

## 600V, 20A ULTRAFAST DUAL RECTIFIERS

### Features

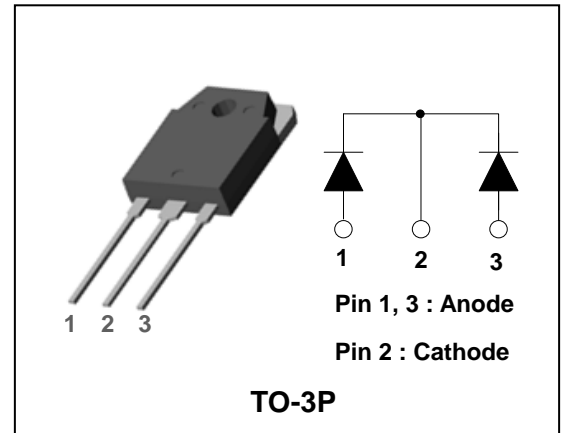
- Low forward voltage drop and leakage current
- Ultrafast reverse recovery time ( $t_{rr} < 35\text{ns}$ )
- Low power loss and high efficiency
- Dual common cathode rectifier construction
- Full lead (Pb)-free and RoHS compliant device

### Applications

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

### Description

The SF20A600HCI 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.



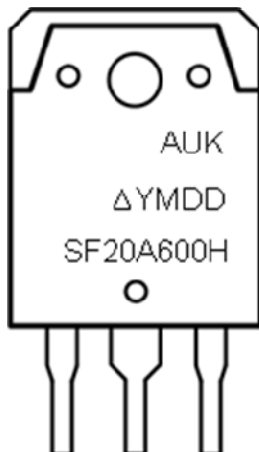
### Product Characteristics

$I_{F(AV)}$	2 x 10A
$V_{RRM}$	600V
$V_{FM} @ T_j = 125^\circ\text{C}$	1.68V
$t_{rr}$	35ns

### Ordering Information

Device	Marking Code	Package	Packaging
SF20A600HCI	SF20A600H	TO-3P	Tube

### Marking Information



AUK = Manufacture Logo

Δ = Control Code of Manufacture

YMDD = Date Code Marking

- . Y = Year Code

- . M = Monthly Code

- . DD = Daily Code

SF20A600H = 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	per diode	$I_{F(AV)}$	10	A
	total device		20	
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	per diode	$R_{th(j-c)}$	2.5	°C/W
	total device		2.0	

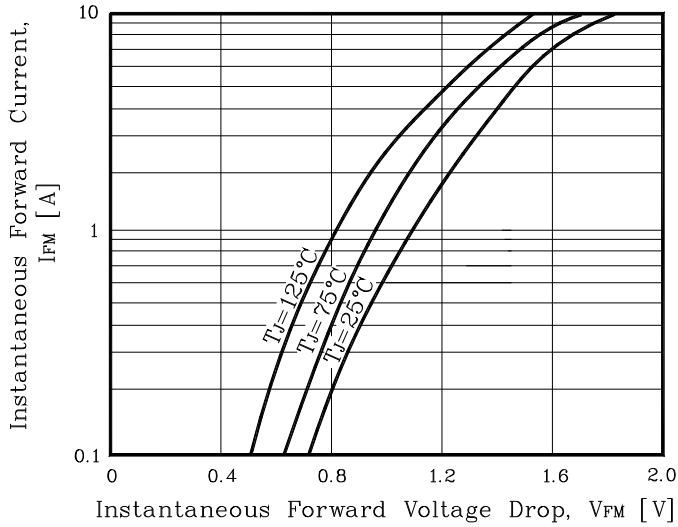
## Electrical Characteristics (Per Diode)

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	

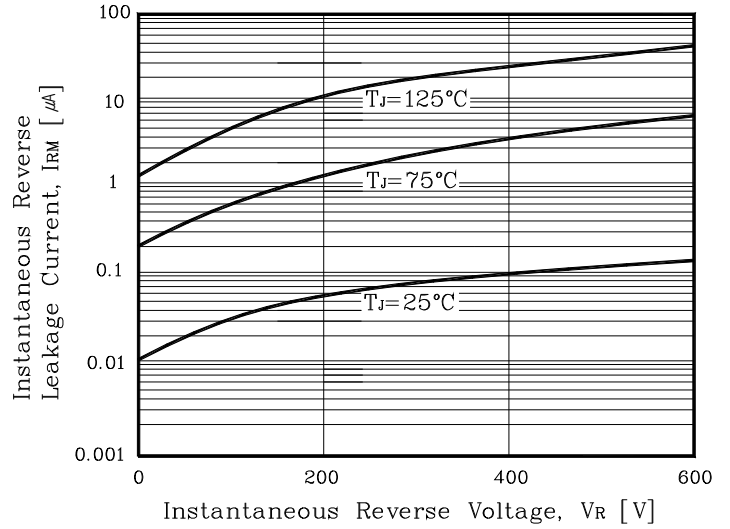
**Note :** (1) Pulse test :  $t_p \leq 380 \mu s$ , Duty cycle  $\leq 2\%$

