

## 20A, 400V - 1000V Standard Bridge Rectifier

### FEATURES

- Ideal for printed circuit board
- High surge current capability
- Ultra low leakage reverse current
- UL Recognized File # E-326243
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

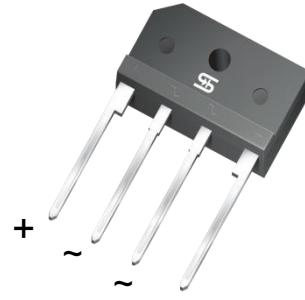
### APPLICATIONS

- On board charger
- AC to DC

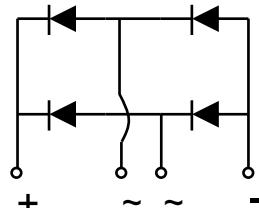
### MECHANICAL DATA

- Case: TS4K
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 1 whisker test
- Polarity: As marked
- Mounting torque: 0.78 N·m maximum
- Weight: 4.12g (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
$I_F$	20	A
$V_{RRM}$	400 - 1000	V
$I_{FSM}$	220	A
$T_{J MAX}$	150	°C
Package	TS4K	
Circuit Configuration	In-line	



TS4K



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

PARAMETER	SYMBOL	TS20K40 -T	TS20K60 -T	TS20K80 -T	TS20K100 -T	UNIT
Marking code on the device		TS20K40	TS20K60	TS20K80	TS20K100	
Repetitive peak reverse voltage	$V_{RRM}$	400	600	800	1000	V
Reverse voltage, total rms value	$V_{R(RMS)}$	280	420	560	700	V
Forward current	$I_F$	20				A
Surge peak forward current, single half sine-wave superimposed on rated load	$t = 8.3\text{ms}$	$I_{FSM}$	220			A
	$t = 1.0\text{ms}$		580			
Rating of fusing ( $t < 8.3\text{ms}$ )	$I^2t$	200				$\text{A}^2\text{s}$
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	$R_{\Theta JL}$	1.3	°C/W
Junction-to-ambient thermal resistance	$R_{\Theta JA}$	6.8	°C/W
Junction-to-case thermal resistance	$R_{\Theta JC}$	1.2	°C/W

**Thermal Performance Note:** Mounted on heat sink with 4" x 6" x 0.25" Al-Plate

**ELECTRICAL SPECIFICATIONS** ( $T_A = 25^\circ C$  unless otherwise noted)

PARAMETER	CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage per diode <sup>(1)</sup>	$I_F = 10A, T_J = 25^\circ C$	$V_F$	0.98	1.05	V
	$I_F = 10A, T_J = 125^\circ C$		0.88	-	V
Reverse current @ rated $V_R$ per diode <sup>(2)</sup>	$T_J = 25^\circ C$	$I_R$	-	5	$\mu A$
	$T_J = 125^\circ C$		47	-	$\mu A$
Junction capacitance per diode	1MHz, $V_R = 4.0V$	$C_J$	65	-	pF

**Notes:**

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

**ORDERING INFORMATION**

ORDERING CODE <sup>(1)</sup>	PACKAGE	PACKING
TS20Kx-T	TS4K	20 / Tube

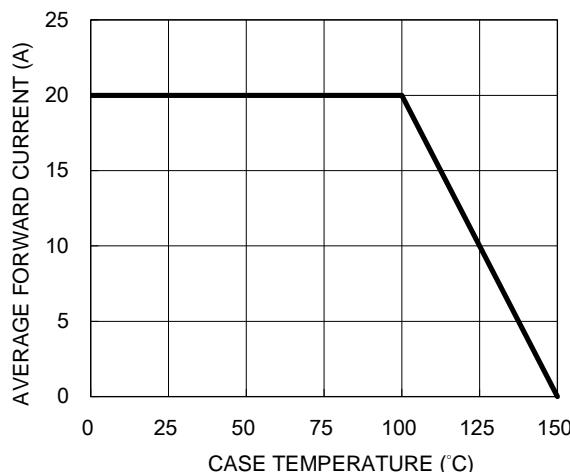
**Notes:**

1. "x" defines voltage from 400V(TS20K40-T) to 1000V(TS20K100-T)

