

## 200V, 20A ULTRAFast DUAL RECTIFIERS

### Features

- Low forward voltage drop and leakage current
- Ultrafast reverse recovery time ( $t_{rr} < 25\text{ns}$ )
- Low power loss and high efficiency
- Dual common cathode rectifier construction
- Full lead (Pb)-free and RoHS compliant device

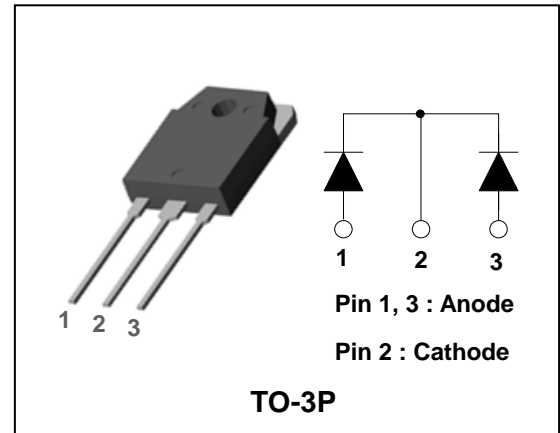
### Applications

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

### Description

The SFN20W200CI is an ultrafast rectifier. It has a low forward voltage drop and reverse recovery time ( $t_{rr} < 25\text{ns}$ ). The planar structure and the platinum doper life time control guarantee the best overall performance, ruggedness and reliability characteristics.

The device is intended for use as a free wheeling, clamping rectifier in a variety of switching power supplies and other power switching applications.



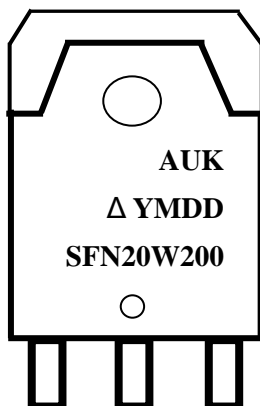
### Product Characteristics

$I_{F(AV)}$	2 X 10A
$V_{RRM}$	200V
$V_{FM}$ at 125°C	0.88V
$t_{rr}$	25ns

### Ordering Information

Device	Marking Code	Package	Packaging
SFN20W200CI	SFN20W200	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
- SFN20W200 = 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		$V_{RRM}$ $V_{RWM}$ $V_R$	200	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		$I_{FSM}$	120	A
Storage temperature range		$T_{stg}$	-45 to +150	°C
Maximum operating junction temperature		$T_j$	150	

## 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	$V_{FM}^{(1)}$	$I_{FM} = 10A$	$T_j = 25^\circ C$	-	-	0.98	V
			$T_j = 125^\circ C$	-	-	0.88	
Reverse leakage current	$I_{RM}^{(2)}$	$V_R = V_{RRM}$	-	-	10	uA	
Reverse recovery time	$t_{rr}$	$I_F = 1A, di/dt = -100 A/us$	-	-	25	ns	
Junction capacitance	$C_j$	$V_R = 5V_{DC}, f=1MHz$	-	150	-	pF	

