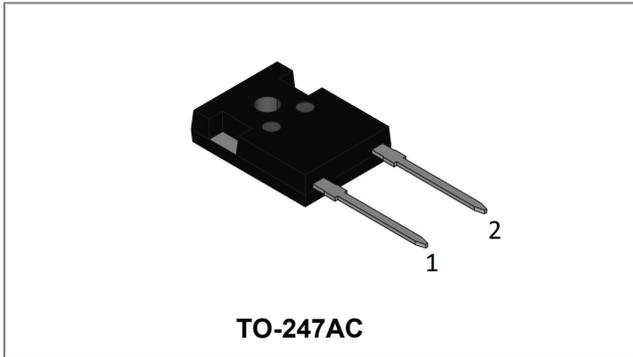


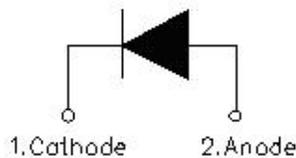
## SDUR6040W ULTRAFAST RECTIFIER



### 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
- Terminals finish: 100% Pure Tin
- This is a Pb – free device
- All SMC parts are traceable to the wafer lot
- Additional testing can be offered upon request

### Maximum Ratings (limiting values, TC =25°C unless otherwise specified)

Characteristics	Symbol	Condition	Max.	Units
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	$V_{RRM}$ $V_{RWM}$ $V_R$	-	400	V
Average Rectified Forward Current	$I_F (AV)$	Tc=120°C, In DC	60	A
Peak One Cycle Non-Repetitive Surge Current	$I_{FSM}$	8.3ms, Half Sine pulse	450	A

**Electrical Characteristics:**

Characteristics	Symbol	Condition	Typ.	Max.	Units
Forward Voltage Drop*	$V_{F1}$	@ 60A, Pulse, $T_J = 25^\circ\text{C}$	1.12	1.47	V
	$V_{F2}$	@ 60A, Pulse, $T_J = 125^\circ\text{C}$	1.07	1.30	V
Reverse Current*	$I_{R1}$	@ $V_R = \text{rated } V_R, T_J = 25^\circ\text{C}$	1.3	10	$\mu\text{A}$
	$I_{R2}$	@ $V_R = \text{rated } V_R, T_J = 125^\circ\text{C}$	0.6	2	mA
Reverse Recovery Time	$t_{rr}$	$I_F = 500\text{mA}, I_R = 1\text{A}, \text{ and } I_{rm} = 250\text{mA}, T_J = 25^\circ\text{C}$	38	45	ns
Reverse Recovery Time	$t_{rr}$	$I_F = 1\text{A}, diF/dt = 60\text{A}/\mu\text{s}, V_R = 30\text{V}, T_J = 25^\circ\text{C}$	47	-	ns
Reverse Recovery Charge	$Q_{rr}$		36	-	nC
Reverse Recovery Current	$I_{RRM}$		1.5	-	A
Reverse Recovery Time	$t_{rr}$	$I_F = 60\text{A}, diF/dt = 200\text{A}/\mu\text{s}, V_R = 400\text{V}, T_J = 25^\circ\text{C}$	67	-	ns
Reverse Recovery Charge	$Q_{rr}$		268	-	nC
Reverse Recovery Current	$I_{RRM}$		8	-	A
Reverse Recovery Time	$t_{rr}$	$I_F = 60\text{A}, diF/dt = 200\text{A}/\mu\text{s}, V_R = 400\text{V}, T_J = 125^\circ\text{C}$	90	-	ns
Reverse Recovery Charge	$Q_{rr}$		468	-	nC
Reverse Recovery Current	$I_{RRM}$		10	-	A

