

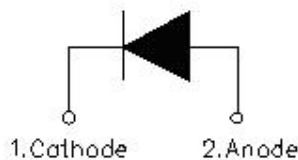
## SDUR3060W ULTRAFAST RECTIFIER



### Applications:

- Antiparallel diode for high frequency switching devices
- Anti saturation diode
- Snubber diode
- Free wheeling diode in converters and motor control circuits
- Rectifiers in switch mode power supplies (SMPS)
- Inductive heating and melting
- Uninterruptible power supplies (UPS)
- Ultrasonic cleaners and welders

### Circuit Diagram



### Features:

- Ultra-Fast switching
- High current capability
- Low reverse leakage current
- High surge current capability
- This is a Pb – free device
- All SMC parts are traceable to the wafer lot
- Additional testing can be offered upon request

### Maximum Ratings:

Characteristics	Symbol	Condition	Max.	Units
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	$V_{RRM}$ $V_{RWM}$ $V_R$	-	600	V
Average Rectified Forward Current	$I_{F(AV)}$	50% duty cycle @ $T_c=70^\circ\text{C}$ , rectangular wave form	30	A
Peak One Cycle Non-Repetitive Surge Current	$I_{FSM}$	8.3ms, Half Sine pulse	300	A

### Electrical Characteristics:

Characteristics	Symbol	Condition	Typ.	Max.	Units
Forward Voltage Drop*	$V_{F1}$	@ 30A, Pulse, $T_J = 25^\circ\text{C}$	1.70	1.80	V
Reverse Current*	$I_{R1}$	@ $V_R = \text{rated } V_R, T_J = 25^\circ\text{C}$	2	250	$\mu\text{A}$
	$I_{R2}$	@ $V_R = \text{rated } V_R, T_J = 125^\circ\text{C}$	0.9	2	mA
Reverse Recovery Time	$t_{rr}$	$I_F=500\text{mA}, I_R=1\text{A}, \text{ and } I_{rm}=250\text{mA}$	48	50	ns
Reverse Recovery Time	$t_{rr}$	$I_F = 30\text{A}, di_F/dt = -200\text{A}/\mu\text{s}$ $V_R = 400\text{V}, T_J = 25^\circ\text{C}$	70	-	ns
Reverse Recovery Charge	$Q_{rr}$		210	-	nC
Reverse Recovery Current	$I_{RRM}$		6	-	A
Reverse Recovery Time	$t_{rr}$	$I_F = 30\text{A}, di_F/dt = -200\text{A}/\mu\text{s}$ $V_R = 400\text{V}, T_J = 125^\circ\text{C}$	120	-	ns
Reverse Recovery Charge	$Q_{rr}$		620	-	nC
Reverse Recovery Current	$I_{RRM}$		8	-	A

\* Pulse width < 300  $\mu\text{s}$ , duty cycle < 2%

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**Thermal-Mechanical Specifications:**

Characteristics	Symbol	Condition	Specification	Units
Junction Temperature	$T_J$	-	-55 to +150	°C
Storage Temperature	$T_{stg}$	-	-55 to +150	°C
Typical Thermal Resistance Junction to Case	$R_{\theta JC}$	DC operation	1.15	°C/W
Approximate Weight	wt	-	6.28	g
Case Style	TO-247AC			

