

## 15A, 600V Super 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

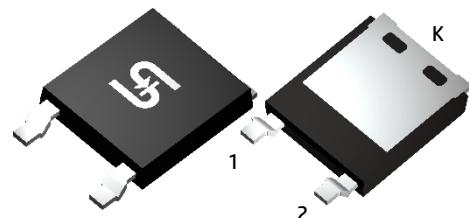
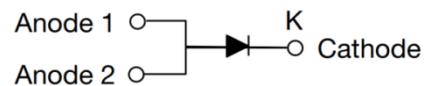
### APPLICATIONS

- 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: Indicated by cathode band
- Weight: 0.196g (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
$I_F$	15	A
$V_{RRM}$	600	V
$I_{FSM}$	240	A
$T_{J\ MAX}$	175	°C
Package	ThinDPAK	
Configuration	Single die	


**ThinDPAK**


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

PARAMETER	SYMBOL	VALUE	UNIT
Repetitive peak reverse voltage	$V_{RRM}$	600	V
Reverse voltage, total rms value	$V_{R(\text{RMS})}$	420	V
Forward current	$I_F$	15	A
Surge peak forward current single half sine-wave superimposed on rated load	$t = 8.3\text{ms}$	240	A
	$t = 1.0\text{ms}$	460	
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	$R_{\Theta JL}$	2	°C/W
Junction-to-ambient thermal resistance	$R_{\Theta JA}$	11	°C/W
Junction-to-case thermal resistance	$R_{\Theta JC}$	1	°C/W

**Thermal Performance Note:** Units mounted on heatsink 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 <sup>(1)</sup>	$I_F = 7.5\text{A}, T_J = 25^\circ\text{C}$	$V_F$	1.21	-	V
	$I_F = 15\text{A}, T_J = 25^\circ\text{C}$		1.37	1.5	V
	$I_F = 7.5\text{A}, T_J = 125^\circ\text{C}$		0.94	-	V
	$I_F = 15\text{A}, T_J = 125^\circ\text{C}$		1.12	-	V
Reverse current @ rated $V_R$ <sup>(2)</sup>	$T_J = 25^\circ\text{C}$	$I_R$	-	5	$\mu\text{A}$
	$T_J = 125^\circ\text{C}$		9.2	-	$\mu\text{A}$
Junction capacitance	1MHz, $V_R = 4.0\text{V}$	$C_J$	103	-	pF
Reverse recovery time	$I_F = 0.5\text{A}, I_R = 1.0\text{A}, I_{rr} = 0.25\text{A}$	$t_{rr}$	-	35	ns
	$I_F = 1.0\text{A}, dI/dt = 50\text{A}/\mu\text{s}, V_R = 30\text{V}$		36	-	
Reverse recovery current	$I_F = 15\text{A}, dI/dt = 200\text{A}/\mu\text{s}, V_R = 400\text{V}$	$I_{RM}$	4.3	-	A
Reverse recovery charge		$Q_{rr}$	248	-	nC
Reverse recovery time		$t_{rr}$	81	-	ns