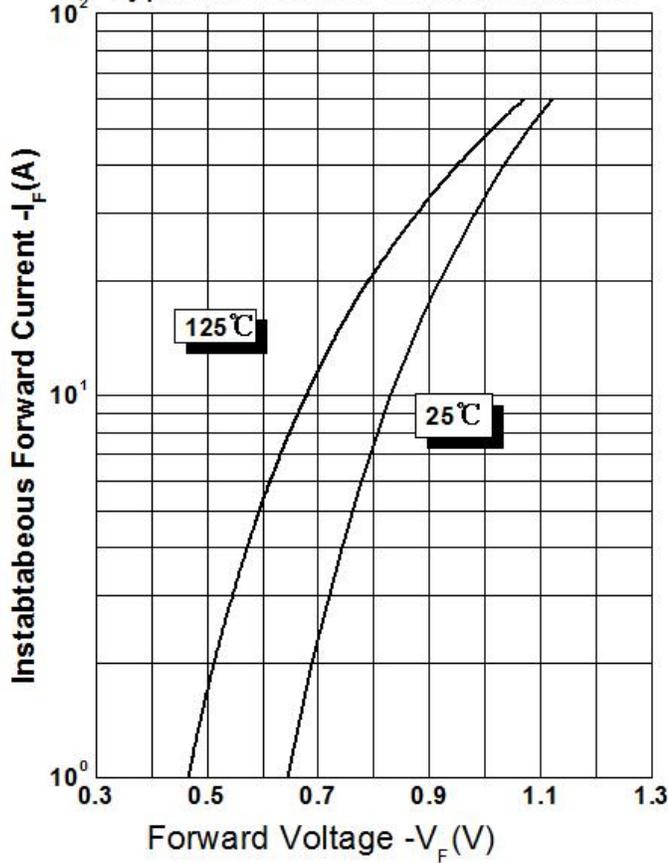
\* Pulse width < 300  $\mu\text{s}$ , duty cycle < 2%

**Thermal-Mechanical Specifications:**

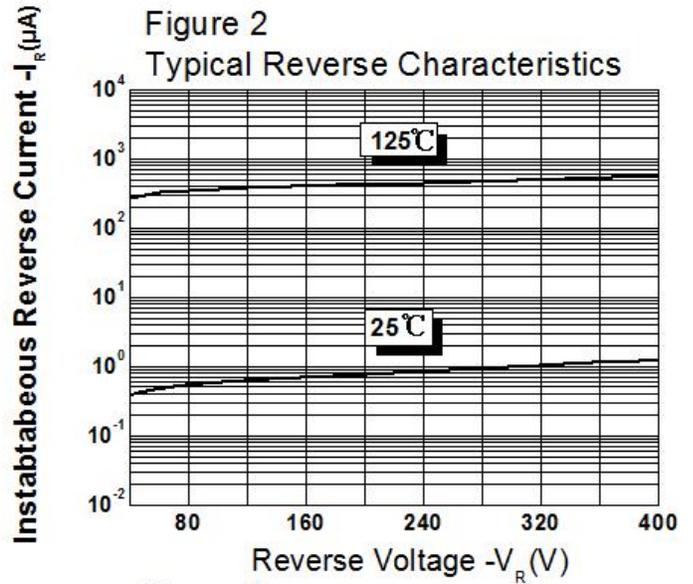
Characteristics	Symbol	Condition	Specification	Units
Junction Temperature	$T_J$	-	-55 to +150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-	-55 to +150	$^\circ\text{C}$
Typical Thermal Resistance Junction to Case	$R_{\theta JC}$	DC operation	0.34	$^\circ\text{C}/\text{W}$
Approximate Weight	wt	-	6.28	g
Case Style	TO-247AC			

**Ratings and Characteristics Curves**

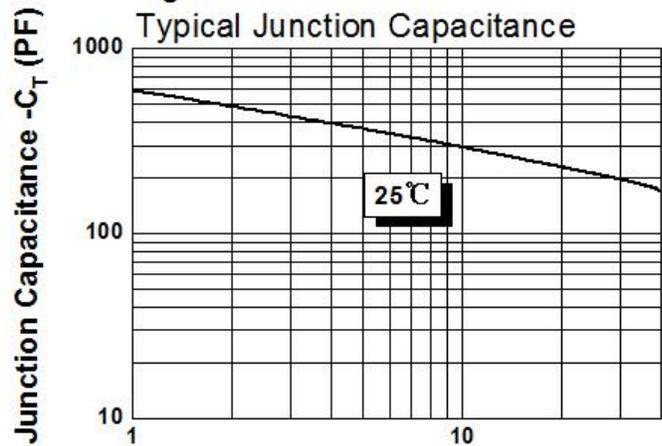
**Figure 1**  
Typical Forward Characteristics