**Ratings and Characteristics Curves**

Figure 1  
Typical Forward Characteristics

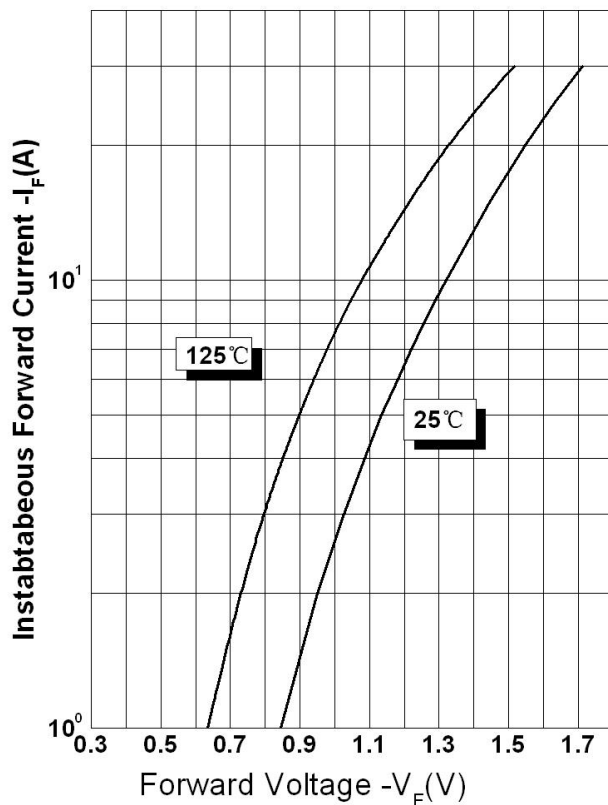


Figure 2  
Typical Reverse Characteristics

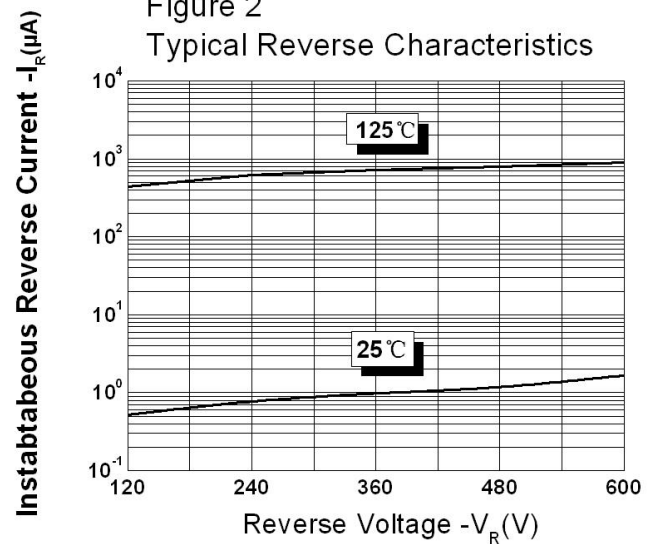
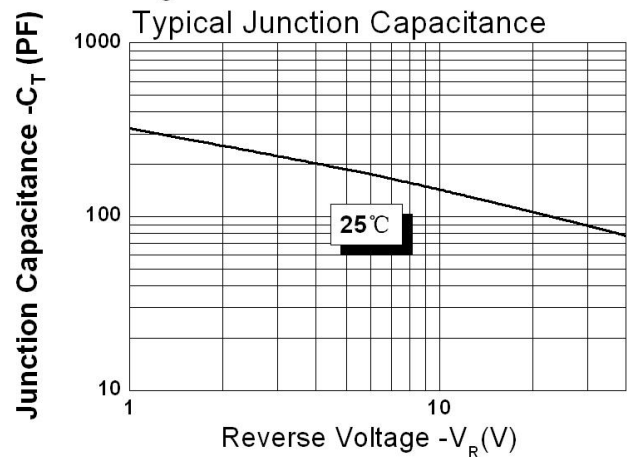


