

20A, 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
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

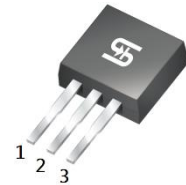
APPLICATIONS

- Switching mode power supply (SMPS)
- Adapters
- DC to DC converter

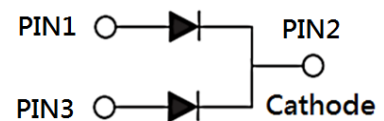
MECHANICAL DATA

- Case: TO-262 (I²PAK)
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 1A whisker test
- Polarity: As marked
- Weight: 1.60g (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
I_F	20	A
V_{RRM}	100 - 200	V
I_{FSM}	150	A
T_{JMAX}	150	°C
Package	TO-262 (I ² PAK)	
Configuration	Dual dies	



TO-262 (I²PAK)



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)						
PARAMETER	SYMBOL	TSI20H 100CW	TSI20H 120CW	TSI20H 150CW	TSI20H 200CW	UNIT
Marking code on the device		TSI20H 100CW	TSI20H 120CW	TSI20H 150CW	TSI20H 200CW	
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	20				A
Surge peak forward current, 8.3ms single half sine wave superimposed on rated load	I_{FSM}	150				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-lead thermal resistance	$R_{\theta JL}$	3.8	°C/W
Junction-to-case thermal resistance	$R_{\theta JC}$	2.8	°C/W

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

PARAMETER	CONDITIONS	SYMBOL	TYP	MAX	UNIT	
Forward voltage per diode ⁽¹⁾	TSI20H100CW	$I_F = 5\text{A}, T_J = 25^\circ\text{C}$	V_F	0.57	-	V
	TSI20H120CW			0.62	-	V
	TSI20H150CW			0.72	-	V
	TSI20H200CW			0.77	-	V
	TSI20H100CW	$I_F = 10\text{A}, T_J = 25^\circ\text{C}$		0.67	0.79	V
	TSI20H120CW			0.78	0.87	V
	TSI20H150CW			0.81	0.90	V
	TSI20H200CW			0.83	0.93	V
	TSI20H100CW	$I_F = 5\text{A}, T_J = 125^\circ\text{C}$		0.50	-	V
	TSI20H120CW			0.53	-	V
	TSI20H150CW			0.58	-	V
	TSI20H200CW			0.62	-	V
	TSI20H100CW	$I_F = 10\text{A}, T_J = 125^\circ\text{C}$		0.59	0.68	V
	TSI20H120CW			0.63	0.72	V
	TSI20H150CW			0.66	0.75	V
	TSI20H200CW			0.68	0.78	V
Reverse current @ rated V_R per diode ⁽²⁾	TSI20H100CW	$T_J = 25^\circ\text{C}$	I_R	-	200	μA
	TSI20H120CW			-	100	μA
	TSI20H150CW	$T_J = 125^\circ\text{C}$		-	25	mA
	TSI20H200CW			-	15	mA
	TSI20H100CW			-	-	-
	TSI20H120CW			-	-	-
TSI20H150CW	-	-	-			
TSI20H200CW	-	-	-			

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
TSI20HxCW	TO-262 ($I^2\text{PAK}$)	50 / Tube

Notes:

1. "x" defines voltage from 100V (TSI20H100CW) to 200V (TSI20H200CW)

