

## 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

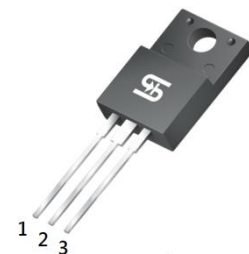
### APPLICATIONS

- 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
$T_{JMAX}$	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/ $\mu\text{s}$
Junction temperature	$T_J$	-55 to +150				°C
Storage temperature	$T_{STG}$	-55 to +150				°C

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

<b>ELECTRICAL SPECIFICATIONS</b> ( $T_A = 25^\circ\text{C}$ unless otherwise noted)						
<b>PARAMETER</b>		<b>CONDITIONS</b>	<b>SYMBOL</b>	<b>TYP</b>	<b>MAX</b>	<b>UNIT</b>
Forward voltage per diode <sup>(1)</sup>	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 <sup>(2)</sup>	TSF40H100C	$T_J = 25^\circ\text{C}$	$I_R$	-	500	$\mu\text{A}$
	TSF40H120C			-	150	$\mu\text{A}$
	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  $PW = 30\text{ms}$

<b>ORDERING INFORMATION</b>		
<b>ORDERING CODE<sup>(1)</sup></b>	<b>PACKAGE</b>	<b>PACKING</b>
TSF40HxC	ITO-220AB	50 / Tube

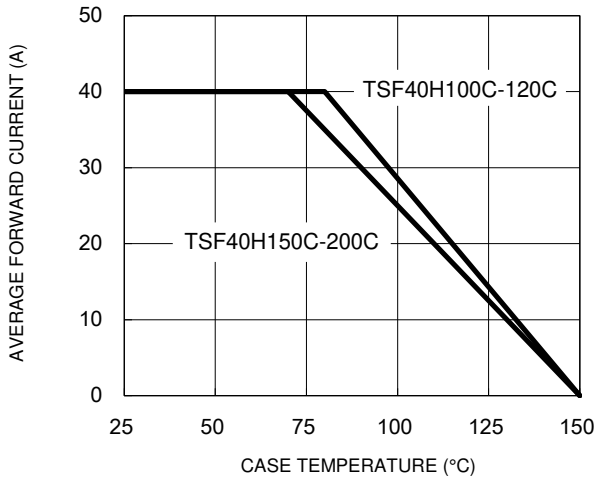
**Notes:**

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

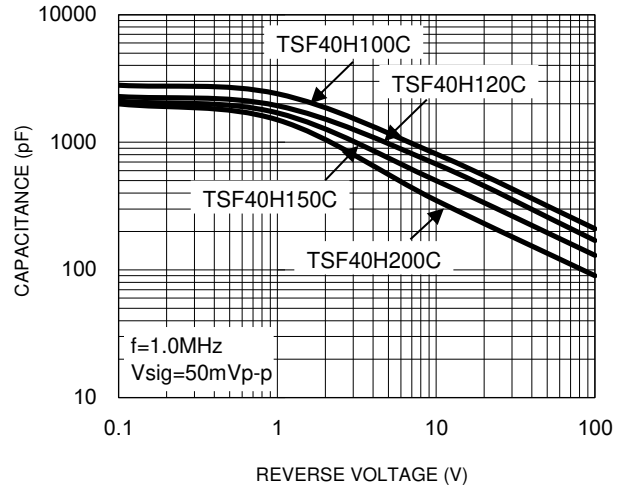
**CHARACTERISTICS CURVES**

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

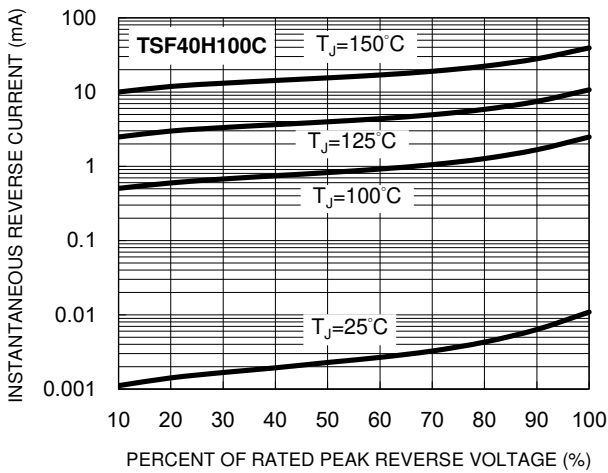
**Fig.1 Forward Current Derating Curve**