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

(2) Pulse test :  $t_p \leq 20ms$ , Duty cycle  $\leq 2\%$

## Rating and Characteristic Curves (Per Diode)

Fig. 1  $V_F - I_F$

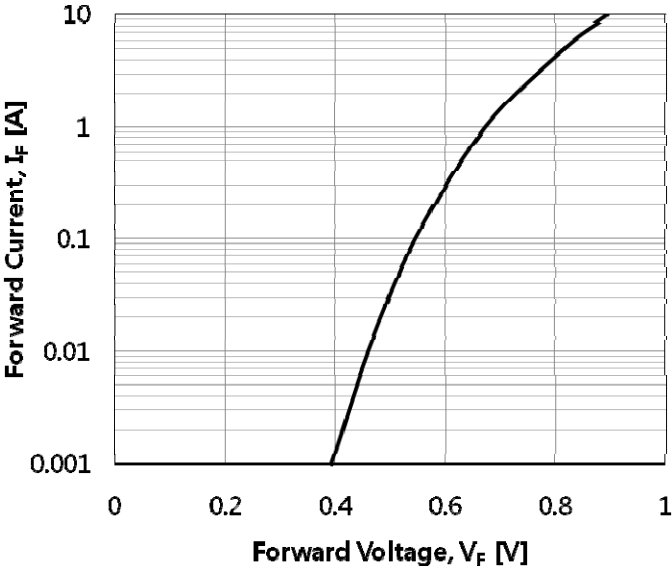


Fig. 2  $I_R - V_R$

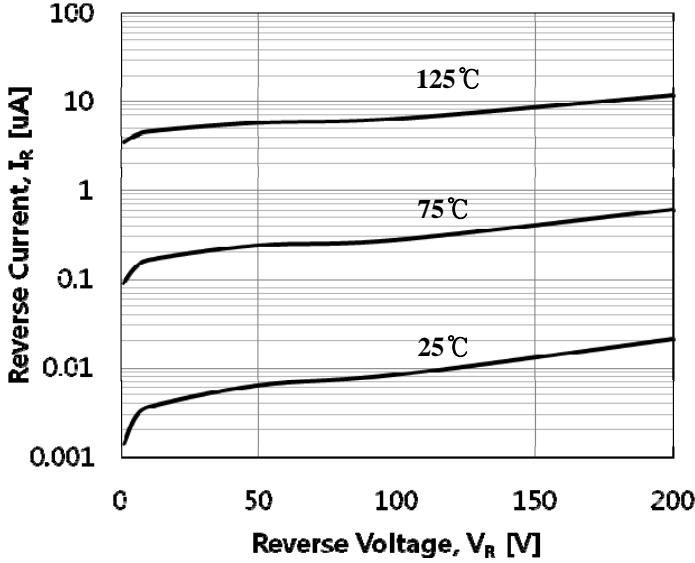


Fig. 3  $I_O - P_F$

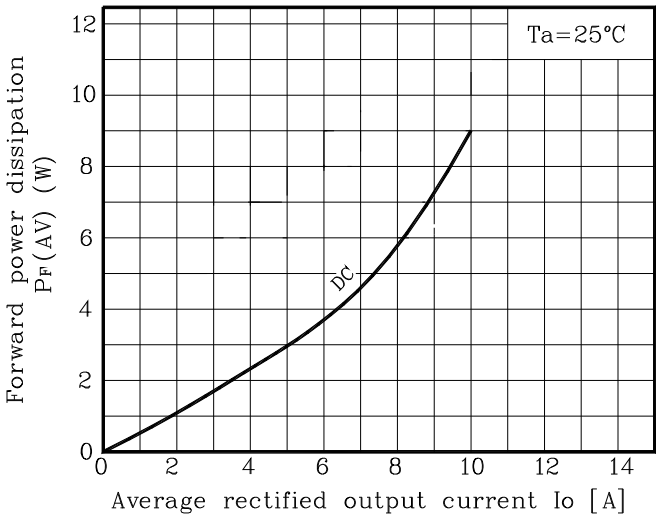


Fig. 4  $C_T - V_R$

