

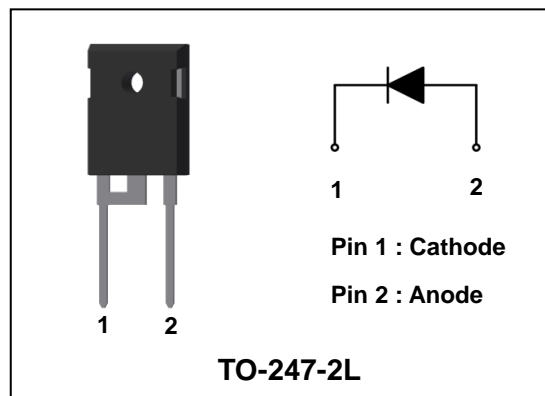
600V, 60A ULTRAFast RECTIFIER

Features

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

Applications

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



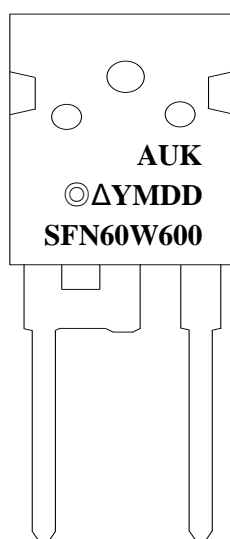
Product Characteristics

$I_{F(AV)}$	60A
V_{RRM}	600V
V_{FM} at 150°C	1.6V
t_{rr} (Typ.)	35ns

Ordering Information

Device	Marking Code	Package	Packaging
SFN60W600W2	SFN60W600	TO-247-2L	Tube

Marking Information



AUK = Manufacture Logo

◎ = Management Code

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 Maximum working peak reverse voltage Maximum DC blocking voltage	V_{RRM} V_{RWM} V_R	600	V
Maximum average forward rectified current	$I_{F(AV)}$	60	A
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load per diode	I_{FSM}	250	A
Power dissipation	P_D	160	W
Storage temperature range	T_{stg}	-55 to +150	°C
Maximum operating junction temperature	T_J	150	

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Maximum thermal resistance junction to case	$R_{th(j-c)}$	0.78	°C/W
Maximum thermal resistance junction to ambient	$R_{th(j-a)}$	62.5	°C/W

Electrical Characteristics

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit	
Peak forward voltage drop	$V_{FM}^{(1)}$	$I_{FM} = 60A$	$T_J = 25^\circ C$	-	1.5	2.0	V
			$T_J = 150^\circ C$	-	-	1.6	
Reverse leakage current	$I_{RM}^{(2)}$	$V_R = V_{RRM}$	$T_J = 25^\circ C$	-	-	10	uA
			$T_J = 150^\circ C$	-	-	800	
Junction capacitance	C_J	$V_R = 10V$	-	126	-	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

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
			$T_J = 25^\circ C$	-	100	-	
			$T_J = 125^\circ C$	-	125	-	
Reverse recovery current	I_{RRM}	$I_F = 60A, V_R = 200V, di/dt = -200 A/\mu s$	$T_J = 25^\circ C$	-	5.8	-	A
			$T_J = 125^\circ C$	-	8.8	-	
Reverse recovery charge	Q_{rr}		$T_J = 25^\circ C$	-	290	-	nC
			$T_J = 125^\circ C$	-	550	-	

