3A, 45V - 60V Low V_F Trench Schottky Surface Mount Rectifier

FEATURES

- AEC-Q101 qualified
- Patented Trench Schottky technology
- Excellent high temperature stability
- Low forward voltage
- Lower power loss/ high efficiency
- High forward surge capability
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

KEY PARAMETERS		
PARAMETER	**VALUE**	**UNIT**
I_F	3	A
V_{RRM}	45 - 60	V
I_{FSM}	80	A
$T_{J\ MAX}$	150	°C
Package	SOD-123HE	
Configuration	Single die	

Pb-Free RoHS COMPLIANT HALOGEN FREE

SOD-123HE

APPLICATIONS

- Low voltage, high freq. inverter
- DC/DC converter
- Freewheeling diodes
- Reverse battery protection
- Car lighting

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: 0.022g (approximately)

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)				
PARAMETER	**SYMBOL**	**TSSE3U45H**	**TSSE3U60H**	**UNIT**
Marking code on the device		E3U45	E3U60	
Repetitive peak reverse voltage	V_{RRM}	45	60	V
Reverse voltage, total rms value	$V_{R(RMS)}$	32	42	V
Forward current	I_F	3		A
Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load	I_{FSM}	80		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	$R_{\Theta JL}$	23	°C/W
Junction-to-ambient thermal resistance	$R_{\Theta JA}$	70	°C/W

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

PARAMETER		CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage[1]	TSSE3U45H	I_F = 1A, T_J = 25°C	V_F	0.33	-	V
		I_F = 3A, T_J = 25°C		0.40	0.47	V
		I_F = 1A, T_J = 125°C		0.24	-	V
		I_F = 3A, T_J = 125°C		0.34	0.44	V
	TSSE3U60H	I_F = 1A, T_J = 25°C		0.39	-	V
		I_F = 3A, T_J = 25°C		0.49	0.58	V
		I_F = 1A, T_J = 125°C		0.28	-	V
		I_F = 3A, T_J = 125°C		0.43	0.52	V
Reverse current @ rated V_R[2]		T_J = 25°C	I_R	-	1	mA
		T_J = 125°C		-	50	mA

Notes:

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

ORDERING INFORMATION

ORDERING CODE[1]	PACKAGE	PACKING
TSSE3UxH	SOD-123HE	10,000 / Tape & Reel

Notes:

1. “x” defines voltage from 45V(TSSE3U45H) to 60V(TSSE3U60H)

CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.1 Forward Current Derating Curve

