

600V, 60A ULTRAFast DUAL RECTIFIERS

Features

- Low forward voltage drop and leakage current
- Soft recovery time
- Low power loss and high efficiency
- Dual common cathode rectifier construction
- Full lead (Pb)-free and RoHS compliant device

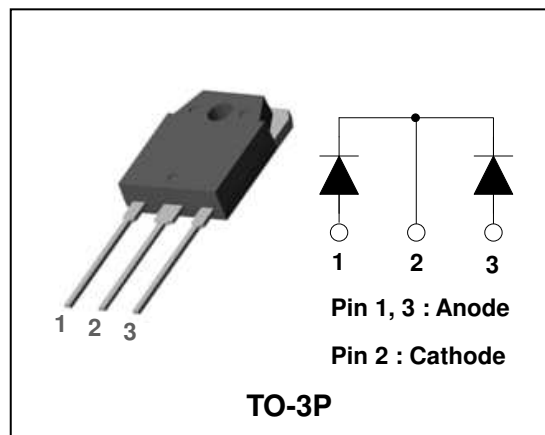
Applications

- Switch mode power supply (SMPS)
- Uninterruptible power supplies (UPS)
- Free-wheeling diode
- Inductive heating (IH)
- Snubber diode

Description

The SFN60W600CI is an ultrafast rectifier. It has a low forward voltage drop and reverse recovery time (Typ. 35ns). 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, UPS, welding, DC/DC converters applications.



Product Characteristics

$I_{F(AV)}$	2 X 30A
V_{RRM}	600V
V_{FM} at 150°C	1.25V
t_{rr} (Typ.)	35ns

Ordering Information

Device	Marking Code	Package	Packaging
SFN60W600CI	SFN60W600	TO-3P	Tube

Marking Information



AUK = Manufacture Logo

Δ = Control Code of Manufacture

YMDD = Date Code Marking

-. Y = Year Code

-. M = Month Code

-. DD = Daily Code

SFN60W600 = Specific Device Code

Absolute Maximum Ratings (Limiting Values)

Characteristic		Symbol	Value	Unit
Maximum repetitive reverse voltage		V_{RRM}	600	V
Maximum working peak reverse voltage		V_{RWM}		
Maximum DC blocking voltage		V_R		
Maximum average forward rectified current	per diode	$I_{F(AV)}$	30	A
	total device		60	
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load per diode		I_{FSM}	300	A
Power dissipation		P_D	130	W
Storage temperature range		T_{stg}	-65 to +175	°C
Maximum operating junction temperature		T_J	175	

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Maximum thermal resistance junction to case	$R_{th(j-c)}$	1.15	°C/W
Maximum thermal resistance junction to ambient	$R_{th(j-a)}$	62.5	°C/W

Electrical Characteristics (Per Diode)

Characteristic	Symbol	Test Condition		Min.	Typ.	Max.	Unit
Peak forward voltage drop	$V_{FM}^{(1)}$	$I_{FM} = 30A$	$T_J = 25^\circ C$	-	-	1.60	V
			$T_J = 150^\circ C$	-	-	1.25	
Reverse leakage current	$I_{RM}^{(2)}$	$V_R = V_{RRM}$	$T_J = 25^\circ C$	-	-	50	uA
			$T_J = 150^\circ C$	-	-	500	
Junction capacitance	C_J	$V_R = 50V$		-	70	-	pF

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

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

Dynamic Recovery Characteristics (Per Diode)

Characteristic	Symbol	Test Condition		Min.	Typ.	Max.	Unit
Reverse recovery time	t_{rr}	$I_F = 1A, di/dt = -100 A/\mu s$		-	35	40	ns
			$T_J = 25^\circ C$	-	60	-	
			$T_J = 125^\circ C$	-	160	-	
Reverse recovery current	I_{RRM}	$I_F = 30A, di/dt = -150 A/\mu s$	$T_J = 25^\circ C$	-	4.2	-	A
			$T_J = 125^\circ C$	-	9.5	-	
Reverse recovery charge	Q_{rr}		$T_J = 25^\circ C$	-	135	-	nC
			$T_J = 125^\circ C$	-	760	-	

