

600V, 10A ULTRAFAST RECOVERY RECTIFIERS

Features

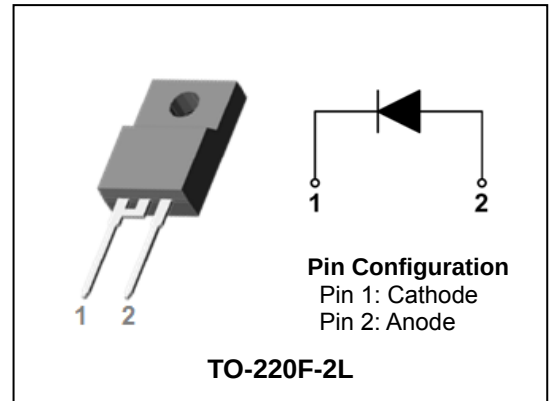
- High voltage and high reliability
- Ultrafast reverse recovery time
- High speed switching
- Low power loss and High efficiency
- Full lead (Pb)-free and RoHS compliant device

Applications

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

Description

The SF10A600H is an ultrafast rectifier. It has a low forward voltage drop and reverse recovery time ($t_{rr} < 35\text{ns}$). The device is intended for use as a free wheeling, clamping rectifier in a variety of switching power supplies and other power switching applications.



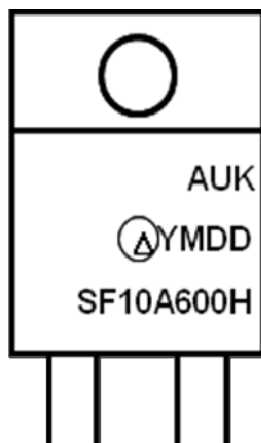
Product Characteristics

$I_{F(AV)}$	10A
V_{RRM}	600V
$V_{FM} @ T_j = 125^\circ\text{C}$	1.68V
t_{rr}	35ns

Ordering Information

Device	Marking Code	Package	Packaging
SF10A600H	SF10A600H	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

SF10A600H = 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	600	V
Maximum average forward rectified current	$I_{F(AV)}$	10	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	$V_{FM}^{(1)}$	$I_{FM} = 10A$	$T_j=25^{\circ}C$	-	-	1.90	V
			$T_j=125^{\circ}C$	-	-	1.68	V
Reverse leakage current	$I_{RM}^{(1)}$	$V_R = V_{RRM}$	$T_j=25^{\circ}C$	-	-	20	uA
			$T_j=125^{\circ}C$	-	-	200	uA
Reverse recovery time	t_{rr}	$I_F = 1A, di/dt = -100 A/us$		-	-	35	ns
Junction capacitance	C_j	$V_R = 4V_{DC}, f=1MHz$		-	70	-	pF

