

8A, 200V - 1000V Standard Surface Mount Rectifier

FEATURES

- Low power loss, high efficiency
- Ideal for automated placement
- Wettable flank
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

APPLICATIONS

- DC to DC converter
- Switching mode converters and inverters
- General purpose

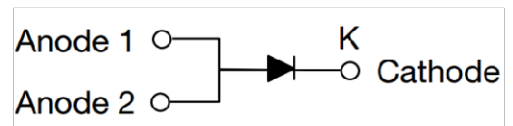
MECHANICAL DATA

- 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 1 whisker test
- Polarity: Indicated by cathode band
- Weight: 0.104g (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
I_F	8	A
V_{RRM}	200 - 1000	V
I_{FSM}	230	A
$T_{J\ MAX}$	150	°C
Package	TO-277A (SMPC4.6U)	
Configuration	Single die	



TO-277A (SMPC4.6U)



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)							
PARAMETER	SYMBOL	TUAS8D	TUAS8G	TUAS8J	TUAS8K	TUAS8M	UNIT
Marking code on the device		AS8D	AS8G	AS8J	AS8K	AS8M	
Repetitive peak reverse voltage	V_{RRM}	200	400	600	800	1000	V
Reverse voltage, total rms value	$V_{R(RMS)}$	140	280	420	560	700	V
Forward current	I_F	8					A
Surge peak forward current single half sine-wave superimposed on rated load	$t = 8.3\text{ms}$	230					A
	$t = 1.0\text{ms}$	580					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	$R_{\theta JL}$	4	°C/W
Junction-to-ambient thermal resistance	$R_{\theta JA}$	38	°C/W
Junction-to-case thermal resistance	$R_{\theta JC}$	8	°C/W

Thermal Performance Note: 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 ⁽¹⁾	TUAS8D TUAS8G TUAS8J	$I_F = 4\text{A}, T_J = 25^\circ\text{C}$	V_F	0.90	-	V
		$I_F = 8\text{A}, T_J = 25^\circ\text{C}$		0.96	1.10	V
		$I_F = 4\text{A}, T_J = 125^\circ\text{C}$		0.78	-	V
		$I_F = 8\text{A}, T_J = 125^\circ\text{C}$		0.87	1.01	V
	TUAS8K TUAS8M	$I_F = 4\text{A}, T_J = 25^\circ\text{C}$		0.90	-	V
		$I_F = 8\text{A}, T_J = 25^\circ\text{C}$		0.97	1.10	V
		$I_F = 4\text{A}, T_J = 125^\circ\text{C}$		0.78	-	V
		$I_F = 8\text{A}, T_J = 125^\circ\text{C}$		0.87	1.01	V
Reverse current @ rated V_R ⁽²⁾		$T_J = 25^\circ\text{C}$	I_R	-	5	μA
		$T_J = 125^\circ\text{C}$		-	60	μA
Junction capacitance	TUAS8D TUAS8G TUAS8J	1MHz, $V_R = 4.0\text{V}$	C_J	62	-	pF
	TUAS8K TUAS8M			54	-	pF

Notes:

1. Pulse test with $PW = 0.3\text{ms}$
2. Pulse test with $PW = 30\text{ms}$

ORDERING INFORMATION		
ORDERING CODE ⁽¹⁾	PACKAGE	PACKING
TUAS8x	TO-277A (SMPC4.6U)	6,000 / Tape & Reel

Notes:

1. "x" defines voltage from 200V(TUAS8D) to 1000V(TUAS8M)

