

6A, 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

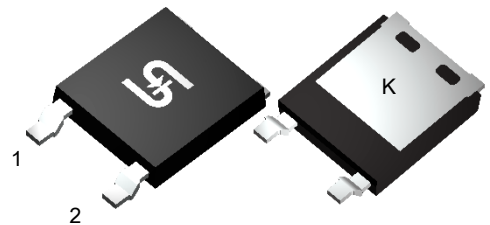
APPLICATIONS

- High frequency switching
- DC/DC
- Snubber

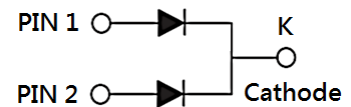
MECHANICAL DATA

- 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: 0.192g (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
I_F	6	A
V_{RRM}	100 - 200	V
I_{FSM}	85	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	PUAD6BCH	PUAD6DCH	UNIT
Marking code on the device		UAD6BC	UAD6DC	
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	6		A
Surge peak forward current single half sine-wave superimposed on rated load per diode	$t = 8.3\text{ms}$	85		A
	$t = 1.0\text{ms}$	180		
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	$R_{\theta JL}$	6.3	°C/W
Junction-to-ambient thermal resistance	$R_{\theta JA}$	16.9	°C/W
Junction-to-case thermal resistance	$R_{\theta JC}$	3.0	°C/W

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

ELECTRICAL SPECIFICATIONS ($T_A = 25^\circ\text{C}$ unless otherwise noted)					
PARAMETER	CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage per diode ⁽¹⁾	$I_F = 1.5\text{A}, T_J = 25^\circ\text{C}$	V_F	0.81	-	V
	$I_F = 1.5\text{A}, T_J = 125^\circ\text{C}$		0.66	-	V
	$I_F = 3.0\text{A}, T_J = 25^\circ\text{C}$		0.88	0.95	V
	$I_F = 3.0\text{A}, T_J = 125^\circ\text{C}$		0.73	-	V
Reverse current @ rated V_R per diode ⁽²⁾	$T_J = 25^\circ\text{C}$	I_R	-	2	μA
	$T_J = 125^\circ\text{C}$		1	-	μA
Junction capacitance per diode	1MHz, $V_R = 4.0\text{V}$	C_J	46	-	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
	$I_F = 1.0\text{A}, di/dt = 50\text{A}/\mu\text{s}, V_R = 30\text{V}$		25	-	
Reverse recovery current	$I_F = 3.0\text{A}, di/dt = 200\text{A}/\mu\text{s}, V_R = 100\text{V}$	I_{RM}	3.4	-	A
Reverse recovery charge		Q_{rr}	40	-	nC
Reverse recovery time		t_{rr}	20	-	ns

Notes:

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

ORDERING INFORMATION		
ORDERING CODE⁽¹⁾	PACKAGE	PACKING
PUAD6xCH	ThinDPAK	4,500 / Tape & Reel

Notes:

1. "x" defines voltage from 100V(PUAD6BCH) to 200V(PUAD6DCH)

