12A, 120V Trench Schottky Surface Mount Rectifier

FEATURES

- 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	12	A
V_{RRM}	120	V
I_{FSM}	360	A
$T_{J\ MAX}$	150	°C
Package	TO-277A (SMPC4.6U)	
Configuration	Single die	

APPLICATIONS

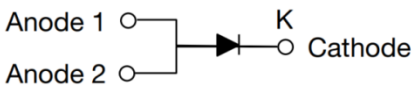
- Switching mode power supply (SMPS)
- Adapters
- DC to DC converter

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: 0.104g (approximately)



TO-277A (SMPC4.6U)



ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)			
PARAMETER	**SYMBOL**	**TSUP12122**	**UNIT**
Marking code on the device		UP12122	
Repetitive peak reverse voltage	V_{RRM}	120	V
Reverse voltage, total rms value	$V_{R(RMS)}$	84	V
Forward current	I_F	12	A
Surge peak forward current, 8.3ms single half sine wave superimposed on rated load	I_{FSM}	360	A
Junction temperature	T_J	- 55 to +150	°C
Storage temperature	T_{STG}	- 55 to +150	°C

Downloaded from Arrow.com.

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 = 6A, T_J = 25°C	V_F	0.68	-	V
	I_F = 12A, T_J = 25°C		0.78	0.81	V
	I_F = 6A, T_J = 125°C		0.54	-	V
	I_F = 12A, T_J = 125°C		0.62	0.65	V
Reverse current @ rated V_R(2)	T_J = 25°C	I_R	-	15	μA
	T_J = 125°C		-	10	mA
Junction capacitance	1MHz, V_R = 4.0V	C_J	744	-	pF

Notes:

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

ORDERING INFORMATION

ORDERING CODE	PACKAGE	PACKING
TSUP12122	TO-277A (SMPC4.6U)	6,000 / Tape & Reel

Downloaded from Arrow.com.

CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.1 Forward Current Derating Curve