CHARACTERISTICS CURVES

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

Fig.1 Forward Current Derating Curve

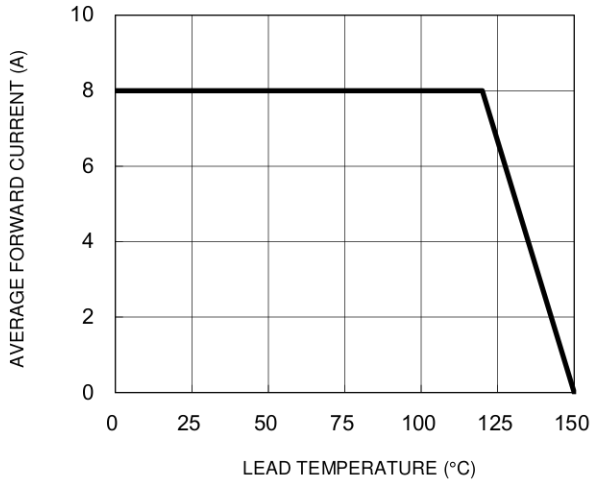


Fig.2 Typical Junction Capacitance

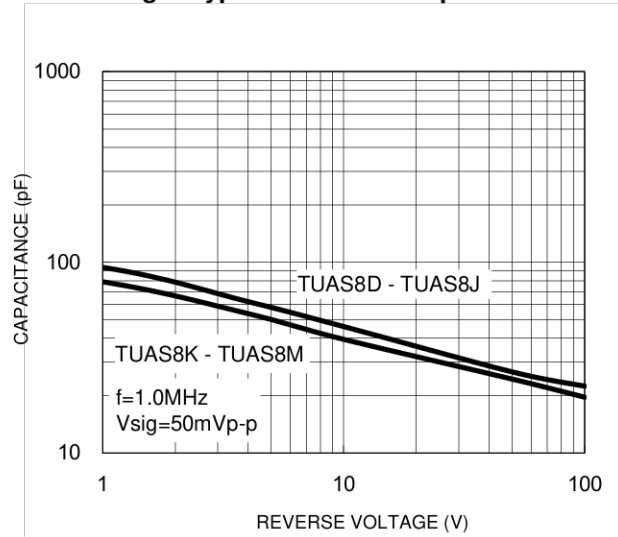


Fig.3 Typical Reverse Characteristics

