

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

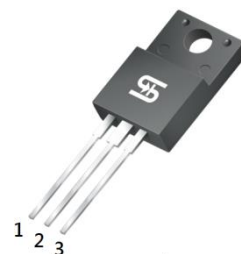
APPLICATIONS

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

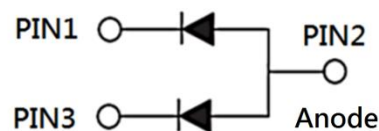
MECHANICAL DATA

- 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: 1.70g (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
		10L04GA	10L05GA	10L06GA	10L08GA	
Marking code on the device		SFF 10L04GA	SFF 10L05GA	SFF 10L06GA	SFF 10L08GA	
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

THERMAL PERFORMANCE			
PARAMETER	SYMBOL	TYP	UNIT
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 2"x3"x0.25" Al -plate

ELECTRICAL SPECIFICATIONS ($T_A = 25^\circ\text{C}$ unless otherwise noted)						
PARAMETER		CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage per diode ⁽¹⁾	SFF10L04GA	$I_F = 5\text{A}, T_J = 25^\circ\text{C}$	V_F	0.94	0.98	V
	SFF10L05GA			1.04	1.30	V
	SFF10L06GA			1.05	1.30	V
	SFF10L08GA			1.21	1.70	V
	SFF10L04GA	$I_F = 5\text{A}, T_J = 125^\circ\text{C}$		0.82	0.90	V
	SFF10L05GA			0.89	0.96	V
	SFF10L06GA			0.92	1.00	V
	SFF10L08GA			1.04	1.20	V
Reverse current @ rated V_R per diode ⁽²⁾		$T_J = 25^\circ\text{C}$	I_R	-	10	μA
		$T_J = 125^\circ\text{C}$		-	400	μA
Junction capacitance per diode	SFF10L04GA	1MHz, $V_R = 4.0\text{V}$	C_J	60	-	pF
	SFF10L05GA			50	-	pF
	SFF10L06GA					
	SFF10L08GA					
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
SFF10LxGA	ITO-220AB	50 / Tube
SFF10LxGAH	ITO-220AB	50 / Tube

Notes:

1. "x" defines voltage from 200V(SFF10L04GA) to 600V(SFF10L08GA)
2. "H" means AEC-Q101 qualified

