1A, 50V - 1000V High Efficient Rectifier

FEATURES

- AEC-Q101 qualified available
- Glass passivated chip junction
- Excellent high temperature switching
- High efficiency, low V_F
- Ultrafast recovery time for high efficiency
- 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-204AL (DO-41)
- 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: 0.330g (approximately)

KEY PARAMETERS		
PARAMETER	**VALUE**	**UNIT**
I_F	1	A
V_{RRM}	50 - 1000	V
I_{FSM}	30	A
$T_{J\ MAX}$	150	°C
Package	DO-204AL (DO-41)	
Configuration	Single die	

Pb-Free RoHS COMPLIANT HALOGEN FREE

DO-204AL (DO-41)

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)									
PARAMETER	**SYMBOL**	**UF 4001**	**UF 4002**	**UF 4003**	**UF 4004**	**UF 4005**	**UF 4006**	**UF 4007**	**UNIT**
Marking code on the device		UF4001	UF4002	UF4003	UF4004	UF4005	UF4006	UF4007	
Repetitive peak reverse voltage	V_{RRM}	50	100	200	400	600	800	1000	V
Reverse voltage, total rms value	$V_{R(RMS)}$	35	70	140	280	420	560	700	V
Forward current	I_F	1							A
Surge peak forward current, 8.3ms single half sine wave superimposed on rated load	I_{FSM}	30							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	$R_{\Theta JL}$	15	°C/W
Junction-to-ambient thermal resistance	$R_{\Theta JA}$	60	°C/W

ELECTRICAL SPECIFICATIONS (T_A = 25°C unless otherwise noted)

PARAMETER		CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage[1]	UF4001 UF4002 UF4003 UF4004	I_F = 1A, T_J = 25°C	V_F	-	1.0	V
	UF4005 UF4006 UF4007			-	1.7	V
Reverse current @ rated V_R[2]		T_J = 25°C	I_R	-	5	μA
		T_J = 125°C		-	150	μA
Junction capacitance		1MHz, V_R = 4.0V	C_J	17	-	pF
Reverse recovery time	UF4001 UF4002 UF4003 UF4004	I_F = 0.5A, I_R = 1.0A, I_{rr} = 0.25A	t_{rr}	-	50	ns
	UF4005 UF4006 UF4007			-	75	ns

Notes:

1. Pulse test with PW = 0.3ms
2. Pulse test with PW = 30ms

ORDERING INFORMATION

ORDERING CODE[1][2]	PACKAGE	PACKING
UF400x	DO-204AL (DO-41)	5,000 / Tape & Reel
UF400x A0G	DO-204AL (DO-41)	3,000 / Ammo box
UF400xH	DO-204AL (DO-41)	5,000 / Tape & Reel
UF400xHA0G	DO-204AL (DO-41)	3,000 / Ammo box

Notes:

1. “x” defines voltage from 50V (UF4001) to 1000V (UF4007)
2. “H” means AEC-Q101 qualified

CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.1 Forward Current Derating Curve

