10A, 120V Trench Schottky Surface Mount Rectifier

FEATURES

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

APPLICATIONS

- Switching mode power supply (SMPS)
- Adapters
- Lighting application
- On-board DC/DC converter
- Automotive

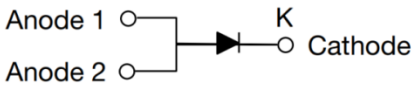
MECHANICAL DATA

- 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)

KEY PARAMETERS		
PARAMETER	**VALUE**	**UNIT**
I_F	10	A
V_{RRM}	120	V
I_{FSM}	320	A
$T_{J\ MAX}$	175	°C
Package	TO-277A (SMPC4.6U)	
Configuration	Single die	

Pb-Free RoHS COMPLIANT HALOGEN FREE

TO-277A (SMPC4.6U)



ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)			
PARAMETER	**SYMBOL**	**TSUP10H120H**	**UNIT**
Marking code on the device		10H120	
Repetitive peak reverse voltage	V_{RRM}	120	V
Reverse voltage, total rms value	$V_{R(RMS)}$	84	V
Forward current	I_F	10	A
Surge peak forward current, 8.3ms single half sine wave superimposed on rated load	I_{FSM}	320	A
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(1)	$R_{\Theta JL}$	2	°C/W
Junction-to-ambient thermal resistance(2)	$R_{\Theta JA}$	46	°C/W
Junction-to-case thermal resistance(2)	$R_{\Theta JC}$	8	°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°C unless otherwise noted)

PARAMETER	CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage(1)	I_F = 5A, T_J = 25°C	V_F	0.64	-	V
	I_F = 10A, T_J = 25°C		0.73	0.76	V
	I_F = 5A, T_J = 125°C		0.51	-	V
	I_F = 10A, T_J = 125°C		0.59	0.63	V
Reverse current @ rated V_R(2)	T_J = 25°C	I_R	-	50	μA
	T_J = 125°C		-	10	mA
Junction capacitance	1MHz, V_R = 4.0V	C_J	615	-	pF

Notes:

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

ORDERING INFORMATION

ORDERING CODE	PACKAGE	PACKING
TSUP10H120H	TO-277A (SMPC4.6U)	6,000 / Tape & Reel

CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.1 Forward Current Derating Curve