Figure 3  
Typical Junction Capacitance



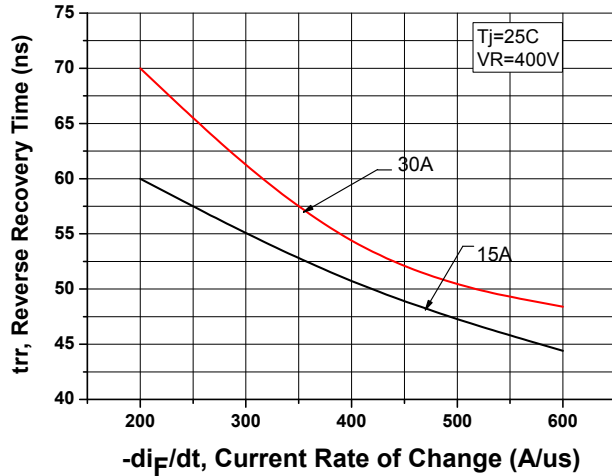


Figure 4. Reverse Recovery Time vs. Current Rate of Change

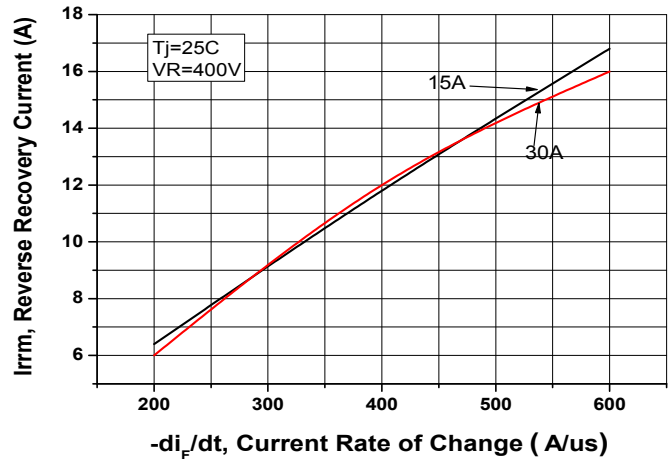


Figure 5. Reverse Recovery Current vs. Current Rate of Change

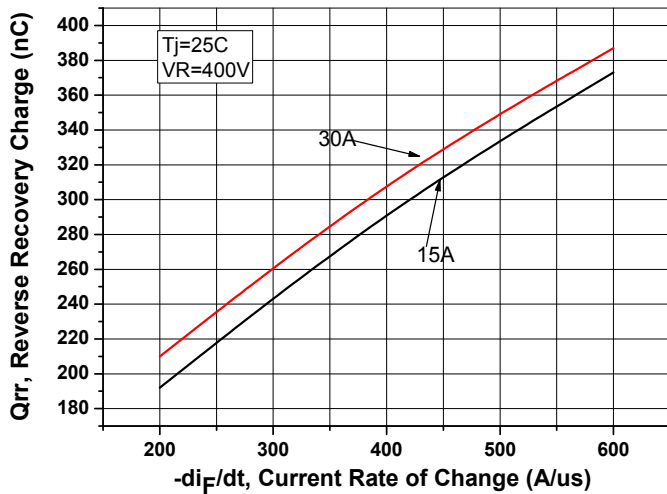


Figure 6. Reverse Recovery Charge vs. Current Rate of Change

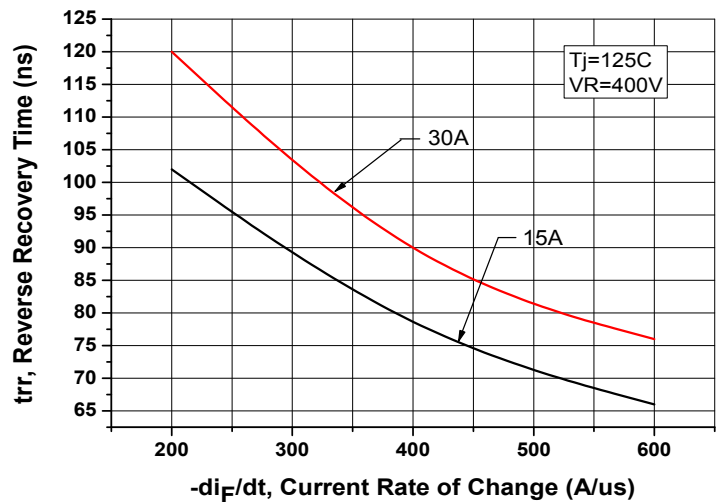
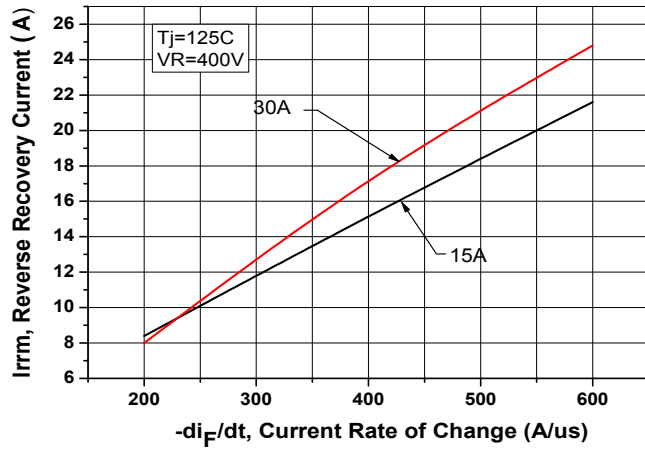
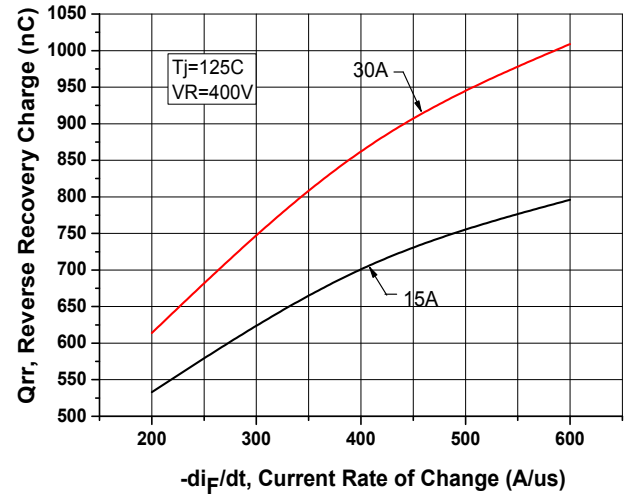


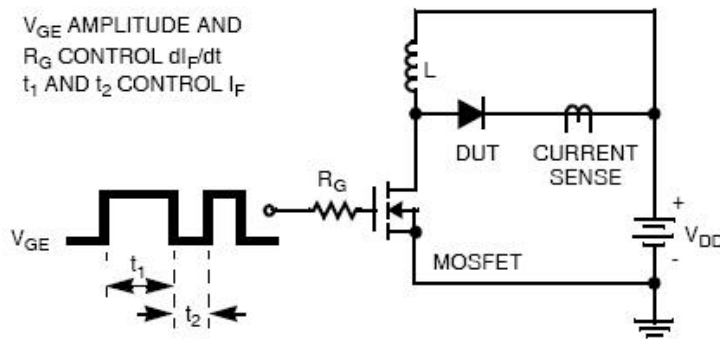
Figure 7. Reverse Recovery Time vs. Current Rate of Change



