

16A, 50V - 600V Super Fast Rectifier

FEATURES

- AEC-Q101 qualified available
- Dual rectifier construction, positive center-tap
- Glass passivated chip junctions
- Superfast recovery time, high voltage
- Low forward voltage, high current capability
- Low thermal resistance
- Low power loss, high efficiency
- UL Recognized File # E-326243
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

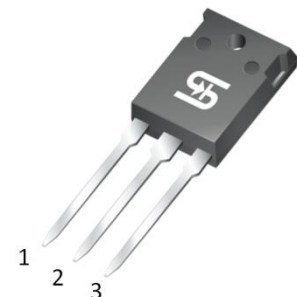
APPLICATIONS

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

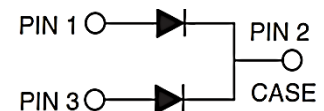
MECHANICAL DATA

- Case: TO-247AD (TO-3P)
- 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: 1.13 N·m maximum
- Polarity: As marked
- Weight: 5.60g (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
I_F	16	A
V_{RRM}	50 - 600	V
I_{FSM}	150	A
$T_{J\ MAX}$	150	°C
Package	TO-247AD (TO-3P)	
Configuration	Dual dies	



TO-247AD (TO-3P)



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)										
PARAMETER	SYMBOL	SF 1601 PT	SF 1602 PT	SF 1603 PT	SF 1604 PT	SF 1605 PT	SF 1606 PT	SF 1607 PT	SF 1608 PT	UNIT
Marking code on the device		SF 1601 PT	SF 1602 PT	SF 1603 PT	SF 1604 PT	SF 1605 PT	SF 1606 PT	SF 1607 PT	SF 1608 PT	
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	16								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-case thermal resistance	$R_{\theta JC}$	2	°C/W

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

PARAMETER	CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage per diode ⁽¹⁾	SF1601PT SF1602PT SF1603PT SF1604PT SF1605PT SF1606PT SF1607PT SF1608PT $I_F = 8\text{A}, T_J = 25^\circ\text{C}$	V_F	-	0.95	V
			-	1.30	V
			-	1.70	V
			-	10	μA
Reverse current @ rated V_R per diode ⁽²⁾	$T_J = 25^\circ\text{C}$	I_R	-	10	μA
	$T_J = 125^\circ\text{C}$		-	500	μA
Junction capacitance per diode	1MHz, $V_R = 4.0\text{V}$	C_J	85	-	pF
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 = 0.3ms
2. Pulse test with PW = 30ms

ORDERING INFORMATION

ORDERING CODE ⁽¹⁾⁽²⁾	PACKAGE	PACKING
SF16xPT	TO-247AD (TO-3P)	30 / Tube
SF16xPTH	TO-247AD (TO-3P)	30 / Tube

Notes:

1. "x" defines voltage from 50V(SF1601PT) to 600V(SF1608PT)
2. "H" means AEC-Q101 qualified