**Notes:**

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

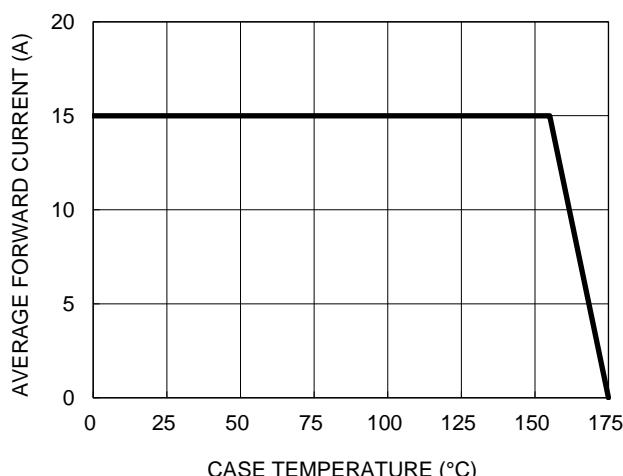
**ORDERING INFORMATION**

ORDERING CODE	PACKAGE	PACKING
PSAD15JH	ThinDPAK	4,500 / Tape & Reel

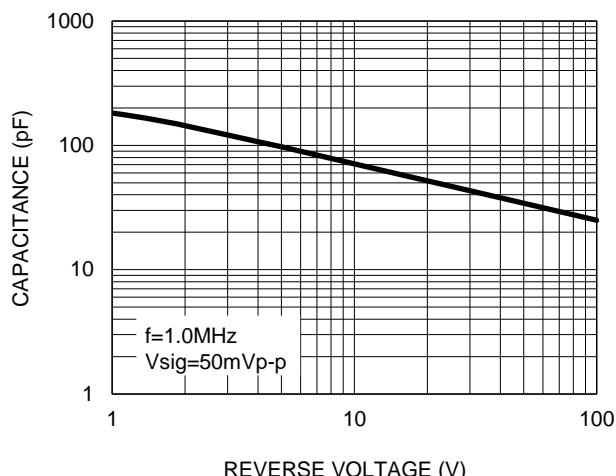
## CHARACTERISTICS CURVES

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

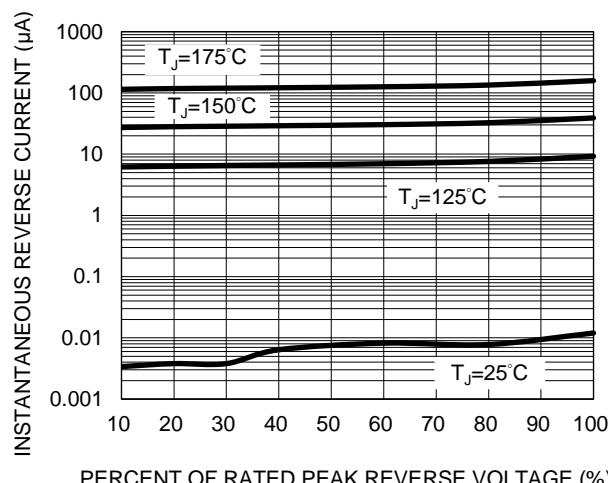
**Fig.1 Forward Current Derating Curve**



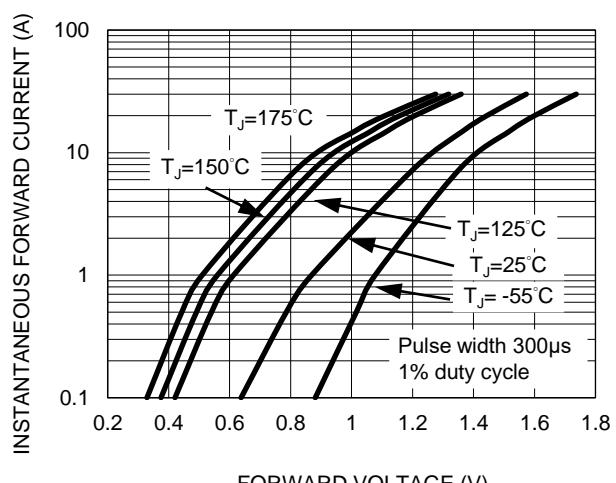
**Fig.2 Typical Junction Capacitance**



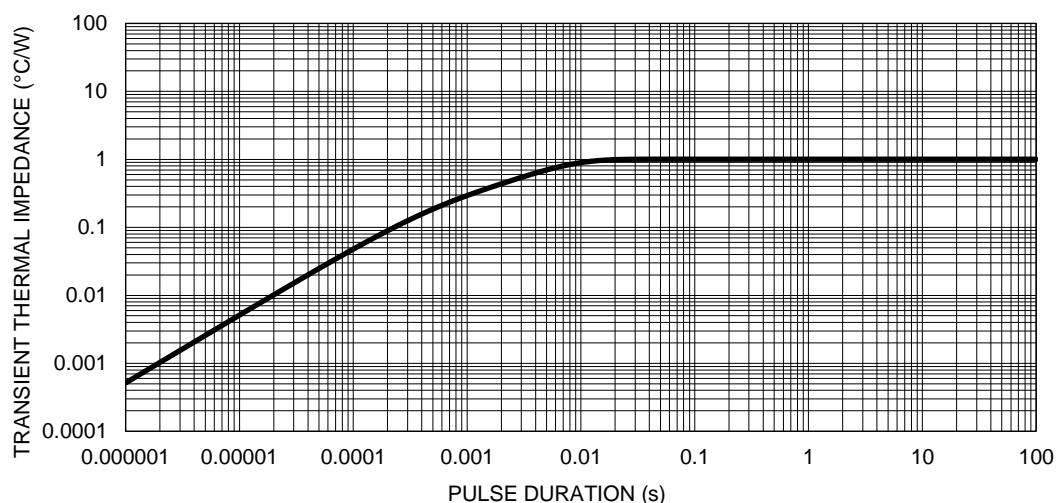
**Fig.3 Typical Reverse Characteristics**