CHARACTERISTICS CURVES

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

Fig.1 Forward Current Derating Curve

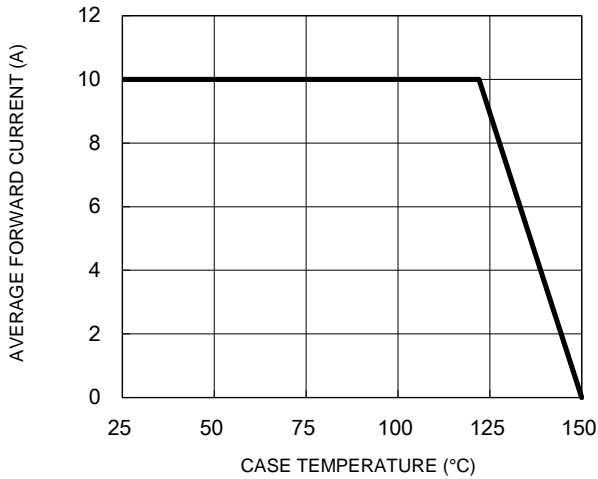


Fig.2 Typical Junction Capacitance

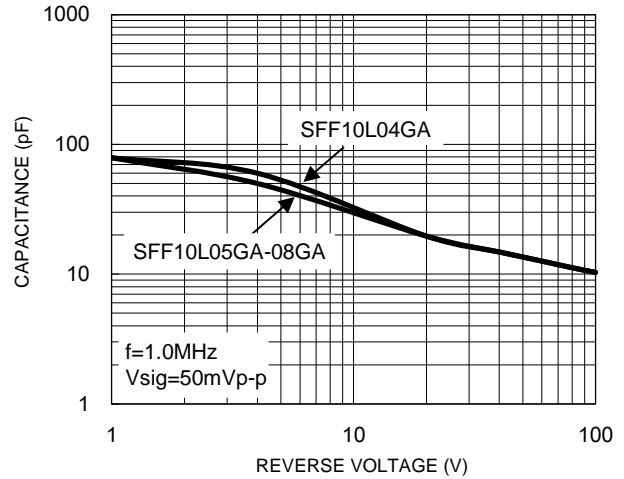


Fig.3 Typical Reverse Characteristics

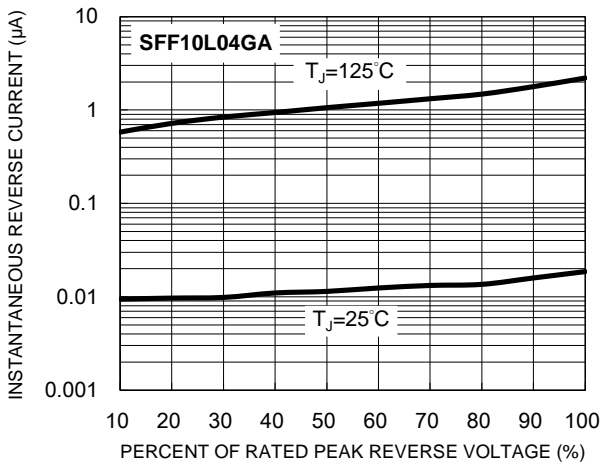


Fig.4 Typical Forward Characteristics

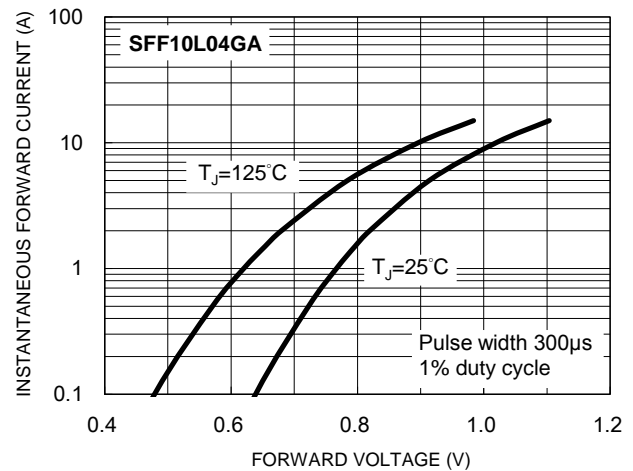


Fig.5 Typical Reverse Characteristics

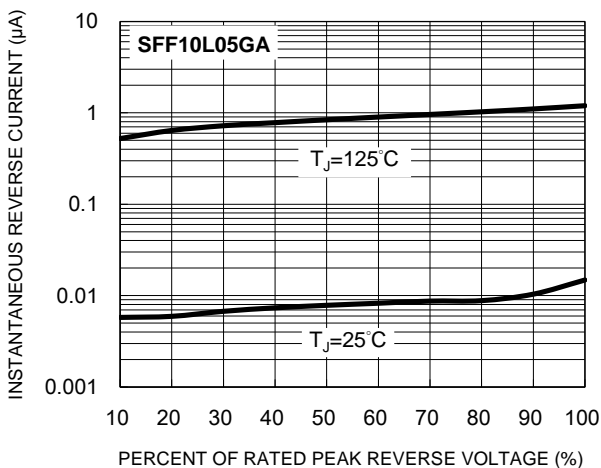
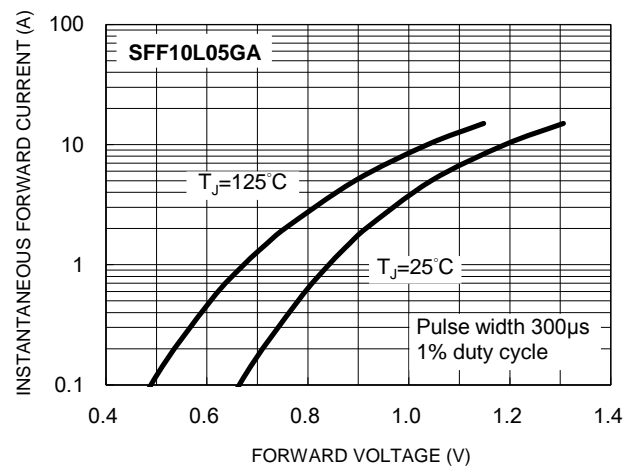


