

## 1A, 50V - 1000V High Efficient Rectifier

### FEATURES

- AEC-Q101 qualified available
- Glass passivated chip junction
- Excellent high temperature switching
- Soft recovery characteristics
- 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	UF1A	UF1B	UF1D	UF1G	UF1J	UF1K	UF1M	UNIT
Marking code on the device		UF1A	UF1B	UF1D	UF1G	UF1J	UF1K	UF1M	
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

<b>THERMAL PERFORMANCE</b>			
<b>PARAMETER</b>	<b>SYMBOL</b>	<b>TYP</b>	<b>UNIT</b>
Junction-to-lead thermal resistance	$R_{\theta JL}$	15	°C/W
Junction-to-ambient thermal resistance	$R_{\theta JA}$	60	°C/W

<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 <sup>(1)</sup>	UF1A UF1B UF1D UF1G	$I_F = 1\text{A}, T_J = 25^\circ\text{C}$	$V_F$	-	1.0	V
	UF1J UF1K UF1M			-	1.7	V
Reverse current @ rated $V_R$ <sup>(2)</sup>	$T_J = 25^\circ\text{C}$		$I_R$	-	5	$\mu\text{A}$
	$T_J = 125^\circ\text{C}$			-	150	$\mu\text{A}$
Junction capacitance	$1\text{MHz}, V_R = 4.0\text{V}$		$C_J$	17	-	pF
Reverse recovery time	UF1A UF1B UF1D UF1G	$I_F = 0.5\text{A}, I_R = 1.0\text{A},$ $I_{rr} = 0.25\text{A}$	$t_{rr}$	-	50	ns
	UF1J UF1K UF1M			-	75	ns

**Notes:**

1. Pulse test with  $PW = 0.3\text{ms}$
2. Pulse test with  $PW = 30\text{ms}$

<b>ORDERING INFORMATION</b>		
<b>ORDERING CODE</b> <sup>(1)(2)</sup>	<b>PACKAGE</b>	<b>PACKING</b>
UF1x	DO-204AL (DO-41)	5,000 / Tape & Reel
UF1x A0G	DO-204AL (DO-41)	3,000 / Ammo box
UF1xH	DO-204AL (DO-41)	5,000 / Tape & Reel
UF1xHA0G	DO-204AL (DO-41)	3,000 / Ammo box

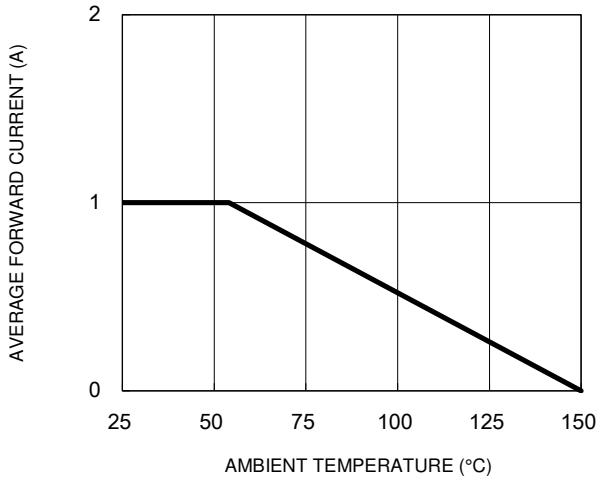
**Notes:**

1. "x" defines voltage from 50V (UF1A) to 1000V (UF1M)
2. "H" means AEC-Q101 qualified

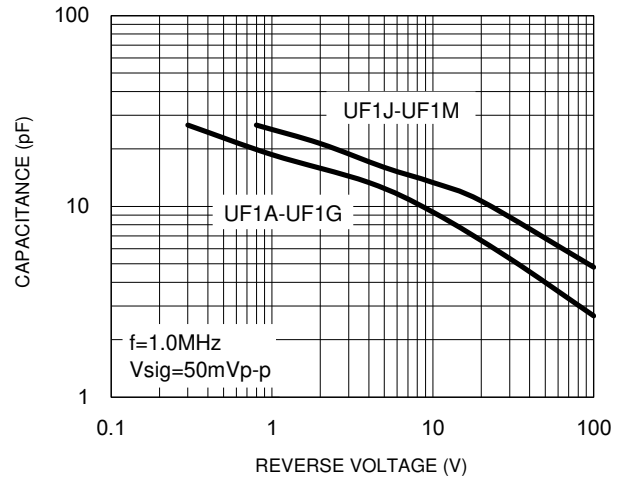
**CHARACTERISTICS CURVES**

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

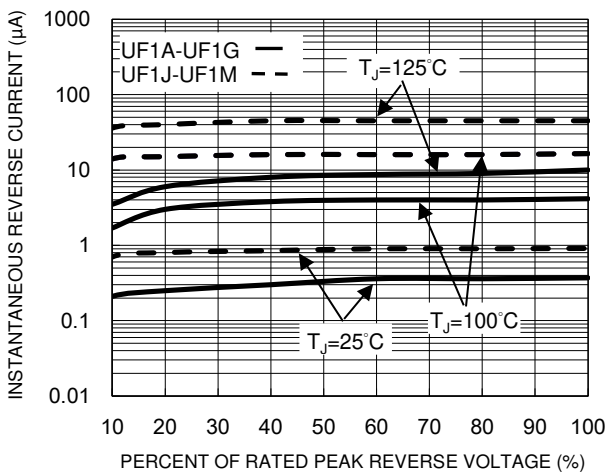
**Fig.1 Forward Current Derating Curve**



