

## 10A, 200V - 600V Super Fast Rectifier

### FEATURES

- AEC-Q101 qualified available
- High efficiency
- High current capability
- High reliability
- High surge current capability
- Low power loss
- UL Recognized File # E-326243
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

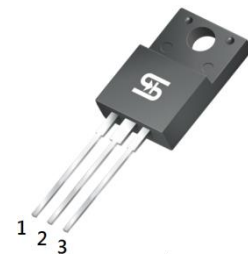
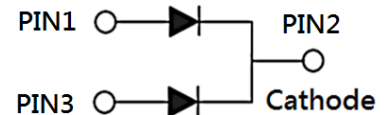
### APPLICATIONS

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

### MECHANICAL DATA

- Case: ITO-220AB
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Mounting torque: 0.56 N·m maximum
- Meet JESD 201 class 2 whisker test
- Polarity: As marked
- Weight: 1.77g (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
$I_F$	10	A
$V_{RRM}$	200 - 600	V
$I_{FSM}$	80, 125	A
$T_{JMAX}$	150	°C
Package	ITO-220AB	
Configuration	Dual dies	


**ITO-220AB**


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

PARAMETER	SYMBOL	SFF	SFF	SFF	SFF	UNIT
		10L04G	10L05G	10L06G	10L08G	
Marking code on the device		SFF 10L04G	SFF 10L05G	SFF 10L06G	SFF 10L08G	
Repetitive peak reverse voltage	$V_{RRM}$	200	300	400	600	V
Reverse voltage, total rms value	$V_{R(RMS)}$	140	210	280	420	V
Forward current	$I_F$	10				A
Surge peak forward current, 8.3ms single half sine wave superimposed on rated load	$I_{FSM}$	125	80			A
Junction temperature	$T_J$	-55 to +150				°C
Storage temperature	$T_{STG}$	-55 to +150				°C

<b>THERMAL PERFORMANCE</b>			
<b>PARAMETER</b>	<b>SYMBOL</b>	<b>TYP</b>	<b>UNIT</b>
Junction-to-lead thermal resistance	$R_{\theta JL}$	2	°C/W
Junction-to-ambient thermal resistance	$R_{\theta JA}$	9	°C/W
Junction-to-case thermal resistance	$R_{\theta JC}$	3	°C/W

**Thermal Performance Note:** Units mounted on heat sink with 2"x3"x0.25" Al -plate

<b>ELECTRICAL SPECIFICATIONS</b> ( $T_A = 25^\circ\text{C}$ unless otherwise noted)						
<b>PARAMETER</b>		<b>CONDITIONS</b>	<b>SYMBOL</b>	<b>TYP</b>	<b>MAX</b>	<b>UNIT</b>
Forward voltage per diode <sup>(1)</sup>	SFF10L04G	$I_F = 5\text{A}, T_J = 25^\circ\text{C}$	$V_F$	0.94	0.98	V
	SFF10L05G			1.04	1.30	V
	SFF10L06G			1.05	1.30	V
	SFF10L08G			1.21	1.70	V
	SFF10L04G	$I_F = 5\text{A}, T_J = 125^\circ\text{C}$		0.82	0.90	V
	SFF10L05G			0.89	0.96	V
	SFF10L06G			0.92	1.00	V
	SFF10L08G			1.04	1.20	V
Reverse current @ rated $V_R$ per diode <sup>(2)</sup>		$T_J = 25^\circ\text{C}$	$I_R$	-	10	$\mu\text{A}$
		$T_J = 125^\circ\text{C}$		-	400	$\mu\text{A}$
Junction capacitance per diode	SFF10L04G	1MHz, $V_R = 4.0\text{V}$	$C_J$	60	-	pF
	SFF10L05G			50	-	pF
	SFF10L06G					
	SFF10L08G					
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 = 0.3ms
2. Pulse test with PW = 30ms

<b>ORDERING INFORMATION</b>		
<b>ORDERING CODE</b> <sup>(1)(2)</sup>	<b>PACKAGE</b>	<b>PACKING</b>
SFF10LxG	ITO-220AB	50 / Tube
SFF10LxGH	ITO-220AB	50 / Tube