Typical Electrical Characteristic Curves

Fig. 1 $V_F - I_F$

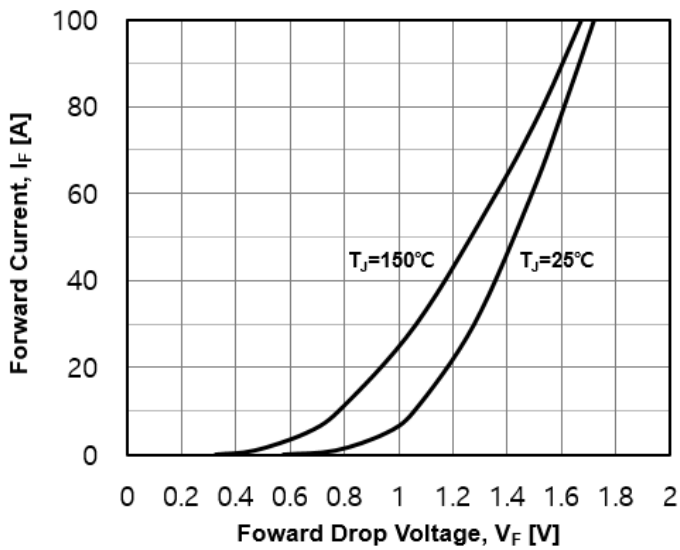


Fig. 2 $I_R - V_R$

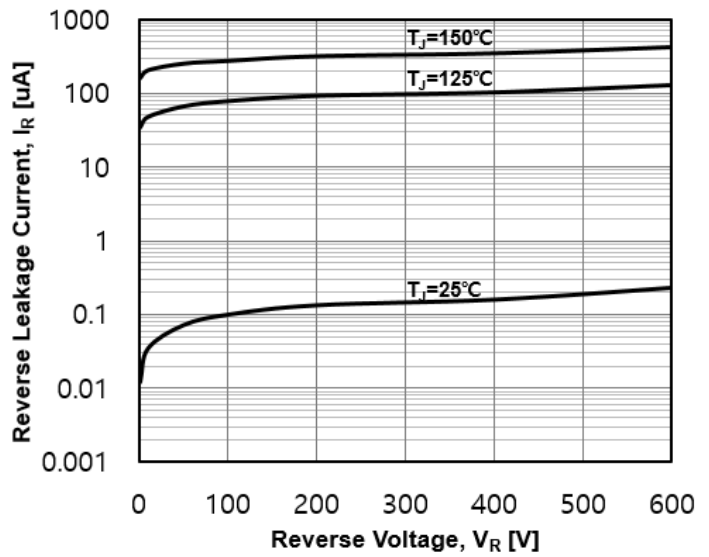


Fig. 3 Typical Peak Forward Surge Characteristics

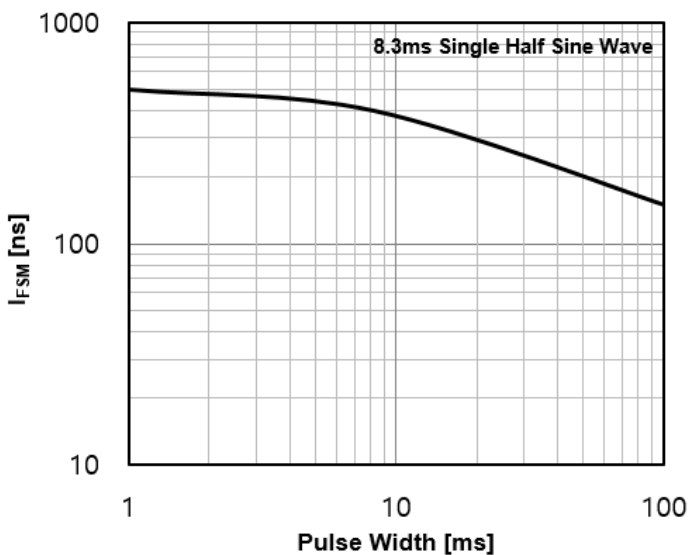


Fig. 4 Average Forward Current Derating

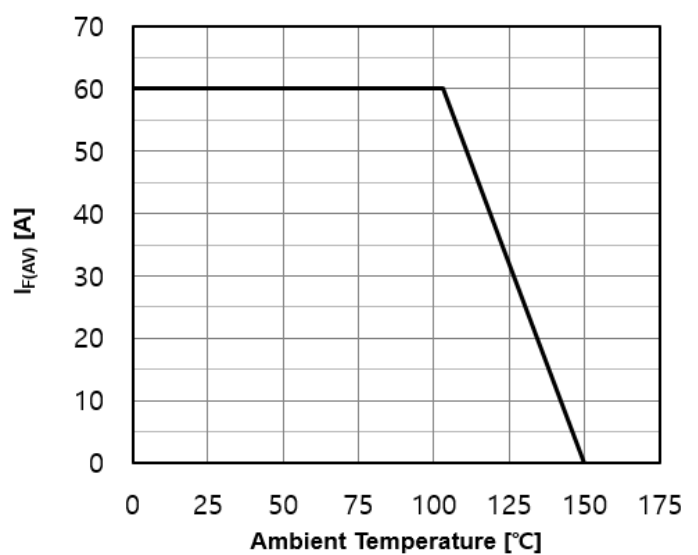


Fig. 5 $C_J - V_R$

