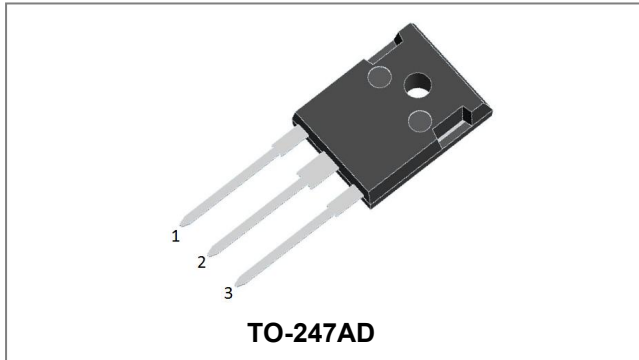


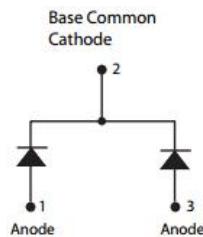
SDUR60Q60WT ULTRAFAST RECTIFIER



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(at 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	-	600	V
Average Rectified Forward Current	$I_F (AV)$	$T_c=123^{\circ}C$, In DC	30(Per Leg) 60(Per Device)	A
Peak One Cycle Non-Repetitive Surge Current(Per Leg)	I_{FSM}	8.3ms, Half Sine pulse	200	A

Electrical Characteristics:

Characteristics	Symbol	Condition	Typ.	Max.	Units
Forward Voltage Drop(Per Leg)*	V_{F1}	@ 30A, Pulse, $T_J = 25^{\circ}\text{C}$	1.56	1.80	V
	V_{F2}	@ 30A, Pulse, $T_J = 125^{\circ}\text{C}$	1.40	1.60	V
	V_{F3}	@ 30A, Pulse, $T_J = 150^{\circ}\text{C}$	1.34	-	V
Reverse Current(Per Leg)*	I_{R1}	@ $V_R = \text{rated } V_R, T_J = 25^{\circ}\text{C}$	0.02	10	μA
	I_{R2}	@ $V_R = \text{rated } V_R, T_J = 125^{\circ}\text{C}$	0.006	1	mA
	I_{R2}	@ $V_R = \text{rated } V_R, T_J = 150^{\circ}\text{C}$	0.025	-	mA
Reverse Recovery Time(Per Leg)	t_{rr}	$I_F = 500\text{mA}, I_R = 1\text{A}, \text{ and } I_{rm} = 250\text{mA}, T_J = 25^{\circ}\text{C}$	32	40	ns
Reverse Recovery Time(Per Leg)	t_{rr}	$I_F = 30\text{A}, diF/dt = -200\text{A}/\mu\text{s}$ $V_R = 400\text{V}, T_J = 25^{\circ}\text{C}$	78	-	ns
Reverse Recovery Charge(Per Leg)	Q_{rr}		94	-	nC
Reverse Recovery Current(Per Leg)	I_{RRM}		2.4	-	A
Reverse Recovery Time(Per Leg)	t_{rr}	$I_F = 30\text{A}, diF/dt = -200\text{A}/\mu\text{s}$ $V_R = 400\text{V}, T_J = 125^{\circ}\text{C}$	136	-	ns
Reverse Recovery Charge(Per Leg)	Q_{rr}		435	-	nC
Reverse Recovery Current(Per Leg)	I_{RRM}		6.4	-	A
Reverse Recovery Time(Per Leg)	t_{rr}	$I_F = 1\text{A}, diF/dt = -100\text{A}/\mu\text{s}$ $V_R = 30\text{V}, T_J = 25^{\circ}\text{C}$	30	-	ns
Reverse Recovery Charge(Per Leg)	Q_{rr}		26	-	nC
Reverse Recovery Current(Per Leg)	I_{RRM}		2	-	A
Reverse Recovery Time(Per Leg)	t_{rr}	$I_F = 1\text{A}, diF/dt = -100\text{A}/\mu\text{s}$ $V_R = 30\text{V}, T_J = 125^{\circ}\text{C}$	65	-	ns
Reverse Recovery Charge(Per Leg)	Q_{rr}		121	-	nC
Reverse Recovery Current(Per Leg)	I_{RRM}		4	-	A

* Pulse width < 300 μs , 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(Per Leg)	$R_{\theta JC}$	DC operation	0.5	$^{\circ}\text{C}/\text{W}$
Approximate Weight	wt	-	6.28	g
Case Style	TO-247AD			

