1A, 600V Ultra Fast Surface Mount Rectifier

FEATURES

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

APPLICATIONS

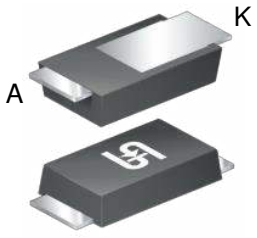
- DC to DC converter
- Switching mode converters and inverters
- Lighting application
- Snubber
- Freewheeling application

MECHANICAL DATA

- Case: SOD-123HE
- 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: 0.017g (approximately)

KEY PARAMETERS		
PARAMETER	**VALUE**	**UNIT**
I_F	1	A
V_{RRM}	600	V
I_{FSM}	20	A
$T_{J\ MAX}$	150	°C
Package	SOD-123HE	
Configuration	Single die	

Pb-Free RoHS COMPLIANT HALOGEN FREE



SOD-123HE

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)				
PARAMETER		**SYMBOL**	**PU1JLS**	**UNIT**
Marking code on the device			U1JLS	
Repetitive peak reverse voltage		V_{RRM}	600	V
Reverse voltage, total rms value		$V_{R(RMS)}$	420	V
Forward current		I_F	1	A
Surge peak forward current single half sine-wave superimposed on rated load	t = 8.3ms	I_{FSM}	20	A
	t = 1.0ms		50	
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	$R_{\Theta JL}$	14	°C/W
Junction-to-ambient thermal resistance	$R_{\Theta JA}$	71	°C/W
Junction-to-case thermal resistance	$R_{\Theta JC}$	18	°C/W

Thermal Performance Note: Units mounted on PCB (5mm x 5mm Cu pad test board)

ELECTRICAL SPECIFICATIONS (T_A = 25°C unless otherwise noted)

PARAMETER	CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage[1]	I_F = 0.5A, T_J = 25°C	V_F	1.13	-	V
	I_F = 1.0A, T_J = 25°C		1.25	1.5	V
	I_F = 0.5A, T_J = 125°C		0.90	-	V
	I_F = 1.0A, T_J = 125°C		1.04	-	V
Reverse current @ rated V_R[2]	T_J = 25°C	I_R	-	1	μA
	T_J = 125°C		4	-	μA
Junction capacitance	1MHz, V_R = 4.0V	C_J	17	-	pF
Reverse recovery time	I_F = 0.5A, I_R = 1.0A, I_{rr} = 0.25A	t_{rr}	-	25	ns
	I_F = 1.0A, di/dt = 50A/μs, V_R = 30V		28	-	
Reverse recovery current	I_F = 1.0A, di/dt = 200A/μs, V_R = 400V	I_{RM}	1.8	-	A
Reverse recovery charge		Q_{rr}	42	-	nC
Reverse recovery time		t_{rr}	45	-	ns

Notes:

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

ORDERING INFORMATION

ORDERING CODE	PACKAGE	PACKING
PU1JLS	SOD-123HE	10,000/ Tape & Reel

CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.1 Forward Current Derating Curve