## Rating and Characteristic Curves (Per Diode)

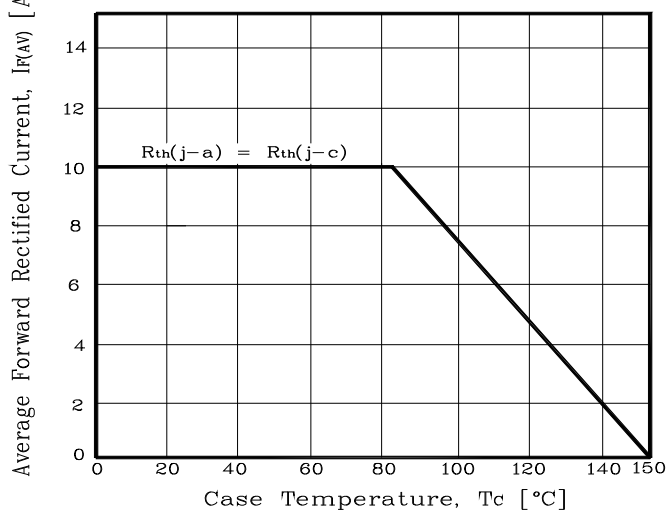
**Fig. 1) Typical Forward Characteristics**



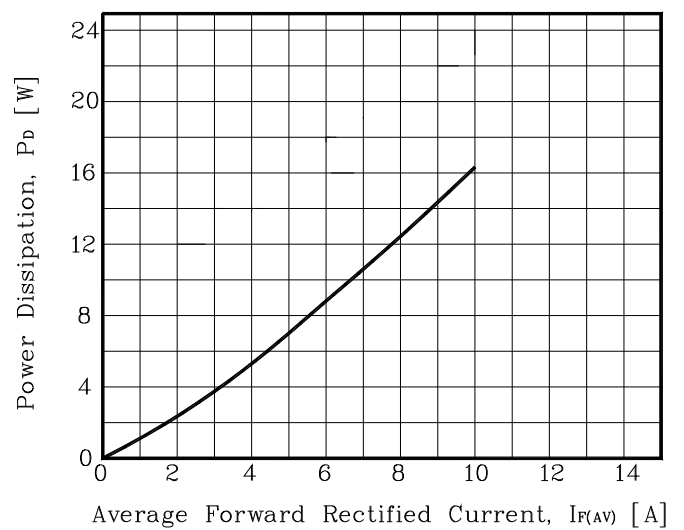
**Fig. 2) Typical Reverse Characteristics**



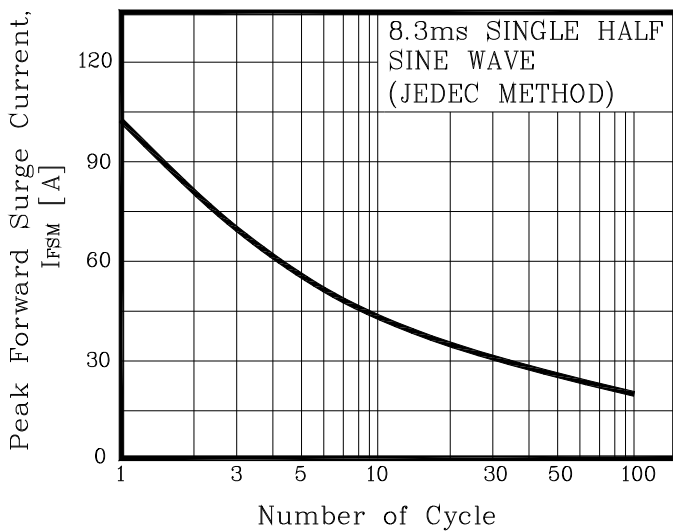
**Fig. 3) Maximum Forward Derivative Curve**