Ratings and Characteristics Curves

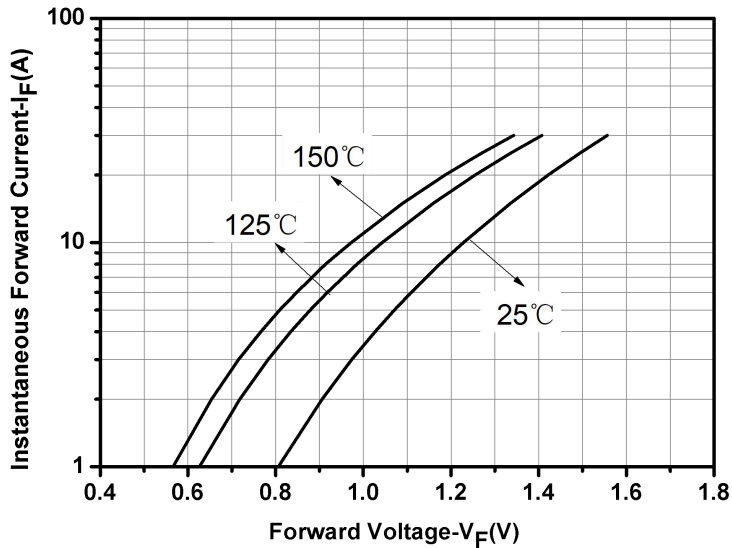


Fig.1-Typical Forward Voltage Characteristics

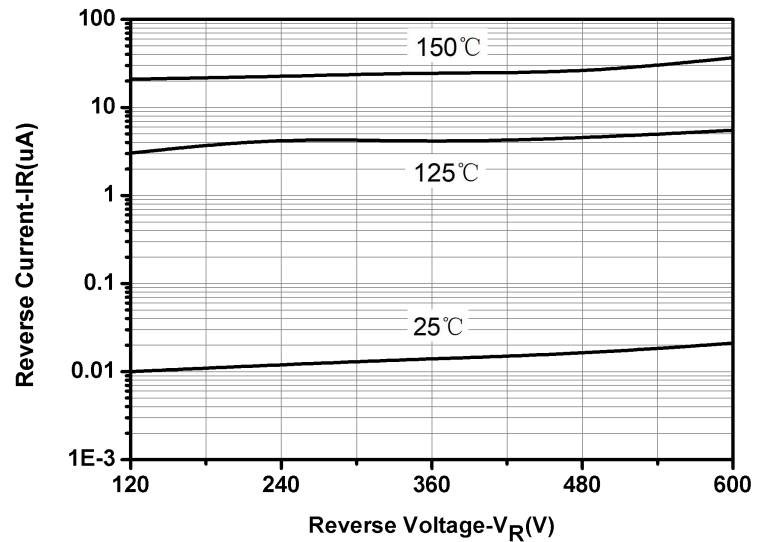


Fig.2-Typical Reverse Characteristics

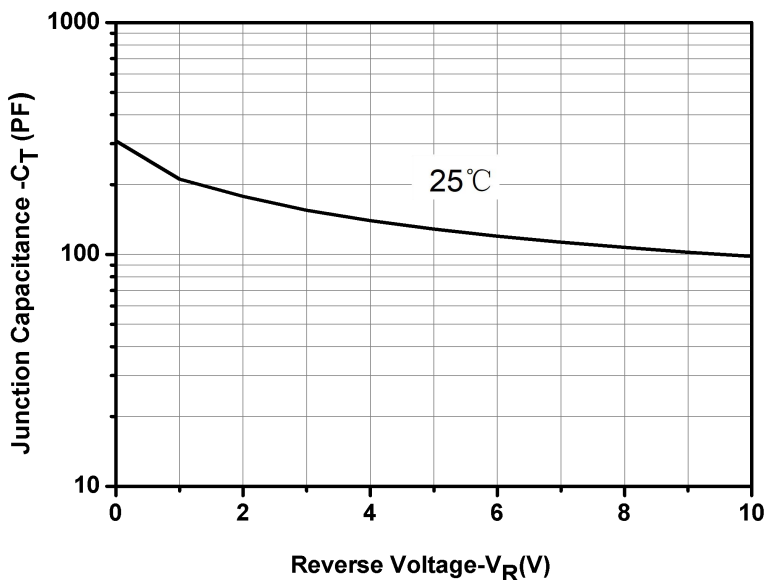


Fig.3-Capacitance vs. Reverse Voltage

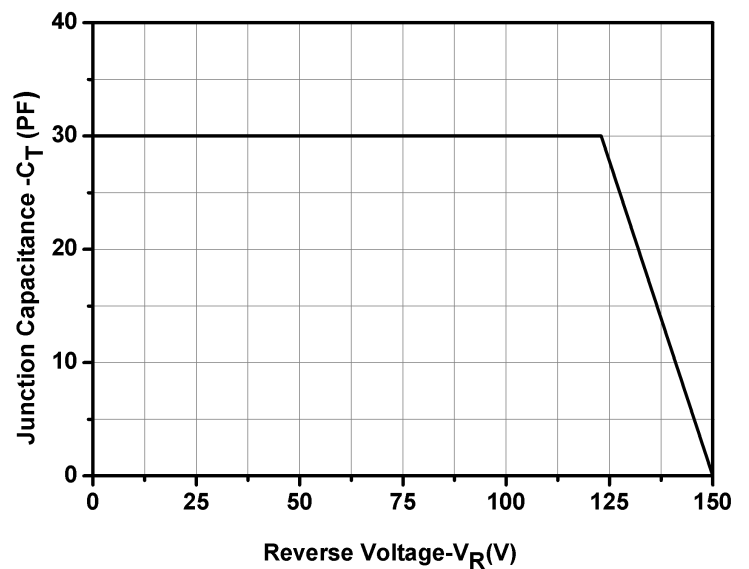


Fig.4-Forward Current Derating

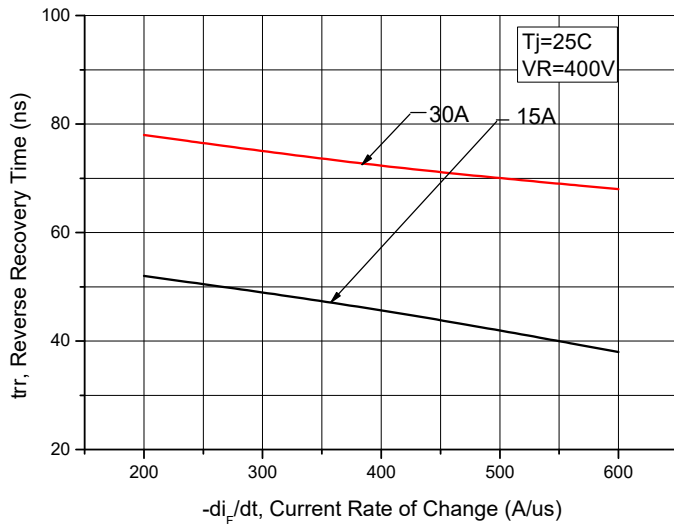


Figure 5. Reverse Recovery Time vs. Current Rate of Change

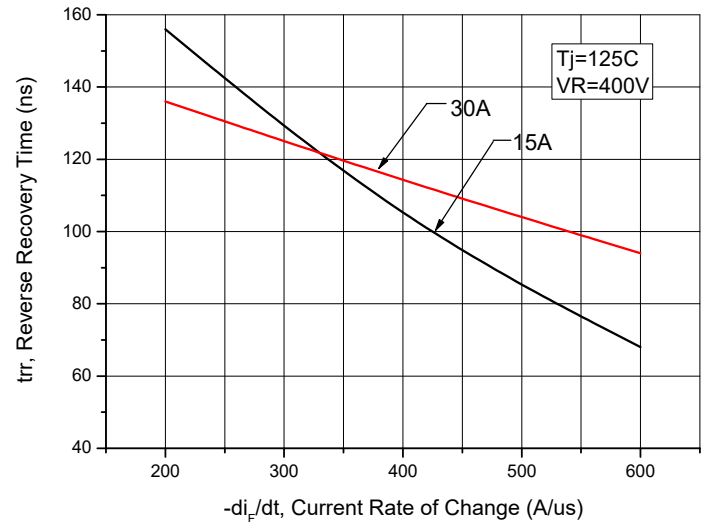