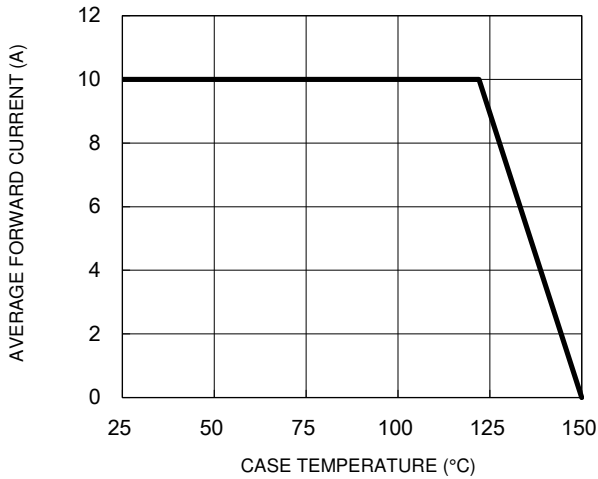
**Notes:**

1. "x" defines voltage from 200V(SFF10L04G) to 600V(SFF10L08G)
2. "H" means AEC-Q101 qualified

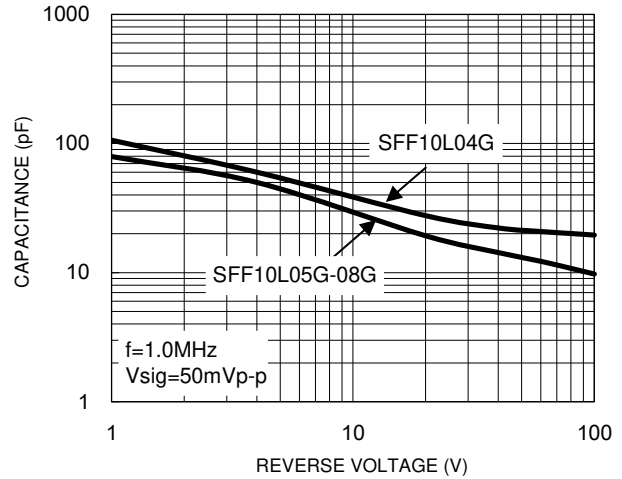
**CHARACTERISTICS CURVES**

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

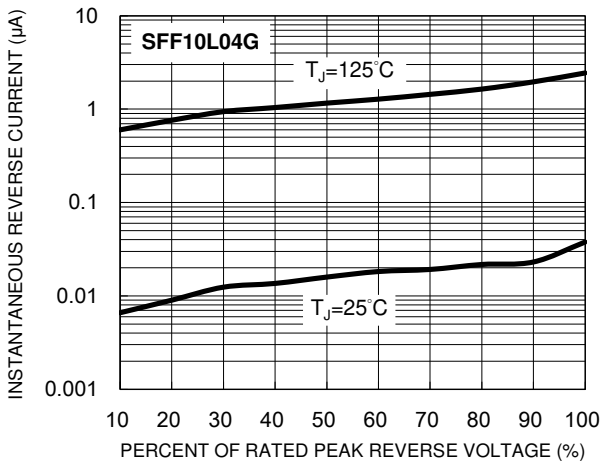
**Fig.1 Forward Current Derating Curve**



