

### ULTRA-FAST GLASS PASSIVATED RECTIFIER VOLTAGE RANGE 50 TO 1000 Volts Current 1 Ampere

#### FEATURES

- \* Ultra-fast recovery time for high efficiency
- \* Glass Passivated Chip junction
- \* Excellent high temperature switching
- \* Low leakage
- \* High temperature soldering guaranteed  
260 /10 seconds, 0.375" (9.5 mm) lead length  
at 5 lbs(2.3kg) tension

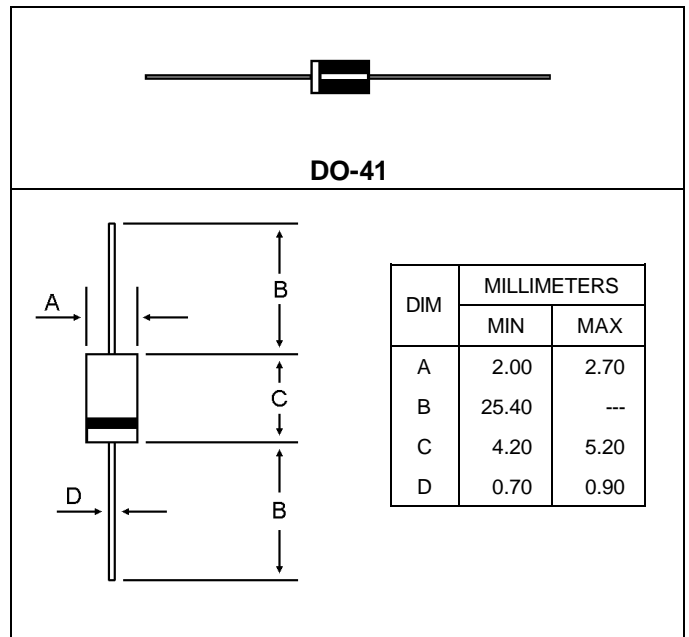
#### MECHANICAL DATA

- \* Case : Transfer Molded Plastic
- \* Epoxy: UL94V-O rate flame retardant
- \* Terminals : Solderable Per MIL-STD-202 Method 208
- \* Polarity : Color band denotes cathode end
- \* Mounting position: Any
- \* Weight : 0.012 ounce. 0.33 gram (approx)

Plating pb free

The marking is indicated by part no. + "M" .

ex: UF1001M ~UF1007M



#### MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

- \* Rating at 25 ambient temperature unless otherwise specified
- \* Single phase, half wave, 60Hz, resistive or inductive load.
- \* For capacitive load derate current by 20 %

Characteristic	Symbol	UF4001	UF4002	UF4003	UF4004	UF4005	UF4006	UF4007	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	$V_{RRM}$ $V_{RWM}$ $V_R$	50	100	200	400	600	800	1000	V
RMS Reverse Voltage	$V_{R(RMS)}$	35	70	140	280	420	560	700	V
Average Rectifier Forward Current Per Leg $T_C=125$	$I_{F(AV)}$	1.0							A
Non-Repetitive Peak Surge Current (Surge applied at rate load conditions halfwave, single phase, 60Hz)	$I_{FSM}$	30							A
Maximum Instantaneous Forward Voltage ( $I_F=1.0$ Amp $T_C=25$ )	$V_F$	1.3							V
Maximum Instantaneous Reverse Current ( Rated DC Voltage, $T_C=25$ ) ( Rated DC Voltage, $T_C=125$ )	$I_R$	5.0 200							$\mu$ A
Reverse Recovery Time ( $I_F=0.5$ A, $I_R=1.0$ , $I_{rr}=0.25$ A )	$T_{rr}$	50				75			ns
Typical Junction Capacitance (Reverse Voltage of 4 volts & f=1 MHz)	$C_j$	18							pF
Typical Thermal Resistance	$R_{\theta jA}$	60							/W
Operating and Storage Junction Temperature Range	$T_J, T_{stg}$	-65 to +175							

