

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	



DO-204AL (DO-41)



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ 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 ($T_A = 25^\circ\text{C}$ unless otherwise noted)						
PARAMETER		CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage ⁽¹⁾	UF4001 UF4002 UF4003 UF4004	$I_F = 1\text{A}, T_J = 25^\circ\text{C}$	V_F	-	1.0	V
	UF4005 UF4006 UF4007			-	1.7	V
Reverse current @ rated V_R ⁽²⁾		$T_J = 25^\circ\text{C}$	I_R	-	5	μA
		$T_J = 125^\circ\text{C}$		-	150	μA
Junction capacitance		1MHz, $V_R = 4.0\text{V}$	C_J	17	-	pF
Reverse recovery time	UF4001 UF4002 UF4003 UF4004	$I_F = 0.5\text{A}, I_R = 1.0\text{A},$ $I_{rr} = 0.25\text{A}$	t_{rr}	-	50	ns
	UF4005 UF4006 UF4007			-	75	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
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

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

Fig.1 Forward Current Derating Curve

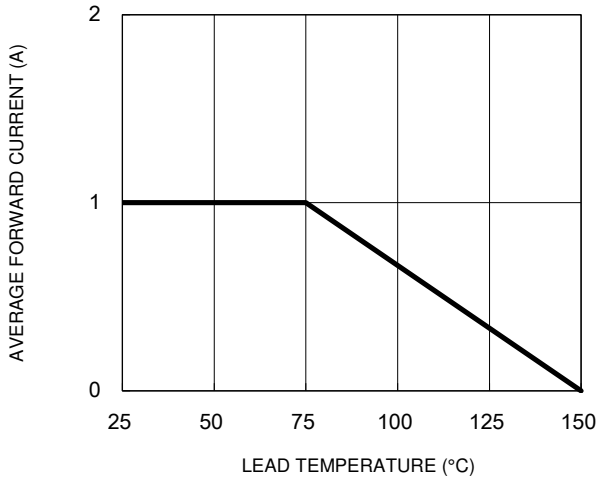


Fig.2 Typical Junction Capacitance

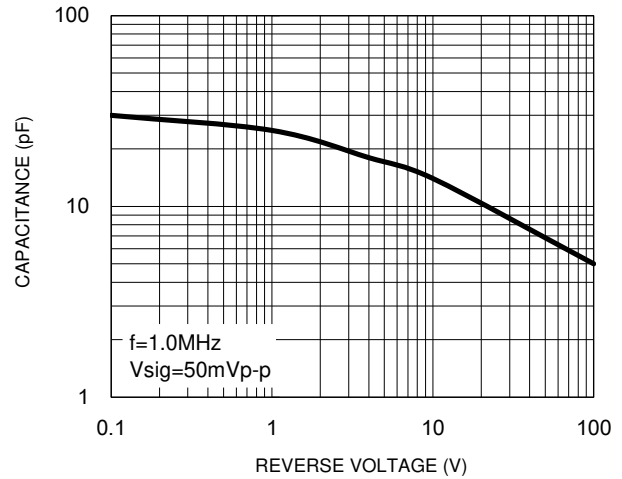


Fig.3 Typical Reverse Characteristics

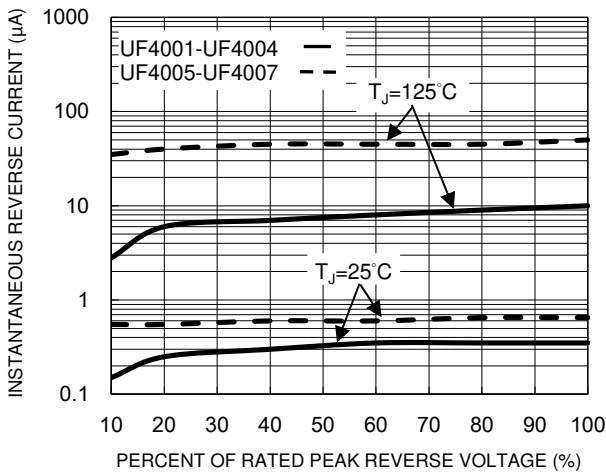


Fig.4 Typical Forward Characteristics

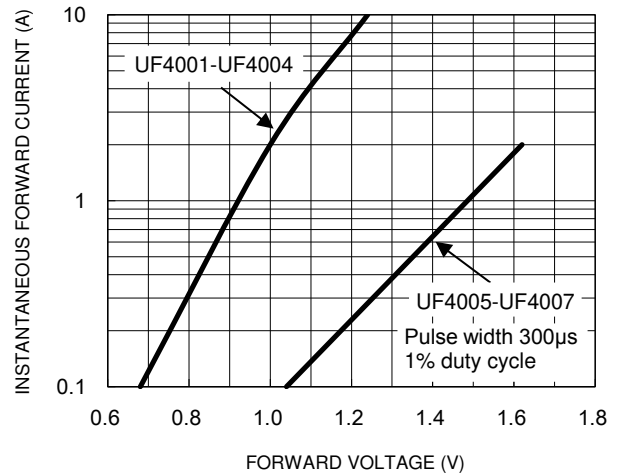
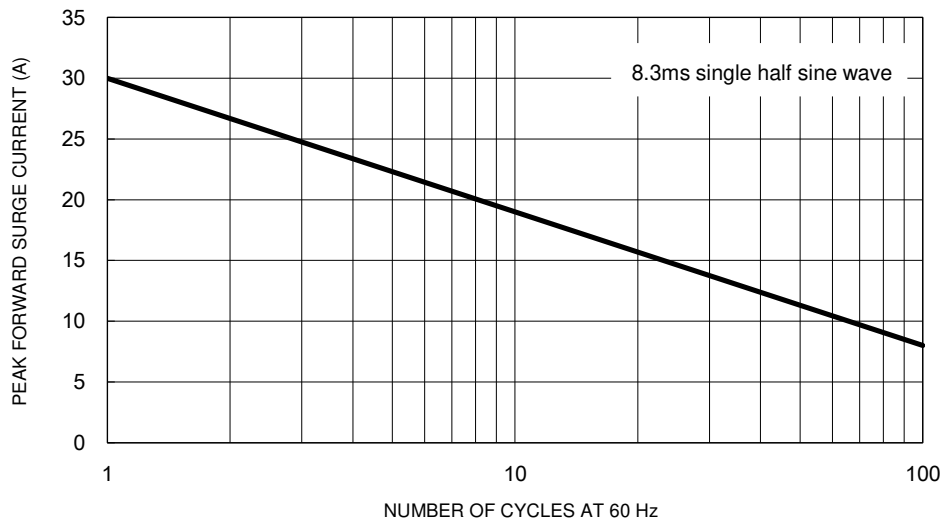


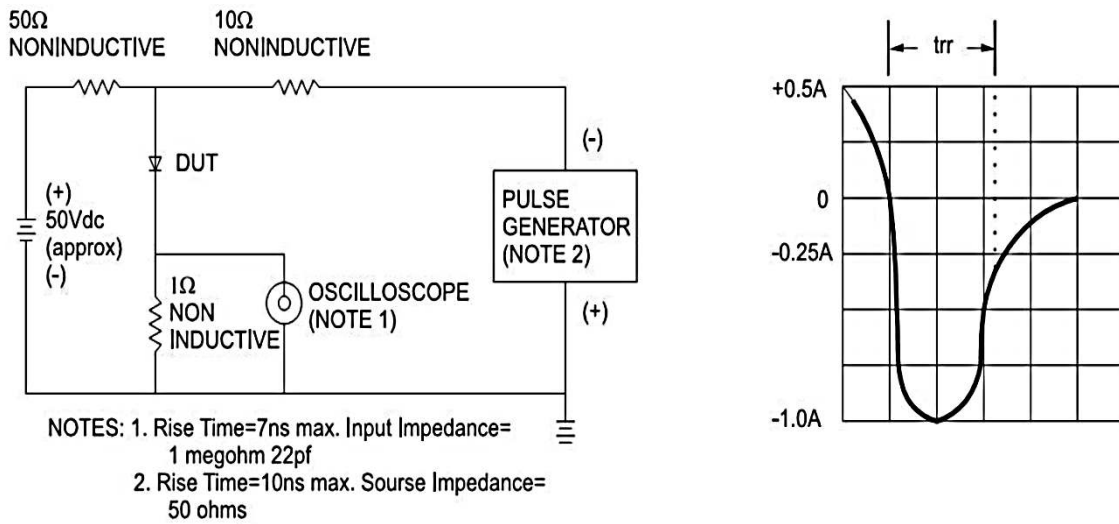
Fig.5 Maximum Non-Repetitive Forward Surge Current



CHARACTERISTICS CURVES

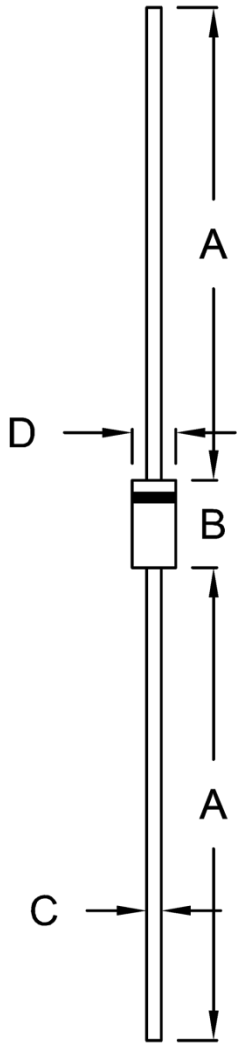
($T_A = 25^\circ\text{C}$ unless otherwise noted)

Fig.6 Reverse Recovery Time Characteristic and Test Circuit Diagram



PACKAGE OUTLINE DIMENSIONS

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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