



THE DATASHEET OF TSF40H120C



40A, 100V - 200V Trench Schottky Rectifier

FEATURES

- Patented Trench Schottky technology
- Excellent high temperature stability
- Low forward voltage
- Low power loss/ high efficiency
- High forward surge capability
- Compliant RoHS
- Halogen-free according to IEC 61249-2-21

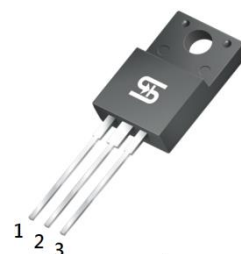
APPLICATIONS

- Switching mode power supply (SMPS)
- Adapters
- Lighting application
- On-board DC/DC converter

MECHANICAL DATA

- Case: ITO-220AB
- 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
- Mounting torque: 0.56 N·m maximum
- Polarity: As marked
- Weight: 1.70g (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
I_F	40	A
V_{RRM}	100 - 200	V
I_{FSM}	250	A
$T_{J\ MAX}$	150	°C
Package	ITO-220AB	
Configuration	Dual dies	



ITO-220AB



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)						
PARAMETER	SYMBOL	TSF40H 100C	TSF40H 120C	TSF40H 150C	TSF40H 200C	UNIT
Marking code on the device		TSF40H 100C	TSF40H 120C	TSF40H 150C	TSF40H 200C	
Repetitive peak reverse voltage	V_{RRM}	100	120	150	200	V
Reverse voltage, total rms value	$V_{R(RMS)}$	70	84	105	140	V
Forward current	I_F	40				A
Surge peak forward current, 8.3ms single half sine-wave superimposed on rated load	I_{FSM}	250				A
Critical rate of rise of off-state voltage	dv/dt	10,000				V/ μs
Junction temperature	T_J	-55 to +150				°C
Storage temperature	T_{STG}	-55 to +150				°C

THERMAL PERFORMANCE			
PARAMETER	SYMBOL	TYP	UNIT
Junction-to-case thermal resistance	$R_{\theta JC}$	3	°C/W

ELECTRICAL SPECIFICATIONS ($T_A = 25^\circ\text{C}$ unless otherwise noted)						
PARAMETER		CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage per diode ⁽¹⁾	TSF40H100C	$I_F = 10\text{A}, T_J = 25^\circ\text{C}$	V_F	0.56	-	V
	TSF40H120C			0.60	-	V
	TSF40H150C			0.71	-	V
	TSF40H200C			0.75	-	V
	TSF40H100C	$I_F = 20\text{A}, T_J = 25^\circ\text{C}$		0.66	0.72	V
	TSF40H120C			0.74	0.84	V
	TSF40H150C			0.79	0.89	V
	TSF40H200C			0.83	0.93	V
	TSF40H100C	$I_F = 10\text{A}, T_J = 125^\circ\text{C}$		0.48	-	V
	TSF40H120C			0.53	-	V
	TSF40H150C			0.59	-	V
	TSF40H200C			0.62	-	V
	TSF40H100C	$I_F = 20\text{A}, T_J = 125^\circ\text{C}$		0.59	0.65	V
	TSF40H120C			0.63	0.71	V
	TSF40H150C			0.67	0.77	V
	TSF40H200C			0.70	0.80	V
Reverse current @ rated V_R per diode ⁽²⁾	TSF40H100C	$T_J = 25^\circ\text{C}$	I_R	-	500	μA
	TSF40H120C			-	150	μA
	TSF40H150C			-	45	mA
	TSF40H200C			-	15	mA
	TSF40H100C	$T_J = 125^\circ\text{C}$		-	45	mA
	TSF40H120C			-	15	mA
	TSF40H150C			-	15	mA
	TSF40H200C			-	15	mA

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
TSF40HxC	ITO-220AB	50 / Tube

Notes:

1. "x" defines voltage from 100V(TSF40H100C) to 200V(TSF40H200C)