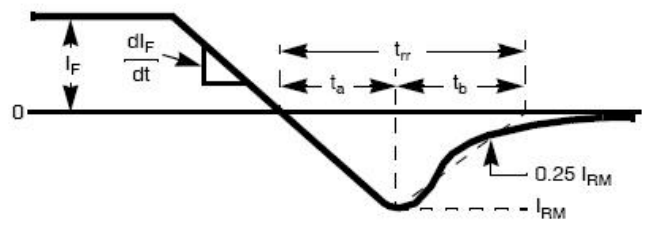
**Figure 8. Reverse Recovery Current vs. Current Rate of Change**



**Figure 9. Reverse Recovery Charge vs. Current Rate of Change**

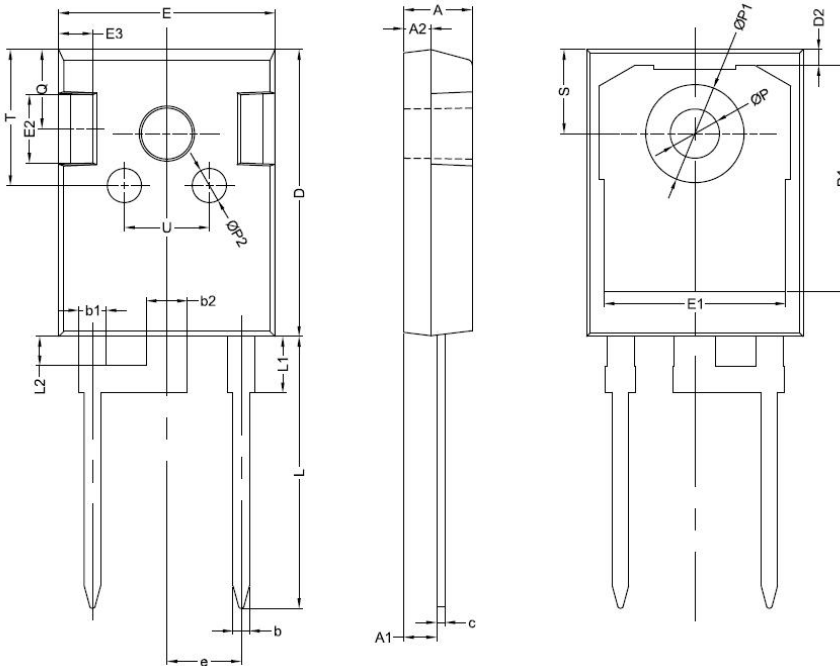


**Figure 10. Diode Test Circuit**



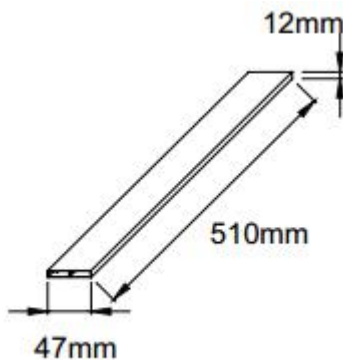
**Figure 11. Diode Reverse Recovery Waveform**

**Mechanical Dimensions TO-247AC**



SYMBOL	Millimeters		
	MIN.	TYP.	MAX.
A	4.80	5.00	5.20
A1	2.20	2.41	2.61
A2	1.90	2.00	2.10
b	1.00	1.20	1.40
b1	1.80	2.00	2.20
b2	2.80	3.00	3.20
c	0.50	0.60	0.75
D	20.30	21.00	21.20
D1		16.55	
D2		1.20	
E	15.45	15.8	16.0
E1		13.30	
E2		5.00	
E3		2.50	
e		5.44	
L	19.42	19.92	20.42
L1		4.13	
L2		2.15	
P	3.50	3.60	3.70
P1	7.1	-	7.40
P2		2.50	
Q		5.80	
S	6.05	6.15	6.25
T		10.00	
U		6.20	

**Tube Specification**



**Marking Diagram**



Where XXXXX is YYWWL

- SDUR = Device Type
- 30 = Forward Current (30A)
- 60 = Reverse Voltage (600V)
- W = Configuration
- SSG = SSG
- YY = Year
- WW = Week
- L = Lot Number

**Cautions:** Molding resin  
Epoxy resin UL:94V-0

**Ordering Information:**

Device	Package	Shipping
SDUR3060W	TO-247AC(Pb-Free)	25pcs / tube

For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specification.

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