

20A, 100V - 150V 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

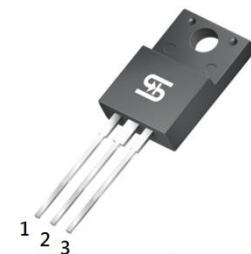
APPLICATIONS

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

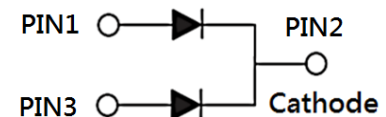
MECHANICAL DATA

- 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	20	A
V_{RRM}	100 - 150	V
I_{FSM}	120	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	TSF20H 100C-S	TSF20H 120C-S	TSF20H 150C-S	UNIT
Marking code on the device		TSF20H 100C	TSF20H 120C	TSF20H 150C	
Repetitive peak reverse voltage	V_{RRM}	100	120	150	V
Reverse voltage, total rms value	$V_{R(RMS)}$	70	84	105	V
Forward current	I_F	20			A
Surge peak forward current, 8.3ms single half sine-wave superimposed on rated load	I_{FSM}	120			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	$R_{\theta JC}$	4.5	°C/W

ELECTRICAL SPECIFICATIONS ($T_A = 25^\circ\text{C}$ unless otherwise noted)							
PARAMETER		CONDITIONS	SYMBOL	TYP	MAX	UNIT	
Forward voltage per diode ⁽¹⁾	TSF20H100C-S	$I_F = 5\text{A}, T_J = 25^\circ\text{C}$	V_F	0.59	-	V	
	TSF20H120C-S			0.66	-	V	
	TSF20H150C-S			0.74	-	V	
	TSF20H100C-S	$I_F = 10\text{A}, T_J = 25^\circ\text{C}$		0.71	0.79	V	
	TSF20H120C-S			0.78	0.86	V	
	TSF20H150C-S			0.82	0.92	V	
		TSF20H100C-S		$I_F = 5\text{A}, T_J = 125^\circ\text{C}$	0.53	-	V
		TSF20H120C-S			0.56	-	V
		TSF20H150C-S			0.60	-	V
		TSF20H100C-S		$I_F = 10\text{A}, T_J = 125^\circ\text{C}$	0.62	0.70	V
		TSF20H120C-S			0.64	0.72	V
		TSF20H150C-S			0.68	0.78	V
Reverse current @ rated V_R per diode ⁽²⁾	TSF20H100C-S TSF20H120C-S	$T_J = 25^\circ\text{C}$	I_R	-	150	μA	
	TSF20H150C-S	-		100	μA		
	TSF20H100C-S TSF20H120C-S	$T_J = 125^\circ\text{C}$		-	18	mA	
	TSF20H150C-S	-		12	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
TSF20HxC-S	ITO-220AB	50 / Tube

Notes:

1. "x" defines voltage from 100V(TSF20H100C-S) to 150V(TSF20H150C-S)