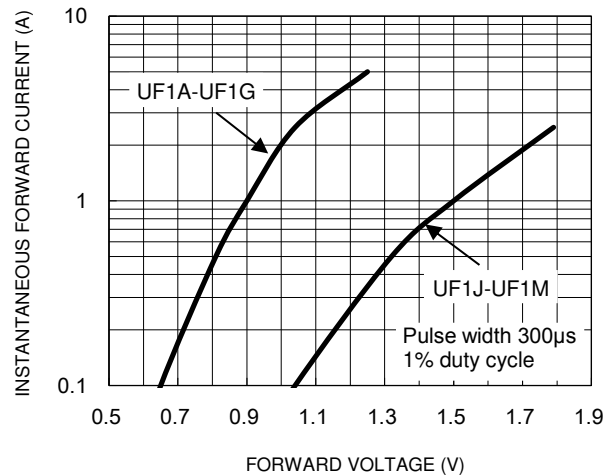
**Fig.2 Typical Junction Capacitance**



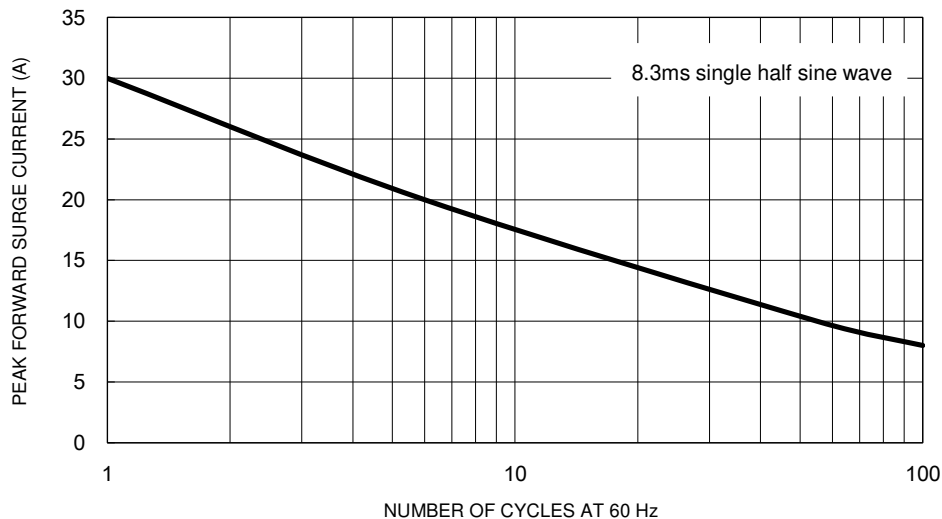
**Fig.3 Typical Reverse Characteristics**



**Fig.4 Typical Forward Characteristics**



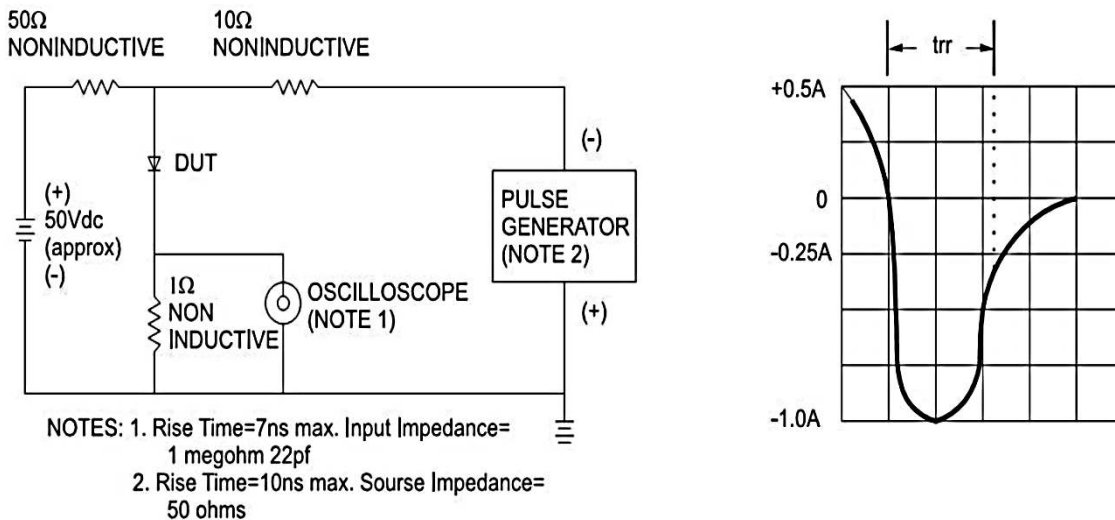
**Fig.5 Maximum Non-Repetitive Forward Surge Current**



**CHARACTERISTICS CURVES**

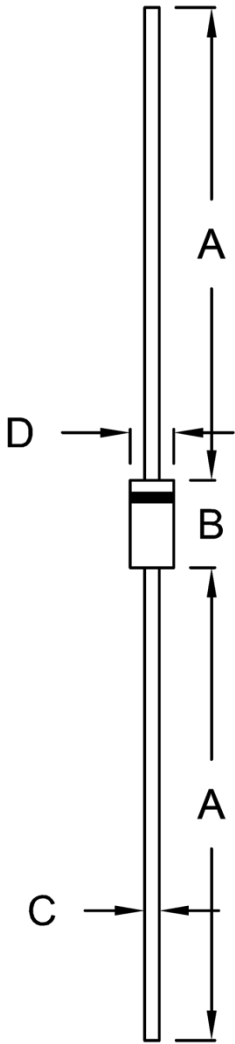
(T<sub>A</sub> = 25°C unless otherwise noted)

**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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