CHARACTERISTICS CURVES

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

Fig.1 Forward Current Derating Curve

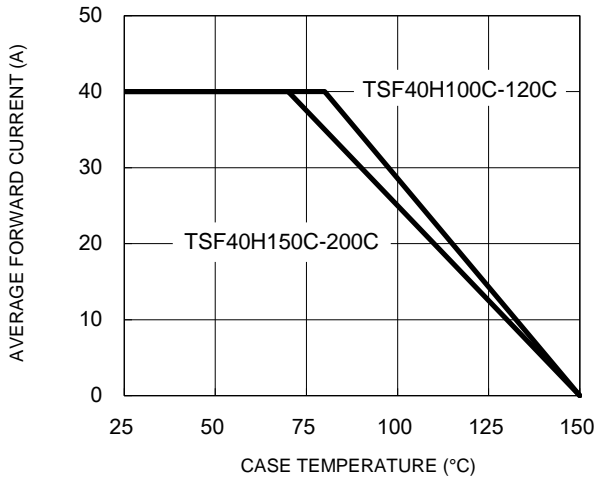


Fig.2 Typical Junction Capacitance

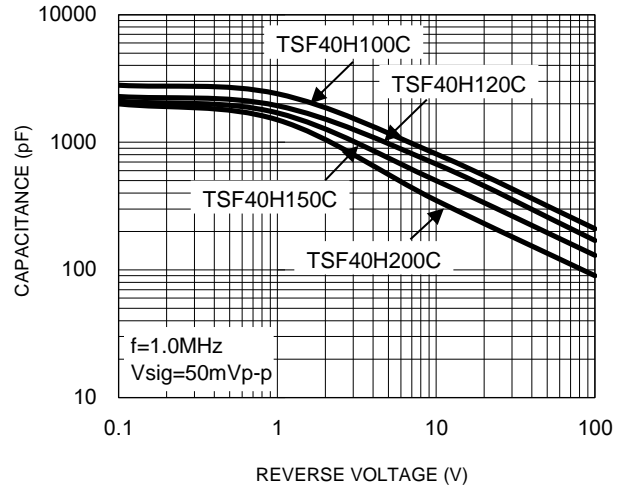


Fig.3 Typical Reverse Characteristics

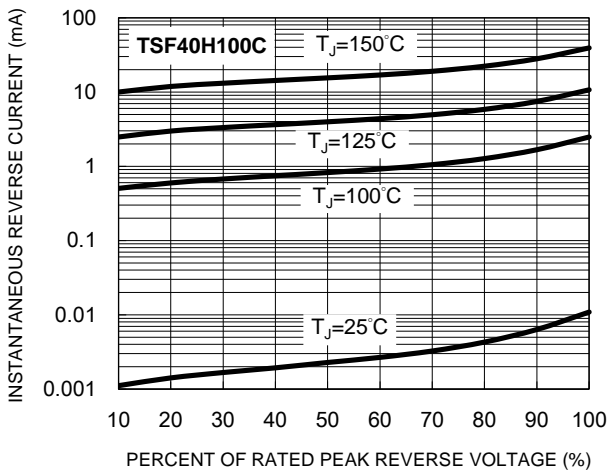


Fig.4 Typical Forward Characteristics

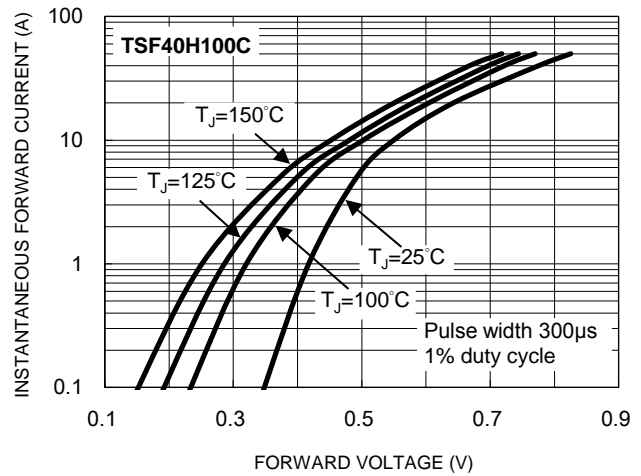


Fig.5 Typical Reverse Characteristics

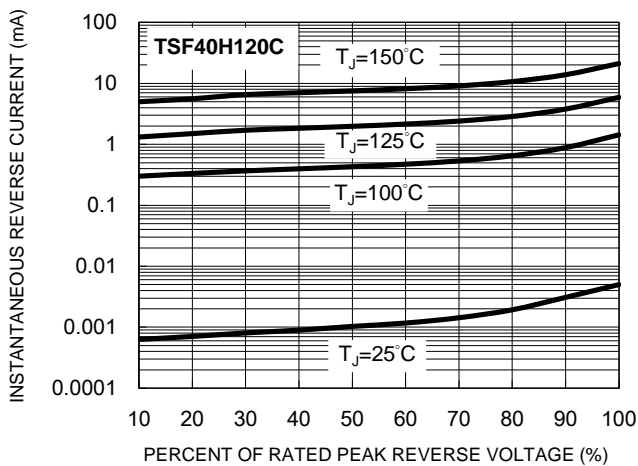
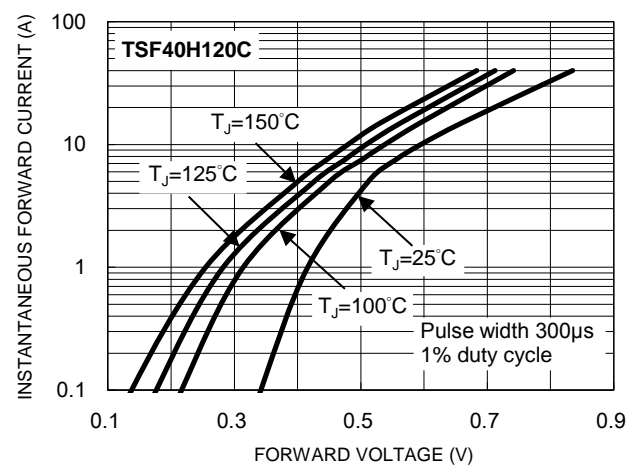