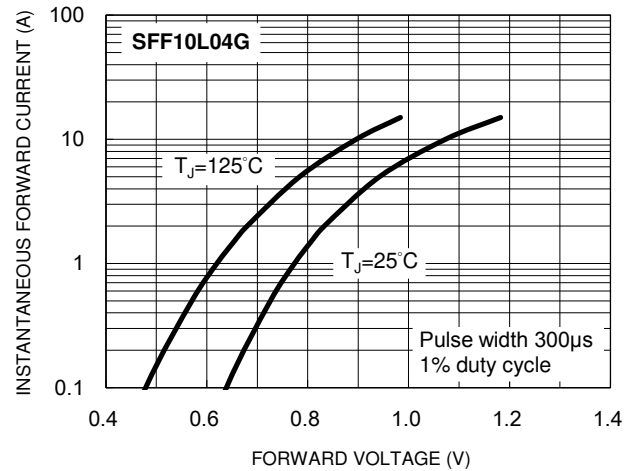
**Fig.2 Typical Junction Capacitance**



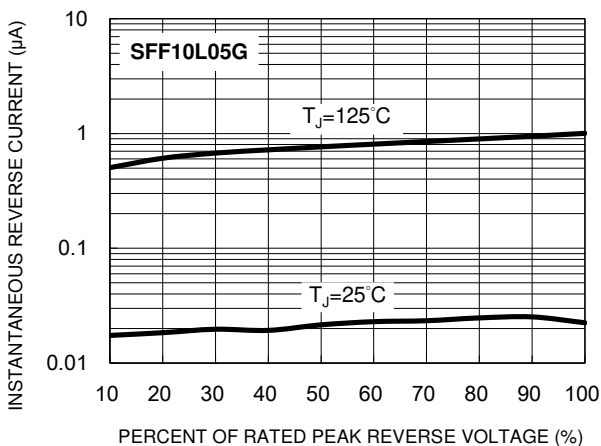
**Fig.3 Typical Reverse Characteristics**



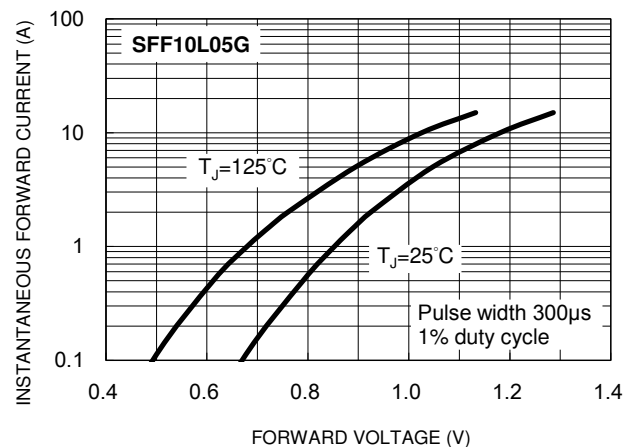
**Fig.4 Typical Forward Characteristics**



**Fig.5 Typical Reverse Characteristics**



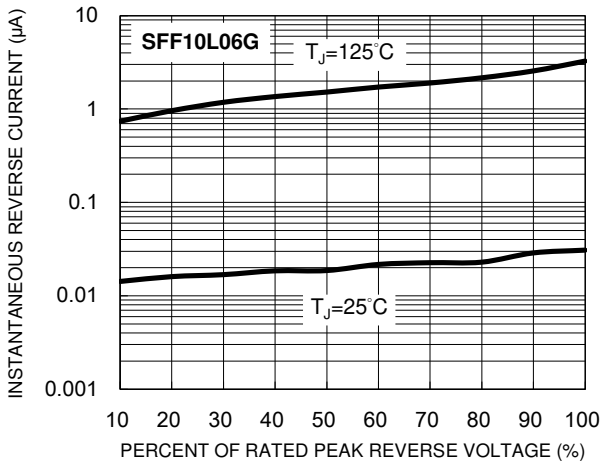
**Fig.6 Typical Forward Characteristics**



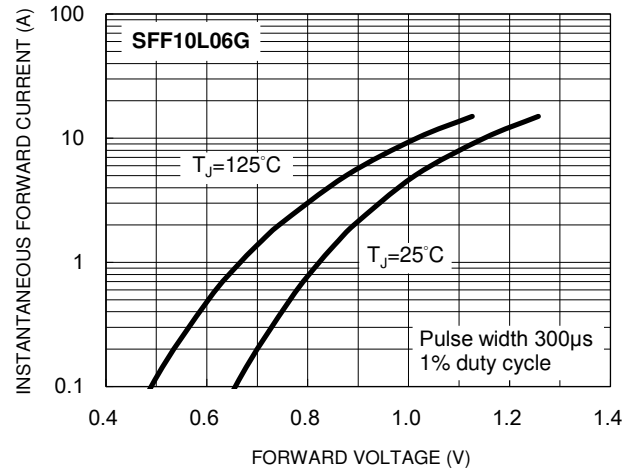
**CHARACTERISTICS CURVES**

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

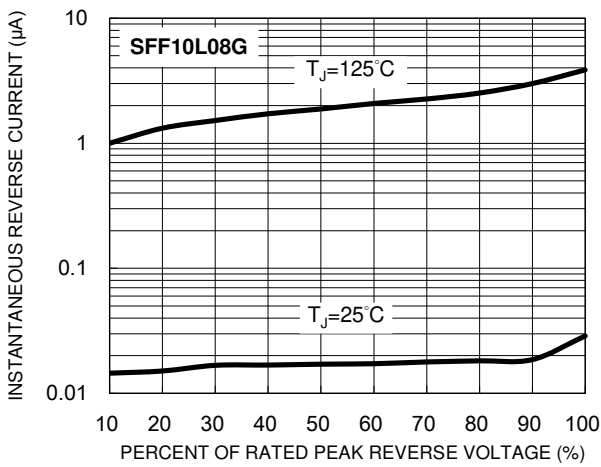
**Fig.7 Typical Reverse Characteristics**



