

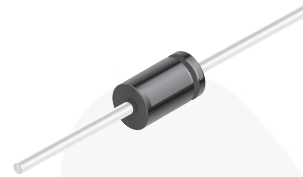


November 2014

UF4001 - UF4007 Fast Rectifiers

Features

- Low Forward Voltage Drop
- High Surge Current Capability
- High Reliability
- High Current Capability
- Glass-Passivated Junction



DO-41 (Plastic)
COLOR BAND DENOTES CATHODE

Ordering Information

Part Number	Top Mark	Package	Packing Method
UF4001	UF4001	DO-204AL (DO-41)	Tape and Reel
UF4002	UF4002	DO-204AL (DO-41)	Tape and Reel
UF4003	UF4003	DO-204AL (DO-41)	Tape and Reel
UF4004	UF4004	DO-204AL (DO-41)	Tape and Reel
UF4005	UF4005	DO-204AL (DO-41)	Tape and Reel
UF4006	UF4006	DO-204AL (DO-41)	Tape and Reel
UF4007	UF4007	DO-204AL (DO-41)	Tape and Reel

Absolute Maximum Ratings

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at $T_A = 25^\circ\text{C}$ unless otherwise noted.

Symbol	Parameter	Value							Unit
		UF 4001	UF 4002	UF 4003	UF 4004	UF 4005	UF 4006	UF 4007	
V_{RRM}	Maximum Repetitive Reverse Voltage	50	100	200	400	600	800	1000	V
$I_{F(AV)}$	Average Rectified Forward Current .375 " Lead Length at $T_A = 75^\circ\text{C}$	1.0							A
I_{FSM}	Non-Repetitive Peak Forward Surge Current 8.3 ms Single Half-Sine-Wave	30							A
T_{STG}	Storage Temperature Range	-65 to +150							$^\circ\text{C}$
T_J	Operating Junction Temperature	-65 to +150							$^\circ\text{C}$

Thermal Characteristics

Values are at $T_A = 25^\circ\text{C}$ unless otherwise noted.

Symbol	Parameter	Value	Unit
P_D	Power Dissipation	2.08	W
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	60	$^\circ\text{C}/\text{W}$
$R_{\theta JL}$	Thermal Resistance, Junction-to-Lead	30	$^\circ\text{C}/\text{W}$

Electrical Characteristics

Values are at $T_A = 25^\circ\text{C}$ unless otherwise noted.

Symbol	Parameter	Conditions	Value						Unit
			UF 4001	UF 4002	UF 4003	UF 4004	UF 4005	UF 4006	
V_F	Forward Voltage	$I_F = 1.0\text{ A}$	1.0			1.7			V
t_{rr}	Reverse Recovery Time	$I_F = 0.5\text{ A},$ $I_R = 1.0\text{ A},$ $I_{RR} = 0.25\text{ A}$	50			75			ns
I_R	Reverse Current at Rated V_R	$T_A = 25^\circ\text{C}$	10						μA
		$T_A = 100^\circ\text{C}$	50						
C_T	Total Capacitance	$V_R = 4.0\text{ V},$ $f = 1.0\text{ MHz}$	17						pF