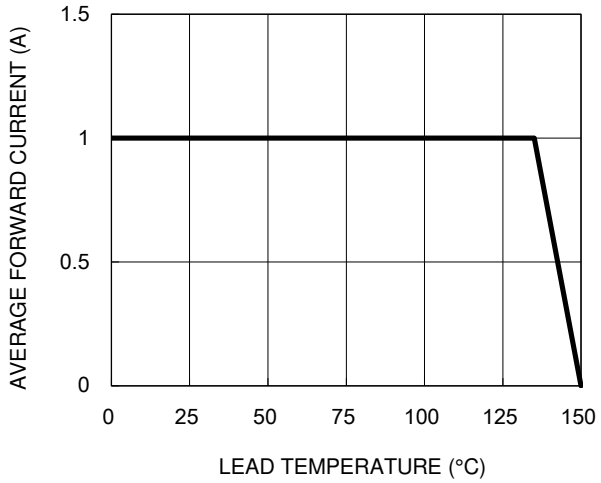


Fig.2 Typical Junction Capacitance

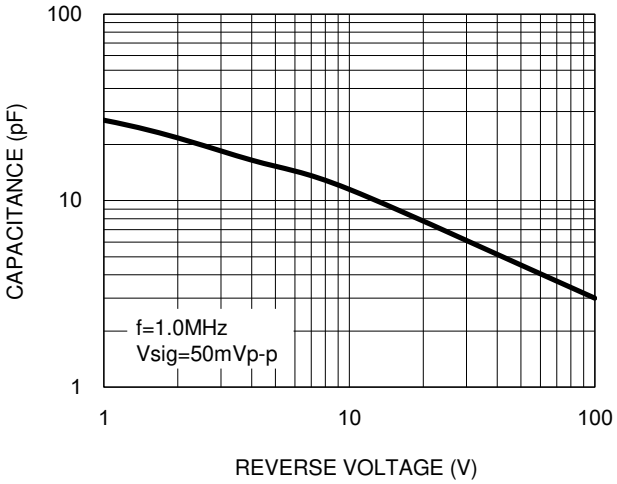


Fig.3 Typical Reverse Characteristics

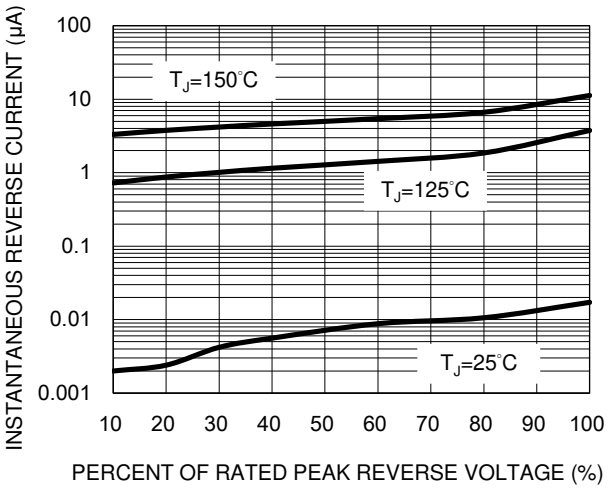


Fig.4 Typical Forward Characteristics

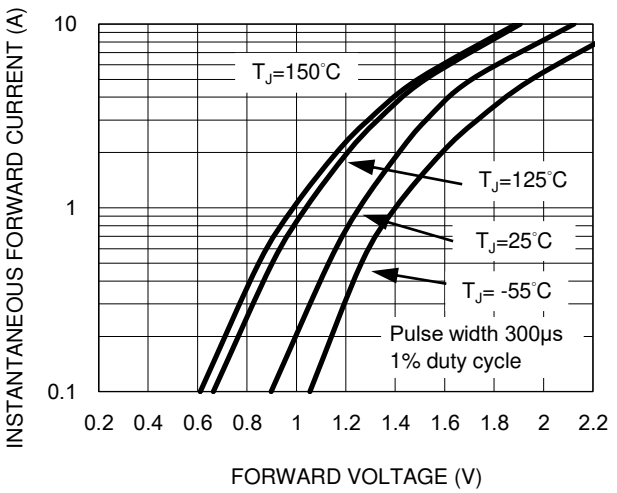
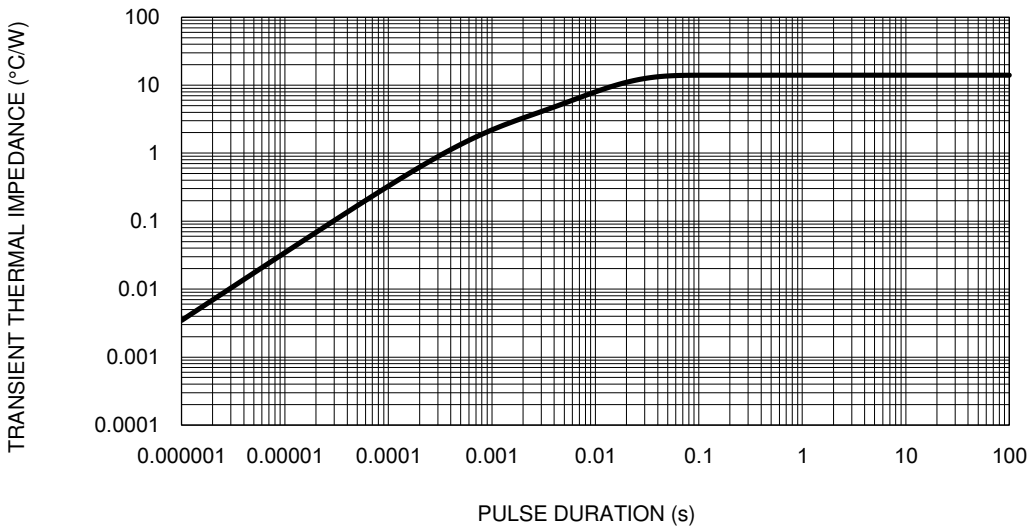
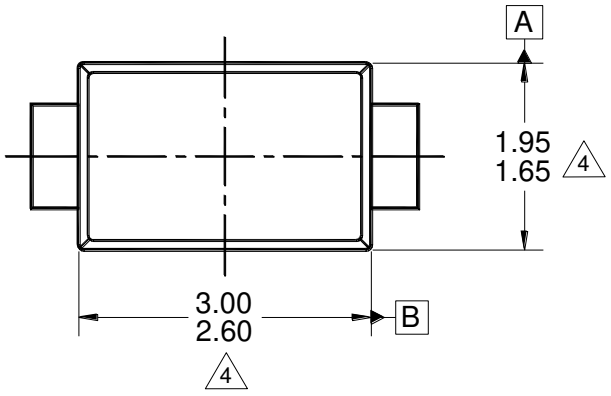


