

Ultrafast Recovery Rectifier

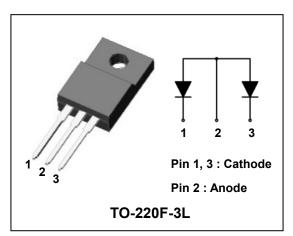
400V, 20A ULTRAFAST DUAL RECTIFIERS

Features

- Low forward voltage drop and leakage current
- Ultrafast reverse recovery time (trr<30ns)
- Low power loss and high efficiency
- Dual common cathode rectifier construction
- Full lead (Pb)-free and RoHS compliant device

Applications

- · Switching power supply
- Power inverters
- Free-wheeling diode
- Power conversion system
- Motor drives



Product Characteristics

I _{F(AV)}	2 X 10A
V_{RRM}	400V
V _{FM} at 125℃	1.25V
t _{rr}	30ns

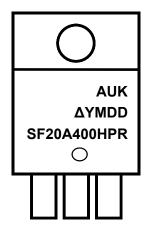
Description

The SF20A400HPR is an ultrafast rectifier. It has a low forward voltage drop and reverse recovery time (trr<30ns). The device is intended for use as a free wheeling, clamping rectifier in a variety of switching power supplies and other power switching applications.

Ordering Information

Device	Marking Code	Package	Packaging
SF20A400HPR	SF20A400HPR	TO-220F-3L	Tube

Marking Information



AUK = Manufacture Logo

 Δ = Control Code of Manufacture

YMDD = Date Code Marking

-. Y = Year Code

-. M = Monthly Code

-. DD = Daily Code

SF20A400HPR = Specific Device Code

KSD-D0O041-000

Absolute Maximum Ratings (Limiting Values)

Characteristic		Symbol	Value	Unit	
Maximum repetitive reverse voltage Maximum working peak reverse voltage Maximum DC blocking voltage		$egin{array}{c} egin{array}{c} \egin{array}{c} \egin{array}{c} \egin{array}{c} \egin{array}$	400	٧	
Maximum average forward rectified aurrent	per diode	1	10	А	
Maximum average forward rectified current	total device	I _{F(AV)}	20		
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load per diode		I _{FSM}	120	Α	
Storage temperature range		T _{stg} -45 to +150		$^{\circ}$ C	
Maximum operating junction temperature		T _j	150	$^{\circ}$ C	

Thermal Characteristics

Characteristic		Symbol	Value	Unit
Maximum thermal resistance junction to case	per diode	В	4.0	℃/W
	total device	$R_{th(j-c)}$	3.6	

Electrical Characteristics (Per Diode)

Characteristic	Symbol	Test Condition		Min.	Тур.	Max.	Unit
Peak forward voltage drop	V _{FM} ⁽¹⁾	I _{FM} = 10A	T _j =25℃	-	ı	1.40	V
			T _j =125℃	-	-	1.25	V
Reverse leakage current	I _{RM} ⁽¹⁾	$V_R = V_{RRM}$	T _j =25℃	-	-	20	uA
			T _j =125℃	-	-	200	uA
Reverse recovery time	t _{rr}	I _F = 1A, di/dt =-100 A/us		-	-	30	ns
Junction capacitance	C _j	$V_R = 10V_{DC}$, $f=1MHz$		-	65	-	pF

Note : (1) Pulse test : $t_P \le 380~\mu\text{s}$, Duty cycle $\le 2\%$

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Rating & Electrical Characteristic Curves

Fig. 1) Typical Forward Characteristics (Per diode)

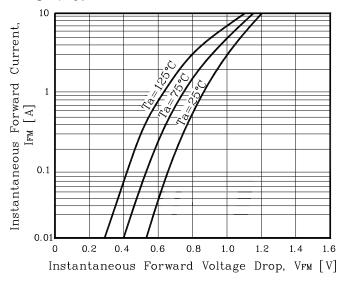


Fig. 2) Typical Reverse Characteristics (Per diode)

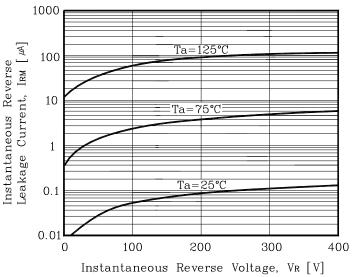


Fig. 3) Maximum Forward Derative Curve

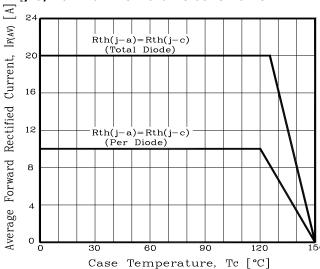
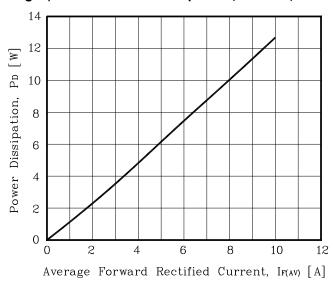


Fig. 4) Forward Power Dissipation (Per diode)



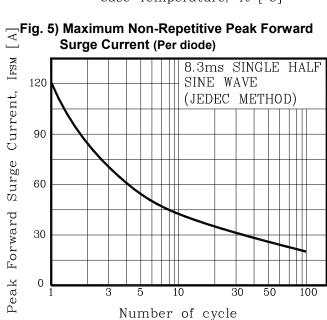
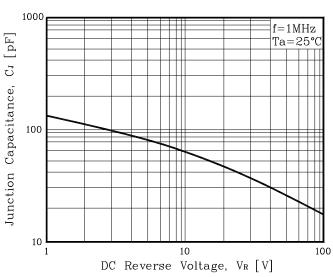
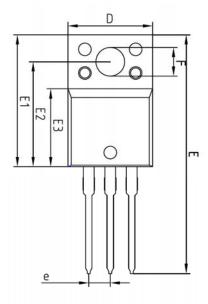


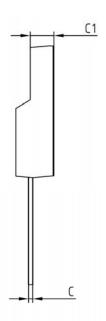
Fig. 6) Typical Junction Capacitance (Per diode)

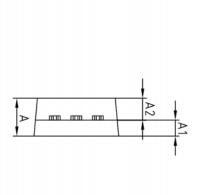


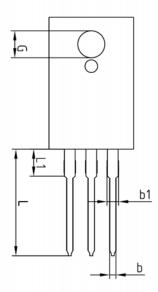
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Package Outline Dimension









SYMBOL	MINIMUM	NOMINAL	MAXIMUM	NOTE
Α	-	_	4.60	
A1	2.45	2.50	2.55	
A2	1.95	2.00	2.05	
Ь	0.65	0.75	0.85	
b1	1.07	1.27	1.47	
С	0.40	0.50	0.60	
C1	2.70	2.80	2.90	
D	9.90	10.00	10.10	
Ε	28.00	-	28.60	
E1	15.50	15.60	15.70	
E2	12.30	12.40	12.50	
E3	9.15	9.20	9.25	
F	3.30	3.40	3.50	
G	3.10	3.20	3.30	
е	2.54 BSC			
L	12.40	_	13.00	
L1				

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