Fig.6 Typical Forward Characteristics



CHARACTERISTICS CURVES

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

Fig.7 Typical Reverse Characteristics

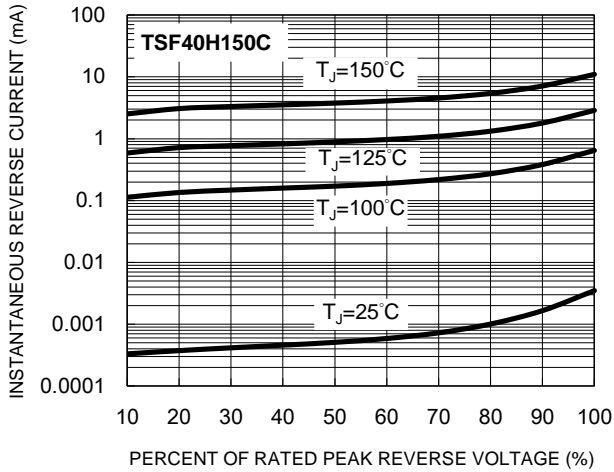


Fig.8 Typical Forward Characteristics

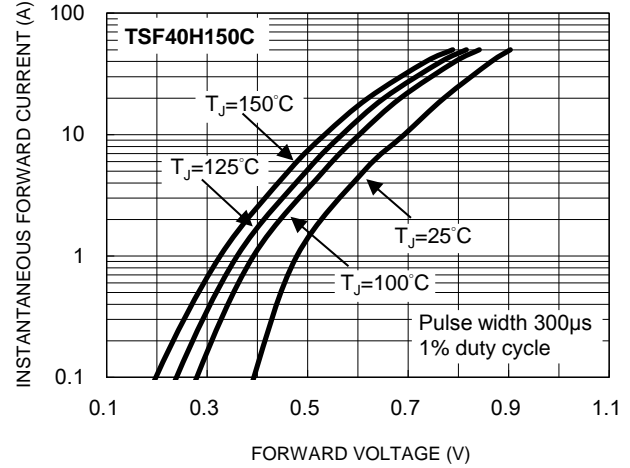


Fig.9 Typical Reverse Characteristics

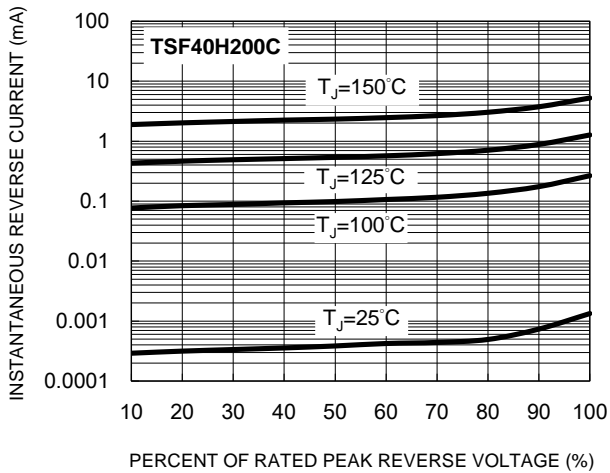
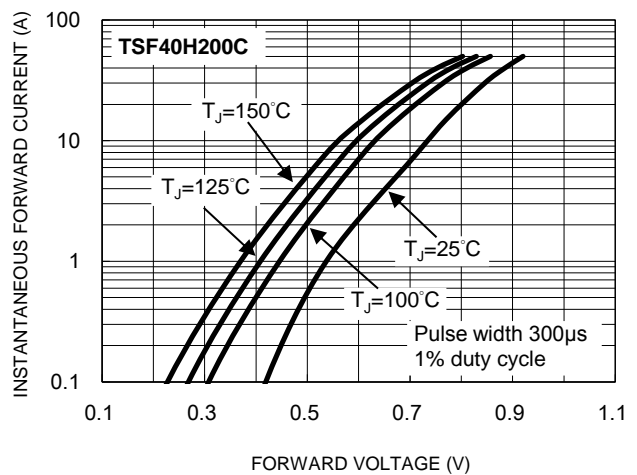
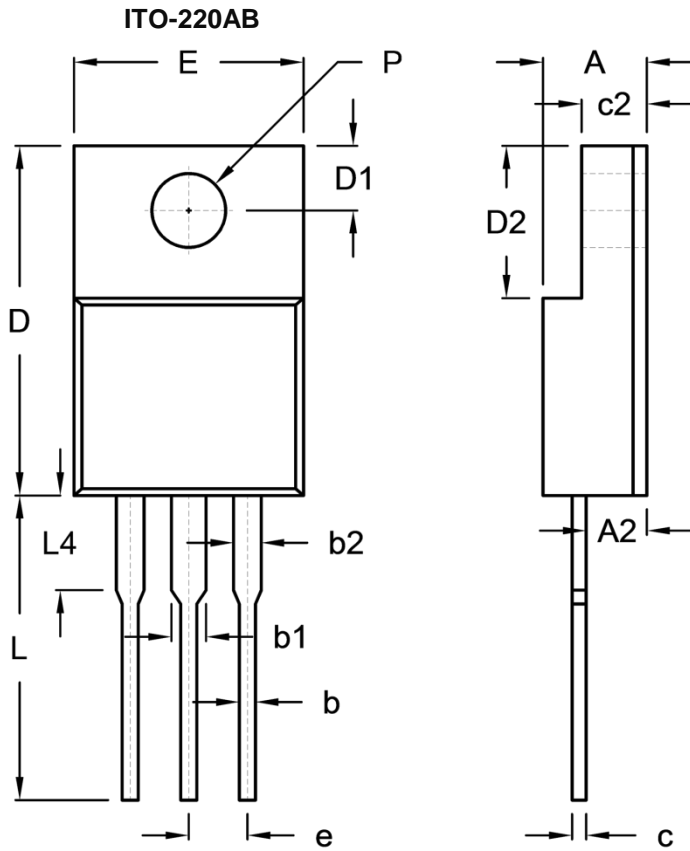


Fig.10 Typical Forward Characteristics



PACKAGE OUTLINE DIMENSIONS



DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	4.30	4.70	0.169	0.185
A2	2.30	2.96	0.091	0.117
b	0.50	0.90	0.020	0.035
b1	-	1.80	-	0.071
b2	0.95	1.45	0.037	0.057
c	0.46	0.76	0.018	0.030
c2	2.50	3.16	0.098	0.124
D	14.80	15.50	0.583	0.610
D1	2.40	3.20	0.094	0.126
D2	6.30	6.90	0.248	0.272
E	9.60	10.30	0.378	0.406
e	2.41	2.67	0.095	0.105
L	12.60	13.80	0.496	0.543
L4	-	4.10	-	0.161
P	3.00	3.40	0.118	0.134

MARKING DIAGRAM



- P/N = Marking Code
- G = Green Compound
- YWW = Date Code
- F = Factory Code

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