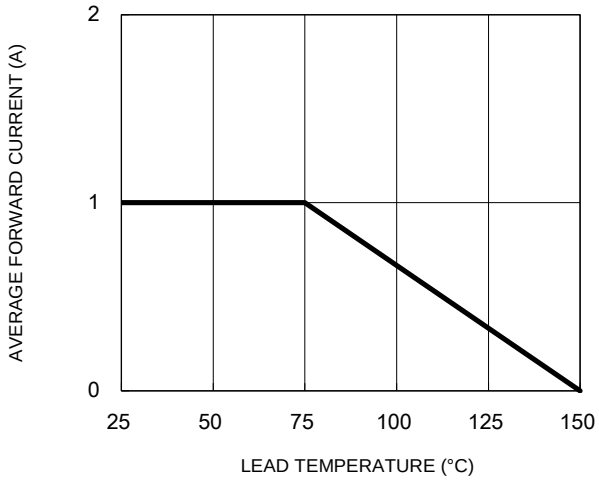


Fig.2 Typical Junction Capacitance

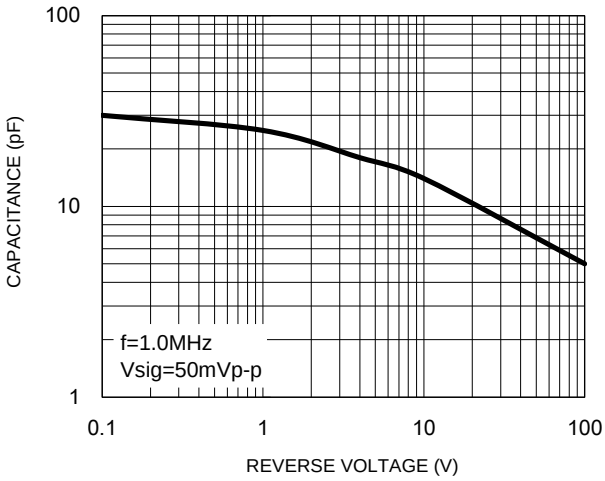


Fig.3 Typical Reverse Characteristics

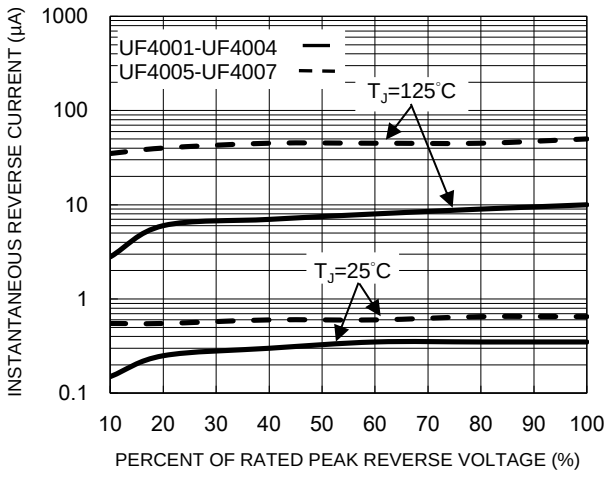


Fig.4 Typical Forward Characteristics

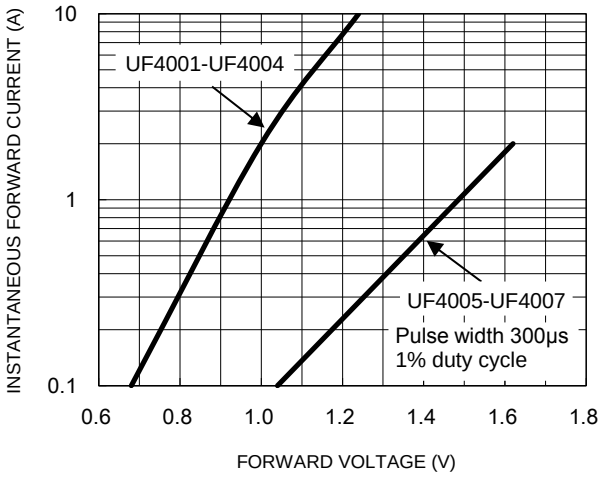
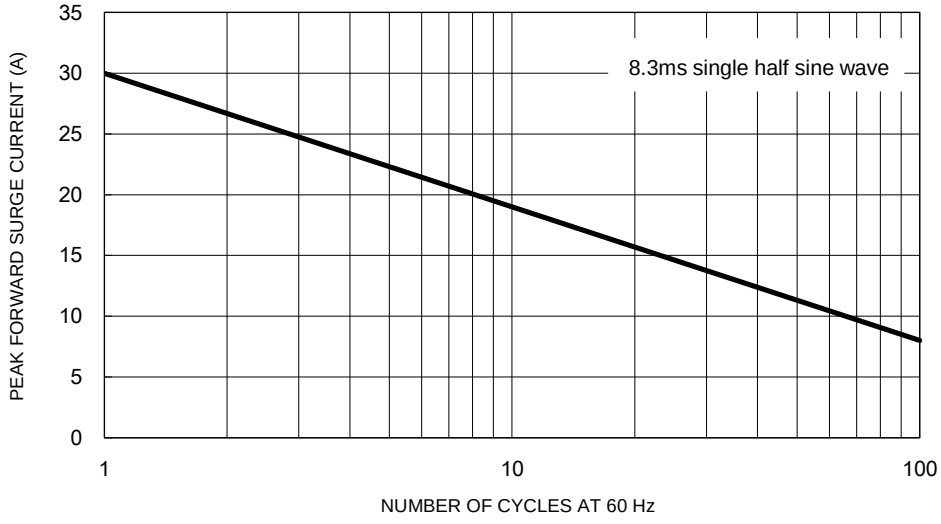