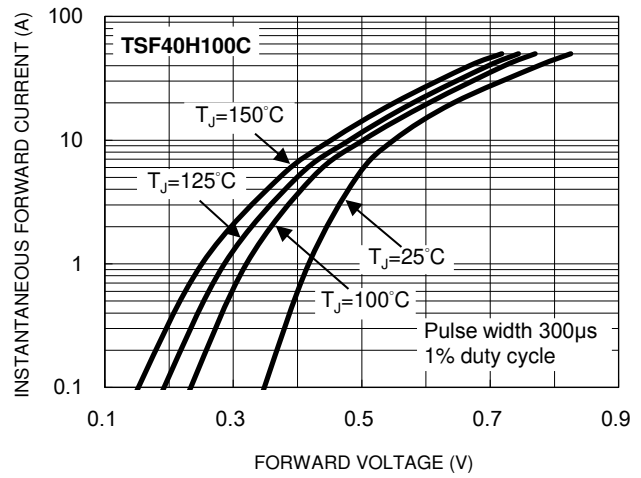
**Fig.2 Typical Junction Capacitance**



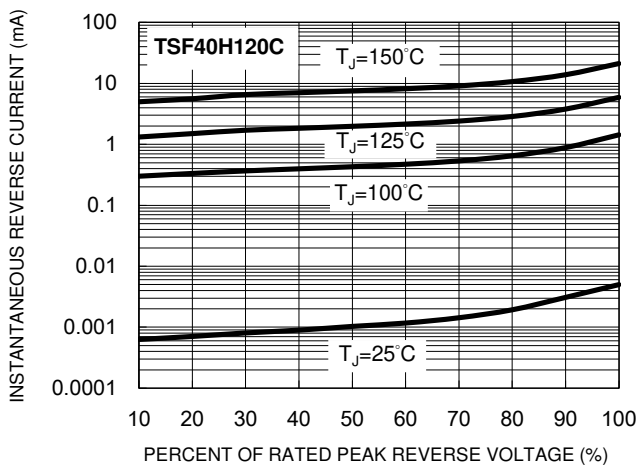
**Fig.3 Typical Reverse Characteristics**



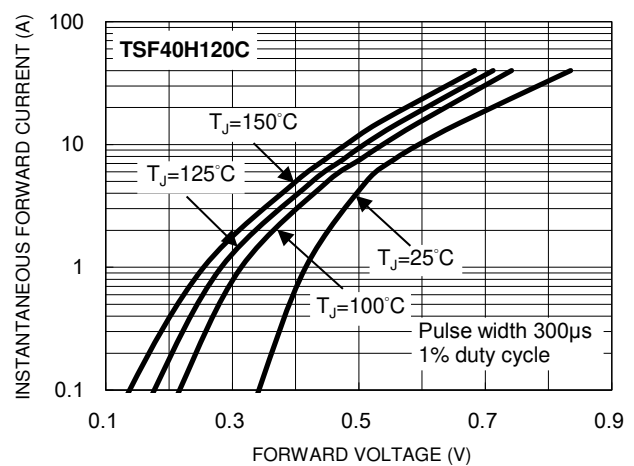
**Fig.4 Typical Forward Characteristics**



**Fig.5 Typical Reverse Characteristics**



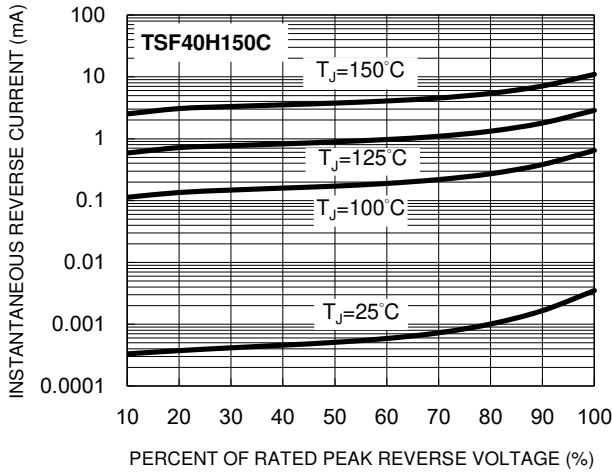
**Fig.6 Typical Forward Characteristics**