Typical Electrical Characteristic Curves (Per Diode)

Fig. 1 $V_F - I_F$

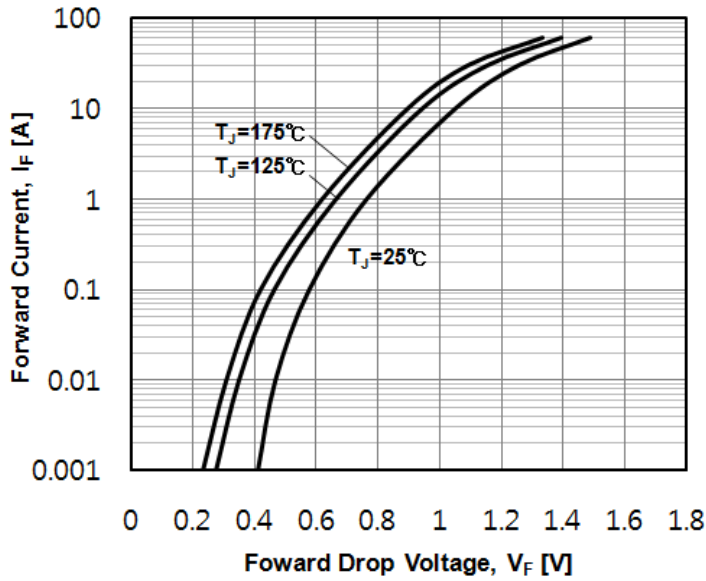


Fig. 2 $I_R - V_R$

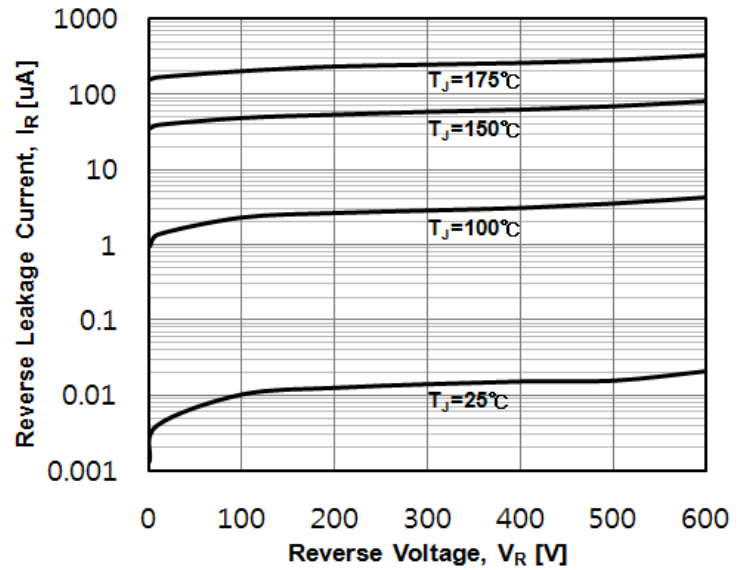


Fig. 3 Typical Reverse Recovery Time