# UF4001 Thru UF4007

FIG-1 TYPICAL FORWARD CHARACTERISTICS

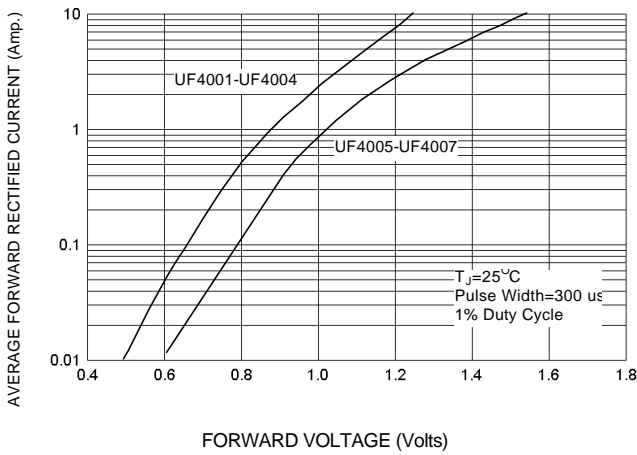


FIG-3 FORWARD CURRENT DERATING CURVE

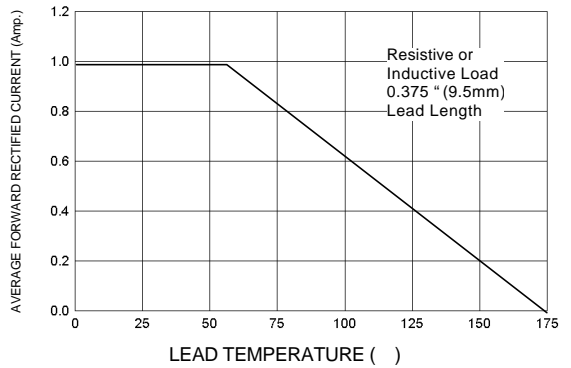


FIG-2 TYPICAL REVERSE CHARACTERISTICS

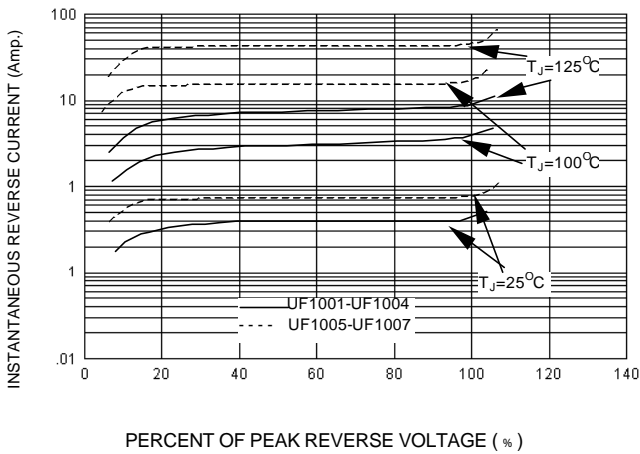


FIG-4 TYPICAL JUNCTION CAPACITANCE

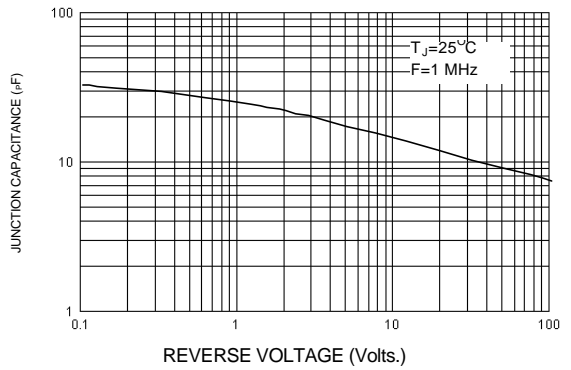
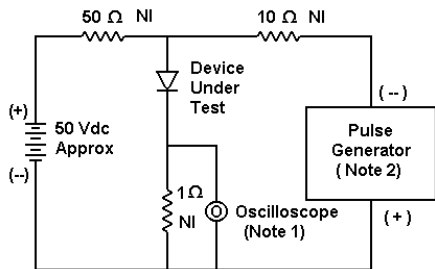
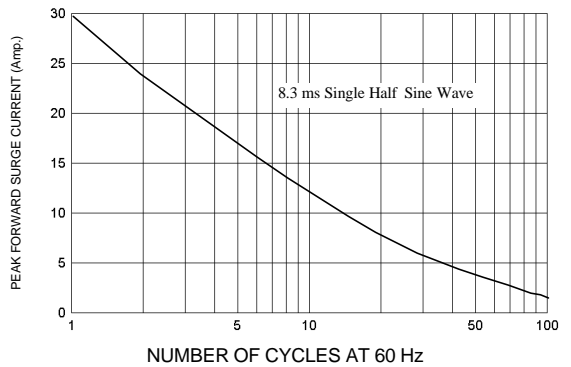
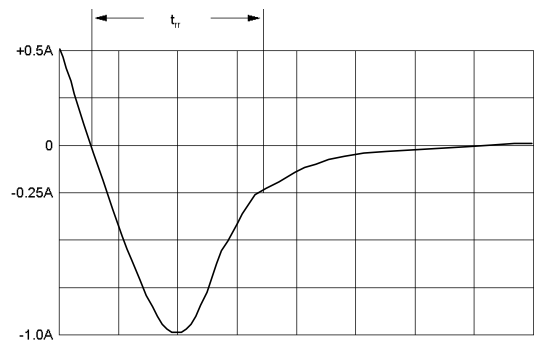