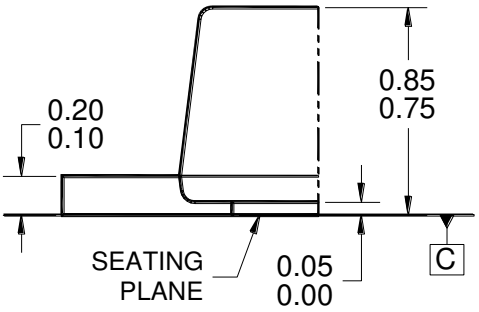
Fig.5 Typical Transient Thermal Impedance



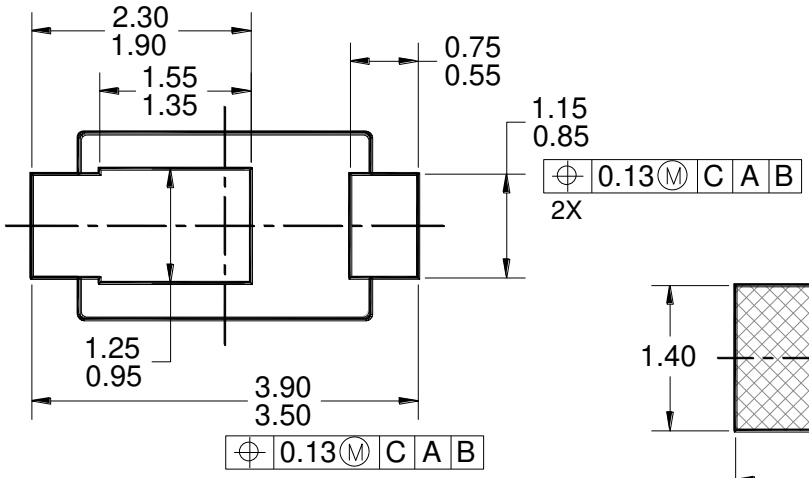
PACKAGE OUTLINE DIMENSIONS

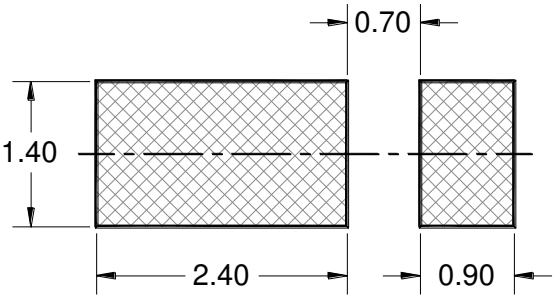
SOD-123HE



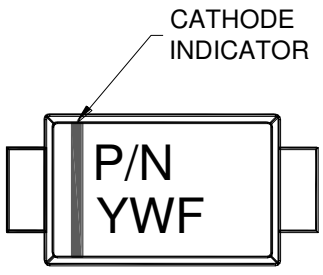


DETAIL A
(SCALE 2.5:1)





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-2009.
3. THERE IS NO EXISTING INDUSTRY STANDARD FOR THIS PACKAGE.
4. MOLDED PLASTIC BODY DIMENSIONS DO NOT INCLUDE MOLD FLASH.
5. DWG NO. REF: HQ2SD07-SOD123HE-038 REV A.

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