CHARACTERISTICS CURVES

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

Fig.1 Forward Current Derating Curve

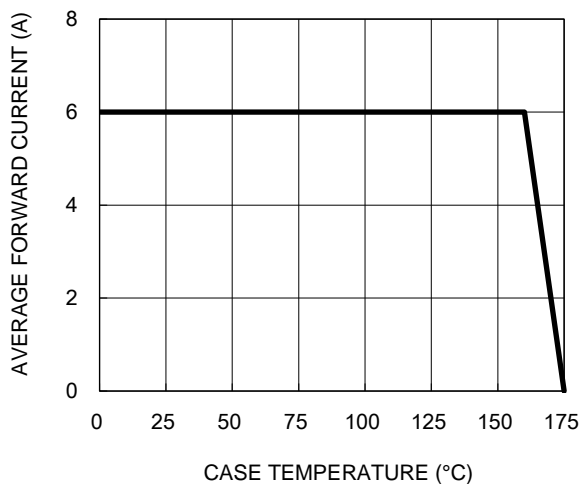


Fig.2 Typical Junction Capacitance

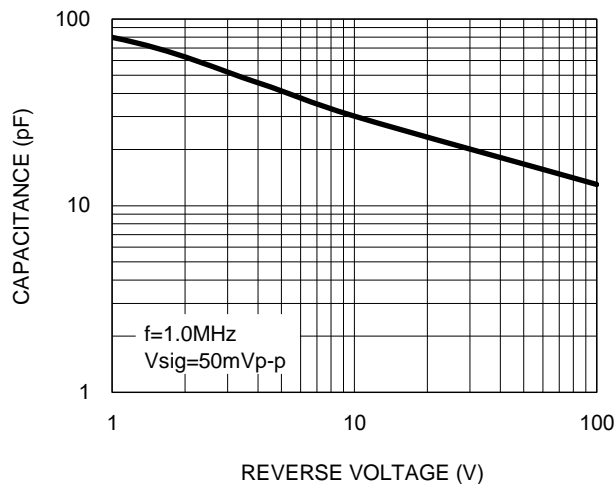


Fig.3 Typical Reverse Characteristics

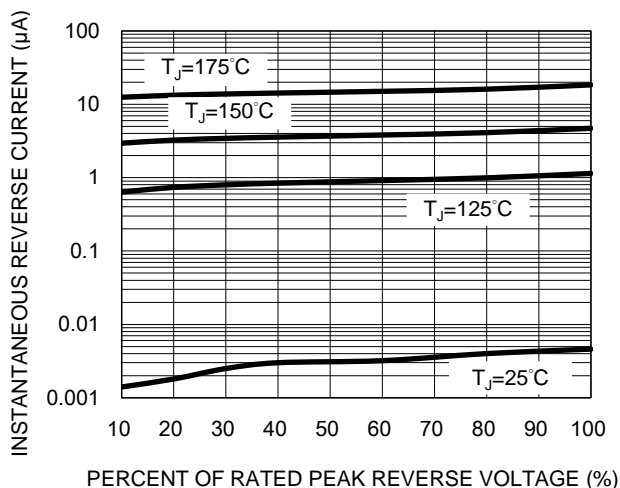


Fig.4 Typical Forward Characteristics

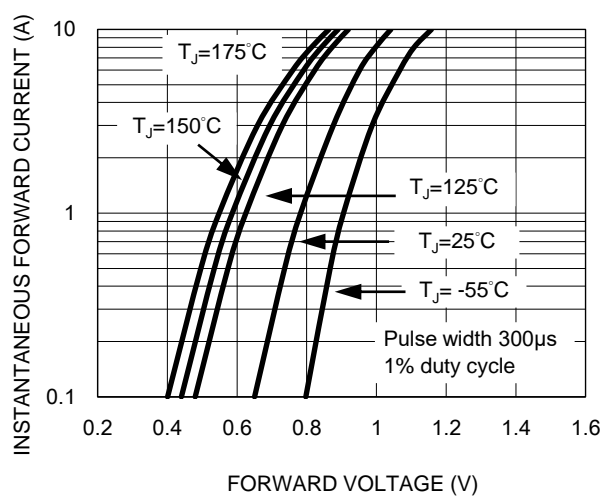
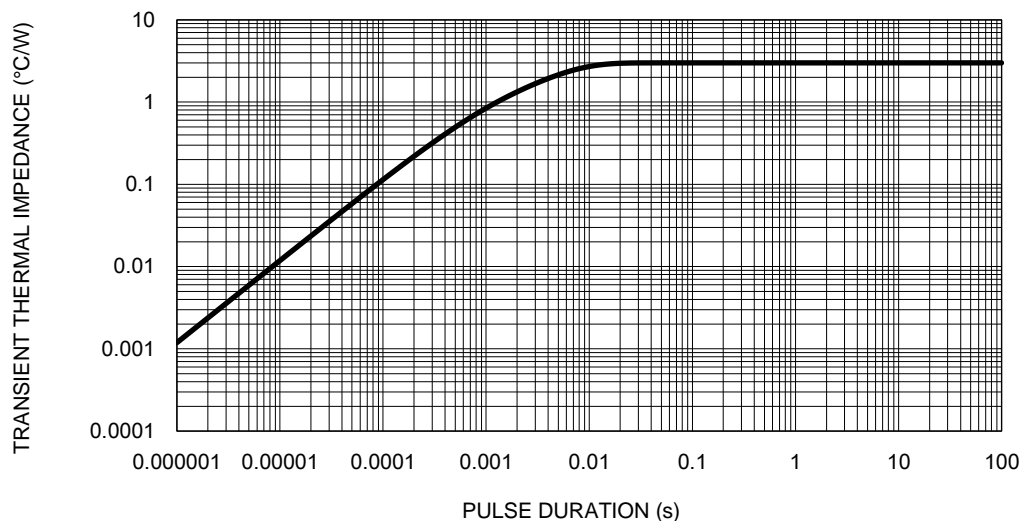
