# UGF1004G – UGF1008G

Taiwan Semiconductor

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

#### FEATURES

TAIWAN

• AEC-Q101 qualified available

SEMICONDUCTOR

- High efficiency, low  $V_{\rm F}$
- High current capability
- 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

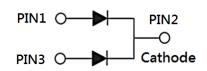
### **MECHANICAL DATA**

- 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 <sub>F</sub>	10	А
V <sub>RRM</sub>	200 - 600	V
I <sub>FSM</sub>	70	А
T <sub>J MAX</sub>	150, 175	°C
Package	ITO-220AB	
Configuration	Dual dies	



ITO-220AB



<b>ABSOLUTE MAXIMUM RATINGS</b> ( $T_A = 25^{\circ}C$ unless otherwise noted)							
PARAMETER	SYMBOL	UGF	UGF	UGF	UGF	UGF	UNIT
FARAMETER		1004G	1005G	1006G	1007G	1008G	
Marking code on the device		UGF	UGF	UGF	UGF	UGF	
Marking code on the device		1004G	1005G	1006G	1007G	1008G	
Repetitive peak reverse voltage	V <sub>RRM</sub>	200	300	400	500	600	V
Reverse voltage, total rms value	V <sub>R(RMS)</sub>	140	210	280	350	420	V
Forward current	I <sub>F</sub>			10			А
Surge peak forward current, 8.3ms single half sine wave superimposed on rated load	I <sub>FSM</sub>	70		A			
Junction temperature	TJ	-55 to +175 -55 to +150		°C			
Storage temperature	T <sub>STG</sub>		-55 to +175	5	-55 to	+150	°C



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THERMAL PERFORMANCE			
PARAMETER	SYMBOL	ТҮР	UNIT
Junction-to-case thermal resistance	R <sub>eJC</sub>	6	°C/W

<b>ELECTRICAL SPECIFICATIONS</b> ( $T_A = 25^{\circ}C$ unless otherwise noted)						
PARAMETER		CONDITIONS	SYMBOL	ТҮР	MAX	UNIT
Forward voltage per diode <sup>(1)</sup>	UGF1004G	I <sub>F</sub> = 5A, T <sub>J</sub> = 25°C	V <sub>F</sub>	-	0.95	V
	UGF1005G UGF1006G			-	1.25	V
	UGF1007G UGF1008G			-	1.70	V
Reverse current @ rated V <sub>R</sub> per diode <sup>(2)</sup>		$T_J = 25^{\circ}C$	- I <sub>R</sub>	-	10	μA
		T <sub>J</sub> = 125°C		-	100	μA
UGF10040 UGF10050 Reverse recovery time UGF10060		I <sub>F</sub> = 0.5A , I <sub>R</sub> = 1.0A I <sub>rr</sub> = 0.25A	t <sub>rr</sub>	-	20	ns
	UGF1007G UGF1008G	$I_{rr} = 0.25A$		-	25	ns

#### Notes:

1. Pulse test with PW = 0.3ms

2. Pulse test with PW = 30ms

ORDERING INFORMATION		
ORDERING CODE <sup>(1)(2)</sup>	PACKAGE	PACKING
UGF10xG	ITO-220AB	50 / Tube
UGF10xGH	ITO-220AB	50 / Tube

#### Notes:

1. "x" defines voltage from 200V(UGF1004G) to 600V(UGF1008G)

2. "H" means AEC-Q101 qualified



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#### **CHARACTERISTICS CURVES**

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

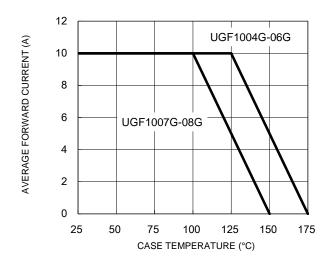
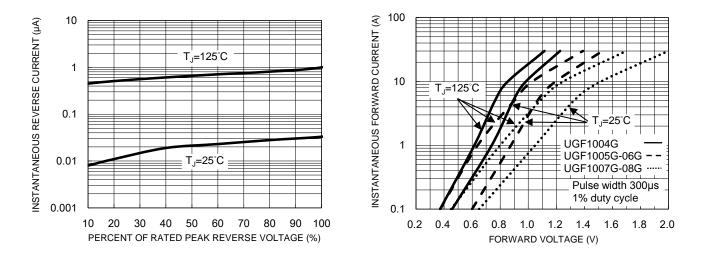


Fig.1 Forward Current Derating Curve

#### **Fig.3 Typical Reverse Characteristics**

**Fig.2 Typical Junction Capacitance** 

**Fig.4 Typical Forward Characteristics** 



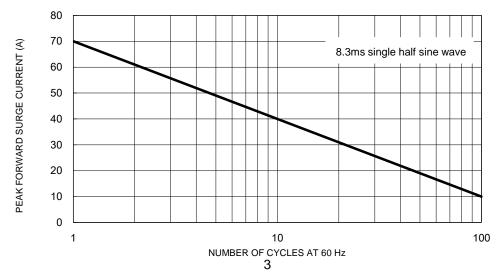
1000

100

10

CAPACITANCE (pF)





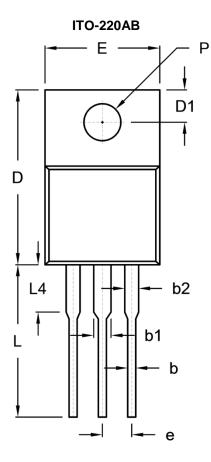
#### Downloaded from Arrow.com.

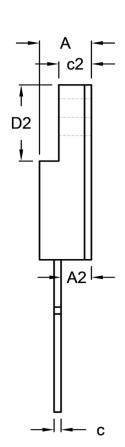


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#### PACKAGE OUTLINE DIMENSIONS





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	
с	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	
е	2.41	2.67	0.095	0.105	
L	12.60	13.80	0.496	0.543	
L4	-	4.10	-	0.161	
Р	3.00	3.40	0.118	0.134	

#### **MARKING DIAGRAM**

জ্র দ্র GYWW <mark>F</mark>
P/N

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



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