

1A, 50V - 600V Super Fast Rectifier

FEATURES

- AEC-Q101 qualified available
- High efficiency, low V_F
- High current capability
- High reliability
- High surge current capability
- Low power loss
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

APPLICATIONS

- DC to DC converter
- Switching mode converters and inverters
- Freewheeling application

MECHANICAL DATA

- Case: TS-1
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Pure tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 2 whisker test
- Polarity: Indicated by cathode band
- WeigSFT: 0.200g (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
I_F	1	A
V_{RRM}	50 - 600	V
I_{FSM}	30	A
T_{JMAX}	150	°C
Package	TS-1	
Configuration	Single die	



TS-1



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)										
PARAMETER	SYMBOL	SFT 11G	SFT 12G	SFT 13G	SFT 14G	SFT 15G	SFT 16G	SFT 17G	SFT 18G	UNIT
Marking code on the device		SFT 11G	SFT 12G	SFT 13G	SFT 14G	SFT 15G	SFT 16G	SFT 17G	SFT 18G	
Repetitive peak reverse voltage	V_{RRM}	50	100	150	200	300	400	500	600	V
Reverse voltage, total rms value	$V_{R(RMS)}$	35	70	105	140	210	280	350	420	V
Forward current	I_F	1								A
Surge peak forward current, 8.3ms single half sine wave superimposed on rated load	I_{FSM}	30								A
Junction temperature	T_J	-55 to +150								°C
Storage temperature	T_{STG}	-55 to +150								°C

THERMAL PERFORMANCE			
PARAMETER	SYMBOL	TYP	UNIT
Junction-to-ambient thermal resistance	$R_{\theta JA}$	100	°C/W

ELECTRICAL SPECIFICATIONS ($T_A = 25^\circ\text{C}$ unless otherwise noted)						
PARAMETER		CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage ⁽¹⁾	SFT11G	$I_F = 1\text{A}, T_J = 25^\circ\text{C}$	V_F	-	0.95	V
	SFT12G					
	SFT13G					
	SFT14G			-	1.30	V
	SFT15G					
	SFT16G					
SFT17G	-	1.70	V			
SFT18G						
Reverse current @ rated V_R ⁽²⁾		$T_J = 25^\circ\text{C}$	I_R	-	5	μA
		$T_J = 125^\circ\text{C}$		-	100	μA
Junction capacitance	SFT11G	$1\text{MHz}, V_R = 4.0\text{V}$	C_J	20	-	pF
	SFT12G					
	SFT13G					
	SFT14G			10	-	pF
	SFT15G					
	SFT16G					
SFT17G	-	35	ns			
SFT18G						
Reverse recovery time		$I_F = 0.5\text{A}, I_R = 1.0\text{A}$ $I_{rr} = 0.25\text{A}$	t_{rr}	-	35	ns

Notes:

1. Pulse test with $PW = 0.3\text{ms}$
2. Pulse test with $PW = 30\text{ms}$

ORDERING INFORMATION		
ORDERING CODE ⁽¹⁾⁽²⁾	PACKAGE	PACKING
SFT1xG	TS-1	5,000 / Tape & Reel
SFT1xG A0G	TS-1	3,000 / Ammo box
SFT1xGH	TS-1	5,000 / Tape & Reel
SFT1xGHA0G	TS-1	3,000 / Ammo box

Notes:

1. "x" defines voltage from 50V (SFT11G) to 600V (SFT18G)
2. "H" means AEC-Q101 qualified