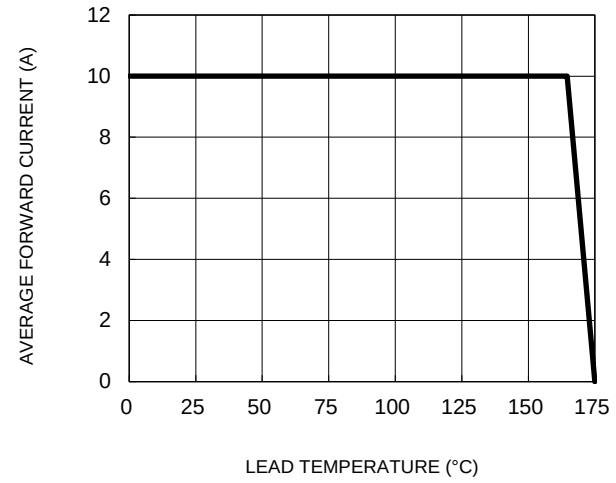


Fig.2 Typical Junction Capacitance

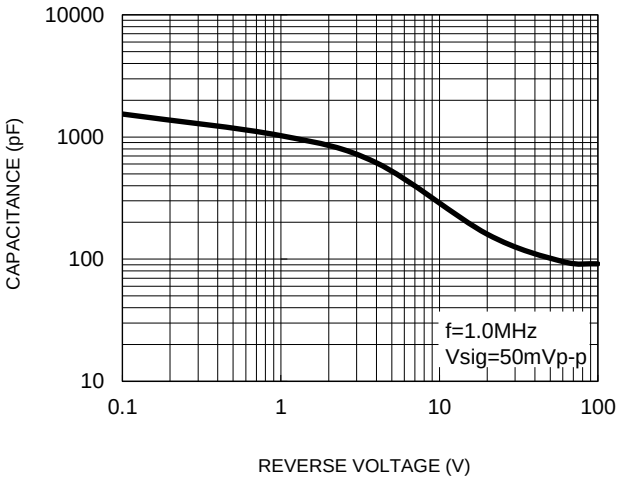


Fig.3 Typical Reverse Characteristics

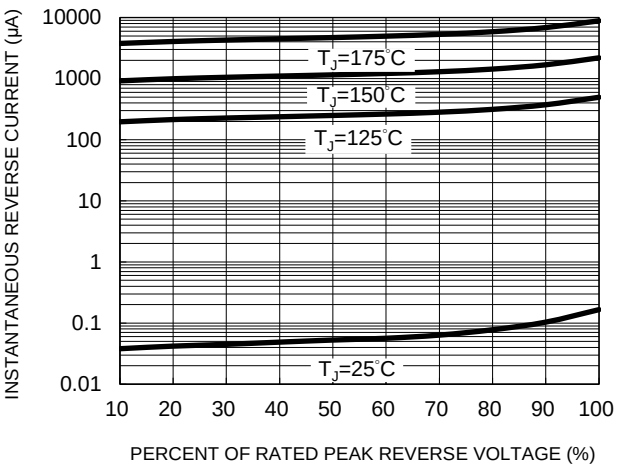


Fig.4 Typical Forward Characteristics

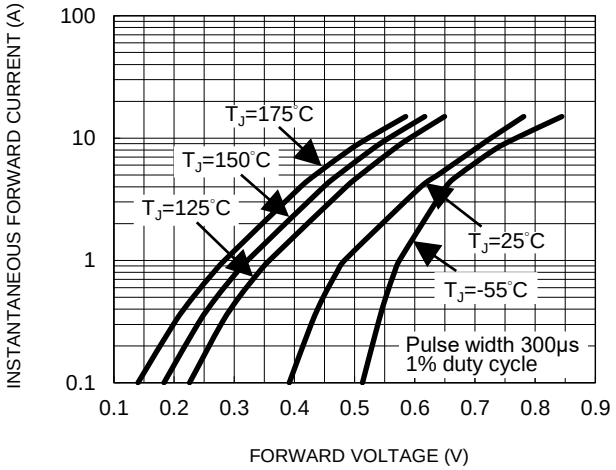
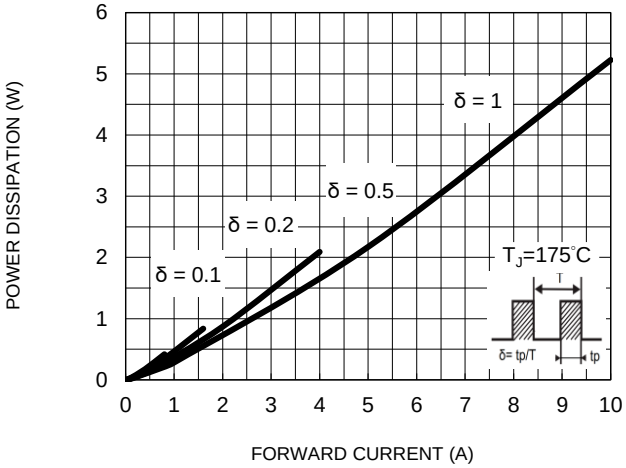


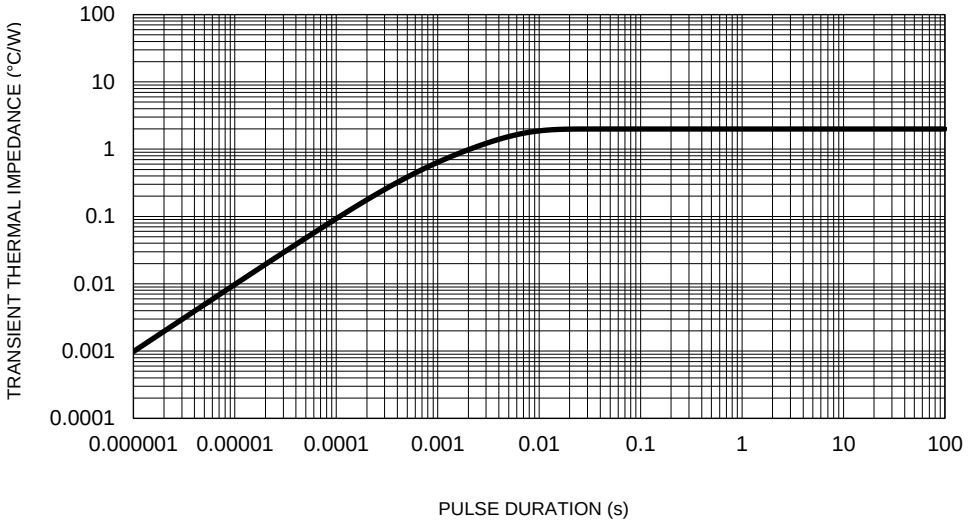
Fig.5 Typical Forward Power Dissipation vs. Forward Current