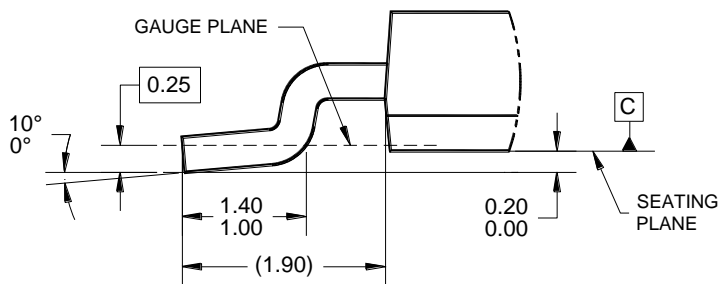
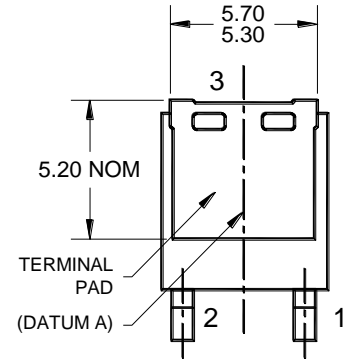
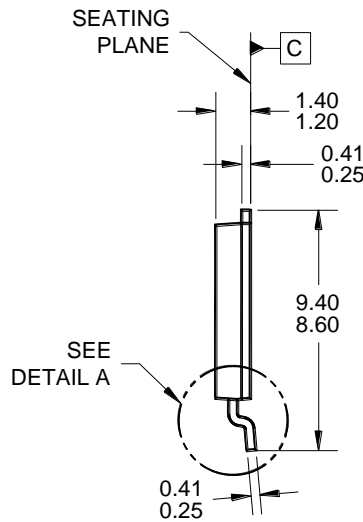
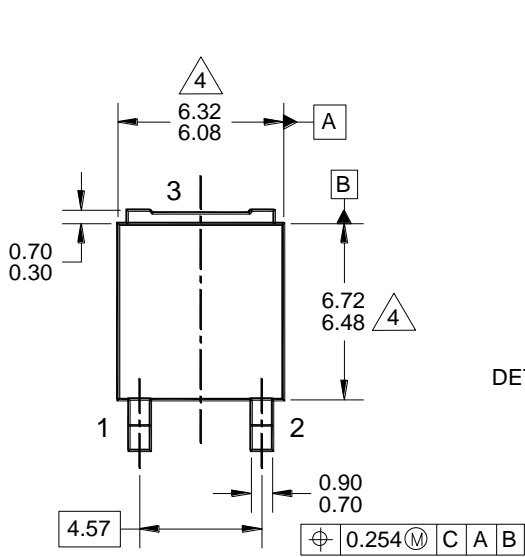


Fig.5 Typical Transient Thermal Impedance

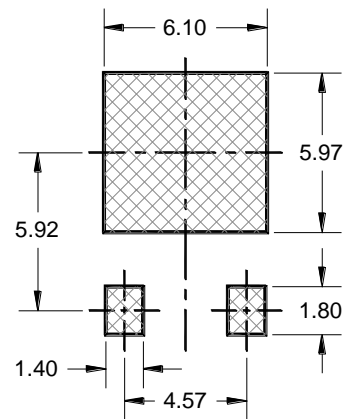


PACKAGE OUTLINE DIMENSIONS

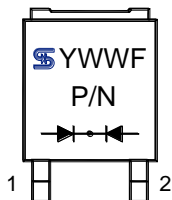
ThinDPAK



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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