FIG-5 PEAK FORWARD SURGE CURRENT



- Notes:  
 1. Rise Time = 7 ns max. Input Impedance = 1 M  $\Omega$ , 22 pF  
 2. Rise Time = 10 ns max. Input Impedance = 50  $\Omega$



Set time base for 20/50 ns/cm

FIG-6 Reverse Recovery Time Characteristic and Test Circuit Diagram

## Test Report

No. SH560470/CHEM

Date: 8.26.2005

Page 1 of 4

MOSPEC SEMICONDUCTOR CORP.  
76 CHUNG SHAN RD., HSIN SHIH, TAIWAN, TAINAN, P.O.C.

The following sample(s) was/were submitted and identified on behalf of the applicant as:

Sample Name : DIODE (R1, R3, R6, R6S, A405, DO-41, DO15, DO201, DO201AD, MELF)  
SGS Ref No. : SHEC0050822403-2  
Buyer : SONY  
Model : DO-41

Sample Receiving Date : July 29, 2005  
Testing Period : July 29 to August 01, 2005

Test Requested : To determine the Cadmium, Lead, Mercury, Hexavalent Chromium Content of the submitted sample.

Test method/Test Results: Please refer to next page

Signed for and on behalf of  
SGS-CSTC Chemical Laboratory



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SHCH 340439

## Test Report

No. SH560470/CHEM

Date: 8.26.2005

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### Test method

: Cadmium (Cd)

a) Ashing after wet decomposition see flowchart (1) for sample No.1.

b) With reference to EN 1122:2001, Method B or other acid digestion for sample No.2.

Analysis was performed by Inductively Coupled Argon Plasma – Atomic Emission Spectrometry (ICP-AES) or Atomic Absorption Spectrometry.

Lead (Pb)

c) Ashing after wet decomposition see flowchart (2) for sample No.1.

d) With reference to US EPA 3050, method B or other acid digestion for sample No.2.

Analysis was performed by Inductively Coupled Argon Plasma – Atomic Emission Spectrometry (ICP-AES) or Atomic Absorption Spectrometry.

Mercury (Hg)

With reference to US EPA 3052 or other acid digestion, Analysis was performed by Inductively Coupled Argon Plasma – Atomic Emission Spectrometry (ICP-AES) or US EPA7473 Analysis was performed by Hg Analyzer.

Hexavalent Chromium (Cr<sup>6+</sup>)

With reference to US EPA3060A and US EPA7196A for sample Analysis was performed by UV-VIS Spectrometric method.

### Test Results

Item	Unit	MDL	No.1	No.2
Cadmium (Cd)	ppm	2	N.D.	N.D.
Lead (Pb)	ppm	2	5	N.D.
Mercury (Hg)	ppm	2	N.D.	N.D.
Hexavalent Chromium (Cr VI)	ppm	2	N.D.	N.D.

### Sample Appearance Description:

No.1. Black plastic

No.2. Silvery metal pin

Note : ppm=mg/kg

MDL= Method Detection Limit

N.D. = Not detected.(<MDL)

Result of sample No.1 is taken from report No. SH551688/CHEM-No.1, Date: 2005/08/01.

Result of sample No.2 is taken from report No. SH551688/CHEM-No.2, Date: 2005/08/01.

