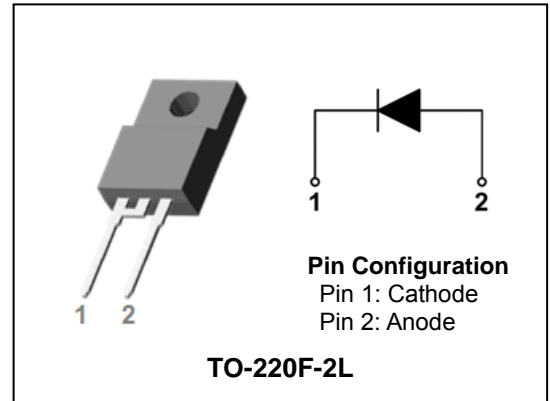


ULTRAFast RECOVERY POWER RECTIFIER

Description

The SF5A300H is a silicon rectifier in a 2-Lead TO220 full-pack type package designed, and is specially suited for switching mode base drive and transistor circuit. This device is intended for use in low voltage, high frequency inverters, free-wheeling diode and polarity protection.



Feature

- Low forward voltage drop and leakage current
- Ultra fast reverse recovery time
- Low power loss and High efficiency
- Full lead (Pb)-free and RoHS compliant device

Product Characteristics

$I_{F(AV)}$	5A
V_{RRM}	300V
$V_{FM} @ T_j=125^\circ\text{C}$	0.85V
t_{rr}	30ns

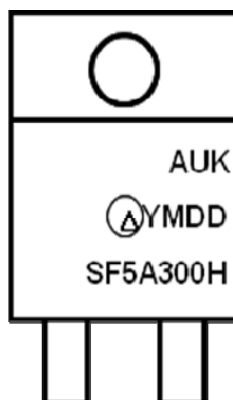
Applications

- Switching mode power supply
- Free-wheeling diode for motor application
- Polarity protection
- Power switching circuits

Ordering Information

Device	Marking Code	Package	Packaging
SF5A300H	SF5A300H	TO-220F-2L	Tube

Marking Information



AUK = Manufacture Logo

Δ = Control Code of Manufacture

YMDD = Date Code Marking

- . Y = Year Code

- . M = Monthly Code

- . DD = Daily Code

SF5A300H = Specific Device Code

Absolute Maximum Ratings (Limiting Values)

Characteristic	Symbol	Value	Unit
Maximum repetitive reverse voltage Maximum working peak reverse voltage Maximum DC blocking voltage	V_{RRM} V_{RWM} V_R	300	V
Maximum average forward rectified current	$I_{F(AV)}$	5	A
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load per diode	I_{FSM}	100	A
Storage temperature range	T_{stg}	-45°C to +150°C	°C
Maximum operating junction temperature	T_j	150	°C

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Maximum thermal resistance junction to case	$R_{th(j-c)}$	4.0	°C/W

Electrical Characteristics (Per Diode)

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit	
Peak forward voltage drop	$V_{FM}^{(1)}$	$I_{FM} = 5A$	$T_j = 25^\circ C$	-	-	1.30	V
			$T_j = 125^\circ C$	-	-	0.85	V
Reverse leakage current	$I_{RM}^{(1)}$	$V_R = V_{RRM}$	$T_j = 25^\circ C$	-	-	10	uA
			$T_j = 125^\circ C$	-	-	200	uA
Reverse recovery time	t_{rr}	$I_F = 1A, di/dt = -100 A/us$	-	-	30	ns	
Junction capacitance	C_j	$V_R = 5V_{DC}, f=1MHz$	-	40	-	pF	

