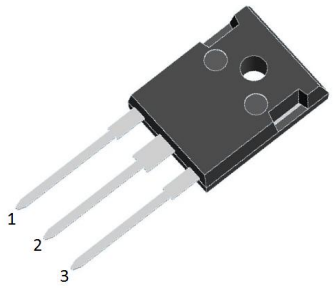
Technical Data
Data Sheet N2174, Rev. E

SDUR60Q60WT ULTRAFAST RECTIFIER

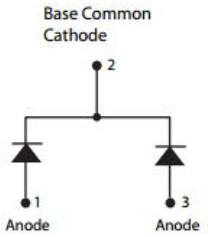


TO-247AD

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	$I_{F\ (AV)}$	Tc=148°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	300	A

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RoHS

Electrical Characteristics:

Characteristics	Symbol	Condition	Typ.	Max.	Units
Forward Voltage Drop(Per Leg)*	V_{F1}	@ 30A, Pulse, T_J = 25°C	1.56	1.80	V
	V_{F2}	@ 30A, Pulse, T_J = 125°C	1.40	1.60	V
	V_{F3}	@ 30A, Pulse, T_J = 150°C	1.34	-	V
Reverse Current(Per Leg)*	I_{R1}	@V_R = rated V_R,T_J = 25°C	0.02	10	uA
	I_{R2}	@V_R = rated V_R, T_J = 125°C	0.006	1	mA
	I_{R2}	@V_R = rated V_R, T_J = 150°C	0.025	-	mA
Reverse Recovery Time(Per Leg)	t_{rr}	I_F=500mA, I_R=1A, and I_{rm}=250mA, T_J =25°C	32	40	ns
Reverse Recovery Time(Per Leg)	t_{rr}	I_F = 30A, diF/dt = -200A/μs V_R = 400V, T_J = 25°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 = 30A, diF/dt = -200A/μs V_R = 400V, T_J = 125°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 = 1A, diF/dt = -100A/μs V_R = 30V, T_J = 25°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 = 1A, diF/dt = -100A/μs V_R = 30V, T_J = 125°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	-	-65 to +175	°C
Storage Temperature	T_{stg}	-	-65 to +175	°C
Typical Thermal Resistance Junction to Case(Per Leg)	$R_{\theta JC}$	DC operation	0.5	°C/W
Approximate Weight	wt	-	6.28	g
Case Style	TO-247AD			