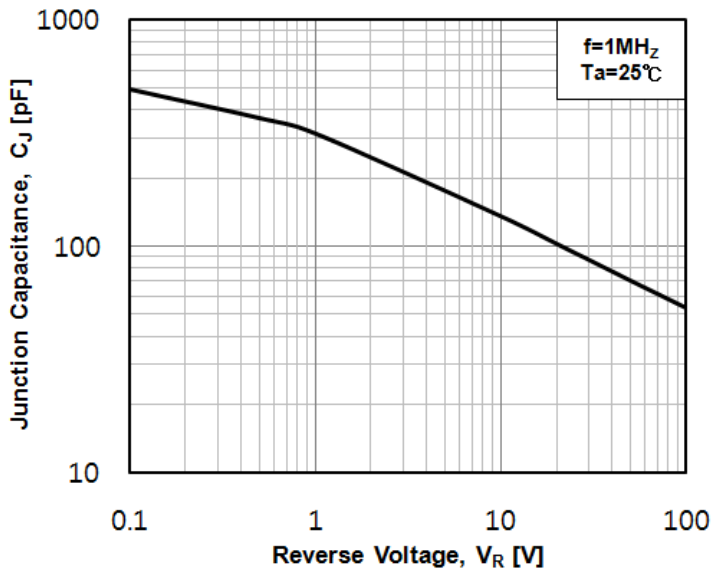
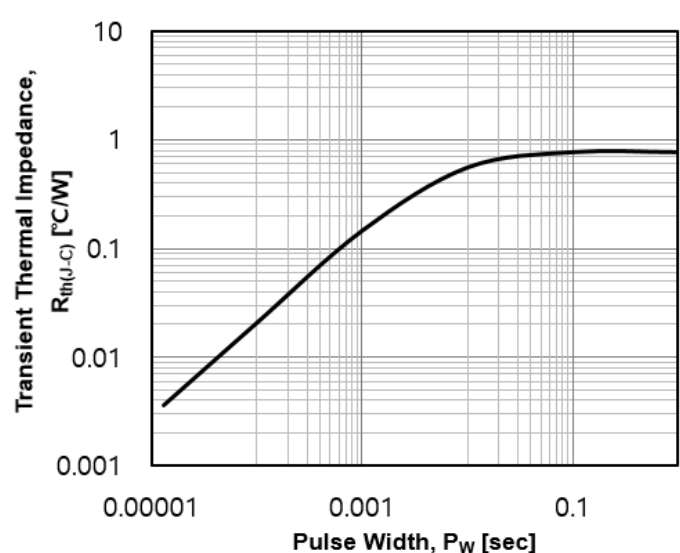
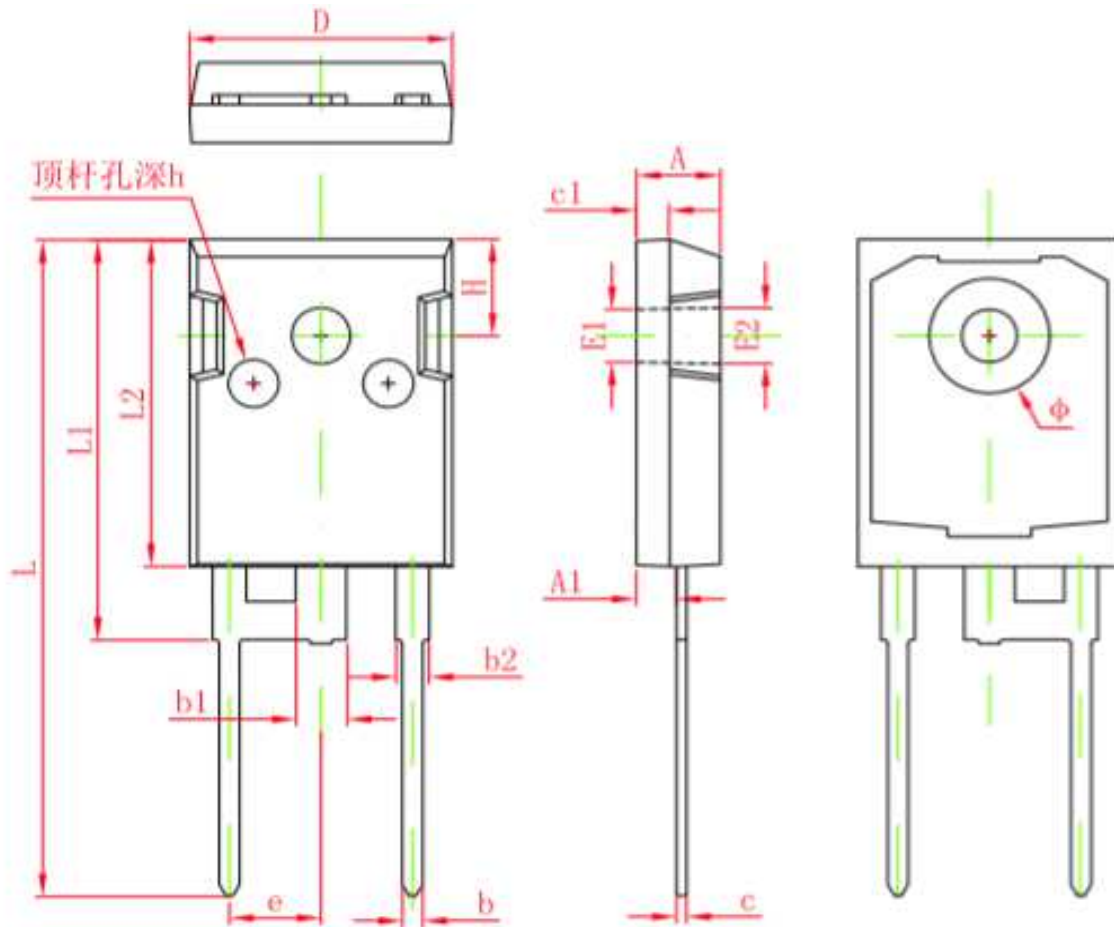


Fig. 6 Transient Thermal Resistance



Package Outline Dimension (Unit: mm)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	4.850	5.150	0.191	0.200
A1	2.200	2.600	0.087	0.102
b	1.000	1.400	0.039	0.055
b1	2.800	3.200	0.110	0.126
b2	1.800	2.200	0.071	0.087
c	0.500	0.700	0.020	0.028
c1	1.900	2.100	0.075	0.083
D	15.450	15.750	0.608	0.620
E1	3.500 REF		0.138 REF	
E2	3.600 REF		0.142 REF	
L	40.900	41.300	1.610	1.626
L1	24.800	25.100	0.976	0.988
L2	20.300	20.600	0.799	0.811
ϕ	7.100	7.300	0.280	0.287
e	5.450 TYP		0.215 TYP	
H	5.980 REF		0.235 REF	
h	0.000	0.300	0.000	0.012

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