CHARACTERISTICS CURVES

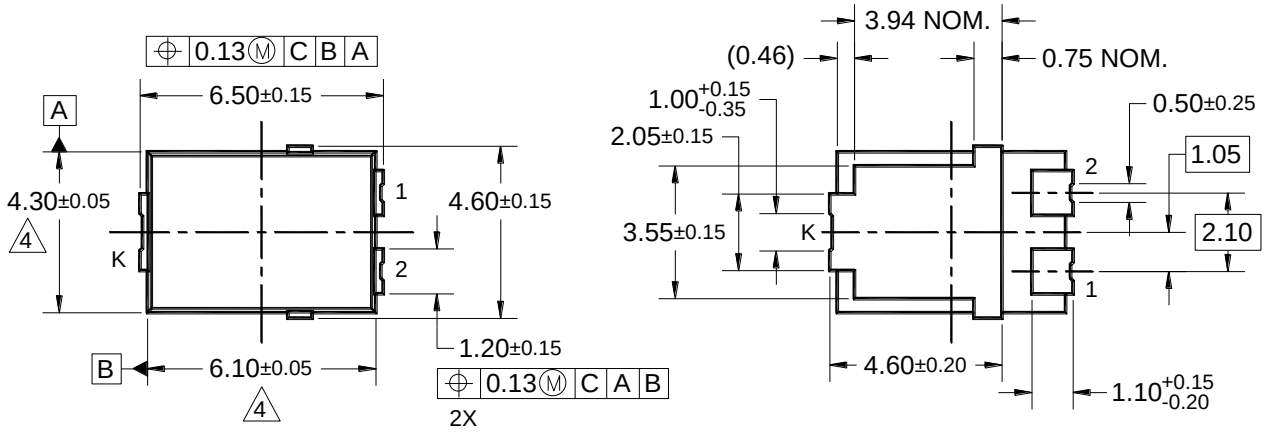
(T_A = 25°C unless otherwise noted)

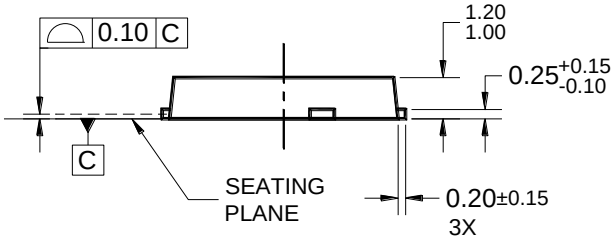
Fig.6 Typical Transient Thermal Characteristics

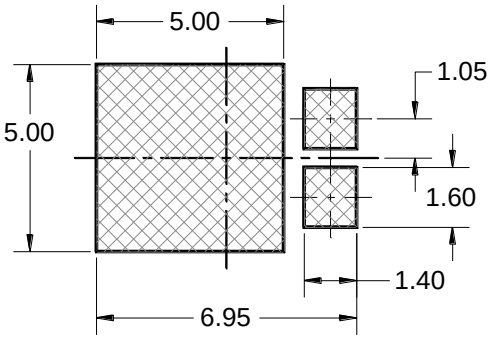


PACKAGE OUTLINE DIMENSIONS

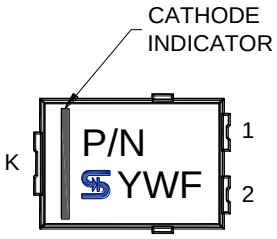
TO-277A (SMPC4.6U)







SUGGESTED PAD LAYOUT



MARKING DIAGRAM

P/N	=	MARKING CODE
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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