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

Rating and Characteristic Curves

Fig. 1) Typical Forward Characteristics

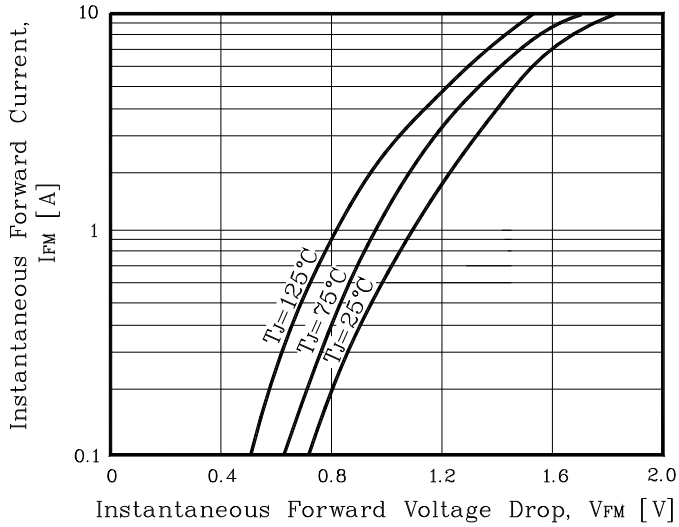


Fig. 2) Typical Reverse Characteristics

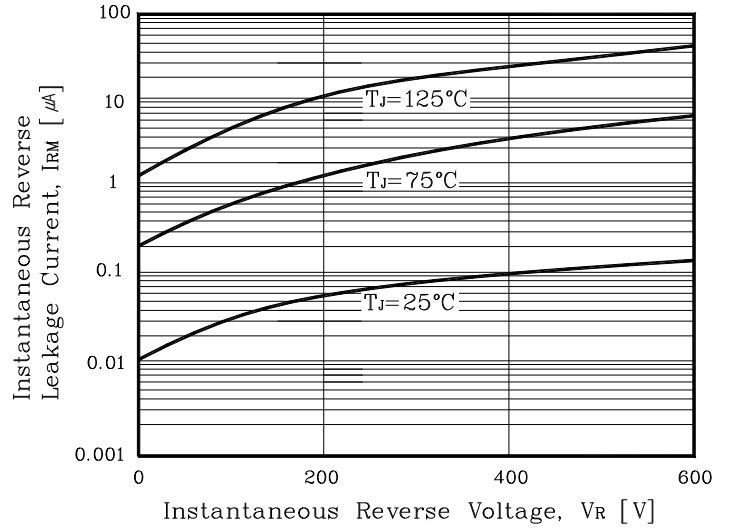


Fig. 3) Maximum Forward Derivative Curve

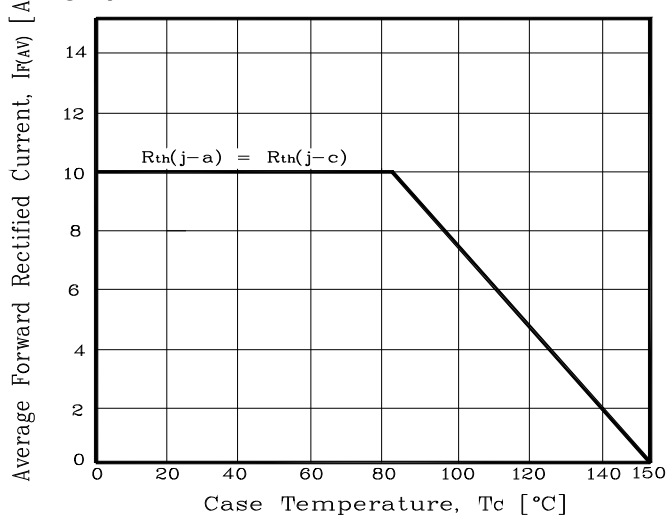


Fig. 4) Forward Power Dissipation

