5A, 100V 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

APPLICATIONS

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

MECHANICAL DATA

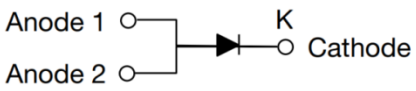
- Case: TO-277A (SMPC4.6U)
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 2 whisker test
- Polarity: Indicated by cathode band
- Weight: 0.104g (approximately)

KEY PARAMETERS		
PARAMETER	**VALUE**	**UNIT**
I_F	5	A
V_{RRM}	100	V
I_{FSM}	145	A
$T_{J\ MAX}$	150	°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**	**TSUP5102**	**UNIT**
Marking code on the device		UP5102	
Repetitive peak reverse voltage	V_{RRM}	100	V
Reverse voltage, total rms value	$V_{R(RMS)}$	70	V
Forward current	I_F	5	A
Surge peak forward current, 8.3ms single half sine wave superimposed on rated load	I_{FSM}	145	A
Junction temperature	T_J	- 55 to +150	°C
Storage temperature	T_{STG}	- 55 to +150	°C

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THERMAL PERFORMANCE

PARAMETER	SYMBOL	TYP	UNIT
Junction-to-lead thermal resistance(1)	$R_{\Theta JL}$	2	°C/W
Junction-to-ambient thermal resistance(2)	$R_{\Theta JA}$	56	°C/W
Junction-to-case thermal resistance(2)	$R_{\Theta JC}$	12.9	°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 = 2.5A, T_J = 25°C	V_F	0.59	-	V
	I_F = 5.0A, T_J = 25°C		0.67	0.70	V
	I_F = 2.5A, T_J = 125°C		0.49	-	V
	I_F = 5.0A, T_J = 125°C		0.58	0.61	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	343	-	pF

Notes:

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

ORDERING INFORMATION

ORDERING CODE	PACKAGE	PACKING
TSUP5102	TO-277A (SMPC4.6U)	6,000 / Tape & Reel

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CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.1 Forward Current Derating Curve

