

## 15A, 150V Trench Schottky Surface Mount Rectifier

### FEATURES

- AEC-Q101 qualified
- Excellent high temperature stability
- Low forward voltage
- Lower power loss/ high efficiency
- High forward surge capability
- Ideal for automated placement
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free

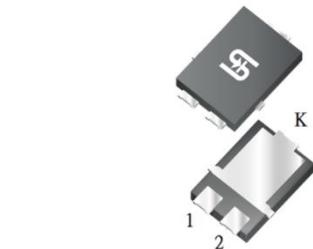
KEY PARAMETERS		
PARAMETER	VALUE	UNIT
$I_F$	15	A
$V_{RRM}$	150	V
$I_{FSM}$	400	A
$T_{J MAX}$	150	°C
Package	TO-277A (SMPC4.6U)	
Configuration	Single die	

### APPLICATIONS

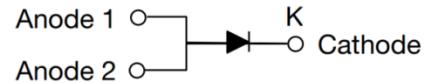
- Switching mode power supply (SMPS)
- Adapters
- DC to DC converter

### MECHANICAL DATA

- Case: TO-277A (SMPC4.6U)
- 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: 0.11g (approximately)



**TO-277A (SMPC4.6U)**



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

PARAMETER	SYMBOL	VALUE	UNIT
Repetitive peak reverse voltage	$V_{RRM}$	150	V
Reverse voltage, total rms value	$V_{R(\text{RMS})}$	105	V
Forward current	$I_F$	15	A
Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load	$I_{FSM}$	400	A
Junction temperature	$T_J$	- 55 to +150	°C
Storage temperature	$T_{STG}$	- 55 to +150	°C

**THERMAL PERFORMANCE**

PARAMETER	SYMBOL	TYP	UNIT
Junction-to-lead thermal resistance <sup>(1)</sup>	$R_{\theta JL}$	0.9	°C/W
Junction-to-ambient thermal resistance <sup>(2)</sup>	$R_{\theta JA}$	51.5	°C/W
Junction-to-case thermal resistance <sup>(2)</sup>	$R_{\theta JC}$	8.3	°C/W

**Thermal Performance Notes:**

1. With ideal heat sink
2. Units mounted on PCB (16mm x 16mm Cu pad test board)

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

PARAMETER	CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage <sup>(1)</sup>	$I_F = 7.5\text{A}, T_J = 25^\circ\text{C}$	$V_F$	0.70	-	V
	$I_F = 15\text{A}, T_J = 25^\circ\text{C}$		0.76	0.82	V
	$I_F = 7.5\text{A}, T_J = 125^\circ\text{C}$		0.55	-	V
	$I_F = 15\text{A}, T_J = 125^\circ\text{C}$		0.62	0.67	V
Reverse current @ rated $V_R$ <sup>(2)</sup>	$T_J = 25^\circ\text{C}$	$I_R$	-	30	$\mu\text{A}$
	$T_J = 125^\circ\text{C}$		-	6	mA
Junction capacitance	1MHz, $V_R = 4.0\text{V}$	$C_J$	840	-	pF