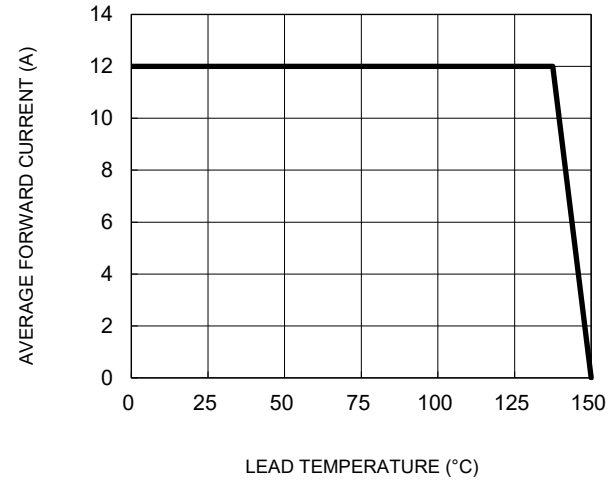


Fig.2 Typical Junction Capacitance

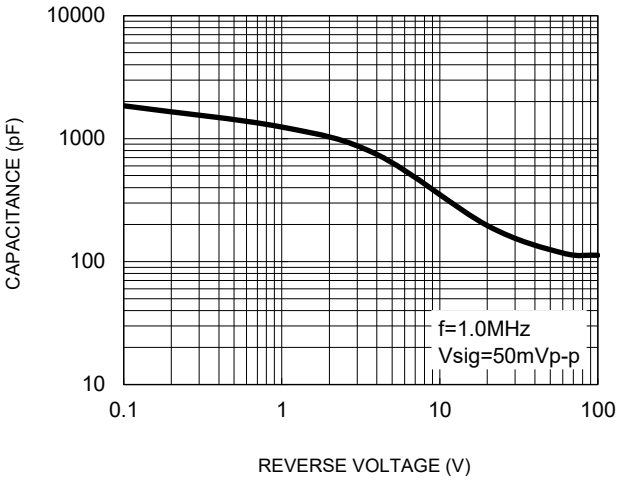


Fig.3 Typical Reverse Characteristics

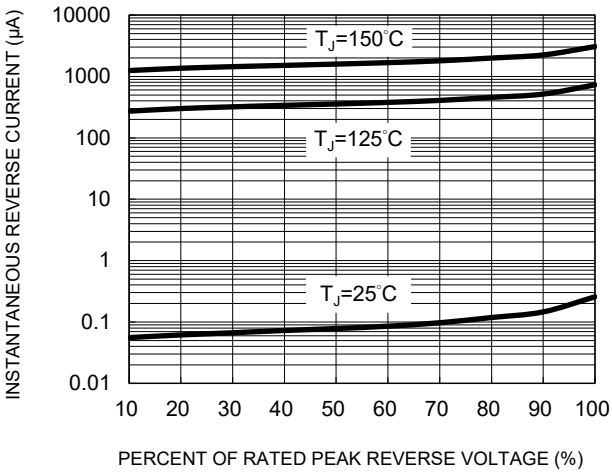


Fig.4 Typical Forward Characteristics

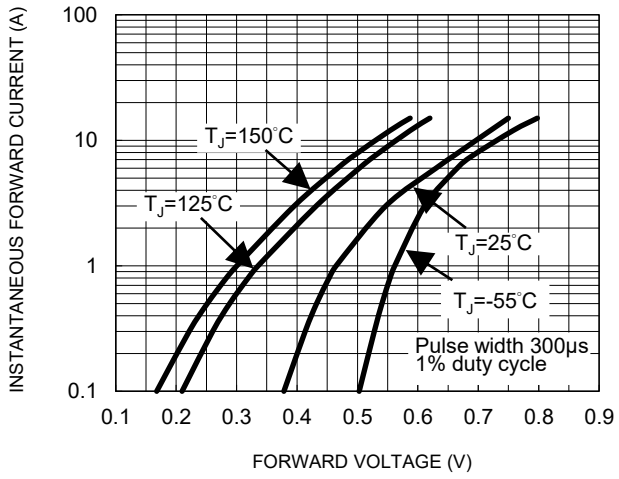
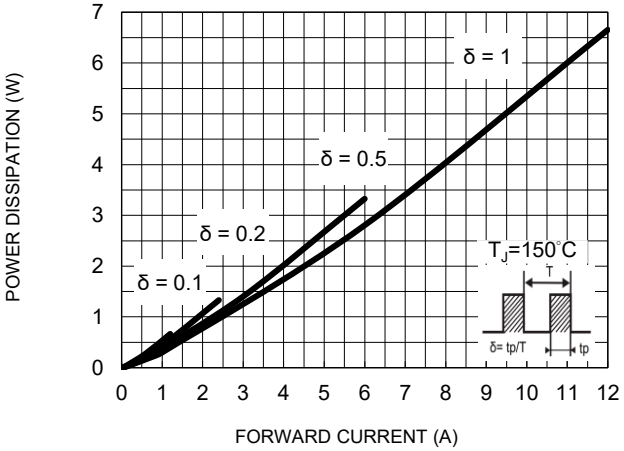


Fig.5 Typical Forward Power Dissipation vs. Forward Current

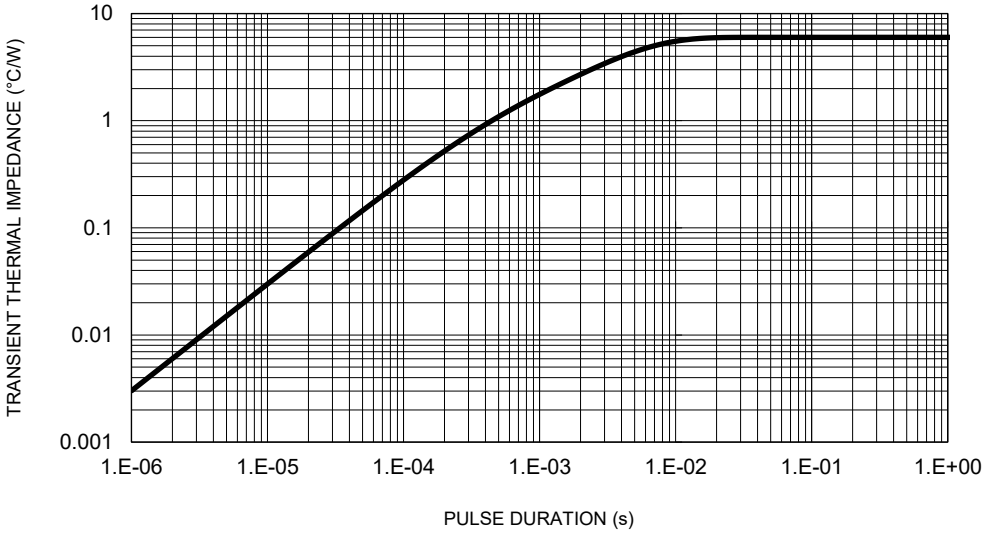


Downloaded from Arrow.com.

CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

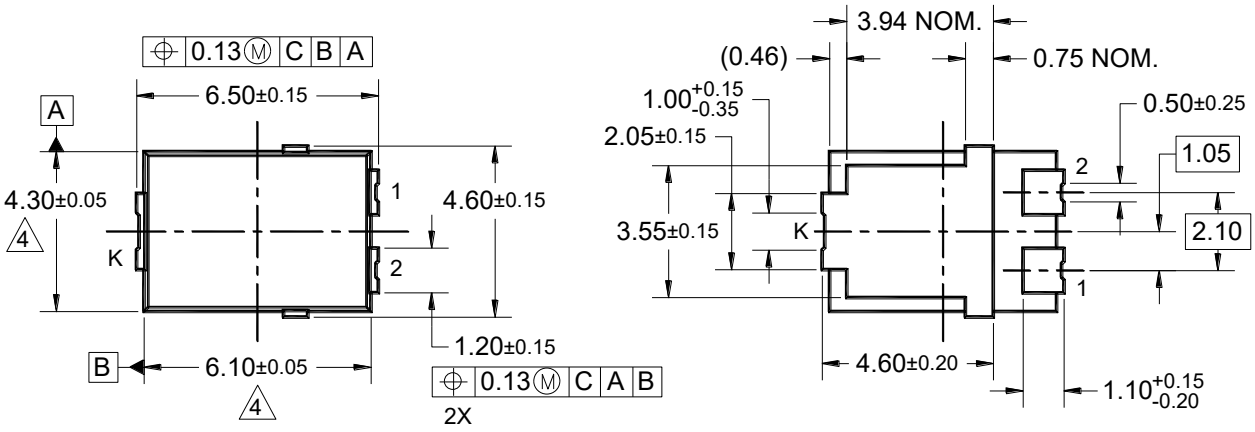
Fig.6 Typical Transient Thermal Characteristics

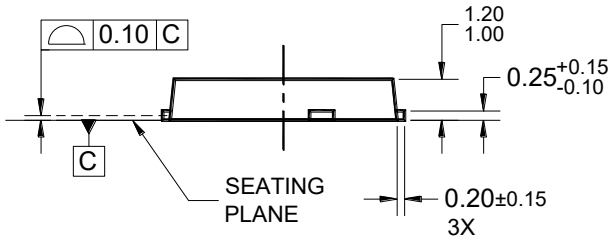


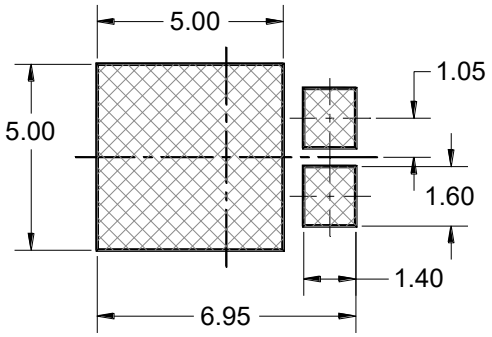
Downloaded from Arrow.com.

PACKAGE OUTLINE DIMENSIONS

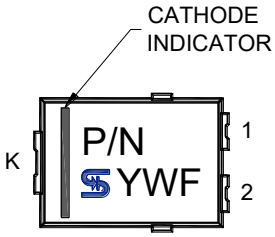
TO-277A(SMPC4.6U)







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.

Downloaded from Arrow.com.

Notice

Specifications of the products displayed herein are subject to change without notice. TSC or anyone on its behalf assumes no responsibility or liability for any errors or inaccuracies.

Purchasers are solely responsible for the choice, selection, and use of TSC products and TSC assumes no liability for application assistance or the design of Purchasers' products.

Information contained herein is intended to provide a product description only. No license, express or implied, to any intellectual property rights is granted by this document. Except as provided in TSC's terms and conditions of sale for such products, TSC assumes no liability whatsoever, and disclaims any express or implied warranty, relating to sale and/or use of TSC products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright, or other intellectual property right.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify TSC for any damages resulting from such improper use or sale.

Downloaded from Arrow.com.