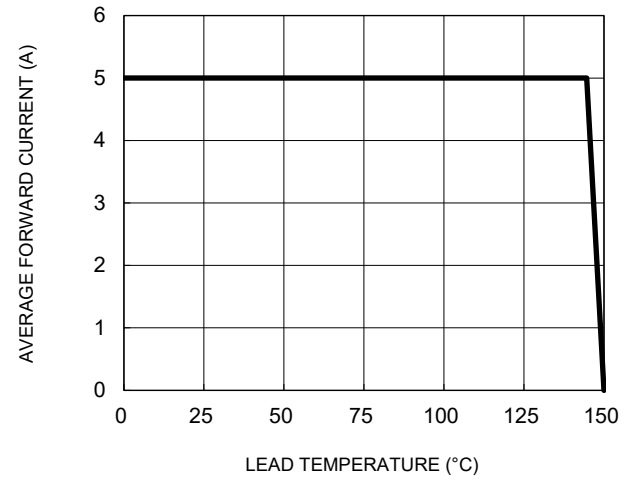


Fig.2 Typical Junction Capacitance

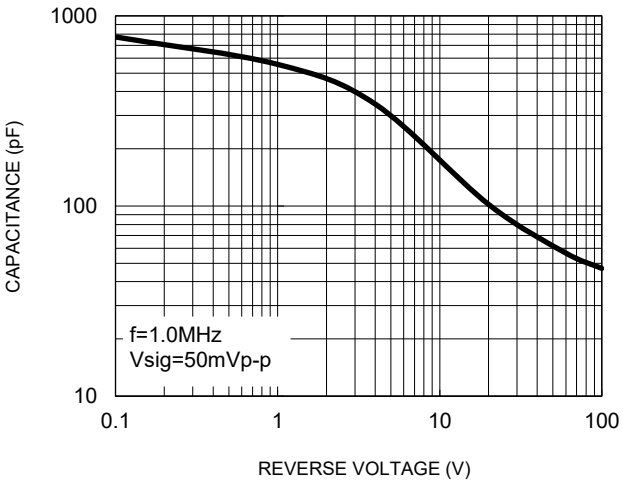


Fig.3 Typical Reverse Characteristics

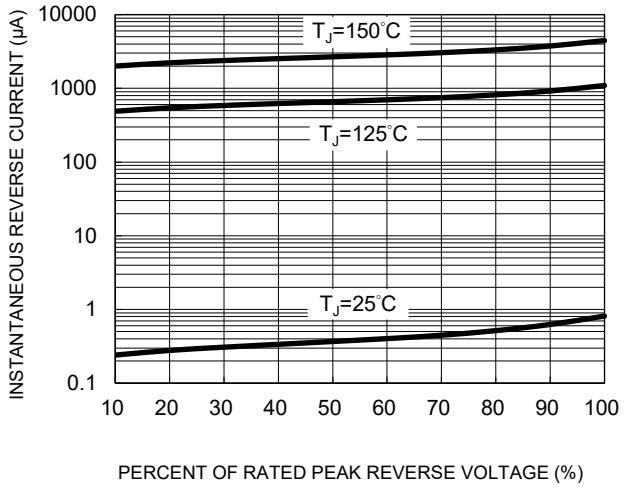


Fig.4 Typical Forward Characteristics

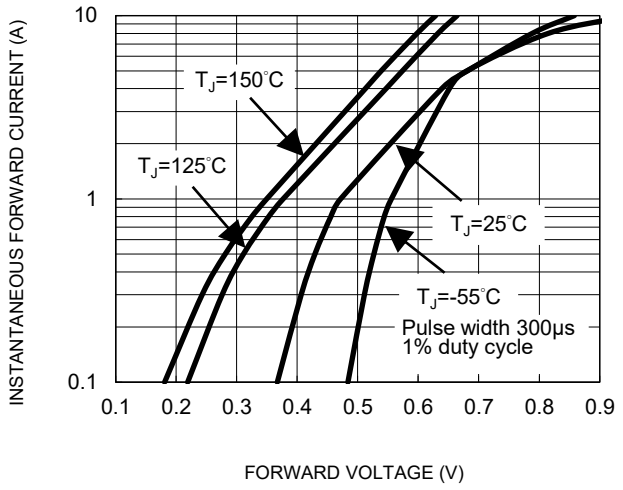
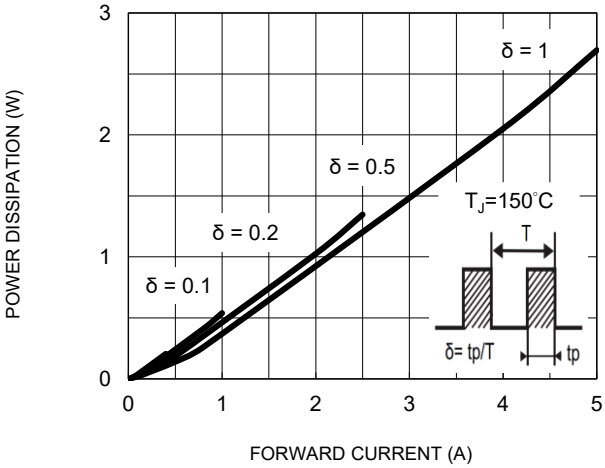