Ratings and Characteristics Curves

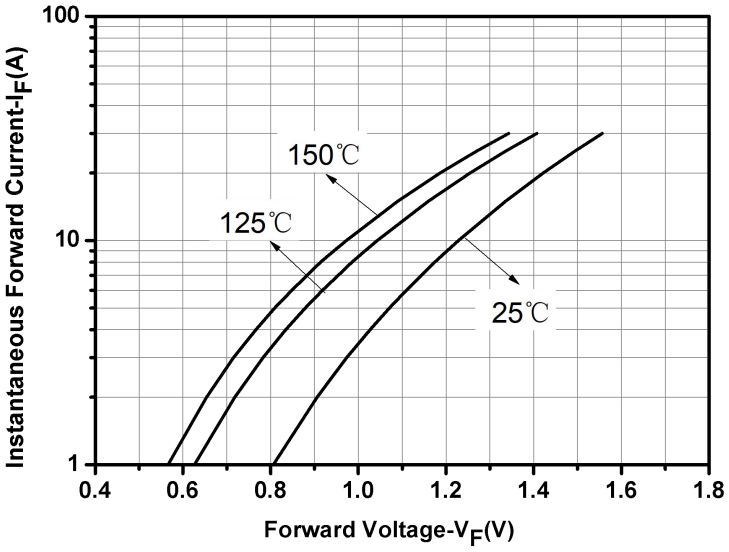

Fig.1-Typical Forward Voltage Characteristics

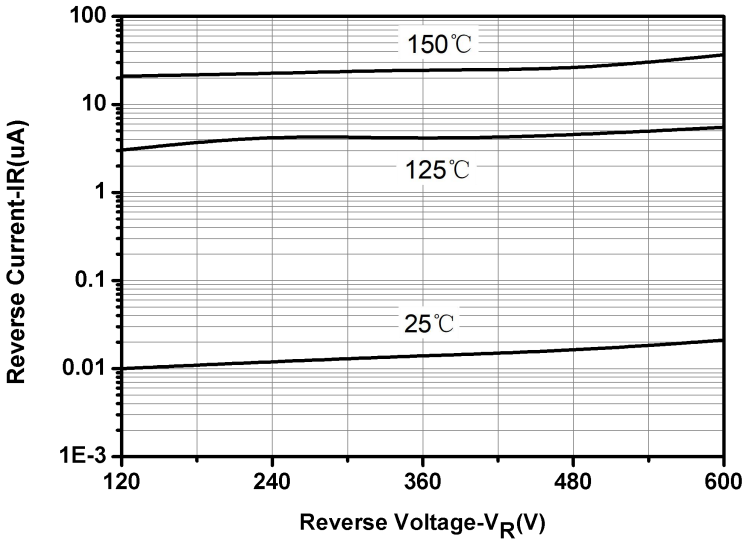

Fig.2-Typical Reverse Characteristics

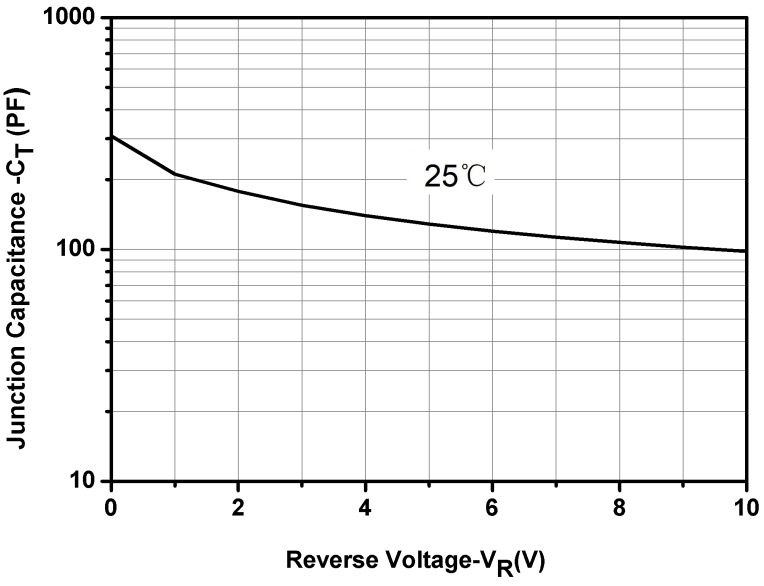

Fig.3-Capacitance vs. Reverse Voltage

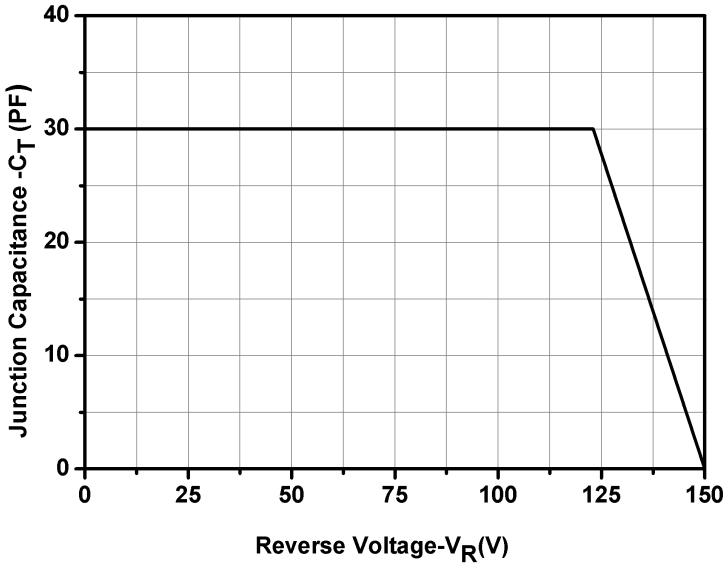

Fig.4-Forward Current Derating

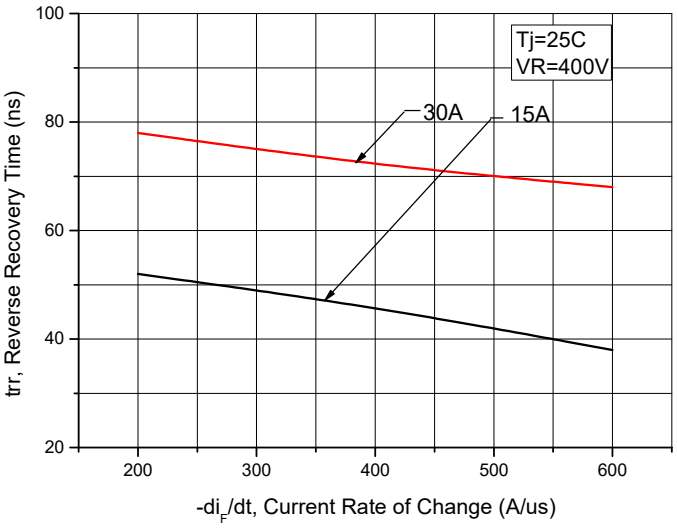