CHARACTERISTICS CURVES

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

Fig.1 Forward Current Derating Curve

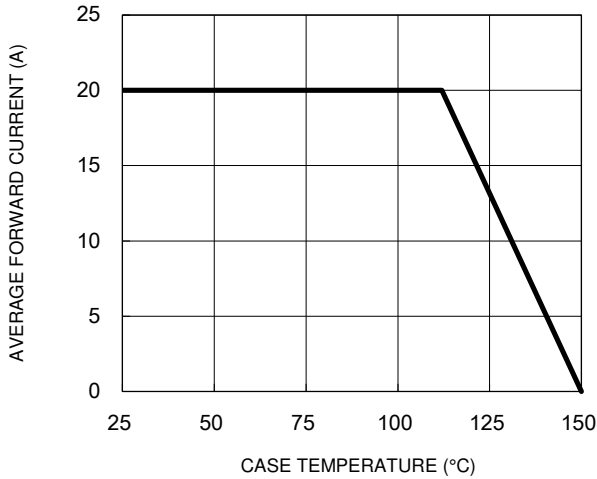


Fig.2 Typical Junction Capacitance

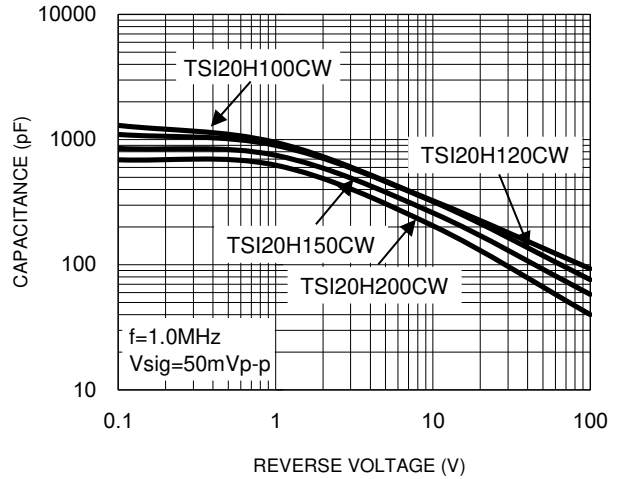


Fig.3 Typical Reverse Characteristics

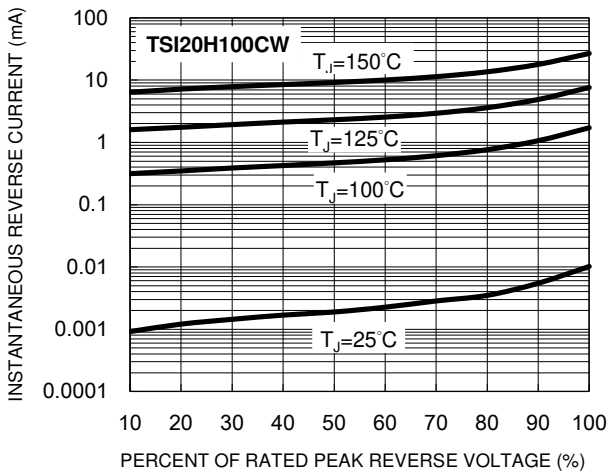


Fig.4 Typical Forward Characteristics

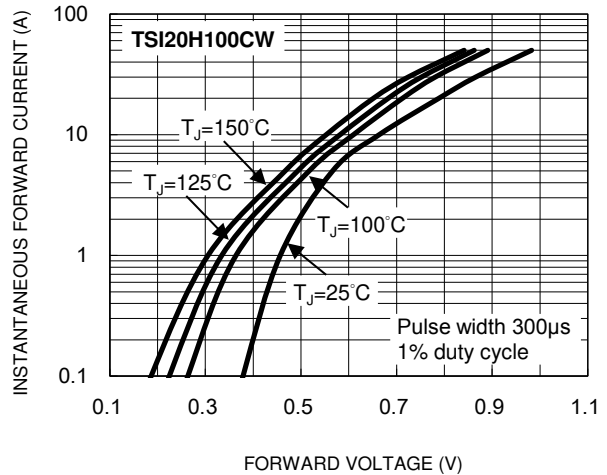


Fig.5 Typical Reverse Characteristics

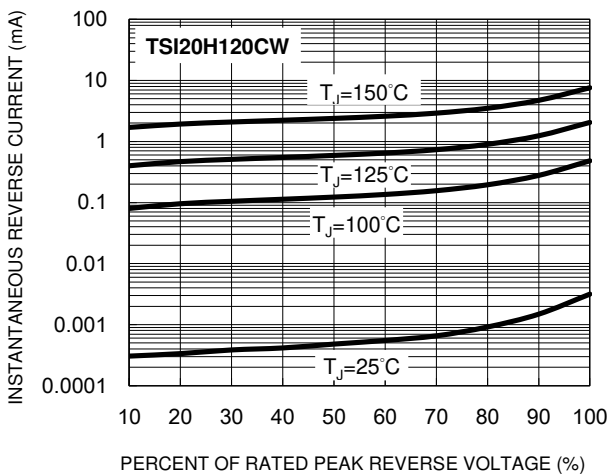
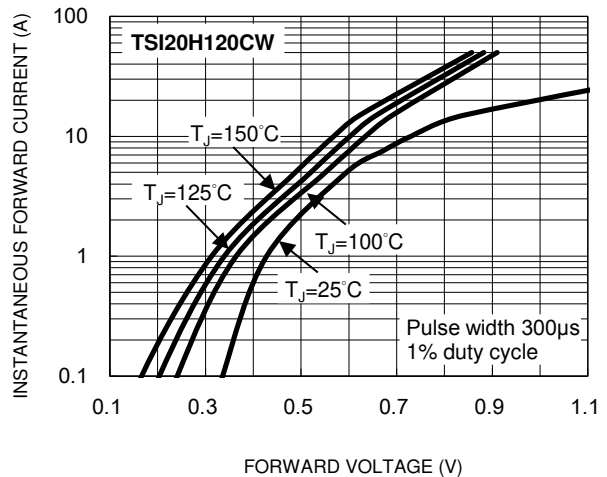