Typical Performance Characteristics

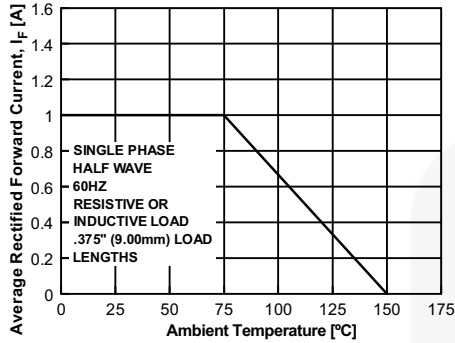


Figure 1. Forward Current Derating Curve

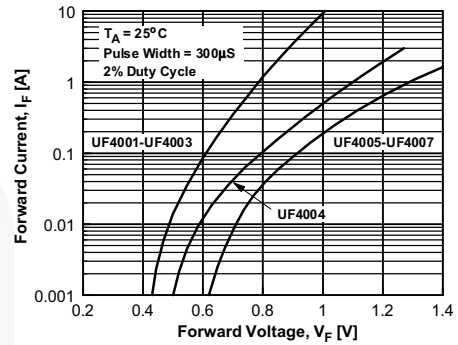


Figure 2. Forward Characteristics

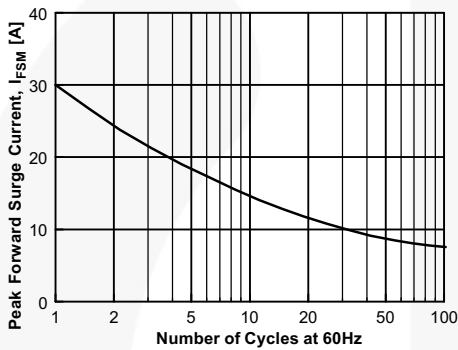


Figure 3. Non-Repetitive Surge Current

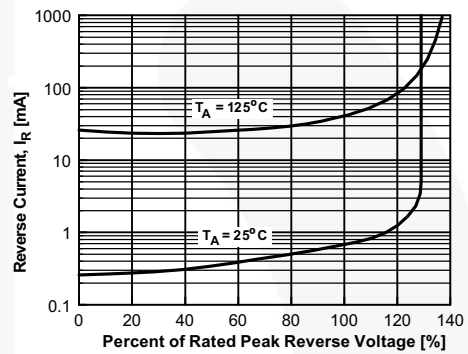


Figure 4. Reverse Characteristics

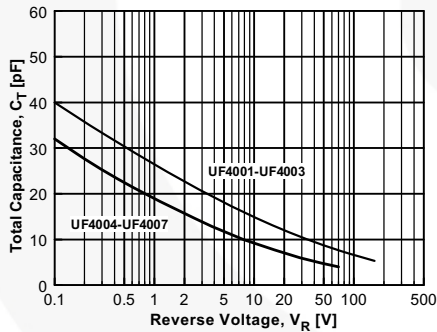
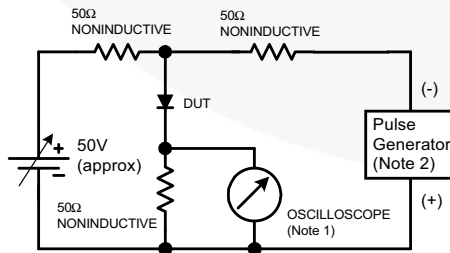
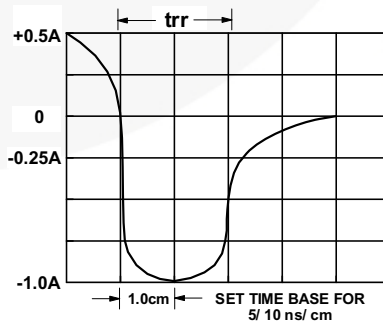


Figure 5. Typical Junction Capacitance



- NOTES:
 1. Rise time = 7.0 ns max; Input impedance = 1.0 megaohm 22 pf.
 2. Rise time = 10 ns max; Source impedance = 50 ohms.

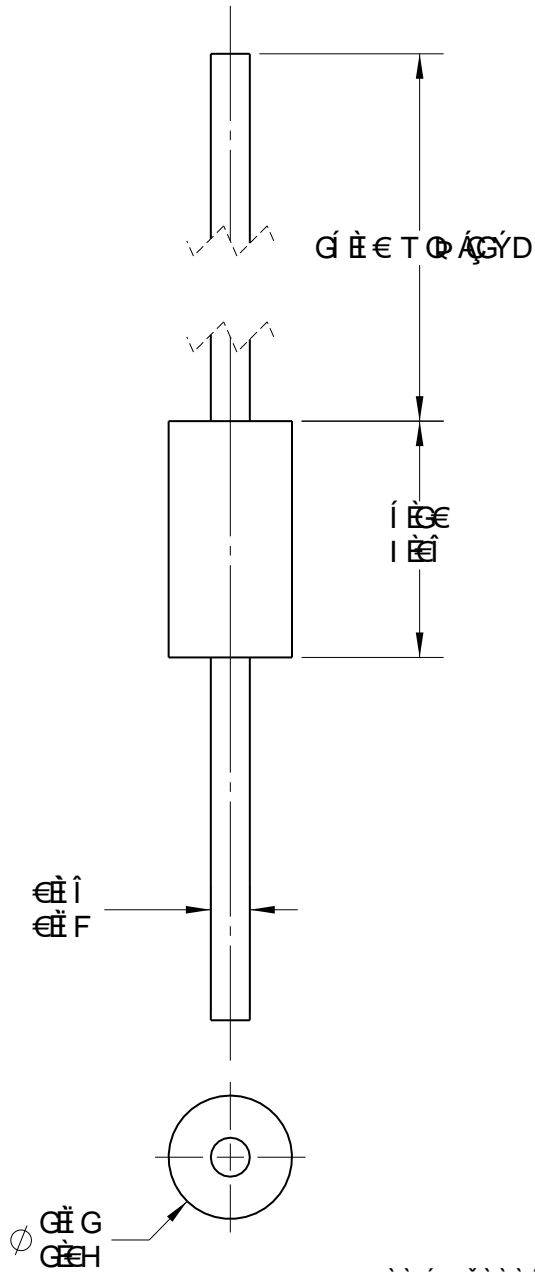
Figure 6. Reverse Recovery Time Characteristic and Test Circuit Diagram