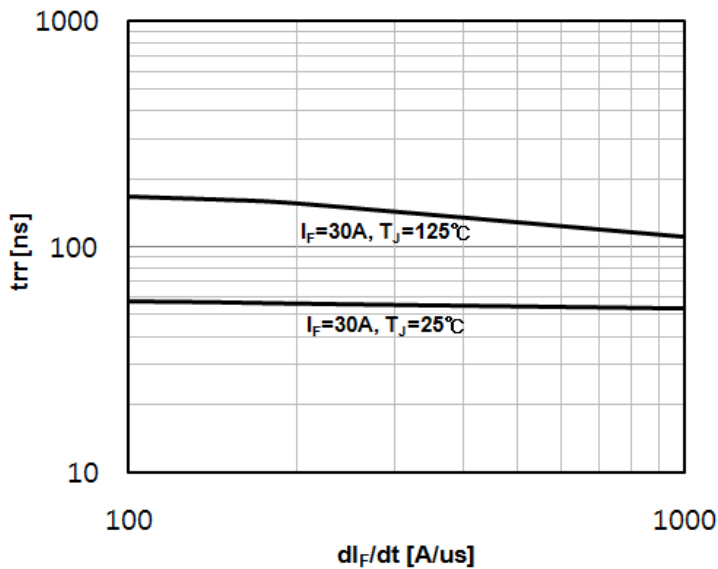


Fig. 4 Typical Reverse Recovery Charge

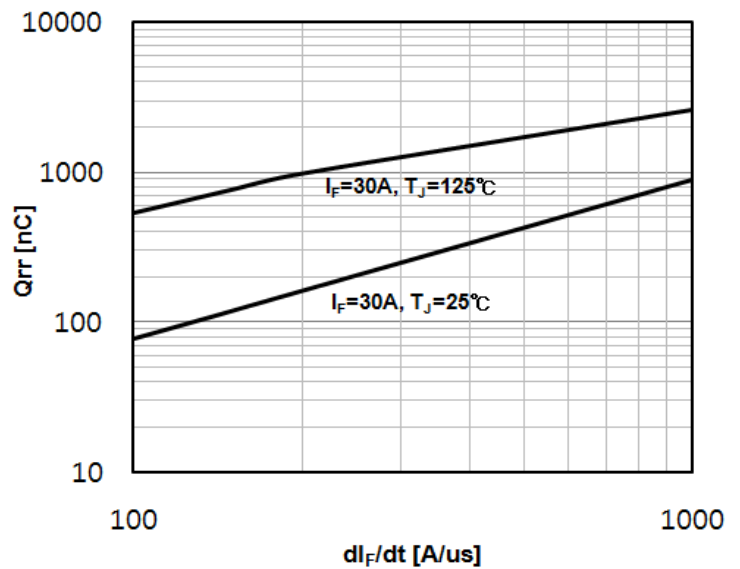


Fig. 5 $C_J - V_R$

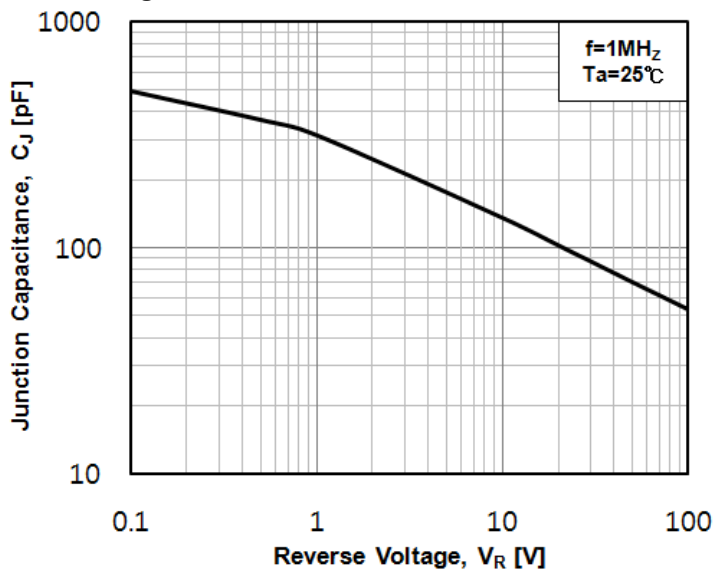
