

**Ultrafast Recovery Rectifier** 

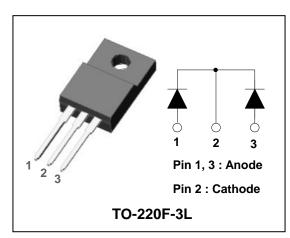
### 600V, 10A ULTRAFAST DUAL RECTIFIERS

#### **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 <sub>F(AV)</sub>	2 X 5A	
$V_{RRM}$	600V	
V <sub>FM</sub> @ Tj=125 ℃	1.75V	
t <sub>rr</sub>	30ns	

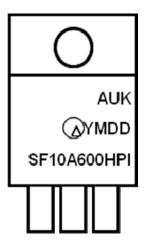
#### **Description**

The SF10A600HPI 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	
SF10A600HPI SF10A600HPI		TO-220F-3L	Tube	

#### **Marking Information**



AUK = Manufacture Logo

 $\Delta$  = Control Code of Manufacture

YMDD = Date Code Marking

-. Y = Year Code

-. M = Monthly Code

-. DD = Daily Code

SF10A600HPI = Specific Device Code

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### Absolute Maximum Ratings (Limiting Values)

Characteristic		Symbol	Value	Unit	
Maximum repetitive reverse voltage Maximum working peak reverse voltage Maximum DC blocking voltage		$egin{array}{c} egin{array}{c} \egin{array}{c} \egin{array}{c} \egin{array}{c} \egin{array}$	600	V	
Maximum average forward rectified current	per diode	1	5	А	
Maximum average forward rectified current	total device	I <sub>F(AV)</sub>	10		
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load per diode		I <sub>FSM</sub>	80	А	
Storage temperature range		T <sub>stg</sub>	-45 to +150	${\mathbb C}$	
Maximum operating junction temperature		T <sub>j</sub>	150	${\mathbb C}$	

### **Thermal Characteristics**

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

### **Electrical Characteristics (Per Diode)**

Characteristic	Symbol	Test Condition		Min.	Тур.	Max.	Unit
Peak forward voltage drop	V <sub>FM</sub> <sup>(1)</sup>	I <sub>FM</sub> = 5A	T <sub>j</sub> =25℃	-	-	1.90	V
Peak lorward voltage drop			T <sub>j</sub> =125℃	-	1	1.75	
Reverse leakage current	I <sub>RM</sub> <sup>(1)</sup>	$V_R = V_{RRM}$	T <sub>j</sub> =25℃	-	-	10	uA
Reverse leakage current			T <sub>j</sub> =125℃	-	ı	200	
Reverse recovery time	t <sub>rr</sub>	I <sub>F</sub> = 1A, di/dt =-100 A/us		-	ı	30	ns
Junction capacitance	C <sub>j</sub>	$V_R = 4V_{DC}$ , f=1MHz		-	40	-	pF

**Note :** (1) Pulse test :  $t_P \le 380us$ , Duty cycle  $\le 2\%$ 

### **Electrical Characteristic Curves**

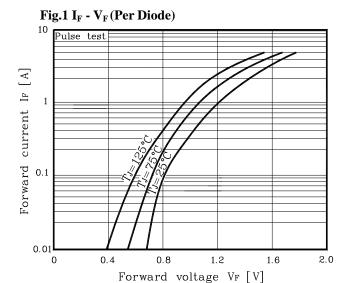
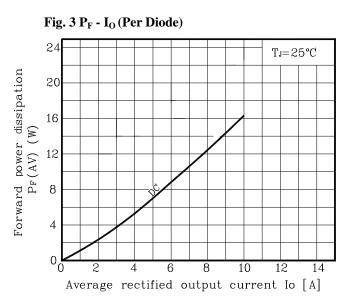
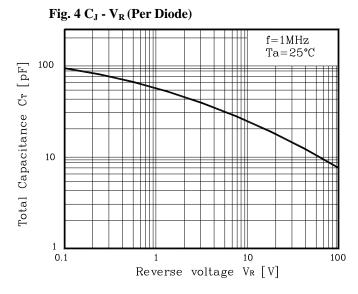
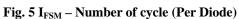
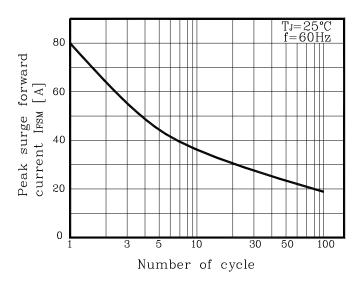


Fig. 2 I<sub>R</sub> - V<sub>R</sub> (Per Diode) 1000 Pulse test 100 Reverse current IR [#] T<sub>J</sub>=125°C= 10 Tj=75°C: 1 0.1 Tj=25°C 0.01 0.001 100 300 400 200 500 600 Reverse voltage VR [V]

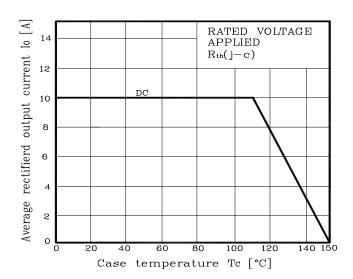






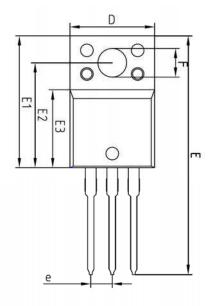


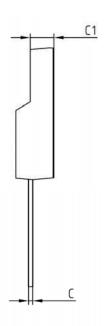


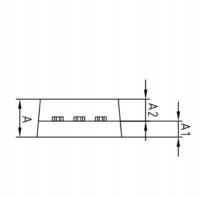


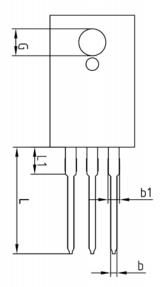
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## **Package Outline Dimension**









		NOTE				
SYMBOL	MINIMUM	NOMINAL	MAXIMUM	NOIE		
Α	-	-	4.60			
A1	2.45	2.50	2.55			
A2	1.95	2.00	2.05			
Ь	0.65	0.75	0.85			
ь1	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						
L	12.40					
L1						
The state of the s						

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