

6A, 50V - 600V Super Fast Rectifier

FEATURES

- AEC-Q101 qualified available
- High current capability, Low V_F
- 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: DO-201AD
- 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
- Weight: 1.20g (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
I_F	6	A
V_{RRM}	50 - 600	V
I_{FSM}	150	A
$T_{J\ MAX}$	150	°C
Package	DO-201AD	
Configuration	Single die	



DO-201AD



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

PARAMETER	SYMBOL	SF 61G	SF 62G	SF 63G	SF 64G	SF 65G	SF 66G	SF 67G	SF 68G	UNIT
Marking code on the device		SF 61G	SF 62G	SF 63G	SF 64G	SF 65G	SF 66G	SF 67G	SF 68G	
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	6								A
Surge peak forward current, 8.3ms single half sine wave superimposed on rated load	I_{FSM}	150								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-lead thermal resistance	$R_{\theta JL}$	5	°C/W
Junction-to-ambient thermal resistance	$R_{\theta JA}$	40	°C/W

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

PARAMETER	CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage ⁽¹⁾	SF61G	V_F	-	0.975	V
	SF62G				
	SF63G				
	SF64G				
	SF65G				
	SF66G		-	1.300	V
	SF67G		-	1.700	V
	SF68G		-	-	-
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	SF61G	C_J	100	-	pF
	SF62G				
	SF63G				
	SF64G				
	SF65G				
	SF66G		50	-	pF
	SF67G		-	-	-
	SF68G		-	-	-
Reverse recovery time	$I_F = 0.5\text{A}, I_R = 1.0\text{A},$ $t_{rr} = 0.25\text{A}$	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
SF6xG	DO-201AD	1,250 / Tape & Reel
SF6xG A0G	DO-201AD	500 / Ammo box
SF6xGH	DO-201AD	1,250 / Tape & Reel
SF6xGHA0G	DO-201AD	500 / Ammo box

Notes:

1. "x" defines voltage from 50V (SF61G) to 600V (SF68G)
2. "H" means AEC-Q101 qualified