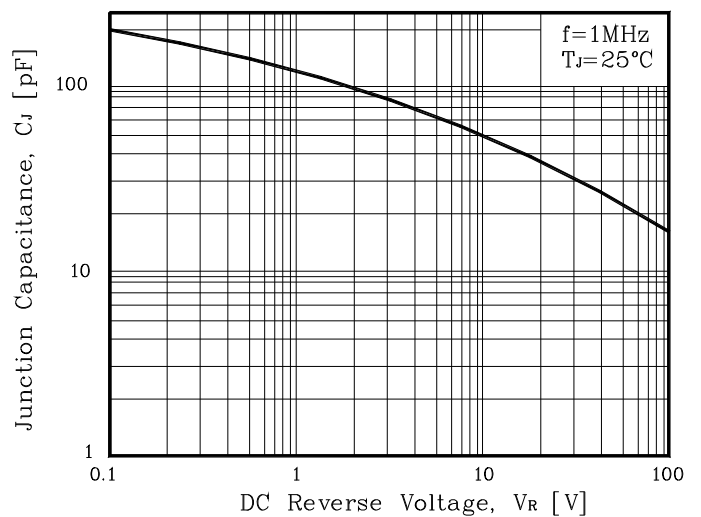
**Fig. 4) Forward Power Dissipation**



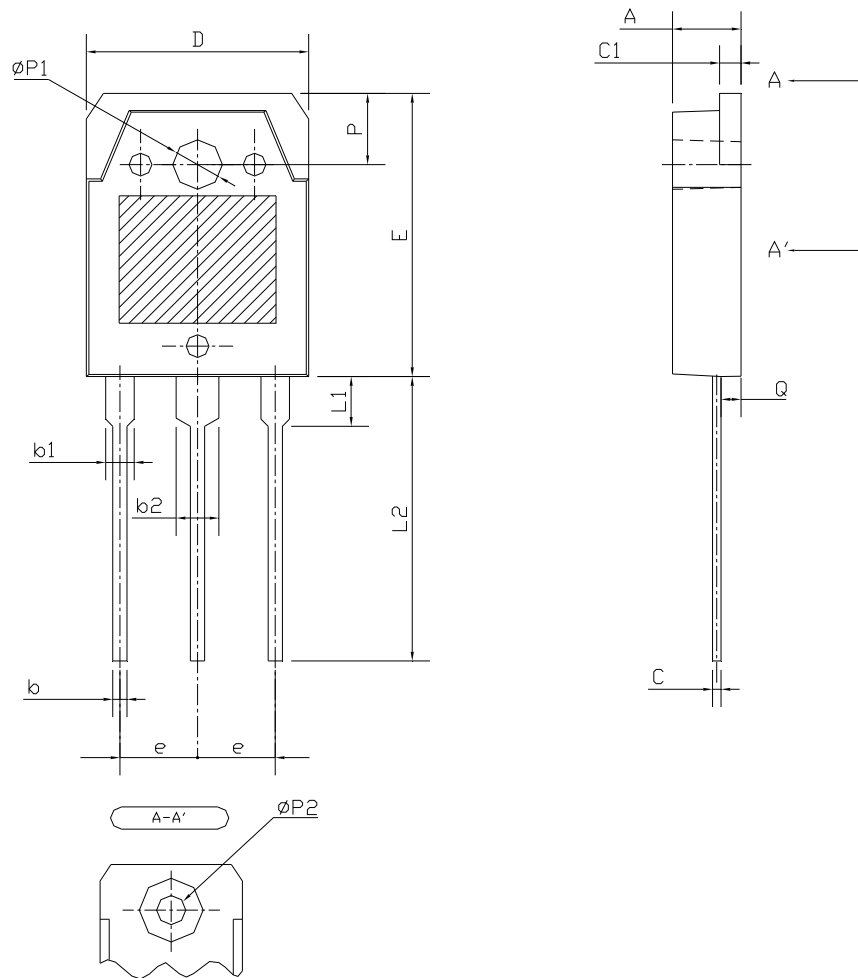
**Fig. 5) Maximum Non-Repetitive Peak Forward Surge Current**



**Fig. 6) Typical Junction Capacitance**



## Package Outline Dimension



SYMBOL	MIN	NOM	MAX
A	4.60	4.80	5.00
b	0.80	1.00	1.20
b1	1.80	2.00	2.20
b2	2.80	3.00	3.20
C	0.55	0.60	0.75
C1	1.45	1.50	1.65
D	15.40	15.60	15.80
E	19.70	19.90	20.10
e	5.15	5.45	5.75
L1	3.30	3.50	3.70
L2	19.80	20.00	20.20
P	4.80	5.00	5.20
$\phi P1$	3.30	3.40	3.50
$\phi P2$	(3.20)		
Q	1.20	1.40	1.60

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