CHARACTERISTICS CURVES

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

Fig.1 Forward Current Derating Curve

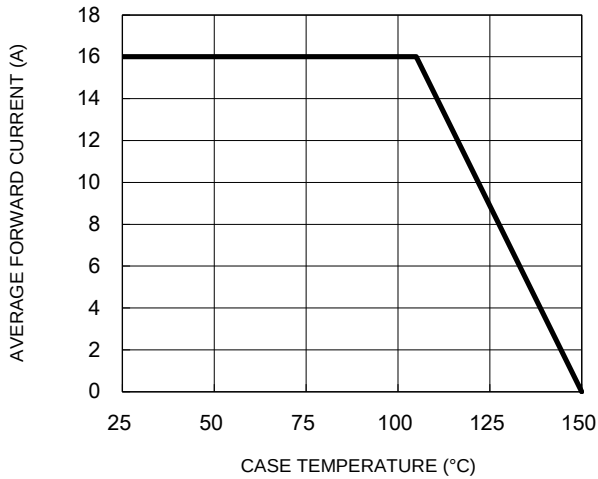


Fig.2 Typical Junction Capacitance

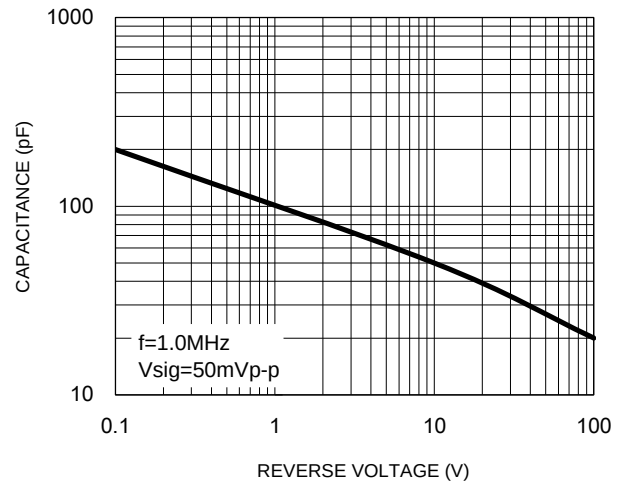


Fig.3 Typical Reverse Characteristics

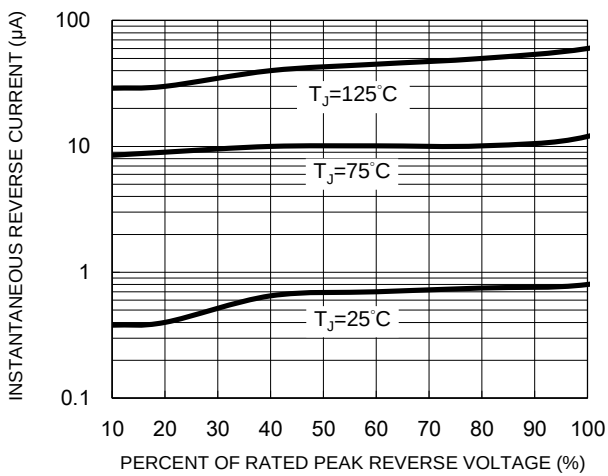


Fig.4 Typical Forward Characteristics

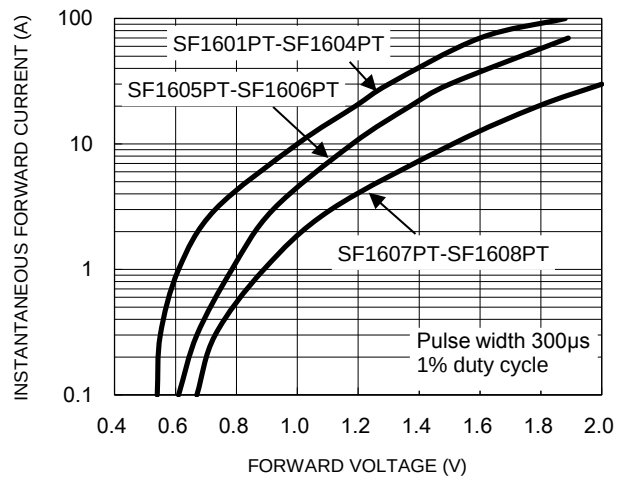
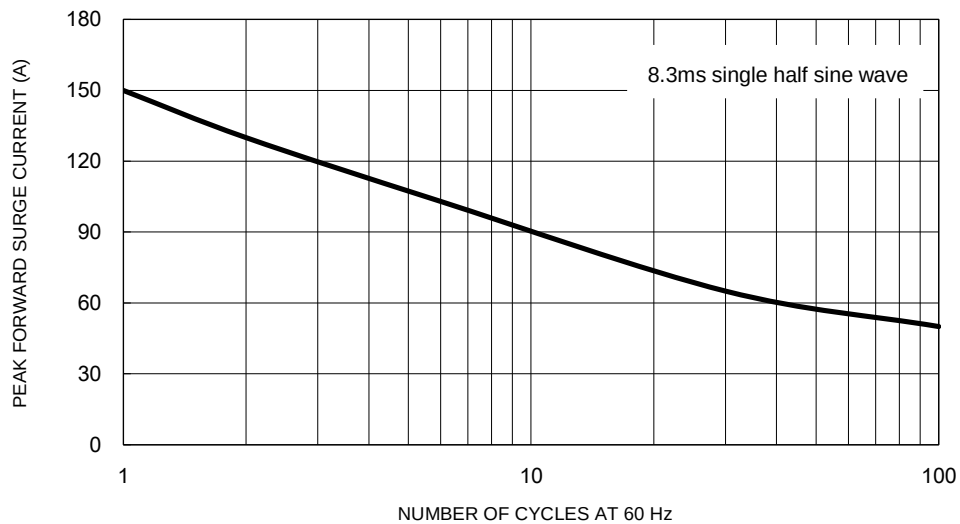