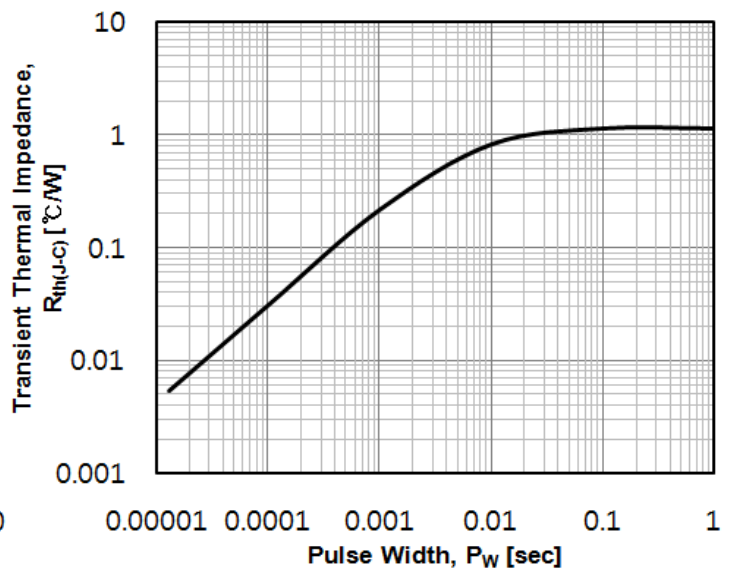
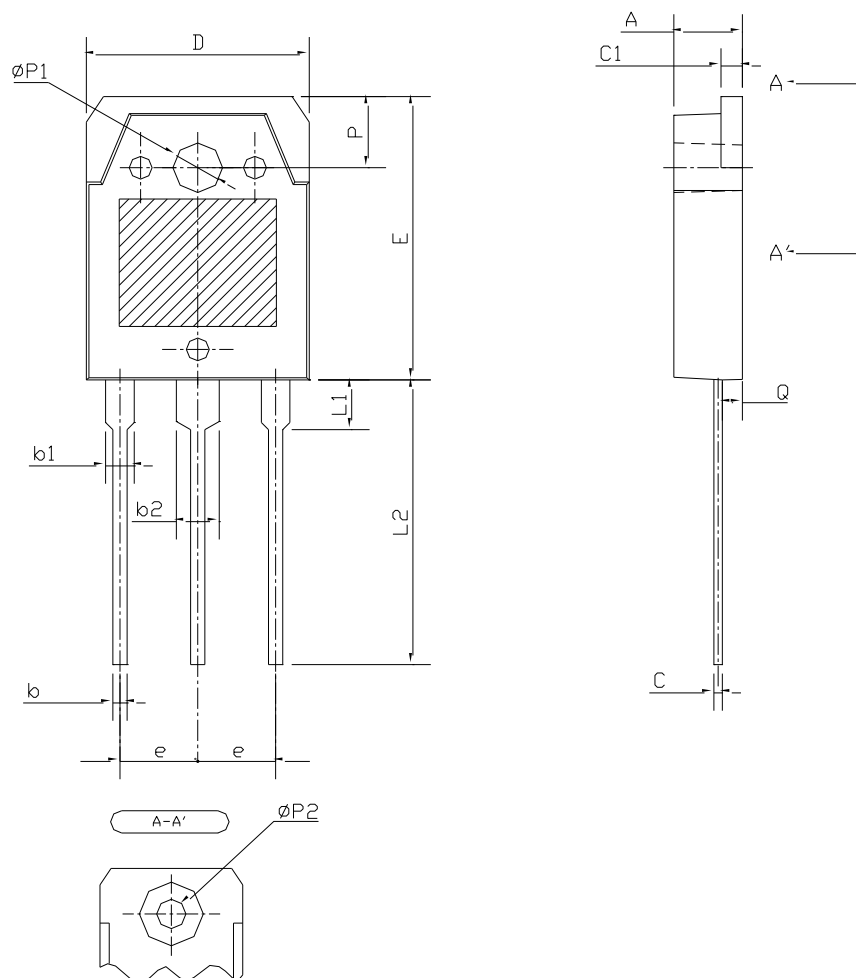


Fig. 6 Transient Thermal Resistance



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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