Fig.6 Typical Forward Characteristics



CHARACTERISTICS CURVES

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

Fig.7 Typical Reverse Characteristics

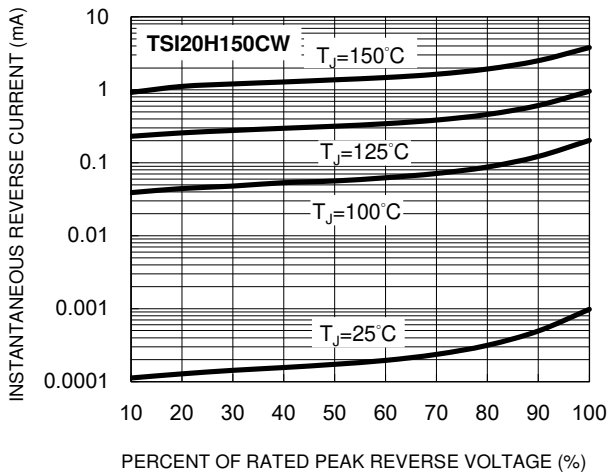


Fig.8 Typical Forward Characteristics

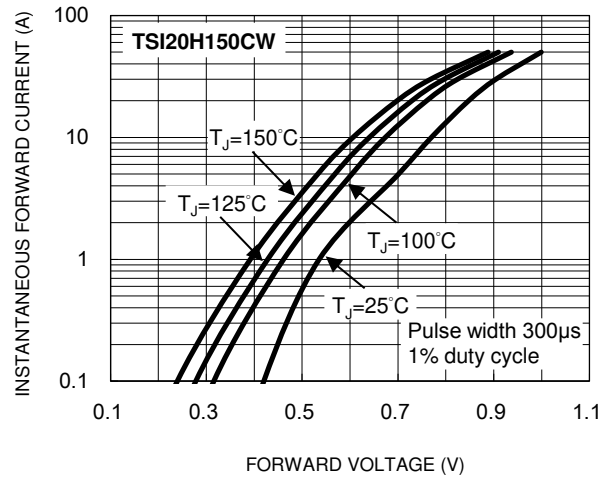


Fig.9 Typical Reverse Characteristics

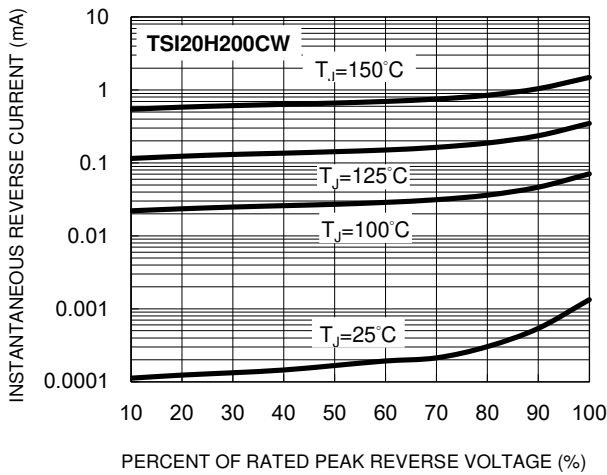
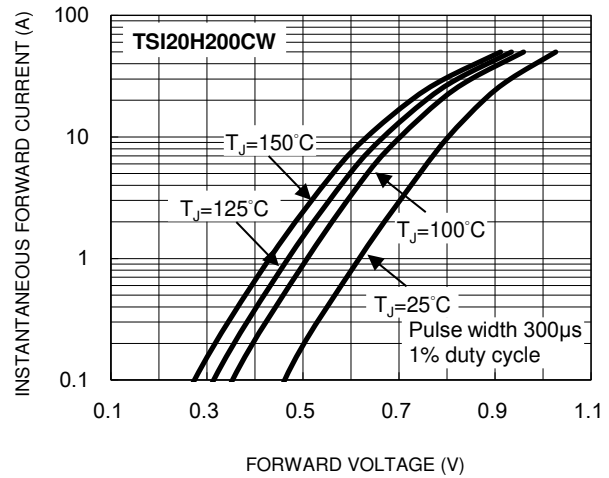
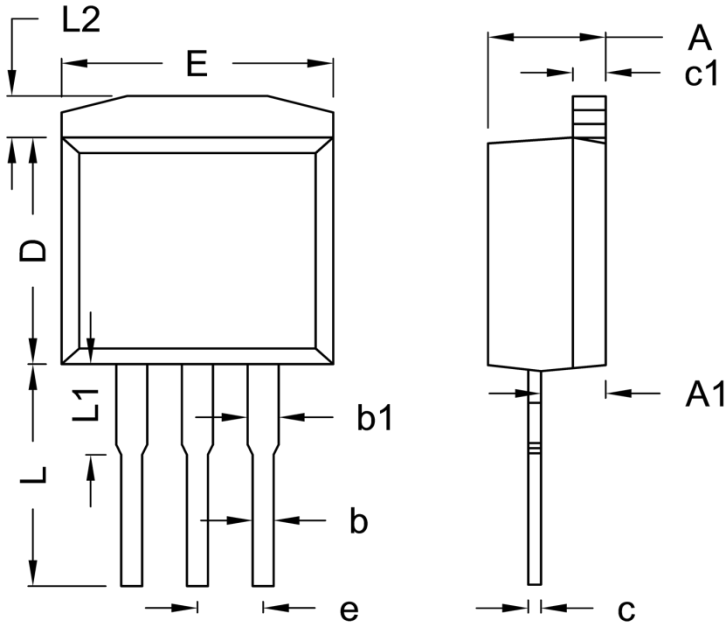


Fig.10 Typical Forward Characteristics



PACKAGE OUTLINE DIMENSIONS

TO-262 (I²PAK)



DIM	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	4.40	4.70	0.173	0.185
A1	2.20	2.80	0.087	0.110
b	0.68	0.94	0.027	0.037
b1	0.95	1.45	0.037	0.057
c	0.35	0.64	0.014	0.025
c1	1.14	1.40	0.045	0.055
D	8.25	9.25	0.325	0.364
E	-	10.50	-	0.413
e	2.41	2.67	0.095	0.105
L	7.79	9.35	0.307	0.368
L1	2.80	4.20	0.110	0.165
L2	1.600 (TYP.)		0.063 (TYP.)	

MARKING DIAGRAM



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

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