Figure 6. Reverse Recovery Time vs. Current Rate of Change

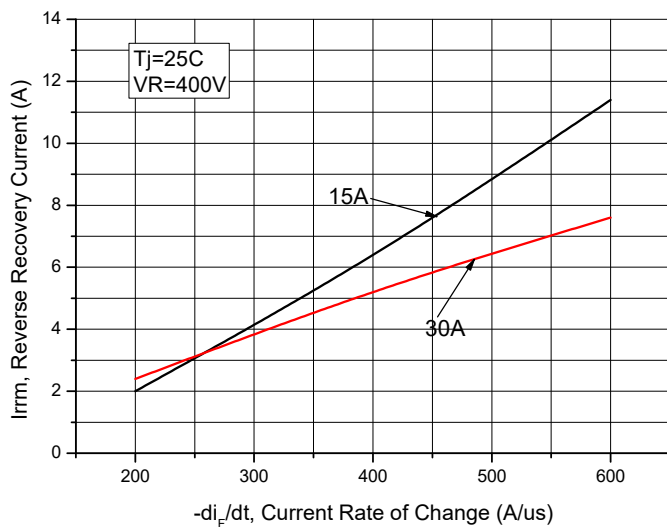


Figure 7. Reverse Recovery Current vs. Current Rate of Change

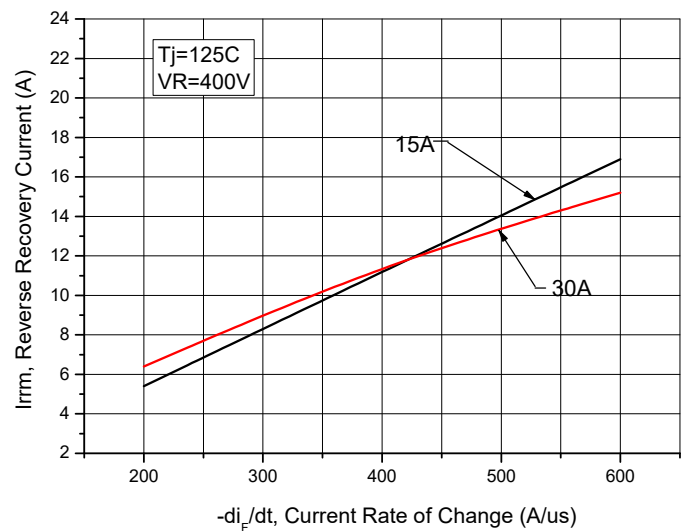


Figure 8. Reverse Recovery Current vs. Current Rate of Change

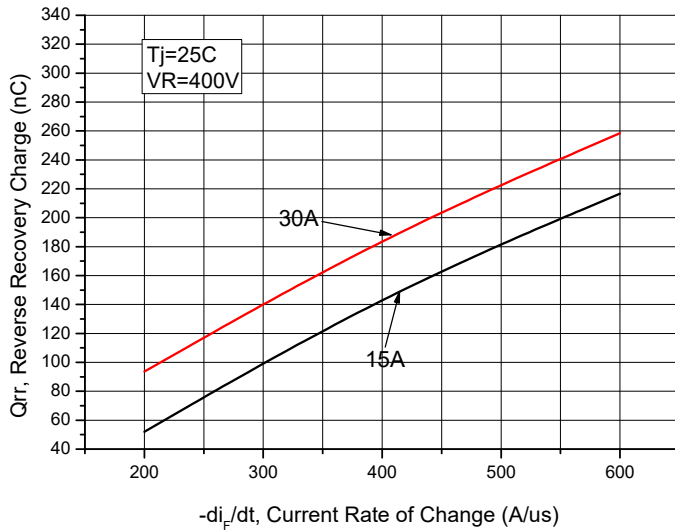


Figure 9. Reverse Recovery Charge vs. Current Rate of Change

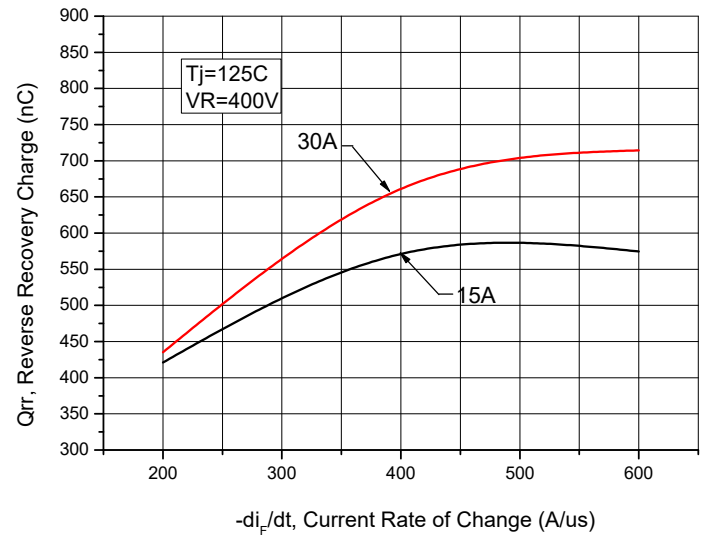


Figure 10. Reverse Recovery Charge vs. Current Rate of Change