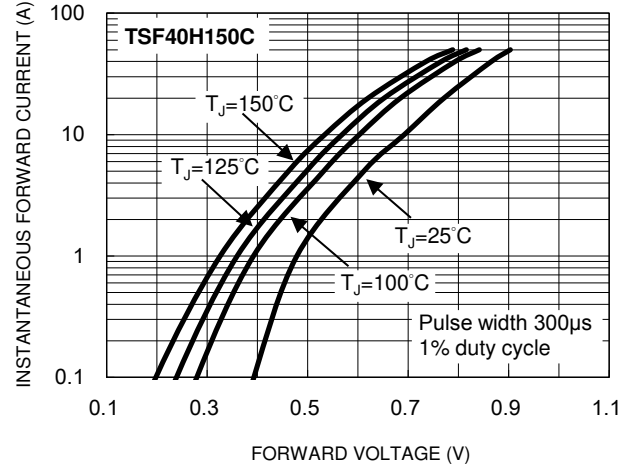
**CHARACTERISTICS CURVES**

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

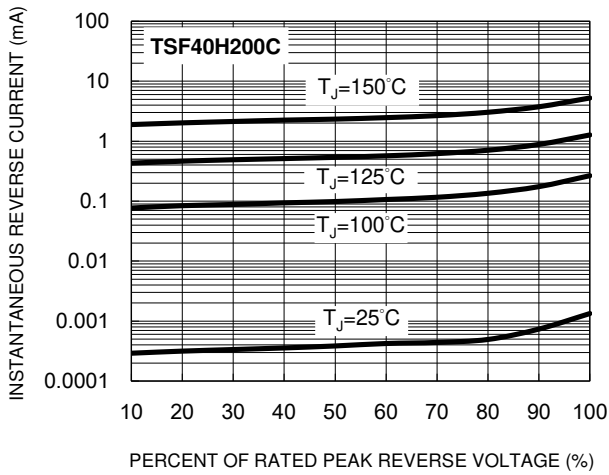
**Fig.7 Typical Reverse Characteristics**



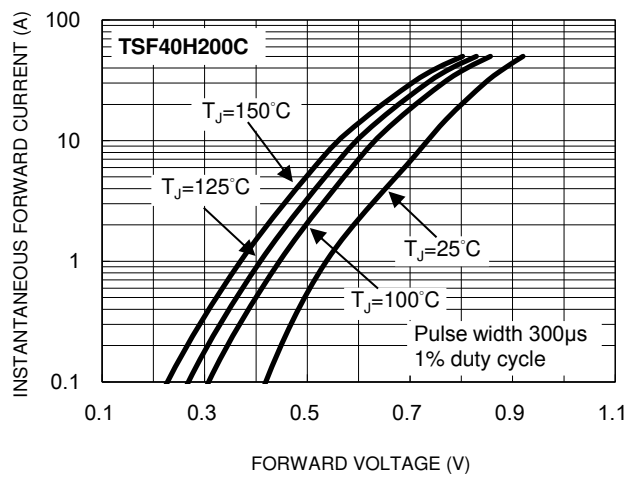
**Fig.8 Typical Forward Characteristics**



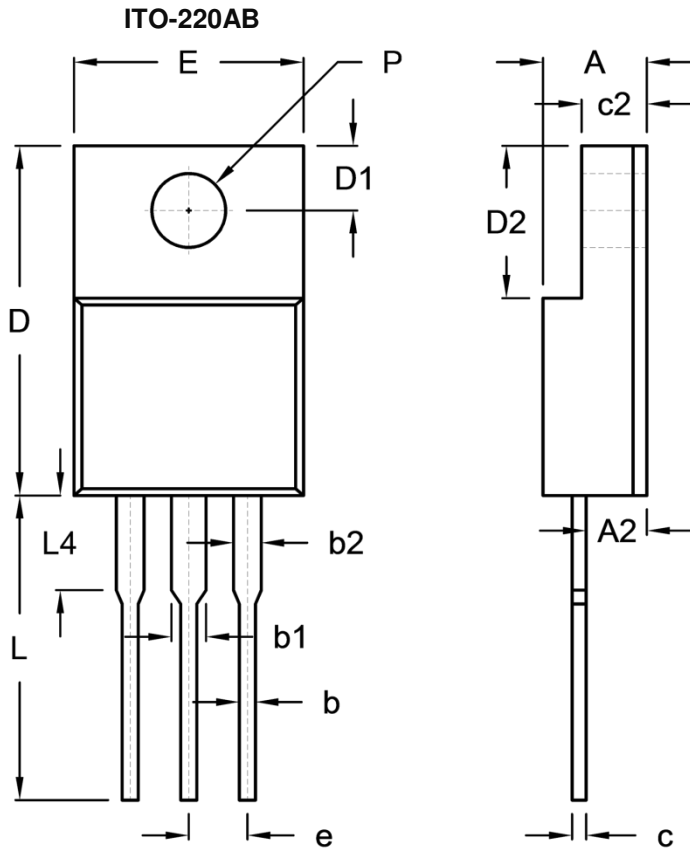
**Fig.9 Typical Reverse Characteristics**



**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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