CHARACTERISTICS CURVES

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

Fig.1 Forward Current Derating Curve

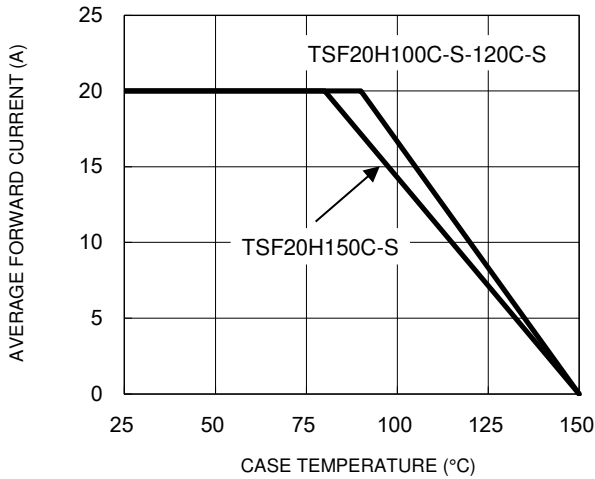


Fig.2 Typical Junction Capacitance

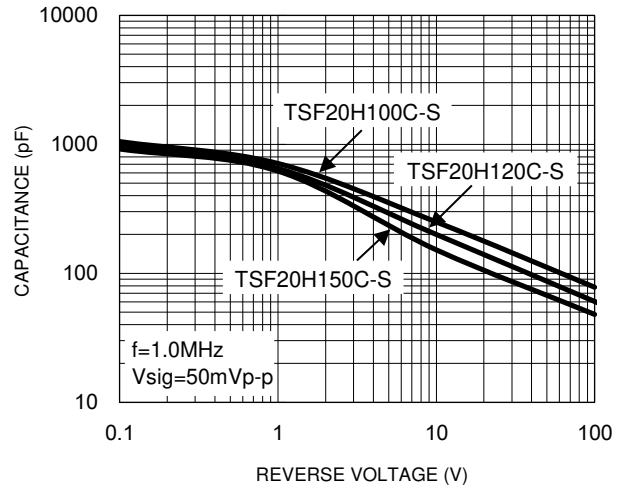


Fig.3 Typical Reverse Characteristics

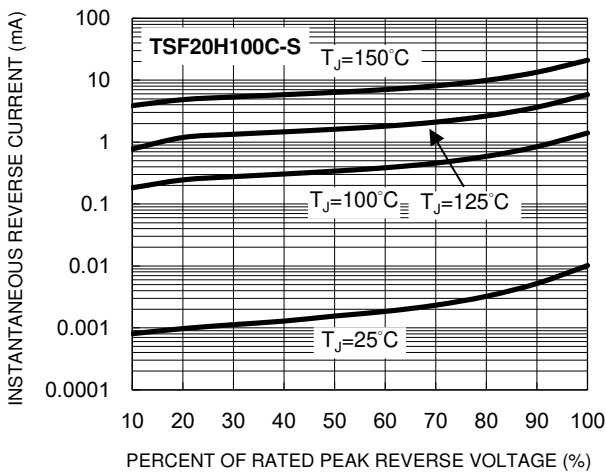


Fig.4 Typical Forward Characteristics

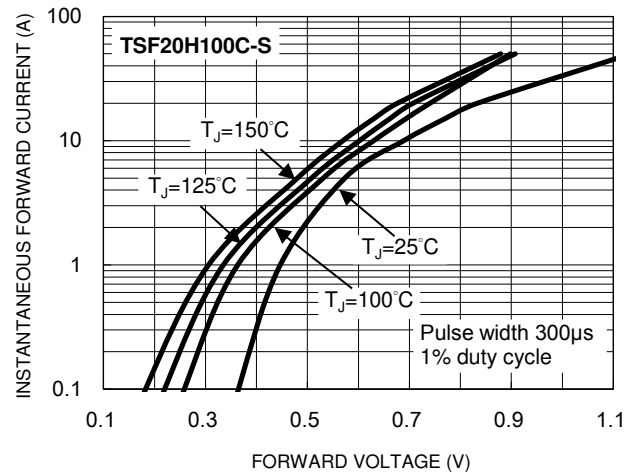


Fig.5 Typical Reverse Characteristics

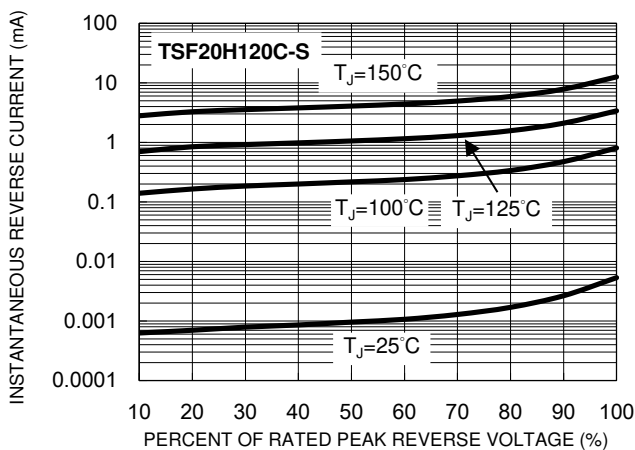
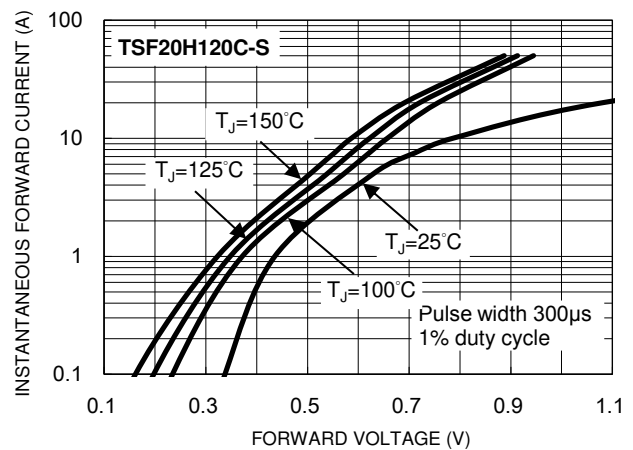