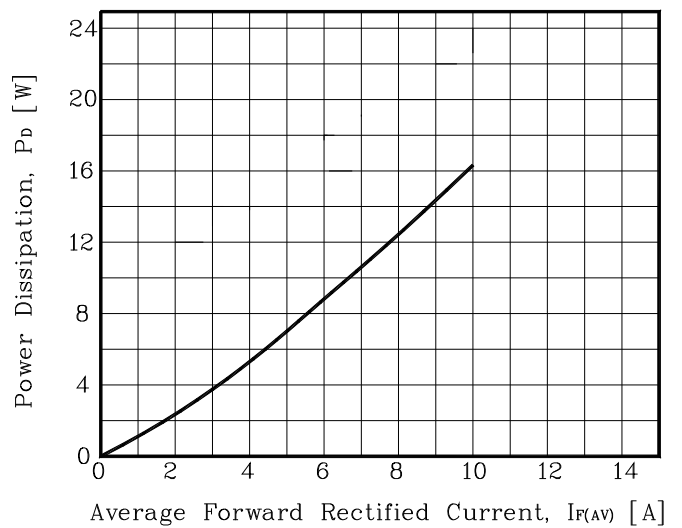


Fig. 5) Maximum Non-Repetitive Peak Forward Surge Current

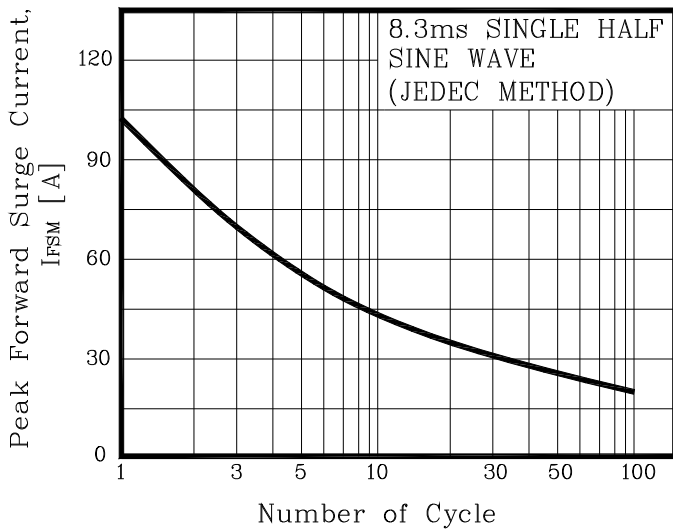
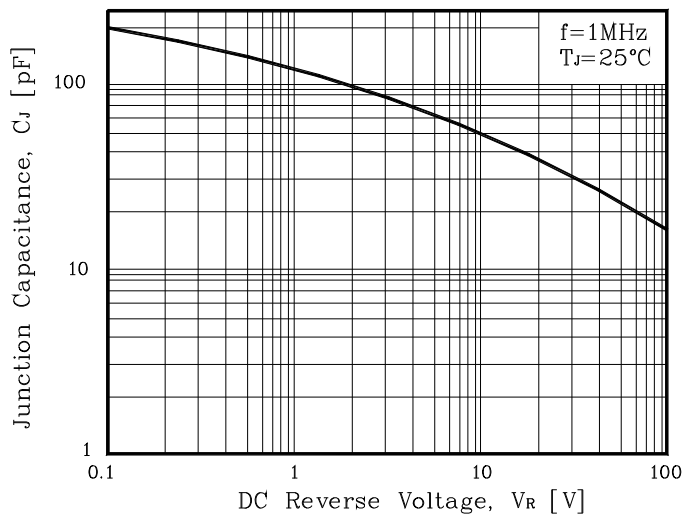
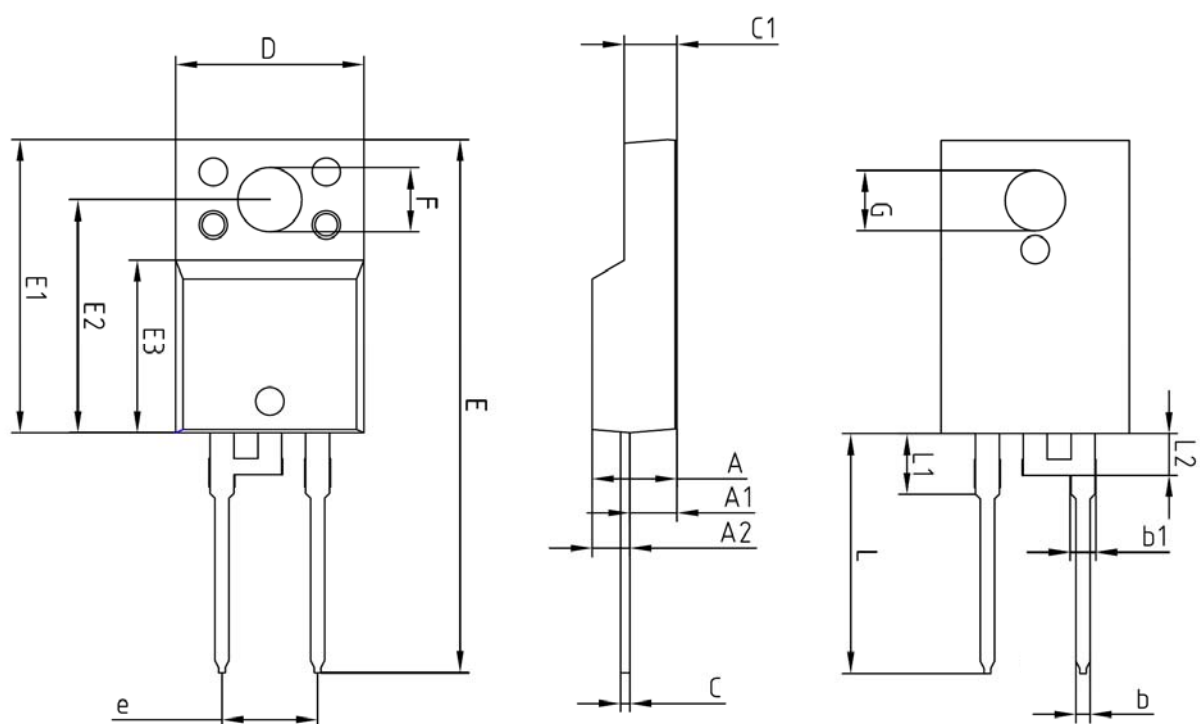


Fig. 6) Typical Junction Capacitance



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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