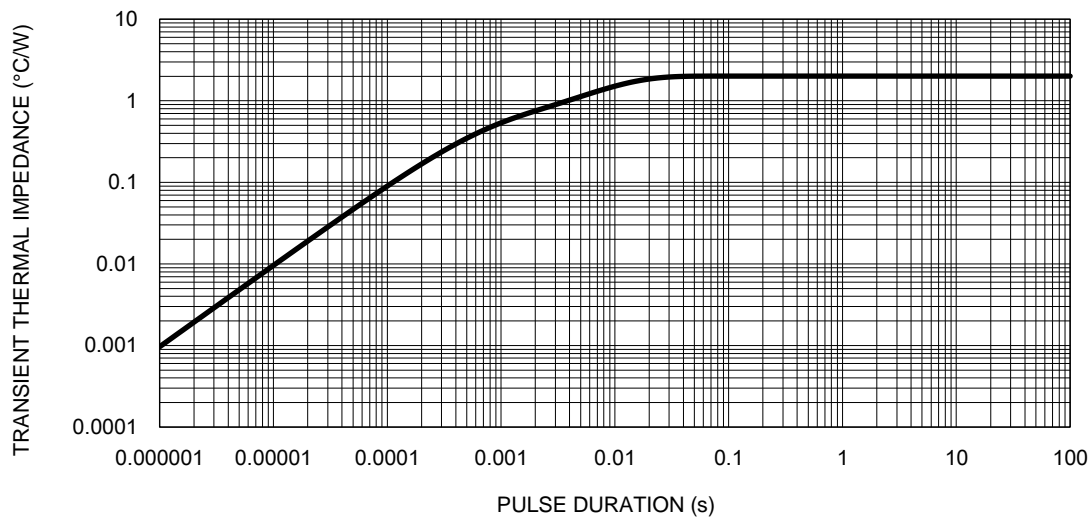
**Fig.3 Typical Reverse Characteristics**



**Fig.4 Typical Forward Characteristics**

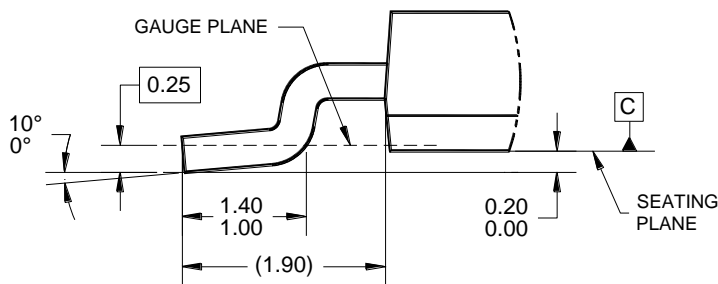
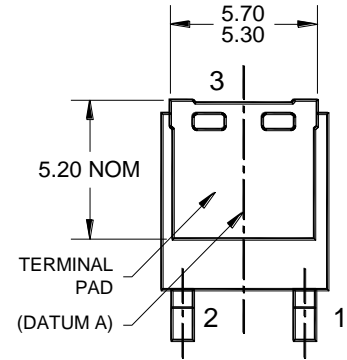
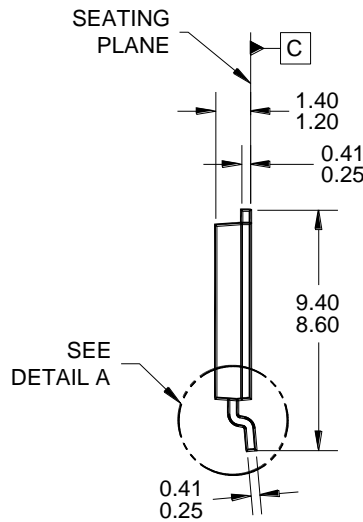
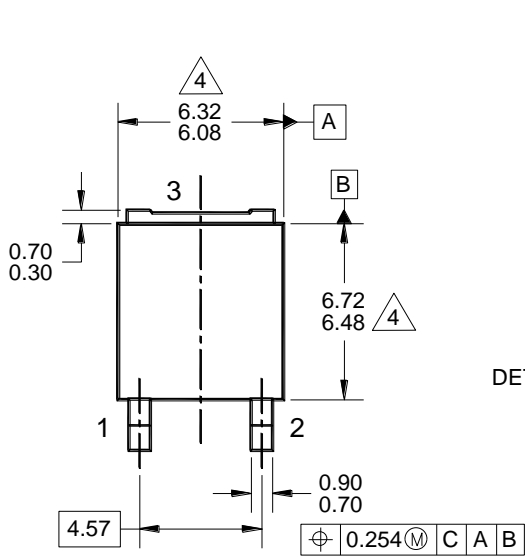


**Fig.5 Typical Transient Thermal Impedance**

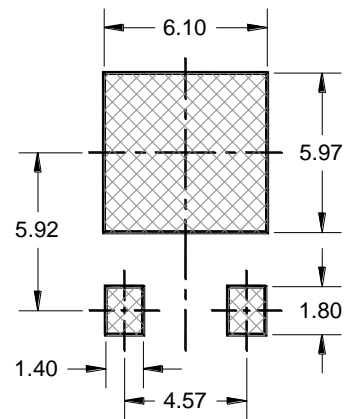


**PACKAGE OUTLINE DIMENSIONS**

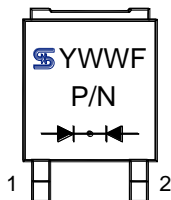
**ThinDPAK**



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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