Fig.6 Typical Forward Characteristics



CHARACTERISTICS CURVES

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

Fig.7 Typical Reverse Characteristics

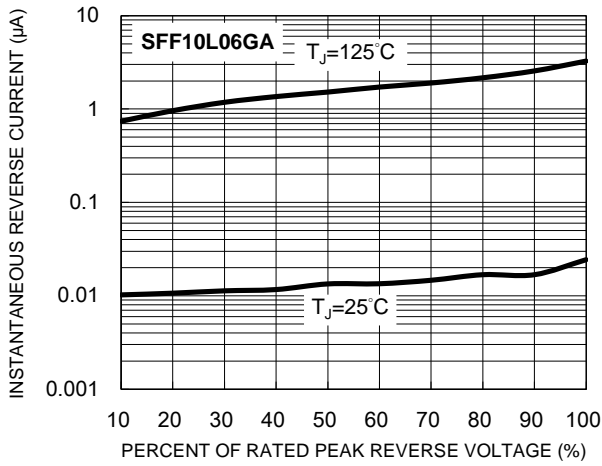


Fig.8 Typical Forward Characteristics

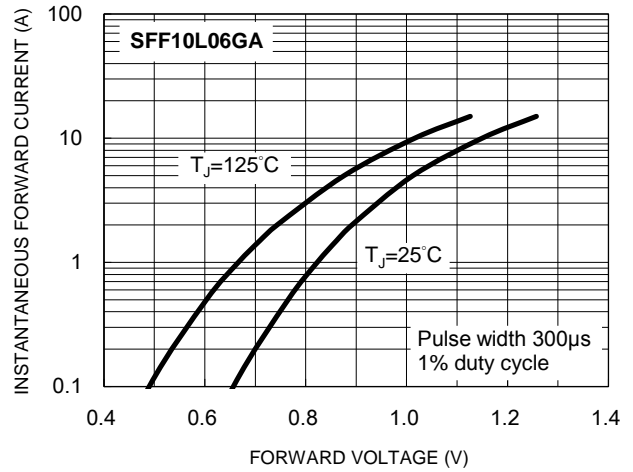


Fig.9 Typical Reverse Characteristics

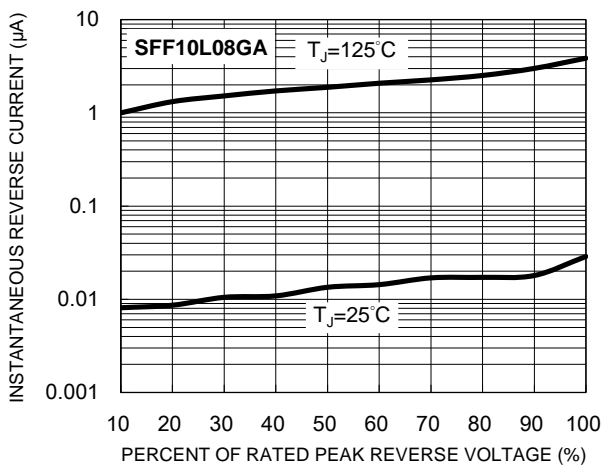
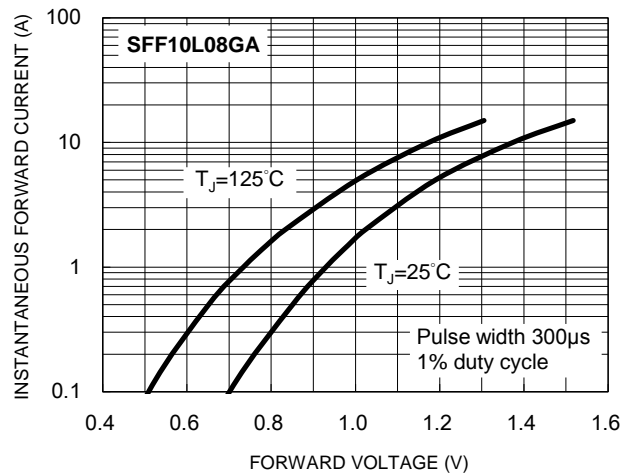
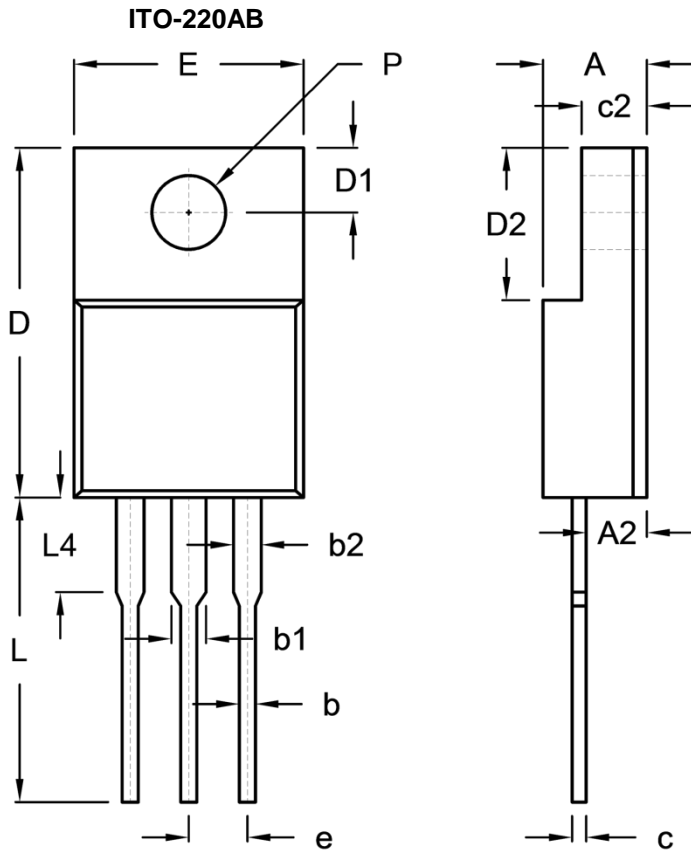


Fig.10 Typical Forward Characteristics



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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