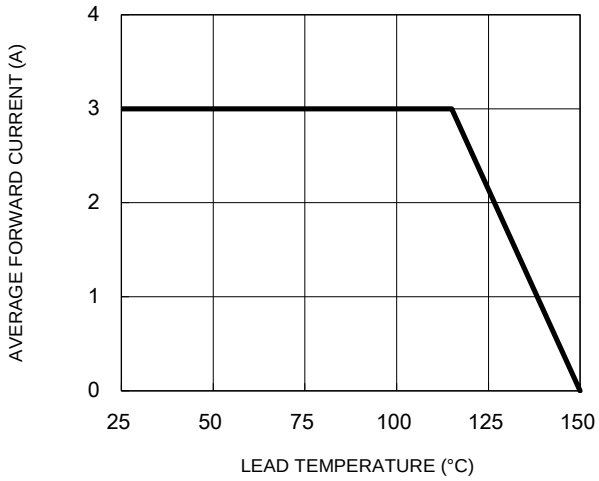


Fig.2 Typical Junction Capacitance

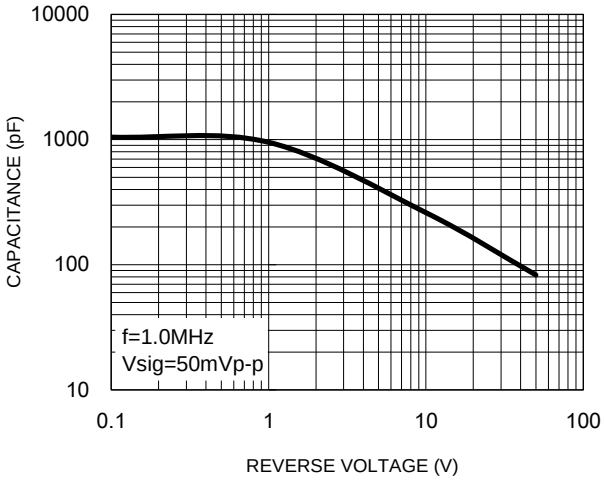


Fig.3 Typical Reverse Characteristics

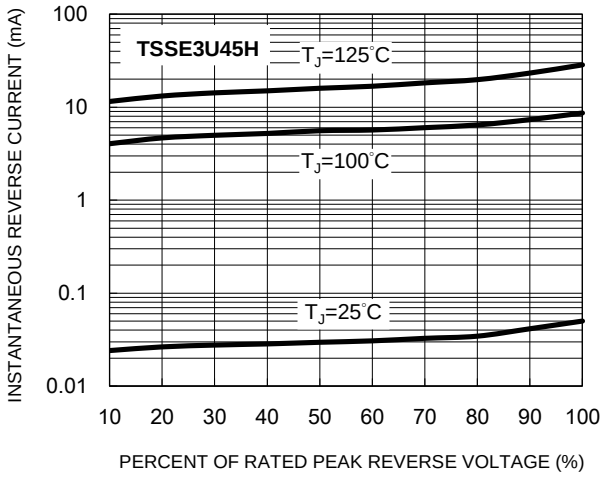


Fig.4 Typical Forward Characteristics

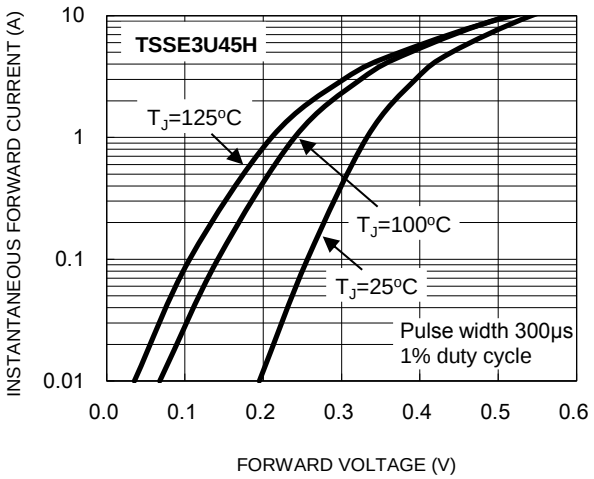


Fig.5 Typical Reverse Characteristics

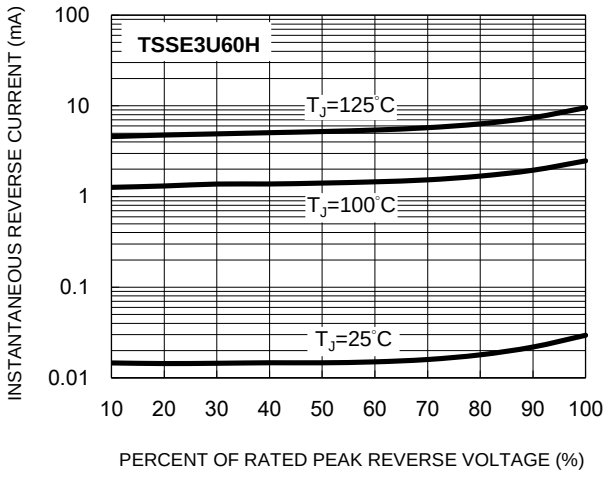
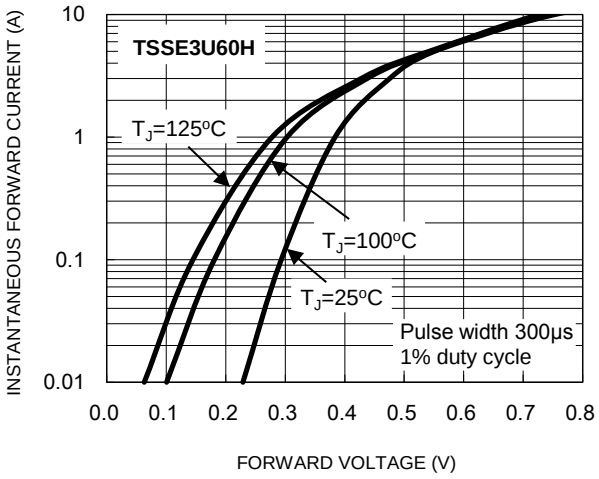
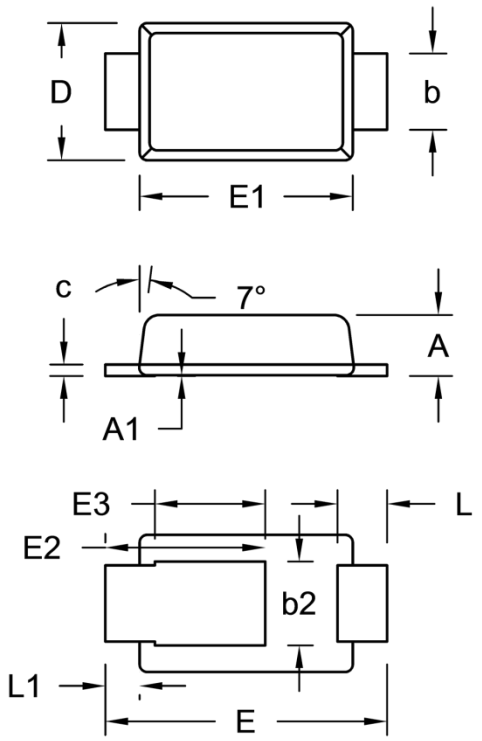


Fig.6 Typical Forward Characteristics



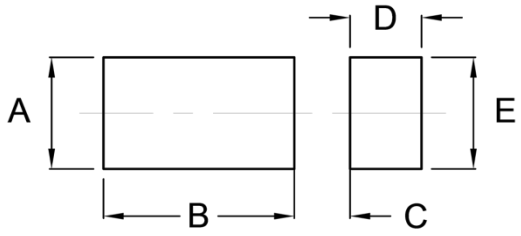
PACKAGE OUTLINE DIMENSIONS

SOD-123HE



DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	0.75	0.85	0.030	0.033
A1	0.00	0.02	0.000	0.001
b	0.85	1.15	0.033	0.045
b2	0.95	1.25	0.037	0.049
c	0.10	0.20	0.004	0.008
D	1.65	1.95	0.065	0.077
E	3.50	3.90	0.138	0.154
E1	2.60	3.00	0.102	0.118
E2	1.90	2.30	0.075	0.091
E3	1.35	1.55	0.053	0.061
L	0.55	0.75	0.022	0.030
L1	0.35	0.55	0.014	0.022

SUGGESTED PAD LAYOUT



Symbol	Unit (mm)	Unit (inch)
A	1.40	0.055
B	2.40	0.094
C	0.70	0.028
D	0.90	0.035
E	1.40	0.055

MARKING DIAGRAM

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