**Notes:**

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

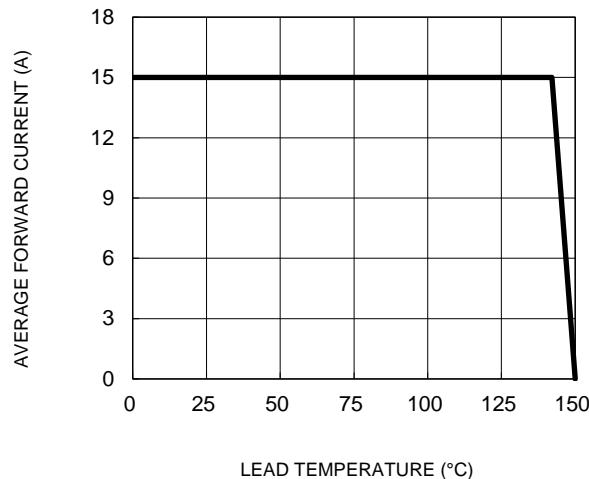
**ORDERING INFORMATION**

ORDERING CODE	PACKAGE	PACKING
TSUP15150H	TO-277A (SMPC4.6U)	6,000 / Tape & Reel

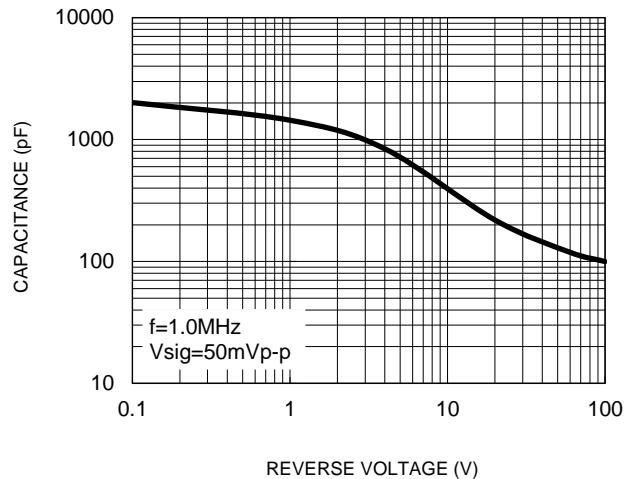
## CHARACTERISTICS CURVES

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

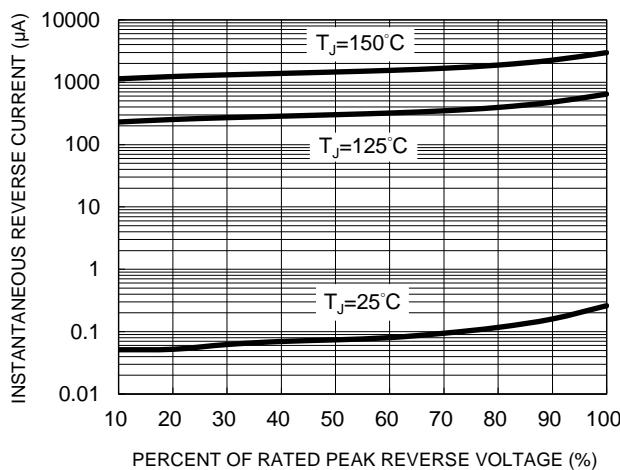
**Fig.1 Forward Current Derating Curve**



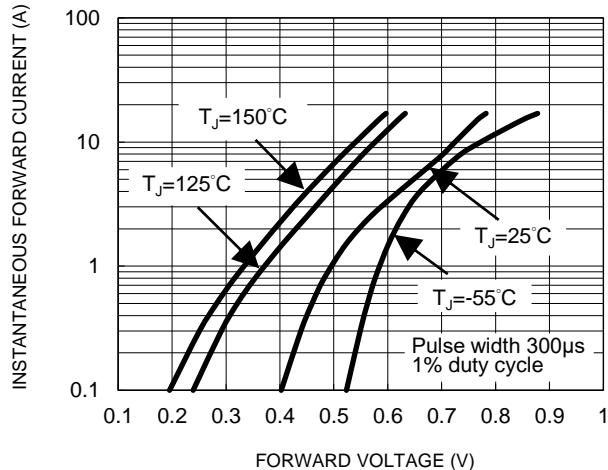
**Fig.2 Typical Junction Capacitance**



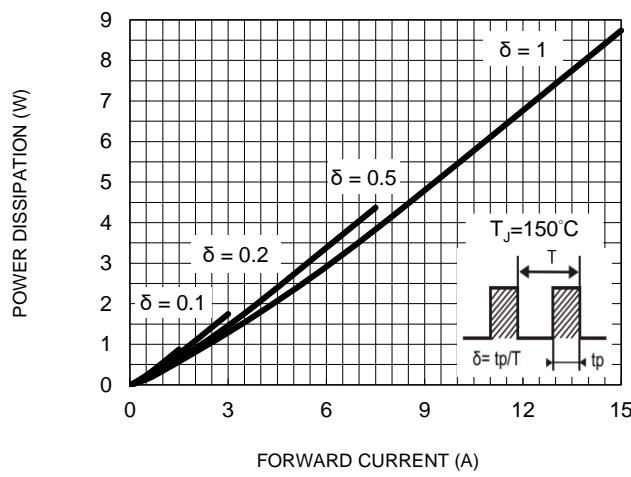
**Fig.3 Typical Reverse Characteristics**