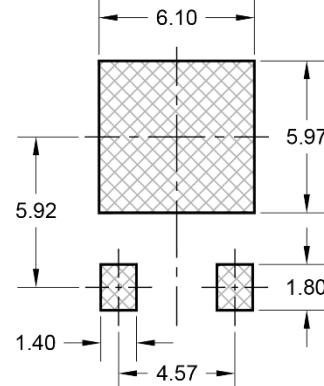
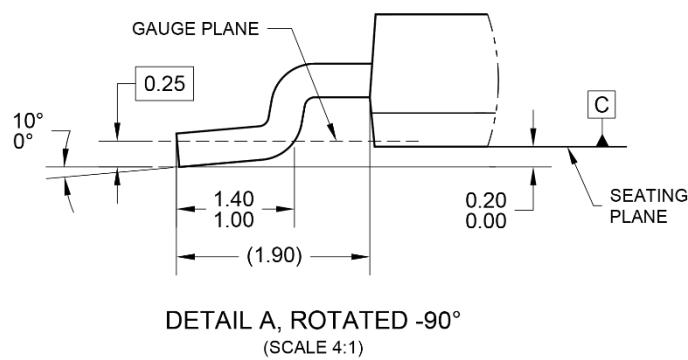
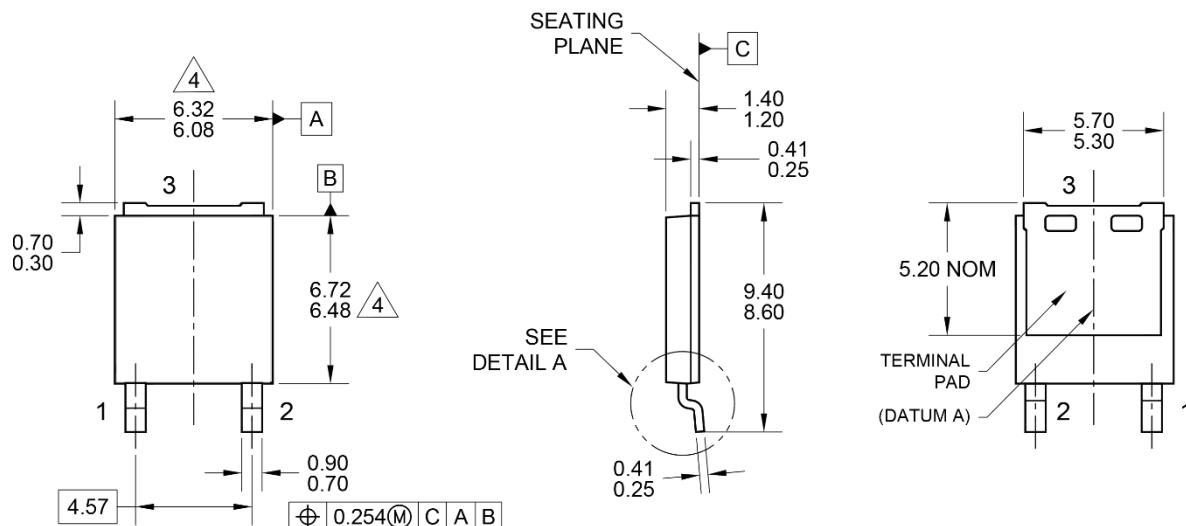
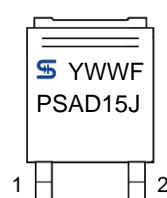


**Fig.4 Typical Forward Characteristics**



**Fig.5 Typical Transient Thermal Impedance**



**PACKAGE OUTLINE DIMENSIONS**
**ThinDPAK**

**SUGGESTED PAD  
LAYOUT**

**MARKING DIAGRAM**

YWW = DATE CODE  
F = FACTORY 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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