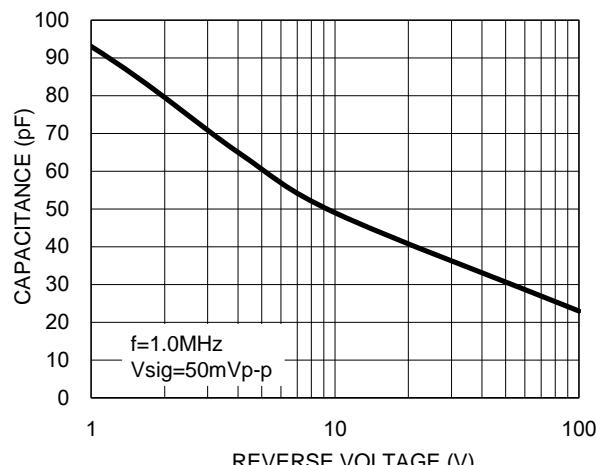
## CHARACTERISTICS CURVES

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

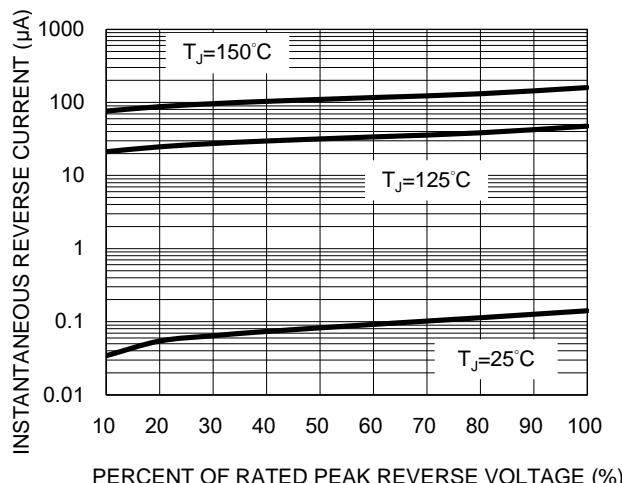
**Fig.1 Forward Current Derating Curve**



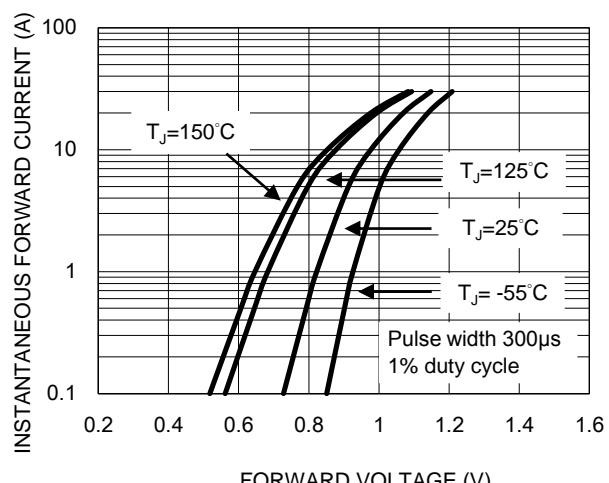
**Fig.2 Typical Junction Capacitance**

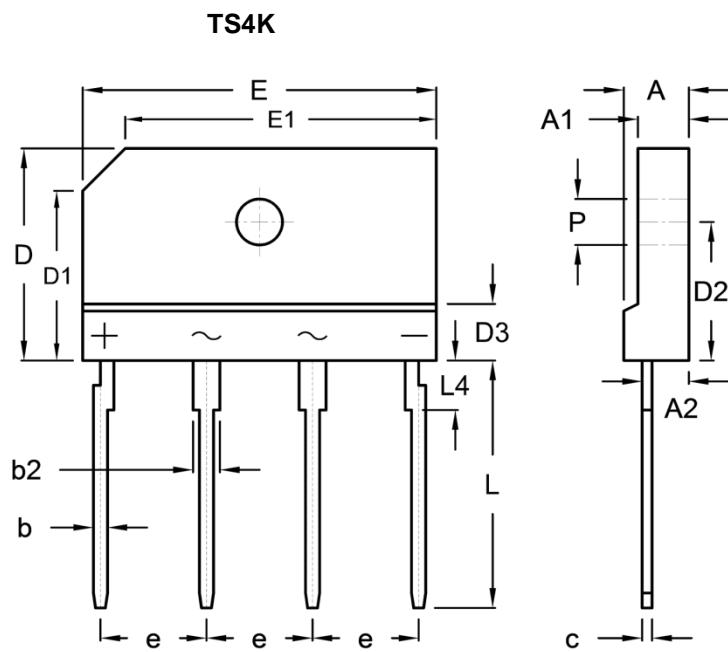


**Fig.3 Typical Reverse Characteristics**



**Fig.4 Typical Forward Characteristics**



**PACKAGE OUTLINE DIMENSIONS**


DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	4.40	4.80	0.173	0.189
A1	3.40	3.80	0.134	0.150
A2	3.20	3.40	0.126	0.134
b	0.90	1.10	0.035	0.043
b2	1.70	2.10	0.067	0.083
c	0.60	0.80	0.024	0.031
D	14.70	15.30	0.579	0.602
D1	11.50	12.50	0.453	0.492
D2	9.50	10.10	0.374	0.398
D3	3.80	4.20	0.150	0.165
E	24.70	25.30	0.972	0.996
E1	21.50	22.50	0.846	0.886
e	7.30	7.70	0.287	0.303
L	17.00	18.00	0.669	0.709
L4	3.30	3.70	0.130	0.146
P	3.10	3.40	0.122	0.134

**MARKING DIAGRAM**


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

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