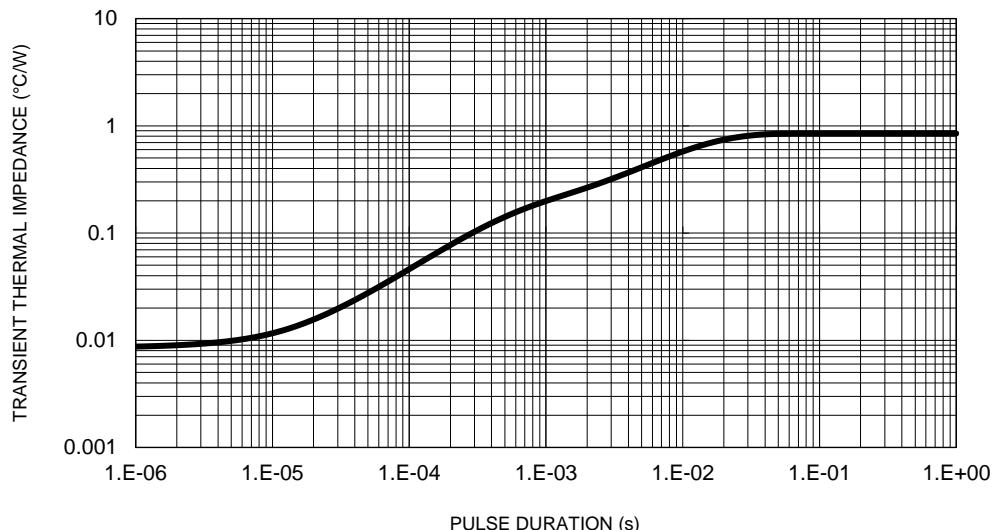


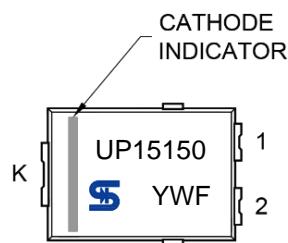
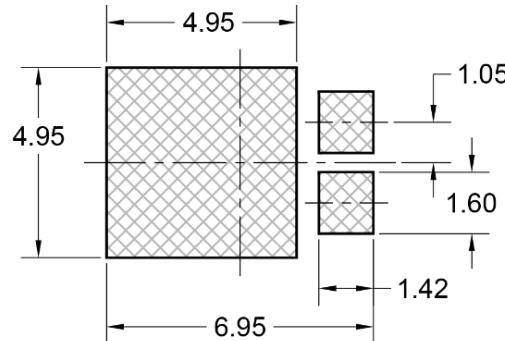
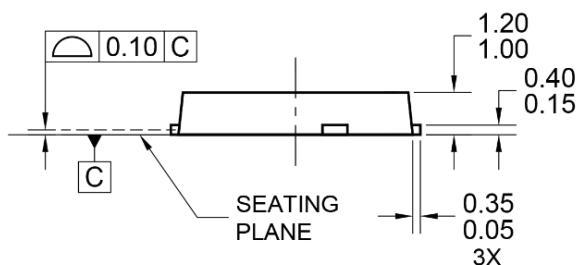
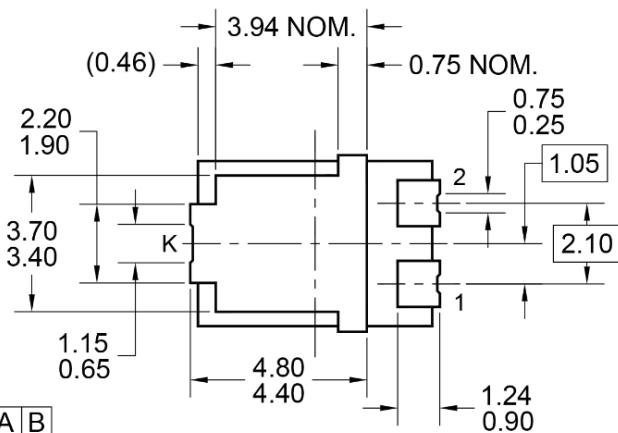
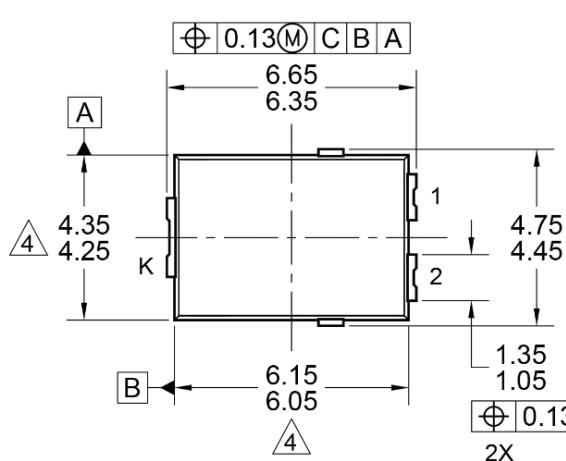
**Fig.4 Typical Forward Characteristics**



**Fig.5 Typical Forward Power Dissipation vs. Forward Current**



**CHARACTERISTICS CURVES** $(T_A = 25^\circ\text{C}$  unless otherwise noted)**Fig.6 Typical Transient Thermal Characteristics**

**PACKAGE OUTLINE DIMENSIONS**
**TO-277A(SMPC4.6U)**

**MARKING DIAGRAM**

YW = 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-277 ISSUE A.
4. MOLDED PLASTIC BODY DIMENSIONS DO NOT INCLUDE MOLD LASH, PROTRUSIONS OR GATE BURRS.
5. DWG NO. REF: HQ2SD07-SMPC4.6U-031 REV A.

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