CHARACTERISTICS CURVES

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

Fig.1 Forward Current Derating Curve

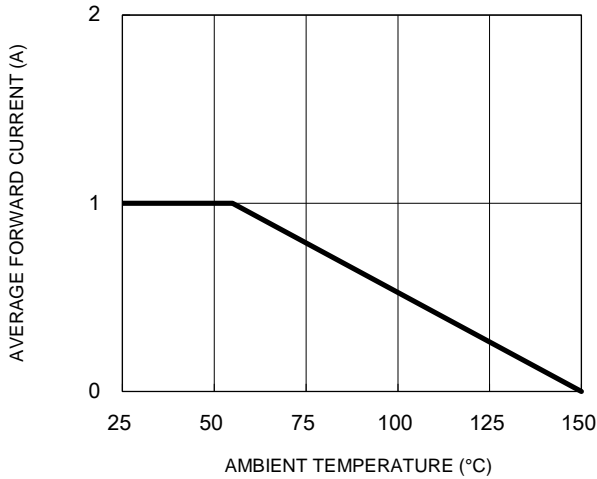


Fig.2 Typical Junction Capacitance

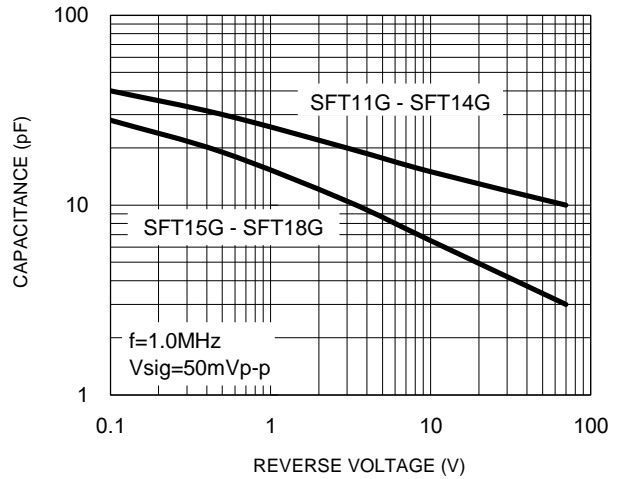


Fig.3 Typical Reverse Characteristics

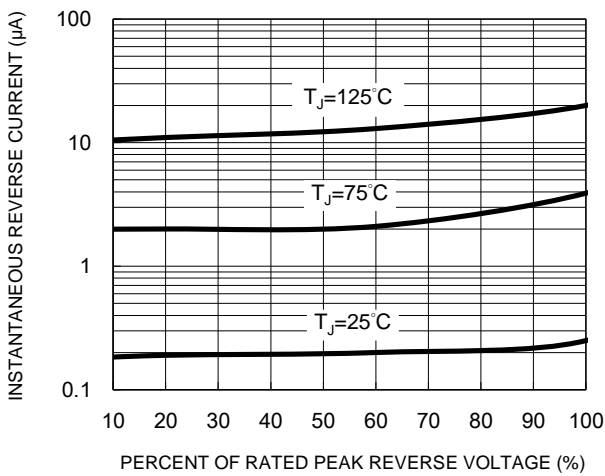


Fig.4 Typical Forward Characteristics

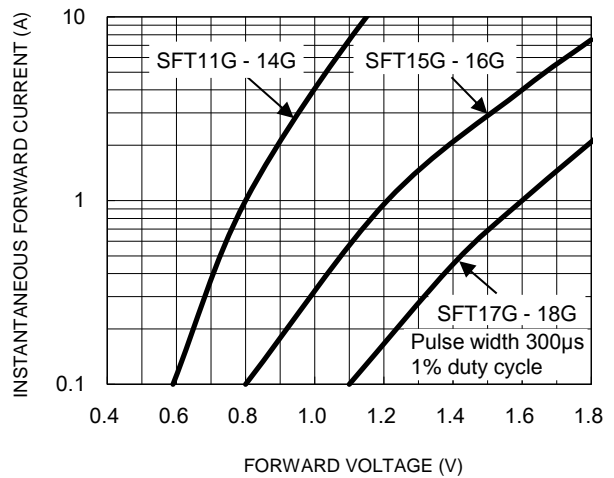
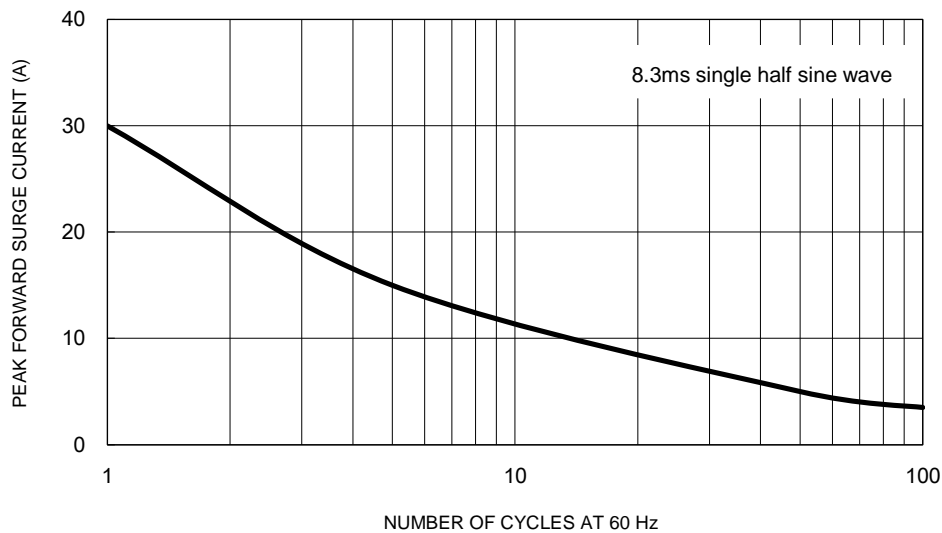


Fig.5 Maximum Non-Repetitive Forward Surge Current



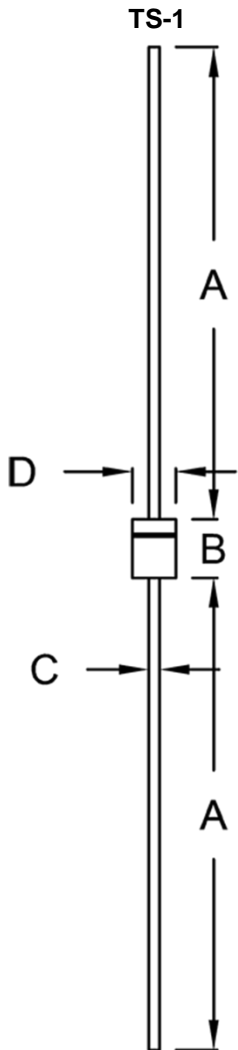
CHARACTERISTICS CURVES

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

Fig.6 Reverse Recovery Time Characteristic and Test Circuit Diagram



PACKAGE OUTLINE DIMENSIONS



DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	25.40	-	1.000	-
B	3.00	3.30	0.118	0.130
C	0.53	0.64	0.021	0.025
D	2.00	2.70	0.079	0.106

MARKING DIAGRAM



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