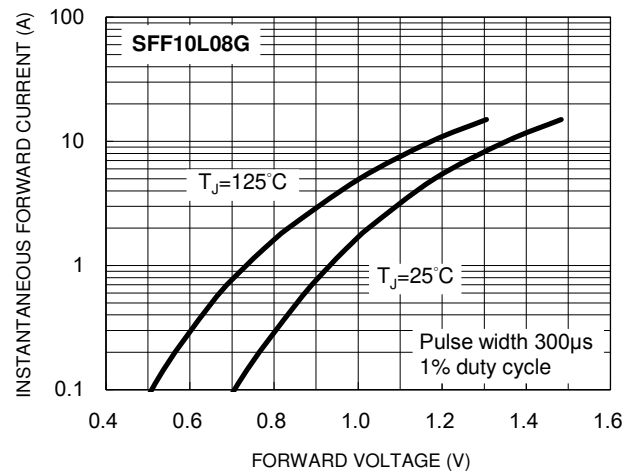
**Fig.8 Typical Forward Characteristics**



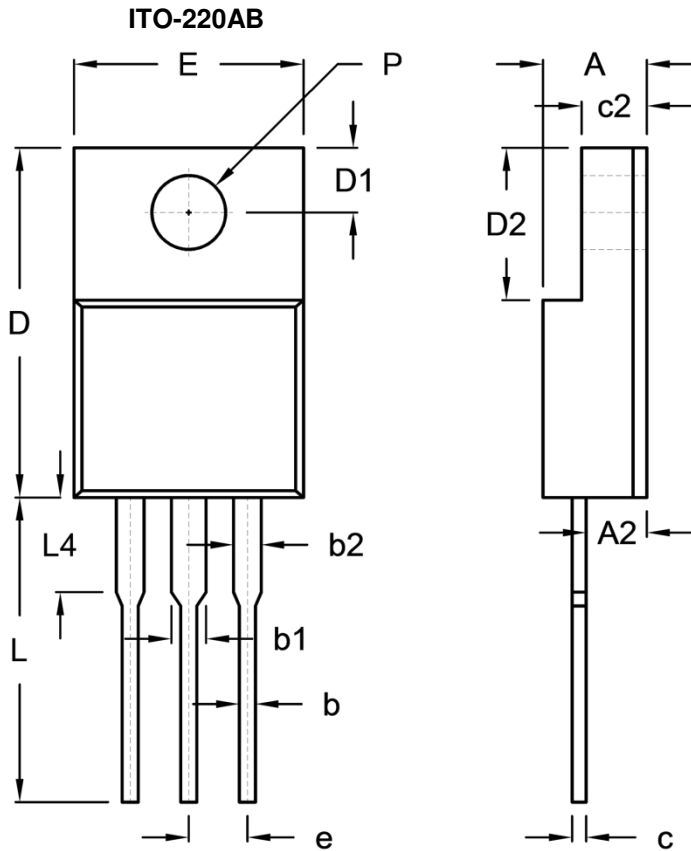
**Fig.9 Typical Reverse Characteristics**



**Fig.10 Typical Forward Characteristics**



**PACKAGE OUTLINE DIMENSIONS**



DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	4.30	4.70	0.169	0.185
A2	2.30	2.96	0.091	0.117
b	0.50	0.90	0.020	0.035
b1	-	1.80	-	0.071
b2	0.95	1.45	0.037	0.057
c	0.46	0.76	0.018	0.030
c2	2.50	3.16	0.098	0.124
D	14.80	15.50	0.583	0.610
D1	2.40	3.20	0.094	0.126
D2	6.30	6.90	0.248	0.272
E	9.60	10.30	0.378	0.406
e	2.41	2.67	0.095	0.105
L	12.60	13.80	0.496	0.543
L4	-	4.10	-	0.161
P	3.00	3.40	0.118	0.134

**MARKING DIAGRAM**



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

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