Note : (1) Pulse test : $t_p \leq 380 \mu s$, Duty cycle $\leq 2\%$

Rating & Electrical Characteristic Curves

Fig. 1) Typical Forward Characteristics

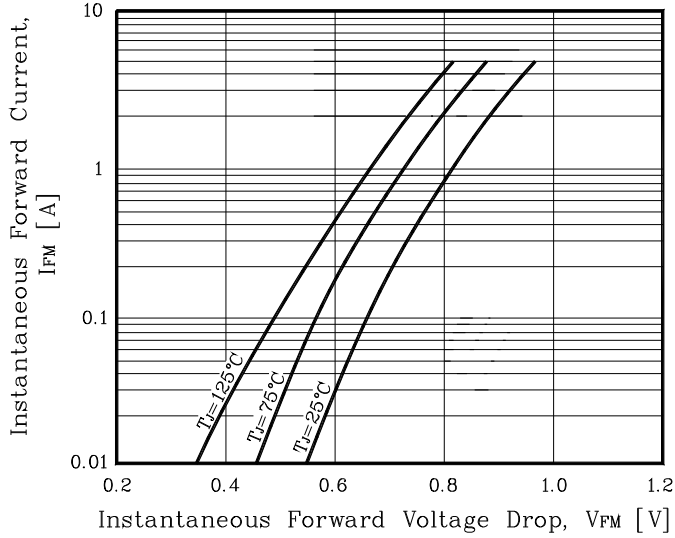


Fig. 2) Typical Reverse Characteristics

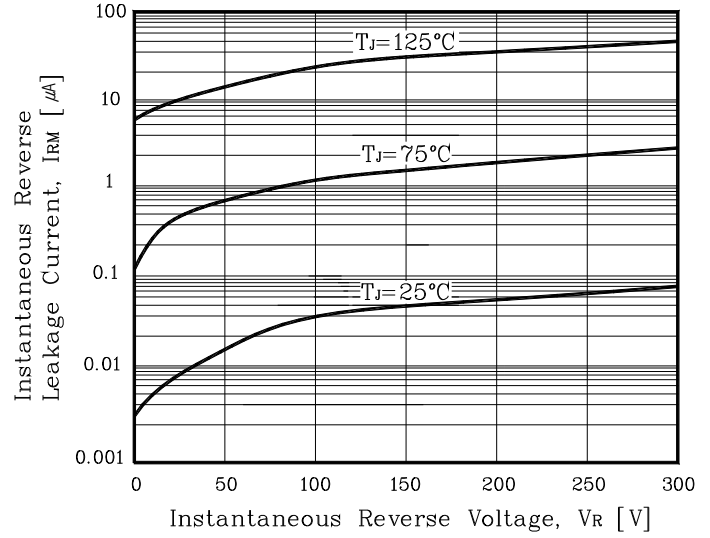


Fig. 3) Maximum Forward Derivative Curve

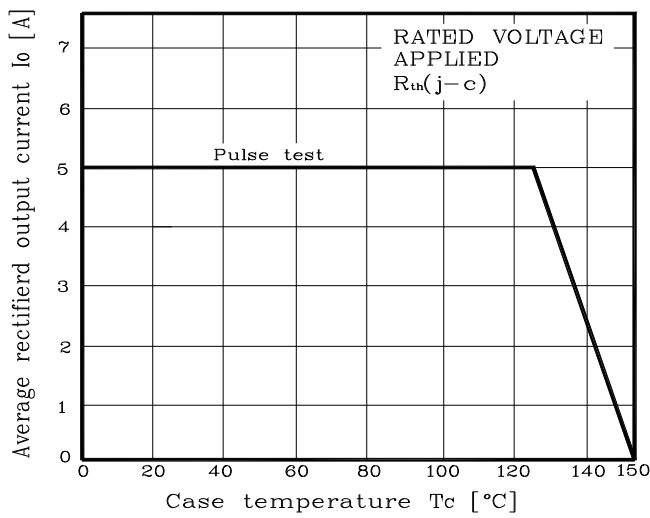


Fig. 4) Forward Power Dissipation (Per diode)

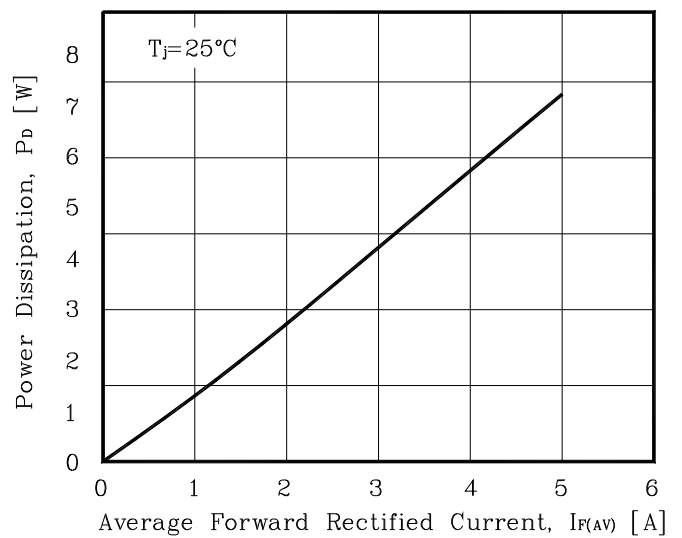


Fig. 5) Maximum Non-Repetitive Peak Forward Surge Current (Per diode)