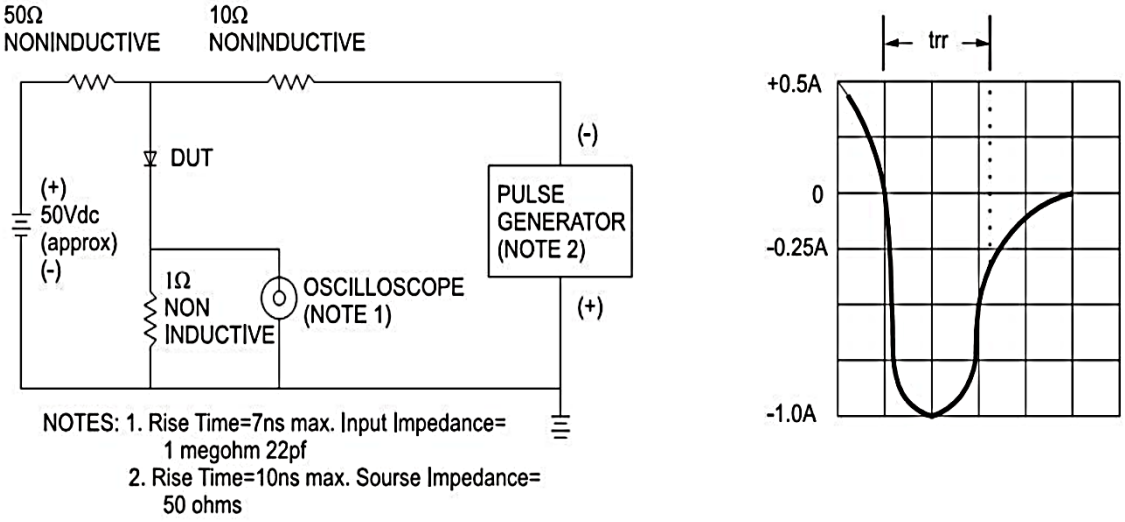
Fig.5 Maximum Non-Repetitive Forward Surge Current



CHARACTERISTICS CURVES

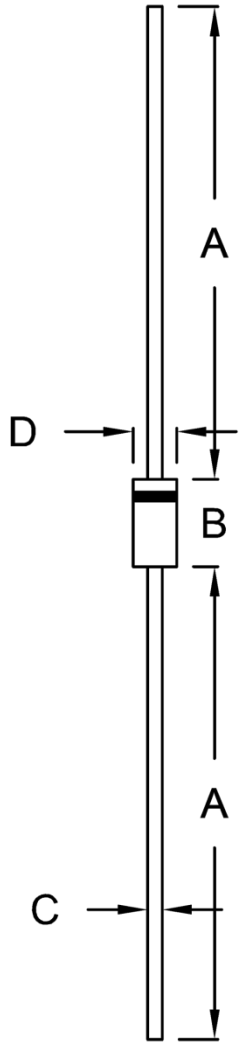
(T_A = 25°C unless otherwise noted)

Fig.6 Reverse Recovery Time Characteristic and Test Circuit Diagram



PACKAGE OUTLINE DIMENSIONS

DO-204AL (DO-41)



DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	25.40	-	1.000	-
B	4.20	5.20	0.165	0.205
C	0.71	0.86	0.028	0.034
D	2.00	2.70	0.079	0.106

MARKING DIAGRAM

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

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