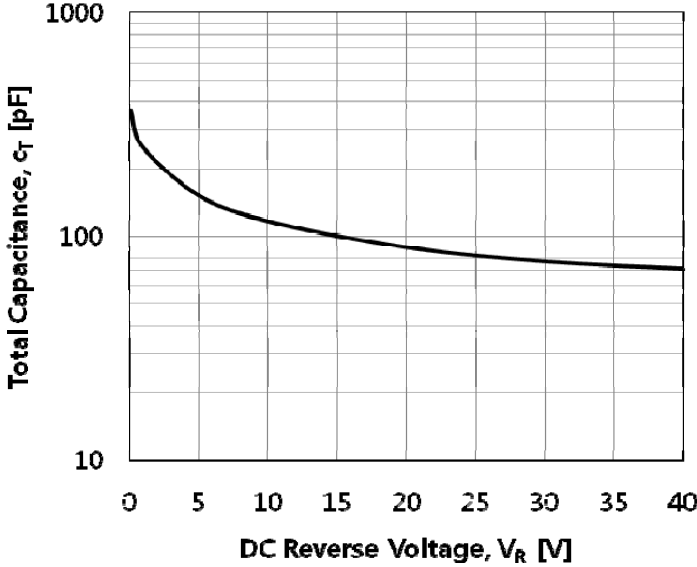


Fig. 5  $I_{FSM} - \text{Number of cycle}$

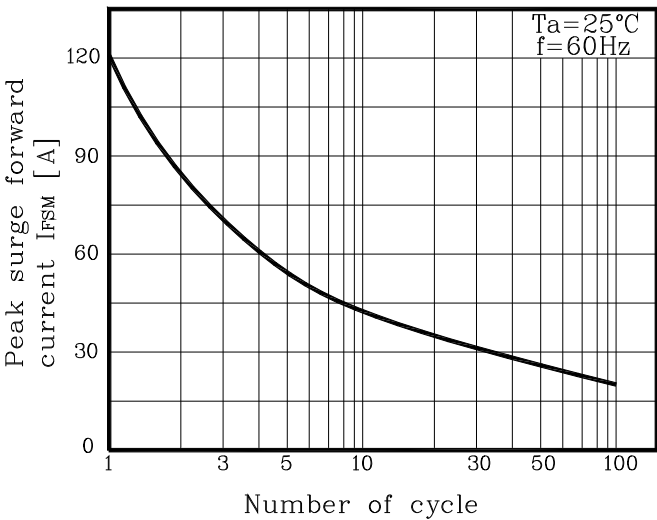
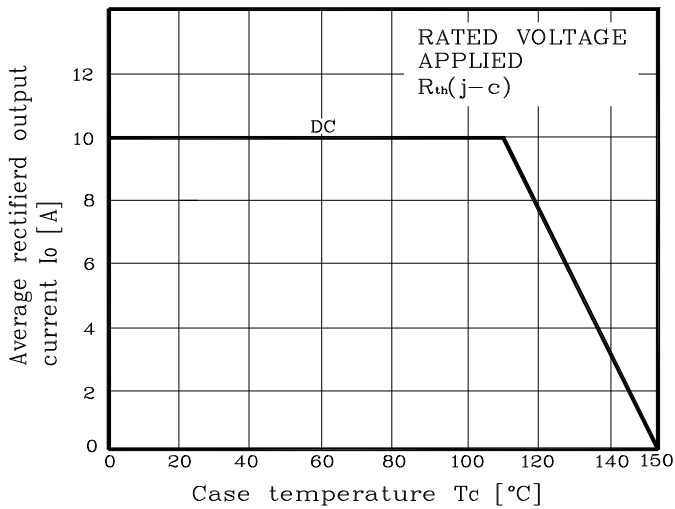
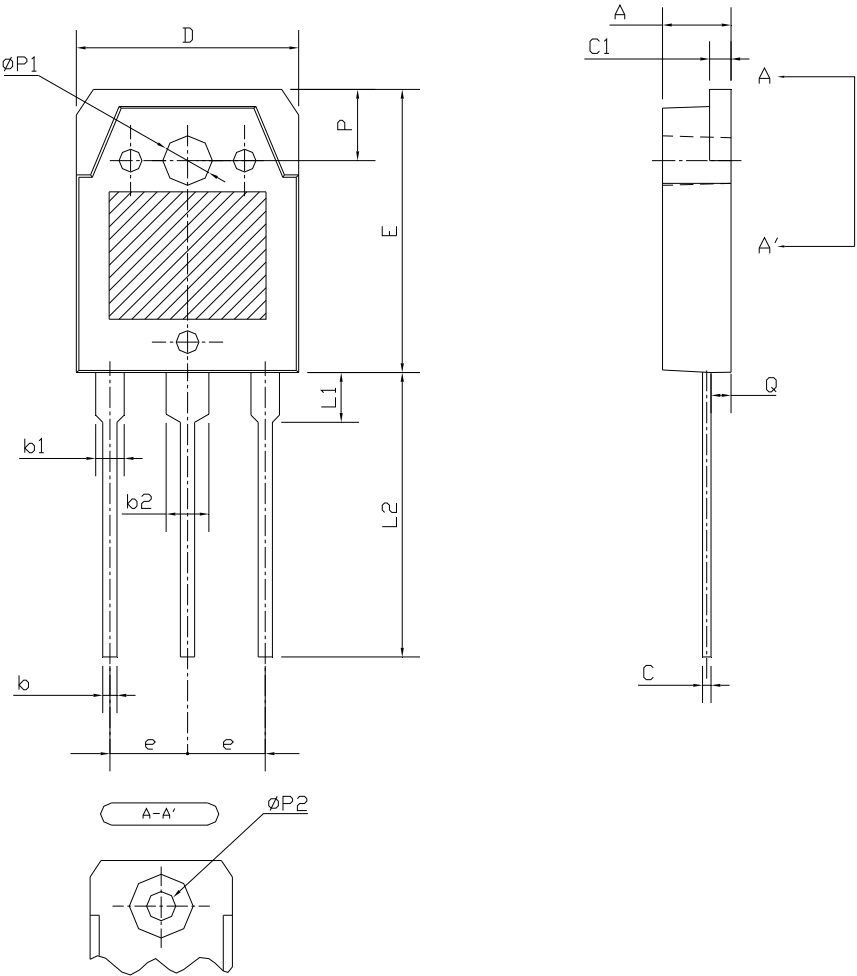


Fig. 6  $I_O$  derating -  $T_C$



Package Outline Dimension (Unit: mm)



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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