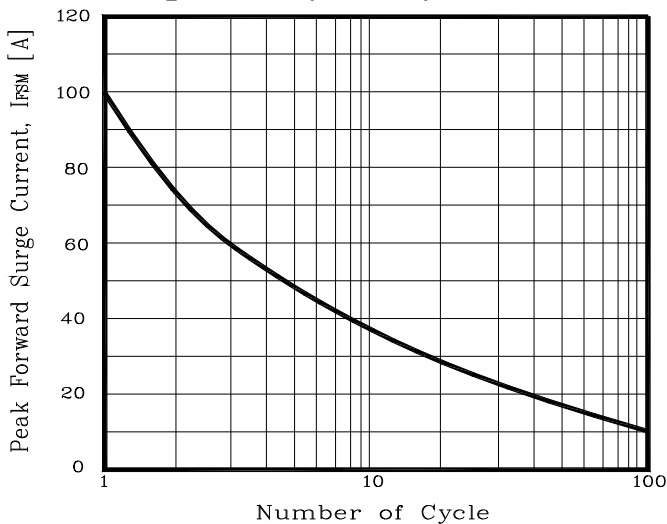
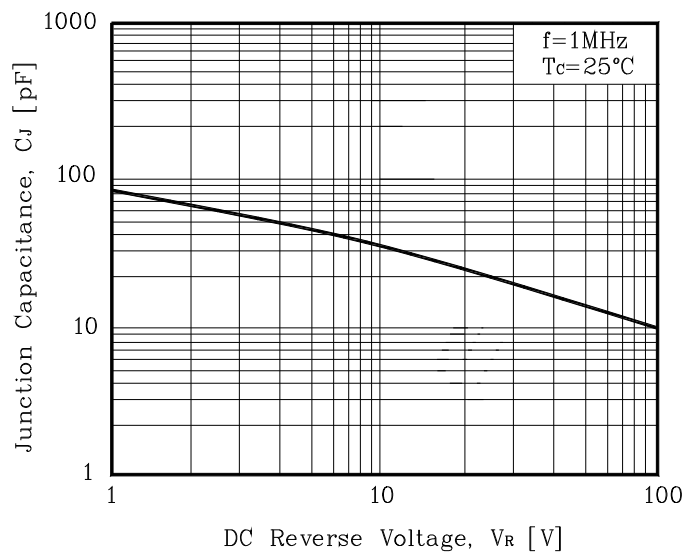
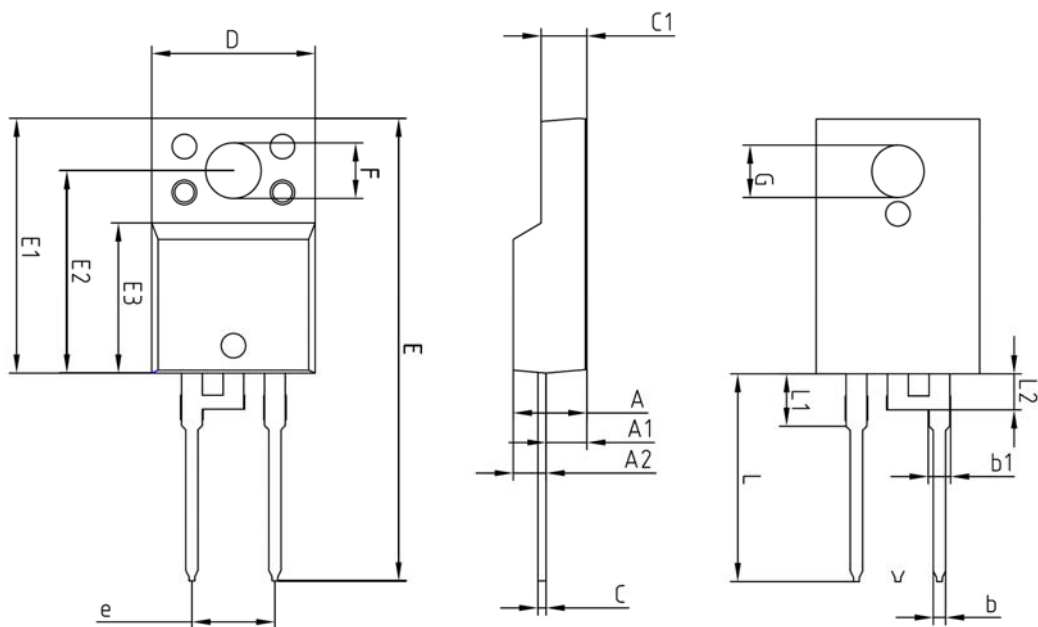


Fig. 6) Typical Junction Capacitance (Per diode)



Package Outline Dimension



SYMBOL	MILLIMETERS			NOTE
	MINIMUM	NOMINAL	MAXIMUM	
A	—	—	4.60	
A1	2.45	2.50	2.55	
A2	1.95	2.00	2.05	
b	0.65	0.75	0.85	
b1	1.07	1.27	1.47	
C	0.40	0.50	0.60	
C1	2.70	2.80	2.90	
D	9.90	10.00	10.10	
E	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	
e	5.08 BSC			
L	12.40	—	13.00	
L1	3.46 BSC			
L2	2.21 BSC			

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