VP:SHOBY Q OABAPCAUUCUUYAIKXOZBOPSAOT QBHONVUUUUUUUBQBFBHUAMU
 VP:OUUQAPBSSOAT QDAUVPQAPQBUBAUOOUQOQAUUOAUUUUBSUAUAMOT QVCO
 VUADZBOPSAOT QBHONVUUUUUUUBQBFBHUAMUOAUUOAUUUBOBYOONVCOB QUBHOUT QY
 Y QPABOPASUUBUBSUAUSQUAPQOUUUCUVAKXOZBOPSAOT QBHONVUUUBUUE
 UUUUBQBFBHUAUUKXANVSYAKOCHAUVNBOBHUADENVAOAPSHOBY Q OAPBSSKO
 OUBSUAUUBWSSQCOAUUOAUUBVQBVUBSUSUUCOQAPQBOUT QBHONVUBBO
 UAPSHOBY Q OABAPBQBFBHUAUUBSUAUUBUUE

Ü Ö X Q W P Ü

POÜ	ÖOUÖUWNP	ÖEVÖ	ÖYBÜJCÖ
F	Ü Ö S Q U O A U O O O	GRMSé	PYQ B Ö B U M Z P U W
G	Ö P Q B Ö O Ä B E Ä U Ä B F E Ö P Q B Ö O P U V O A O A C E O O A J S C E V O A U O Y E Ü Ö T U X O A O S Q U A U P A Q V S O E	FJÜÖUé	PYQ B Ö B U M Z P U W



PUVÖUÄMP SÖUÜÄVPÖUY QIÖÄJÜÖÖQÖÖ






ÄÄCEÄJÜÖÖSCÖÖÄUVQEPÖCEJÖÄJÖZÖUÖPÖÖKÄ
 RÖÖÖÖÄU GEI ÅKEJQEVPÄCSE
 ÄMÖÄJÜÖÖSCÖÖÄUÖYÄCEPÄOÄJSCEVQÄJÜÄ
 ÄÄÄÄÄÄP ÖUT ÖVÖCESSYÄJÖCSÖÖÄÖSCEJÜÄ
 ÄMÖÄJÜÖÖSCÖÖPÜQPUÄCEJÖÄPÄT QSG ÖVÖUÜE
 ÄMÖÄJÜÖCEP Q O A Z S O A P C E T Ö K Ö U I F Ö J Ö X G

CEJÜÜXCSÜ	ÖEVÖ				
ÖUBP K ÖUÖYÄ C E Ö U	FJÜÖUé				
ÖPÖSÖÖK P Ö P Ü Y Å C E Ö					
CEJÜÜXÖÖK ÖYÄVQEPÖ					
CEJÜÜXÖÖK P U Y C E J Ö A S S Ö P		<p>CEY Q E S S Ö C E Ö Ö Ä RÖÖÖÖÄU GEI ÅKEJQEVPÄCSE</p>			
ÜÜURÖÖVNP		<p>ÜCQÖ FK</p>	<p>ÜCQÖ PBE</p>	<p>ÖUBP Q O A N F Ö Ö U T S V E Ö U I F C E</p>	<p>ÜCQ G</p>
<p>2 T A Q Ö P</p>		<p>ÖUT Ö Ö S T K PBE</p>	<p>ÜPÖÖVÄK FAJQF</p>		



TRADEMARKS

The following includes registered and unregistered trademarks and service marks, owned by Fairchild Semiconductor and/or its global subsidiaries, and is not intended to be an exhaustive list of all such trademarks.