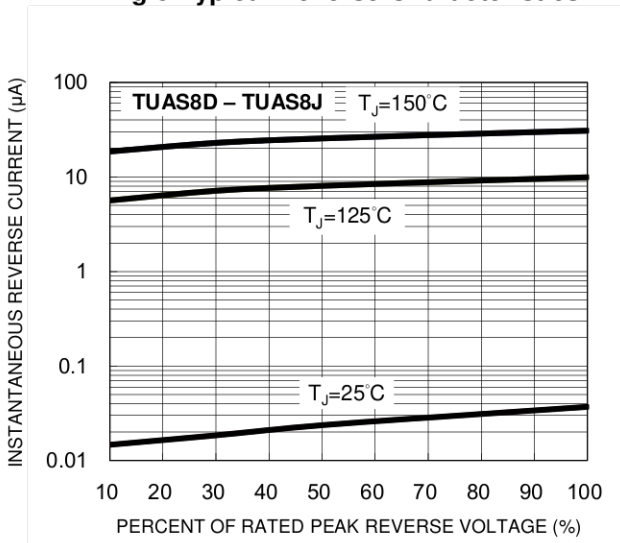


Fig.4 Typical Forward Characteristics

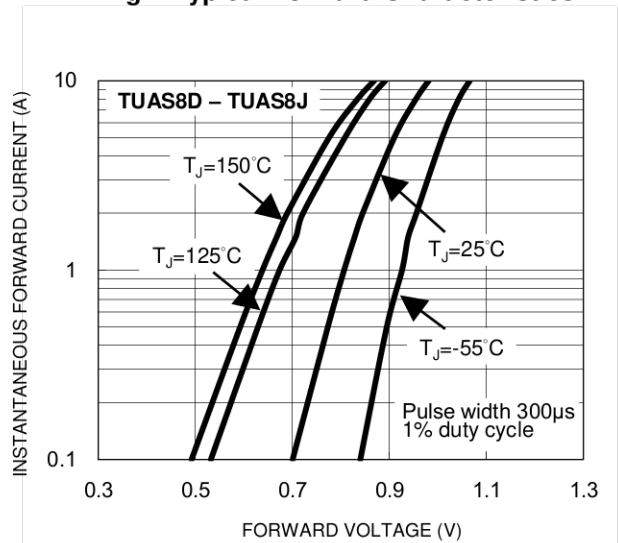


Fig.5 Typical Reverse Characteristics

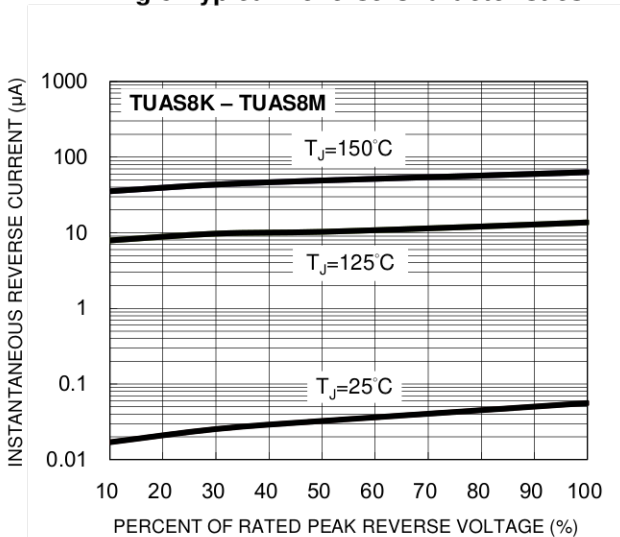
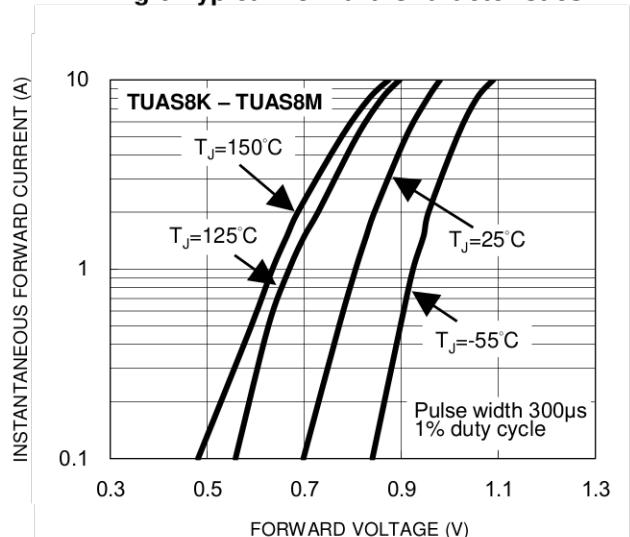