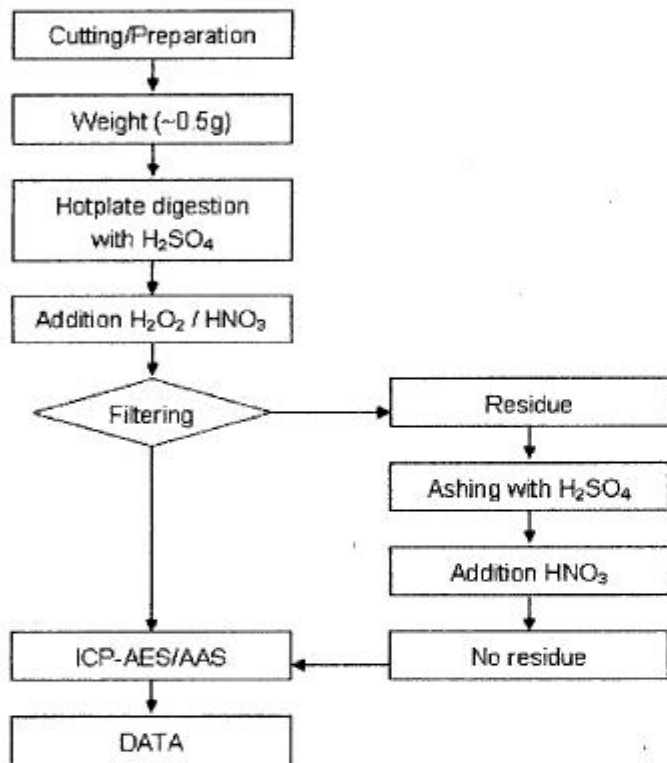
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SHCH 340440

ATTACHMENTS

Flow chart 1

Flow chart of digestion (Ashing after wet decomposition for Cd)



The samples were dissolved totally by pre-conditioning method according to above flow chart.

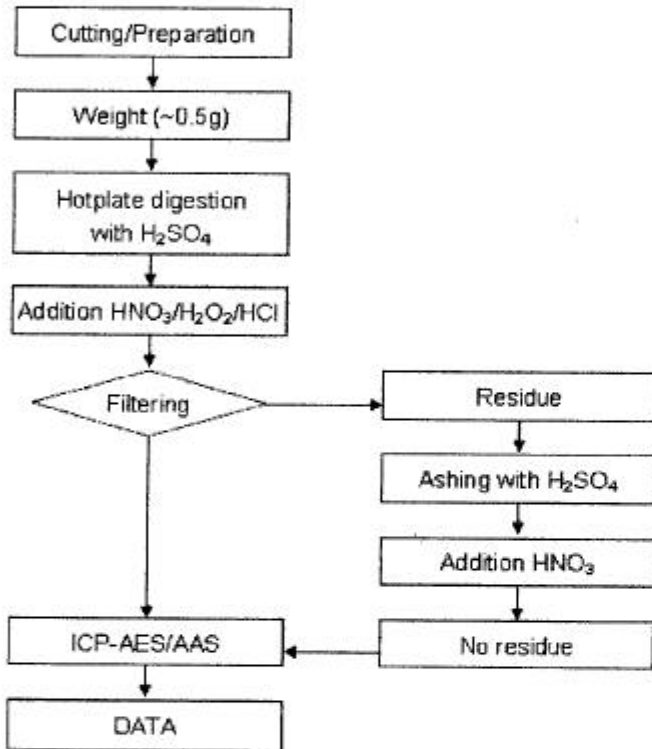
Tested by : Mary Cao  
 Checked by : Terry Wang

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SHCH 340441

Flow chart 2

Flow chart of digestion (Ashing after wet decomposition for Pb)



The samples were dissolved totally by pre-conditioning method according to above flow chart.

Tested by : Jeffery Dong  
 Checked by : Terry Wang

\*\*\* End of Report \*\*\*

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SHCH 340442

## Test Report

No. SH559889/CHEM

Date: 8.26.2005

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MOSPEC SEMICONDUCTOR CORP.  
76 CHUNG SHAN RD., HSIN SHIH, TAIWAN, TAINAN, P.O.C.