Fig.5 Typical Forward Power Dissipation vs. Forward Current

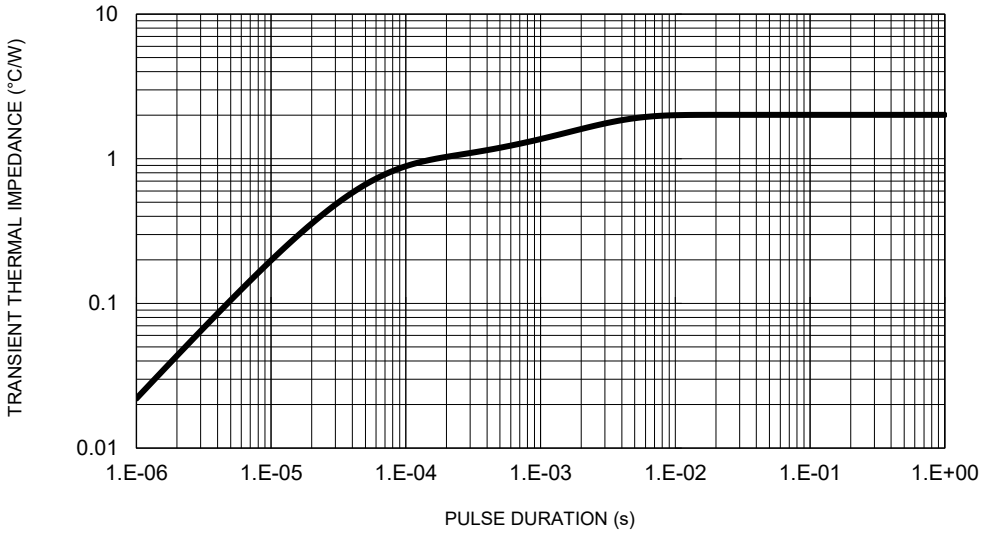


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CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

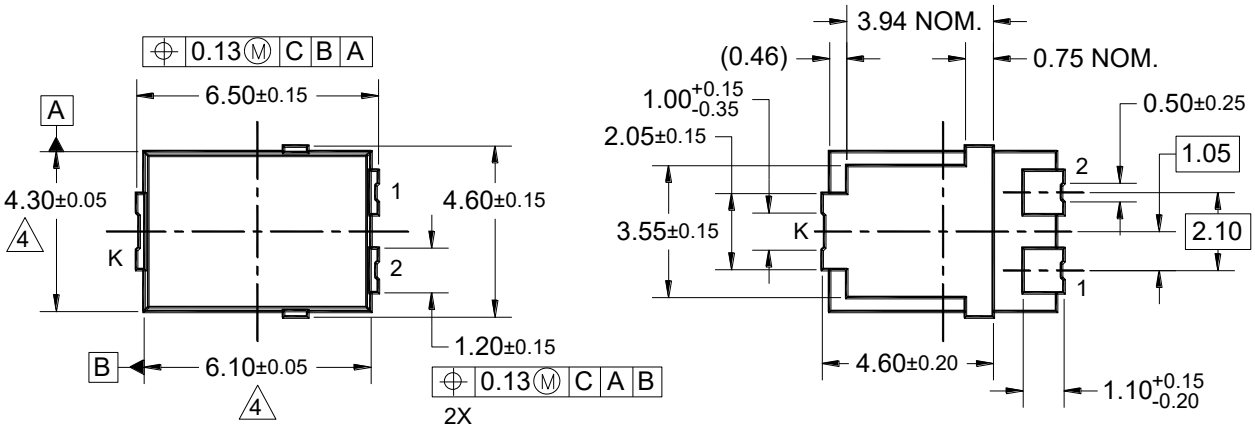
Fig.6 Typical Transient Thermal Characteristics

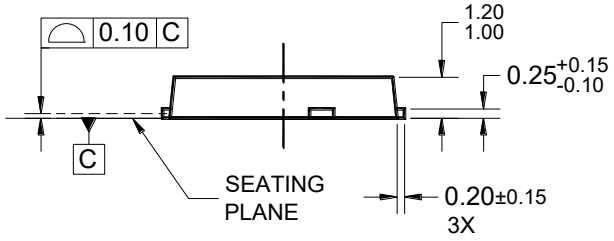


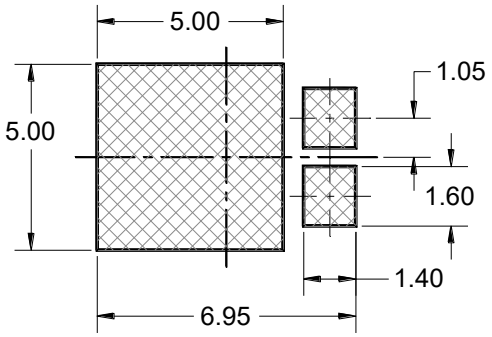
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PACKAGE OUTLINE DIMENSIONS

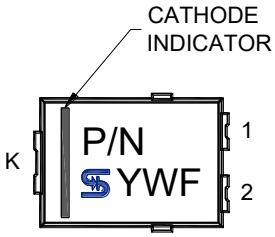
TO-277A(SMPC4.6U)







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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