AccuPower™	F-PFS™	OPTOPLANAR®	
AttitudeEngine™	FRFET®		TinyBoost®
Awinda®	Global Power Resource SM	PowerTrench®	TinyBuck®
AX-CAP®*	GreenBridge™	PowerXS™	TinyCalc™
BitSiC™	Green FPS™	Programmable Active Droop™	TinyLogic®
Build it Now™	Green FPS™ e-Series™	QFET®	TINYOPTO™
CorePLUS™	Gmax™	QS™	TinyPower™
CorePOWER™	GTO™	Quiet Series™	TinyPWM™
CROSSVOLT™	IntelliMAX™	RapidConfigure™	TinyWire™
CTL™	ISOPLANAR™		TranSiC™
Current Transfer Logic™	Making Small Speakers Sound Louder and Better™	Saving our world, 1mW/W/kW at a time™	TriFault Detect™
DEUXPEED®	MegaBuck™	SignalWise™	TRUECURRENT®*
Dual Cool™	MICROCOUPLER™	SmartMax™	μSerDes™
EcoSPARK®	MicroFET™	SMART START™	
EfficientMax™	MicroPak™	Solutions for Your Success™	UHC®
ESBC™	MicroPak2™	SPM®	Ultra FRFET™
	MillerDrive™	STEALTH™	UniFET™
Fairchild®	MotionMax™	SuperFET®	VCM™
Fairchild Semiconductor®	MotionGrid®	SuperSOT™-3	VisualMax™
FACT Quiet Series™	MTI®	SuperSOT™-6	VoltagePlus™
FACT®	MTX®	SuperSOT™-8	XS™
FAST®	MVN®	SupreMOS®	Xsens™
FastvCore™	mWSaver®	SyncFET™	仙童™
FETBench™	OptoHiT™	Sync-Lock™	
FPS™	OPTOLOGIC®		

* Trademarks of System General Corporation, used under license by Fairchild Semiconductor.

DISCLAIMER

FAIRCHILD SEMICONDUCTOR RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE TO ANY PRODUCTS HEREIN TO IMPROVE RELIABILITY, FUNCTION, OR DESIGN. TO OBTAIN THE LATEST, MOST UP-TO-DATE DATASHEET AND PRODUCT INFORMATION, VISIT OUR WEBSITE AT [HTTP://WWW.FAIRCHILDSEMI.COM](http://www.fairchildsemi.com). FAIRCHILD DOES NOT ASSUME ANY LIABILITY ARISING OUT OF THE APPLICATION OR USE OF ANY PRODUCT OR CIRCUIT DESCRIBED HEREIN; NEITHER DOES IT CONVEY ANY LICENSE UNDER ITS PATENT RIGHTS, NOR THE RIGHTS OF OTHERS. THESE SPECIFICATIONS DO NOT EXPAND THE TERMS OF FAIRCHILD'S WORLDWIDE TERMS AND CONDITIONS, SPECIFICALLY THE WARRANTY THEREIN, WHICH COVERS THESE PRODUCTS.

LIFE SUPPORT POLICY

FAIRCHILD'S PRODUCTS ARE NOT AUTHORIZED FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS WITHOUT THE EXPRESS WRITTEN APPROVAL OF FAIRCHILD SEMICONDUCTOR CORPORATION.

As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body or (b) support or sustain life, and (c) whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in a significant injury of the user.
2. A critical component in any component of a life support, device, or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

ANTI-COUNTERFEITING POLICY

Fairchild Semiconductor Corporation's Anti-Counterfeiting Policy. Fairchild's Anti-Counterfeiting Policy is also stated on our external website, www.fairchildsemi.com, under Sales Support.

Counterfeiting of semiconductor parts is a growing problem in the industry. All manufacturers of semiconductor products are experiencing counterfeiting of their parts. Customers who inadvertently purchase counterfeit parts experience many problems such as loss of brand reputation, substandard performance, failed applications, and increased cost of production and manufacturing delays. Fairchild is taking strong measures to protect ourselves and our customers from the proliferation of counterfeit parts. Fairchild strongly encourages customers to purchase Fairchild parts either directly from Fairchild or from Authorized Fairchild Distributors who are listed by country on our web page cited above. Products customers buy either from Fairchild directly or from Authorized Fairchild Distributors are genuine parts, have full traceability, meet Fairchild's quality standards for handling and storage and provide access to Fairchild's full range of up-to-date technical and product information. Fairchild and our Authorized Distributors will stand behind all warranties and will appropriately address any warranty issues that may arise. Fairchild will not provide any warranty coverage or other assistance for parts bought from Unauthorized Sources. Fairchild is committed to combat this global problem and encourage our customers to do their part in stopping this practice by buying direct or from authorized distributors.

PRODUCT STATUS DEFINITIONS

Definition of Terms

Datasheet Identification	Product Status	Definition
Advance Information	Formative / In Design	Datasheet contains the design specifications for product development. Specifications may change in any manner without notice.
Preliminary	First Production	Datasheet contains preliminary data; supplementary data will be published at a later date. Fairchild Semiconductor reserves the right to make changes at any time without notice to improve design.
No Identification Needed	Full Production	Datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice to improve the design.
Obsolete	Not In Production	Datasheet contains specifications on a product that is discontinued by Fairchild Semiconductor. The datasheet is for reference information only.

Rev. I73