CHARACTERISTICS CURVES

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

Fig.1 Forward Current Derating Curve

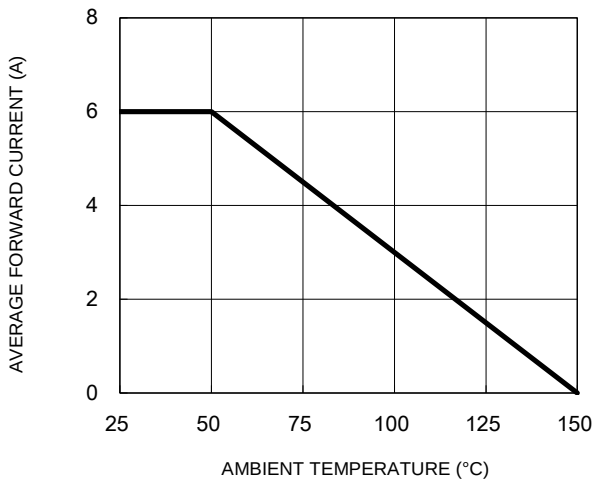


Fig.2 Typical Junction Capacitance

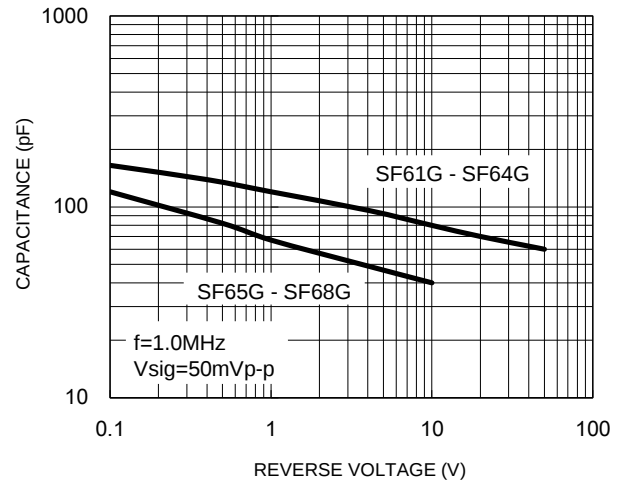


Fig.3 Typical Reverse Characteristics

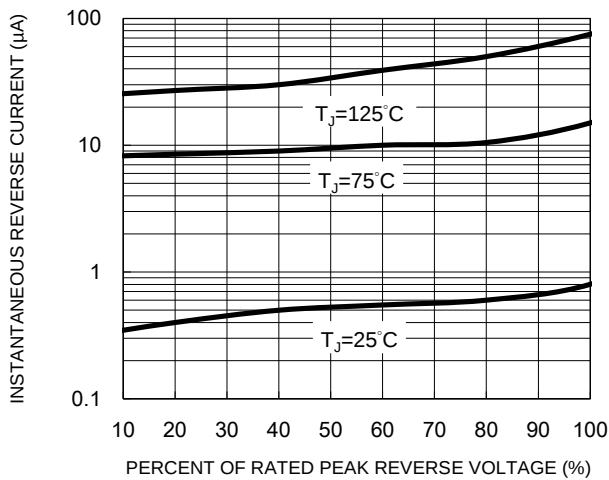


Fig.4 Typical Forward Characteristics

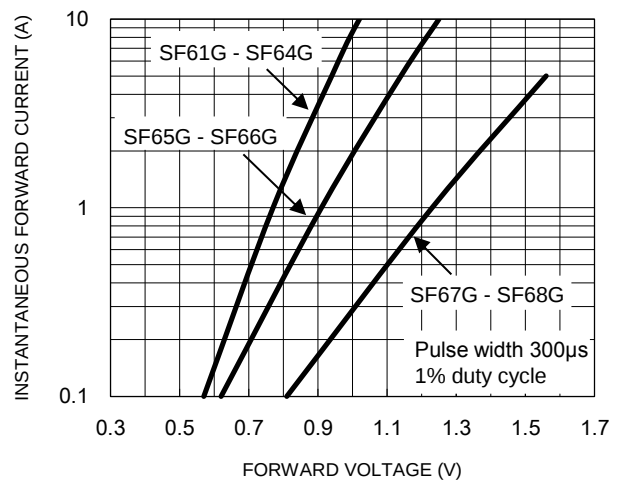
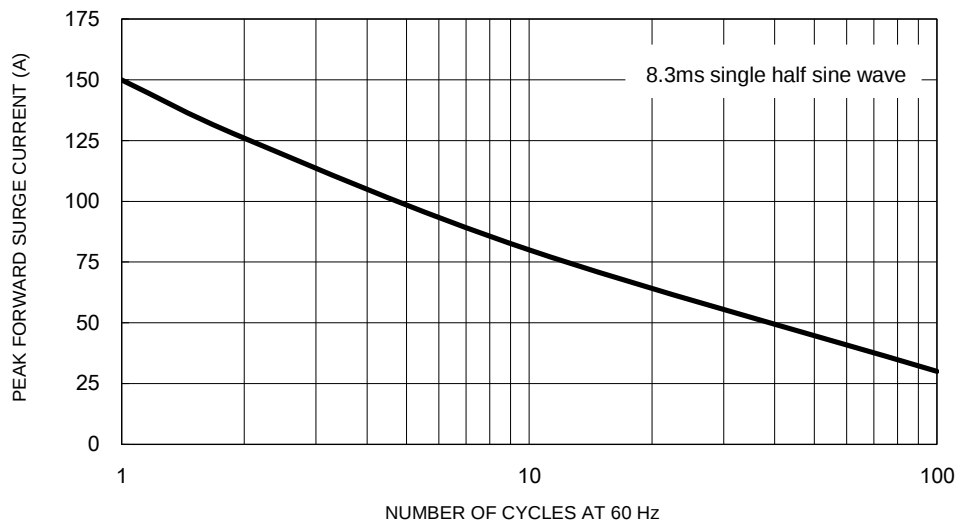


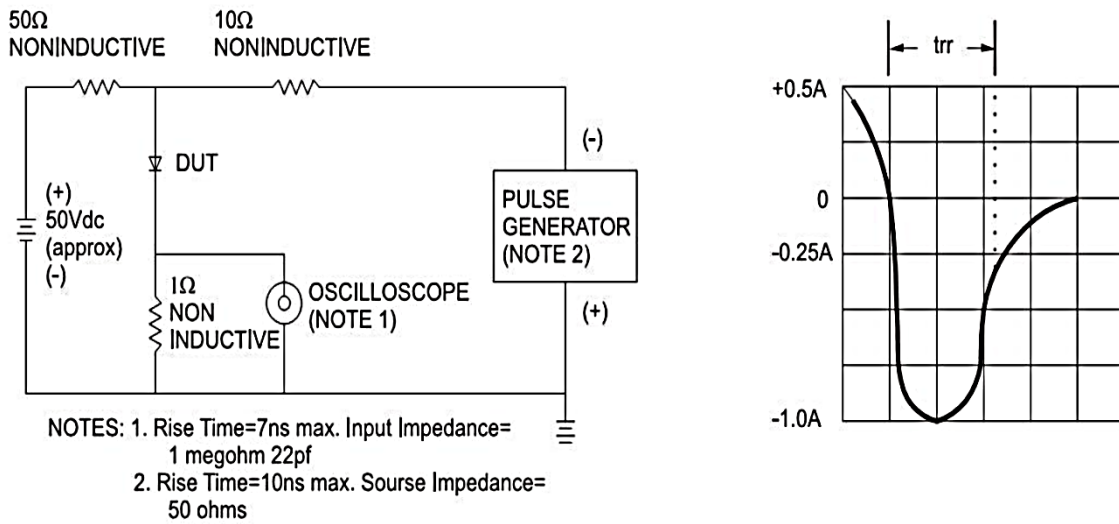
Fig.5 Maximum Non-Repetitive Forward Surge Current



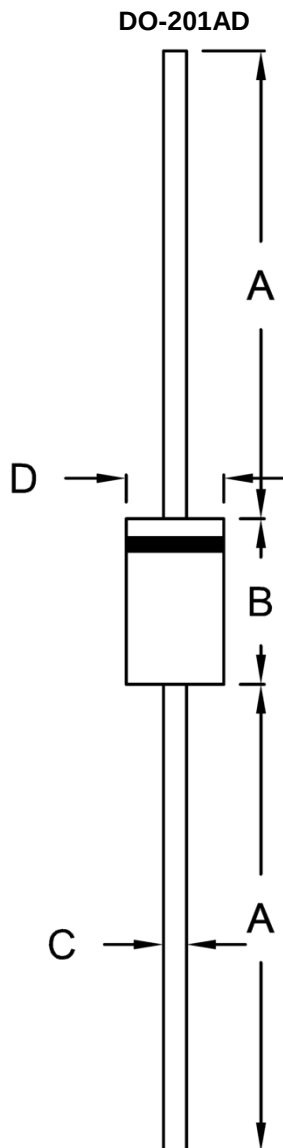
CHARACTERISTICS CURVES

($T_A = 25^\circ\text{C}$ 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	8.50	9.50	0.335	0.374
C	1.20	1.30	0.047	0.051
D	5.00	5.60	0.197	0.220

MARKING DIAGRAM



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

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