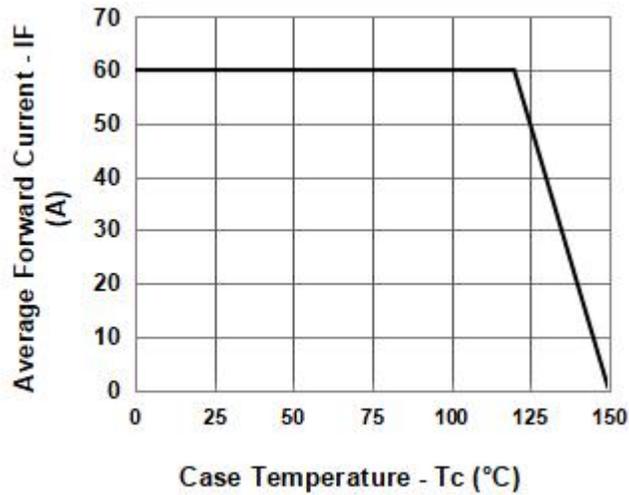


**Figure 2**  
Typical Reverse Characteristics



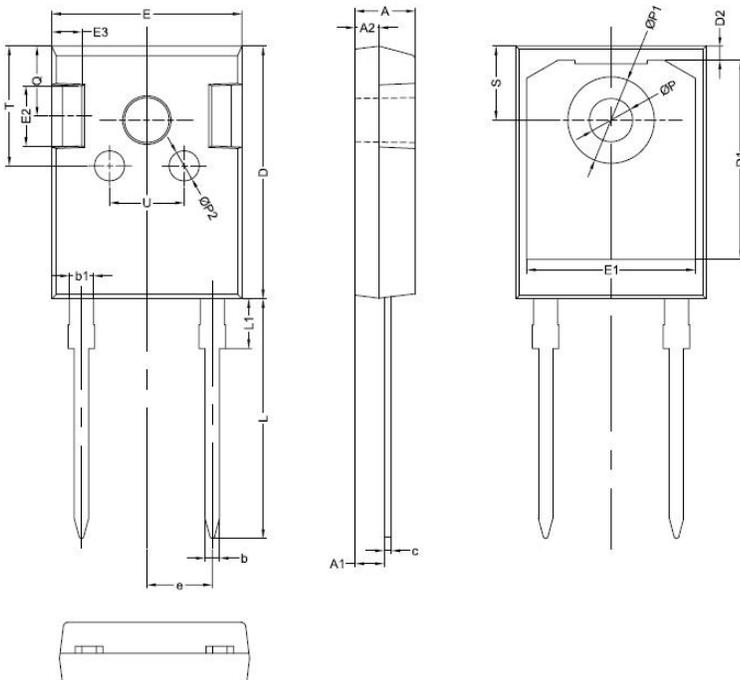
**Figure 3**  
Typical Junction Capacitance





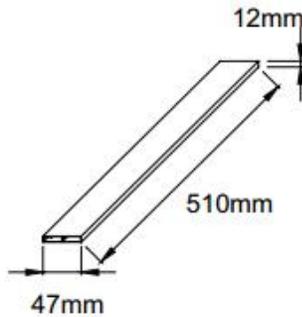
**Fig.4-Forward Current Derating Curve**

**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	1.10	1.20	1.35
b1	1.80	2.00	2.20
c	0.50	0.60	0.75
D	20.30	21.00	21.20
D1		16.58	
D2		1.17	
E	15.60	15.80	16.00
E1		14.02	
E2		5.00	
E3		2.50	
e		5.44	
L	19.42	19.92	20.42
L1		4.13	
P	3.50	3.60	3.70
P1	7.1	7.19	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  
60 = Forward Current (60A)  
40 = Reverse Voltage (400V)  
W = Configuration  
SSG = SSG  
YY = Year  
WW = Week  
L = Lot Number

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

### Ordering Information

Device	Package	Shipping
SDUR6040W	TO-247AC(Pb-Free)	25pcs / tube

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