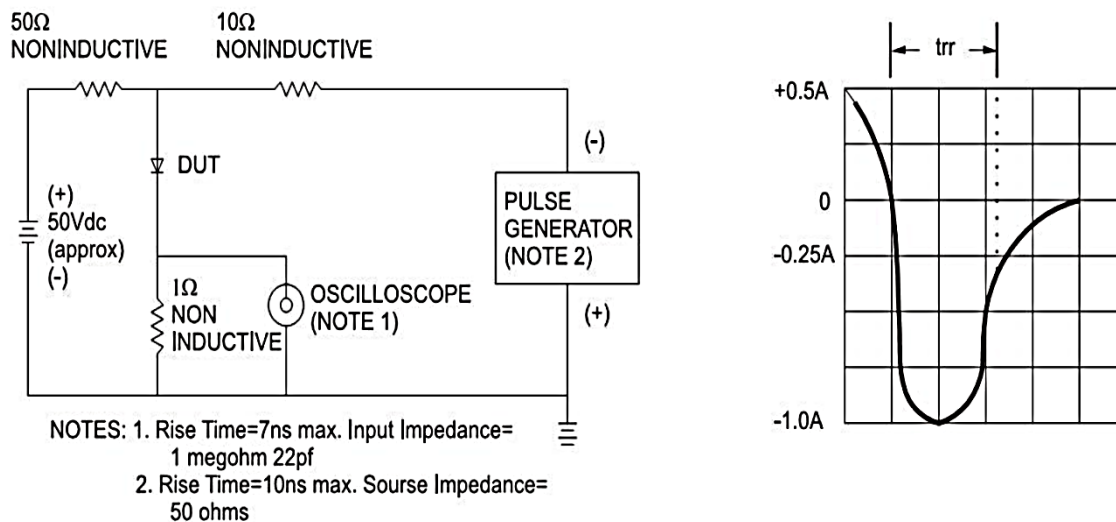
Fig.5 Maximum Non-Repetitive Forward Surge Current



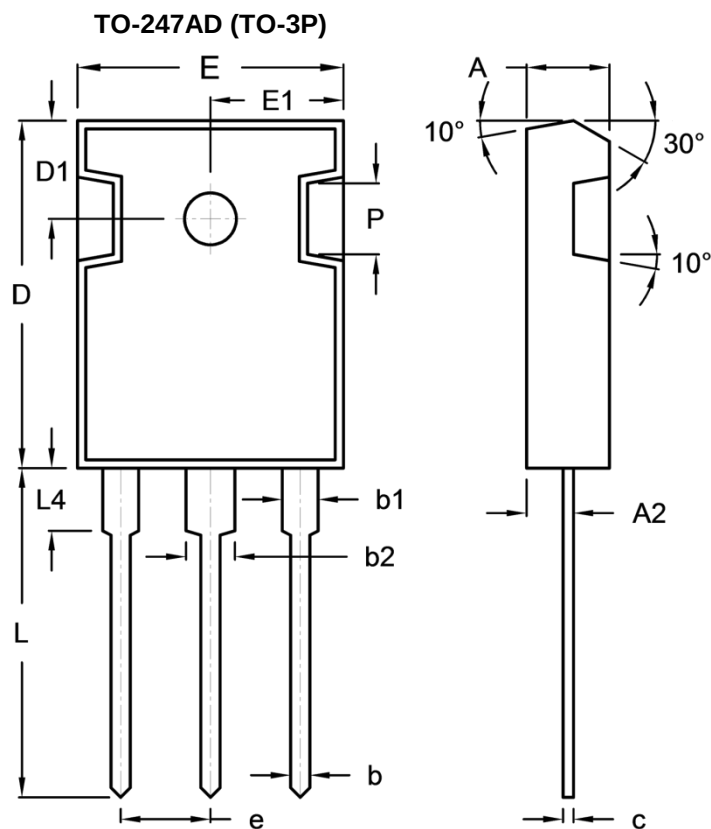
CHARACTERISTICS CURVES

($T_A = 25^\circ\text{C}$ 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	4.90	5.16	0.193	0.203
A2	2.70	3.00	0.106	0.118
b	1.12	1.22	0.044	0.048
b1	1.93	2.18	0.076	0.086
b2	2.97	3.22	0.117	0.127
c	0.51	0.76	0.020	0.030
D	20.80	21.30	0.819	0.839
D1	5.70	6.20	0.224	0.244
E	15.90	16.40	0.626	0.646
E1	7.90	8.20	0.311	0.323
e	5.20	5.70	0.205	0.224
H	2.90	3.40	0.114	0.134
L	19.70	20.20	0.776	0.795
L4	3.50	4.10	0.138	0.161
P	-	4.30	-	0.169

MARKING DIAGRAM



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

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