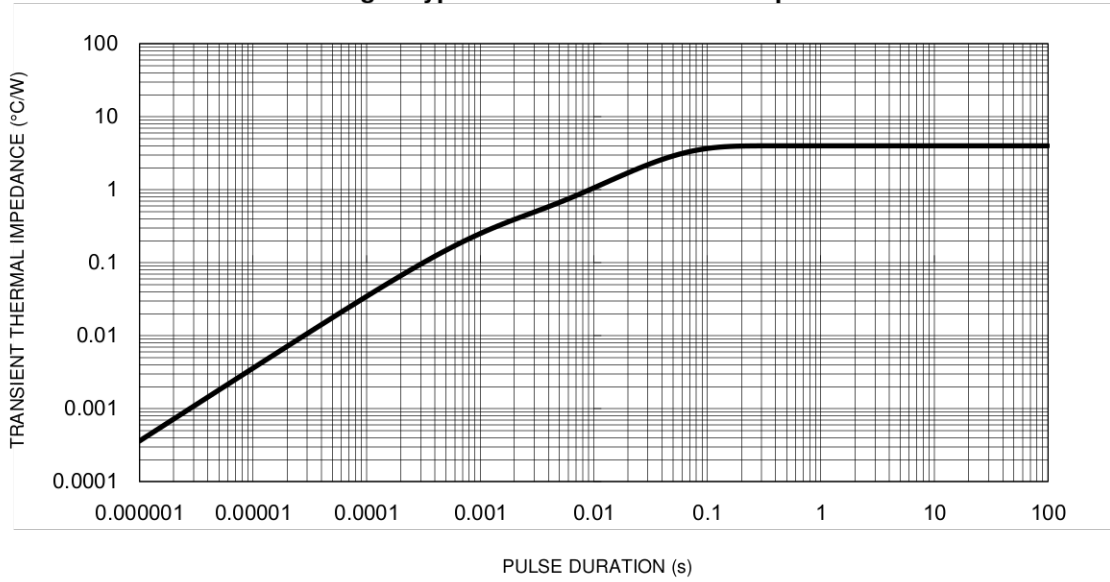
Fig.6 Typical Forward Characteristics



CHARACTERISTICS CURVES

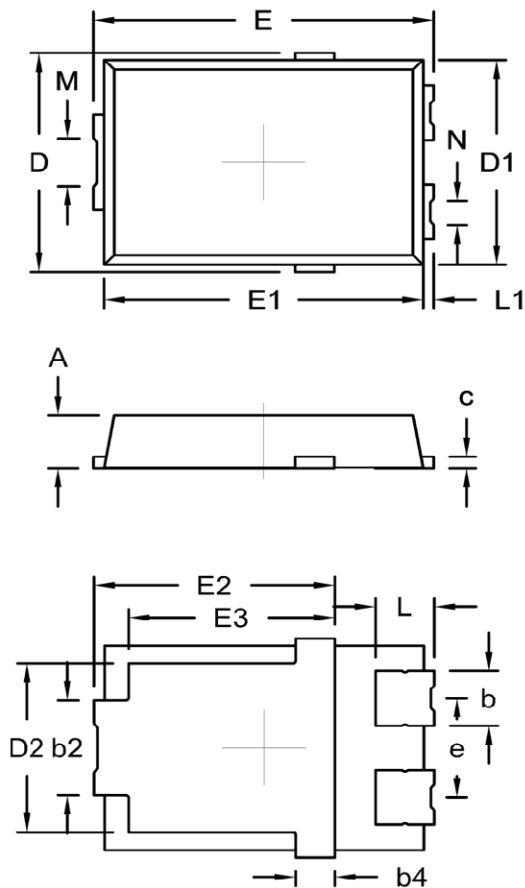
(T_A = 25°C unless otherwise noted)

Fig.7 Typical Transient Thermal Impedance



PACKAGE OUTLINE DIMENSIONS

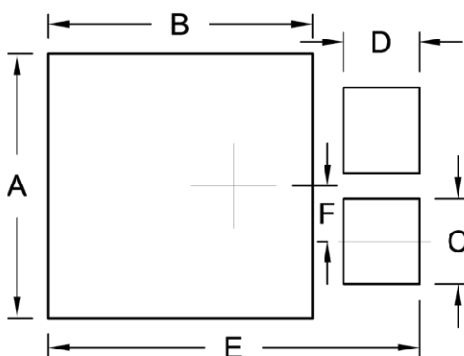
TO-277A (SMPC4.6U)



DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	1.00	1.20	0.039	0.047
b	1.05	1.35	0.041	0.053
b2	1.90	2.20	0.075	0.087
b4	0.75 (NOM.)		0.030 (NOM.)	
c	0.15	0.40	0.006	0.016
D	4.45	4.75	0.175	0.187
D1	4.25	4.35	0.167	0.171
D2	3.40	3.70	0.134	0.146
E	6.35	6.65	0.250	0.262
E1	6.05	6.15	0.238	0.242
E2	4.40	4.80	0.173	0.189
E3	3.94 (NOM.)		0.155 (NOM.)	
e	2.08 (NOM.)		0.082 (NOM.)	
L	0.94	1.24	0.037	0.049
L1	0.05	0.35	0.002	0.014
M	0.65	1.15	0.026	0.045
N	0.25	0.75	0.010	0.030

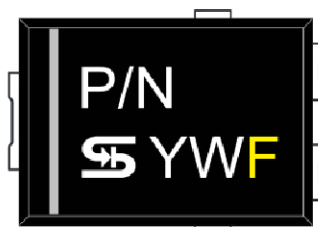
Package body size D1 and E1 do not include mold flash
Mold flash shall not exceed 0.1mm per side

SUGGESTED PAD LAYOUT



Symbol	Unit (mm)	Unit (inch)
A	4.95	0.195
B	4.95	0.195
C	1.60	0.063
D	1.42	0.056
E	6.95	0.274
F	1.04	0.041

MARKING DIAGRAM



P/N = Marking Code
YW = Date Code
F = Factory Code

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