Fig.6 Typical Forward Characteristics



CHARACTERISTICS CURVES

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

Fig.7 Typical Reverse Characteristics

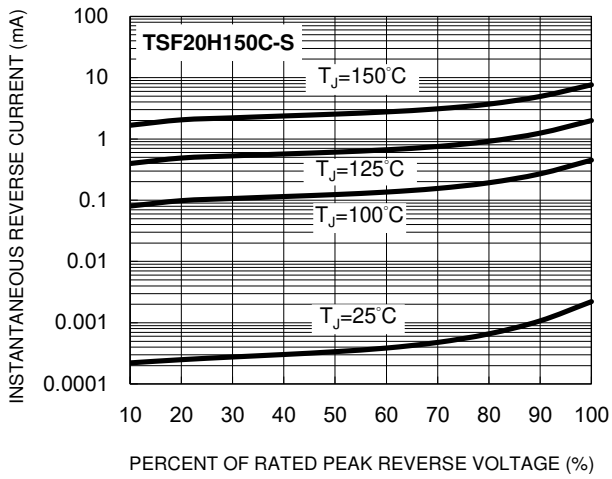
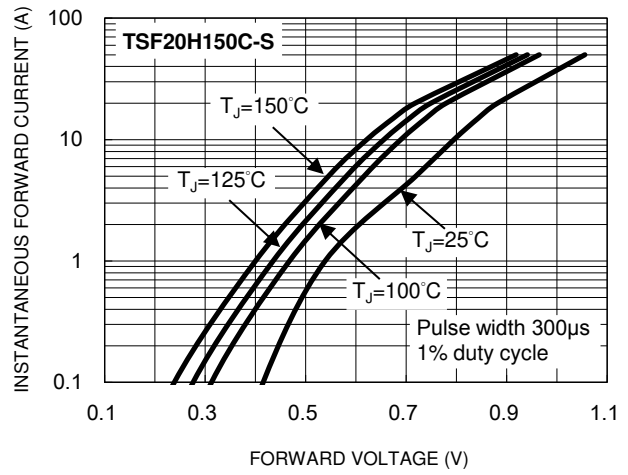
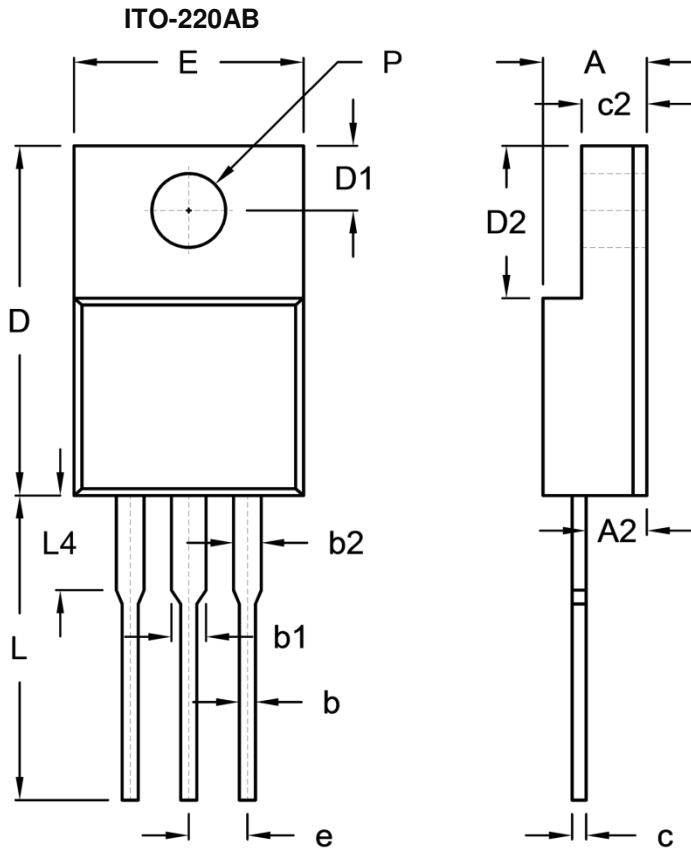


Fig.8 Typical Forward Characteristics



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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