The following sample(s) was/were submitted and identified on behalf of the applicant as:

Sample Name : AXIAL RECTIFER (R1, R3, R6, R6S, A405, D015, D0201, D0201AD)  
SGS Ref No. : SHEC0050822403-1  
Buyer : SONY  
Model : D041

Sample Receiving Date : March 30, 2005  
Testing Period : March 30 to April 04, 2005

Test Requested : 1) To determine the Cadmium Content of the submitted sample.  
2) To determine the Lead content of the submitted sample.  
3) To determine Mercury Content of the submitted sample.  
4) To determine Hexavalent Chromium content of the submitted sample.  
5) To determine the PBBs(Polybrominated biphenyls) PBBEs(PBDEs)  
(Polybrominated biphenyl ethers) Content of the submitted samples .

Test method : 1) With reference to BS EN 1122:2001, Method B or other acid digestion  
Analysis was performed by Inductively Coupled Argon Plasma – Atomic Emission Spectrometry (ICP-AES) or Atomic Absorption Spectrometry.  
2) With reference to US EPA Method 3050B or other acid digestion  
Analysis was performed by Inductively Coupled Argon Plasma – Atomic Emission Spectrometry (ICP-AES) or Atomic Absorption Spectrometry.  
3) With reference to US EPA 3052 or other acid digestion  
Analysis was performed by Inductively Coupled Argon Plasma – Atomic Emission Spectrometry (ICP-AES).  
4) With reference to US EPA3060A and US EPA7196A  
Analysis was performed by UV-VIS Spectrometric method.  
5) With reference to US EPA 8081, Analysis was performed by GC/MS.

Test Results : Please refer to next page

Signed for and on behalf of  
SGS-CSTC Chemical Laboratory

Ella Zhang  
Supervisor



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SHCH 340644

### Test Results

No.	Item	Unit	MDL	A
1	Cadmium (Cd)*	ppm	2	N.D.
2	Lead (Pb)*	ppm	2	N.D.
3	Mercury (Hg)*	ppm	2	N.D.
4	Hexavalent Chromium (Cr VI)*	ppm	2	N.D.
5	PBBs(Polybrominated biphenyls)**	---	---	---
	PBBs(Bromobiphenyl)	ppm	5	N.D.
	PBBs(Dibromobiphenyl)	ppm	5	N.D.
	PBBs(Tribromobiphenyl)	ppm	5	N.D.
	PBBs(Tetrabromobiphenyl)	ppm	5	N.D.
	PBBs(Pentabromobiphenyl)	ppm	5	N.D.
	PBBs(Hexabromobiphenyl)	ppm	5	N.D.
	PBBs(Heptabromobiphenyl)	ppm	5	N.D.
	PBBs(Octabromobiphenyl)	ppm	5	N.D.
	PBBs(Nonabromobiphenyl)	ppm	5	N.D.
	PBBs(Polybrominated biphenyls)	ppm	5	N.D.
	PBBEs(PBDEs)(Polybrominated biphenyl ethers) **	---	---	---
	PBBEs(PBDEs)(Monobromobiphenyl ether)	ppm	5	N.D.
	PBBEs(PBDEs)(Dibromobiphenyl ether)	ppm	5	N.D.
	PBBEs(PBDEs)(Tribromobiphenyl ether)	ppm	5	N.D.
	PBBEs(PBDEs)(Tetrabromobiphenyl ether)	ppm	5	N.D.
	PBBEs(PBDEs)(Pentabromobiphenyl ether)	ppm	5	N.D.
	PBBEs(PBDEs)(Hexabromobiphenyl ether)	ppm	5	N.D.
	PBBEs(PBDEs)(Heptabromobiphenyl ether)	ppm	5	N.D.
	PBBEs(PBDEs)(Octabromobiphenyl ether)	ppm	5	N.D.
PBBEs(PBDEs)(Nonabromobiphenyl ether)	ppm	5	N.D.	
PBBEs(PBDEs)(Decabromobiphenyl ether)	ppm	5	N.D.	

(Result shown is of the total weight of sample)

#### Sample Description:

A. Black solid

Note : ppm=mg/kg

MDL= Method Detection Limit

N.D. = Not detected.(<MDL)

\*The test results are taken from report No. SH419070/CHEM, Date: 25/08/2004

\*\*The test results are taken from report No. SH517688/CHEM, Date: 04/04/2005

\*\*\* End of Report \*\*\*

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SHCH 340645