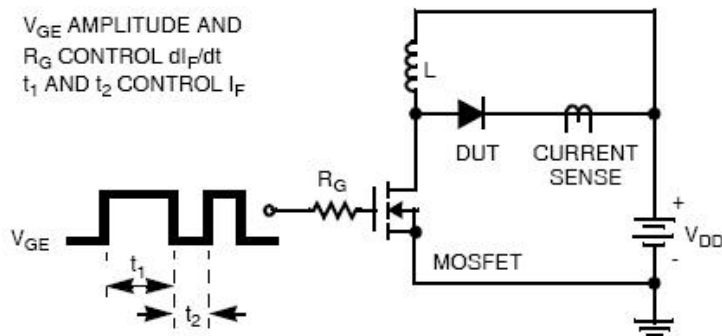


Figure 11. Diode Test Circuit

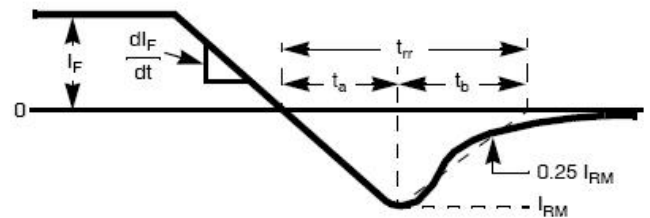
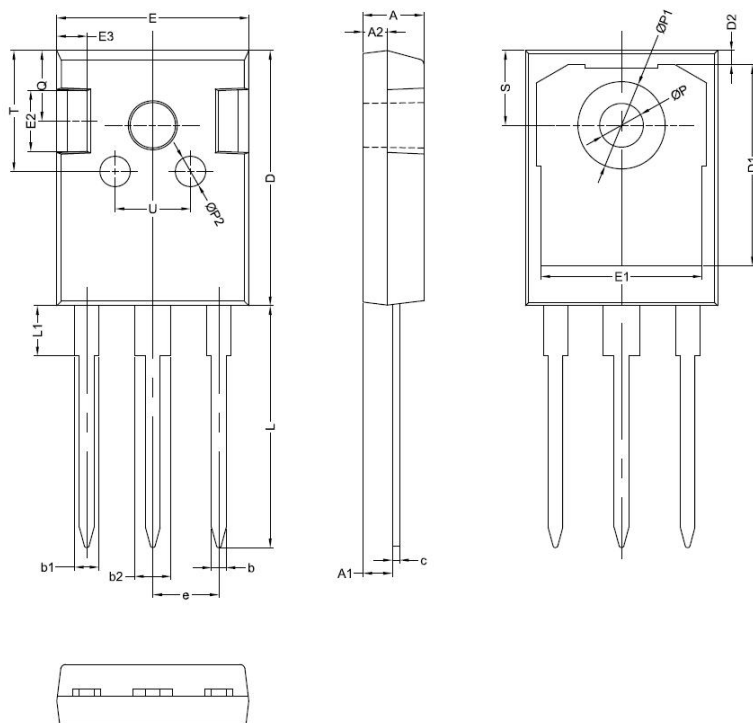


Figure 12. Diode Reverse Recovery Waveform

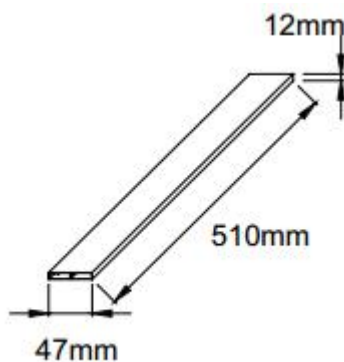
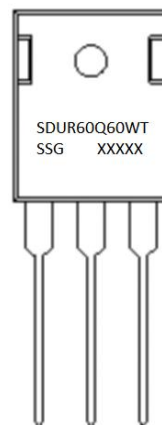
Technical Data
Data Sheet N2174, Rev. C

Mechanical Dimensions TO-247AD


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	1.40
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	15.80	16.00
E1		13.30	
E2		5.00	
E3		2.50	
e		5.44	
L	19.42	19.92	20.70
L1		4.13	
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	

Ordering Information:

Device	Package	Shipping
SDUR60Q60WT	TO-247AD(Pb-Free)	25pcs / tube

Tube Specification

Marking Diagram


Where XXXXX is YYWWL

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

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

Technical Data
Data Sheet N2174, Rev. C



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