Figure 5. Reverse Recovery Time vs. Current Rate of Change

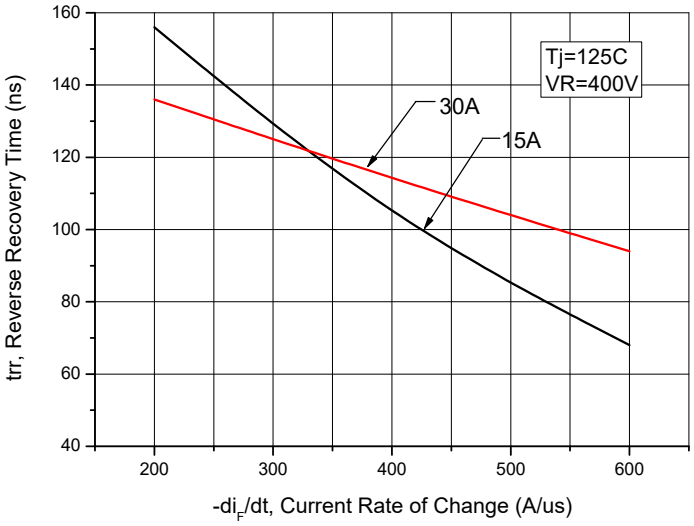

Figure 6. Reverse Recovery Time vs. Current Rate of Change

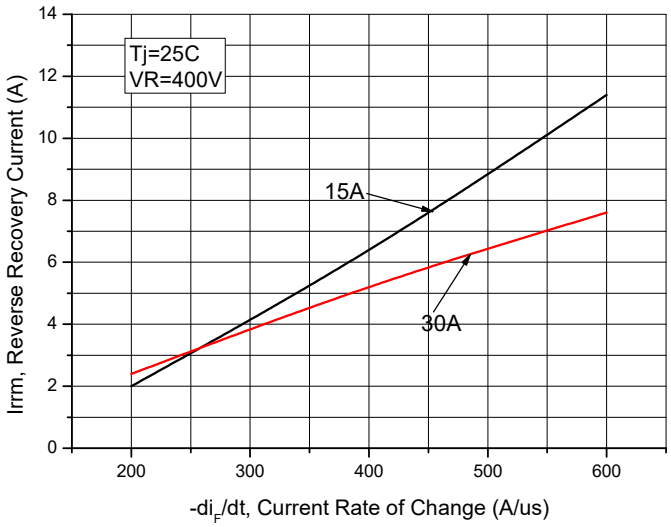

Figure 7. Reverse Recovery Current vs. Current Rate of Change

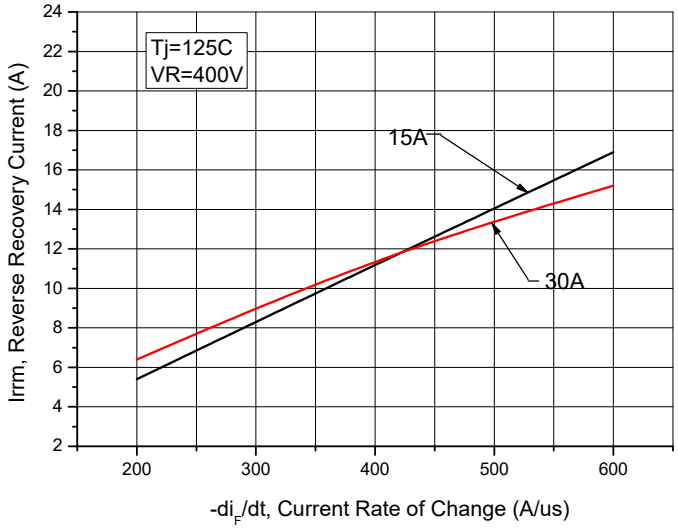

Figure 8. Reverse Recovery Current vs. Current Rate of Change

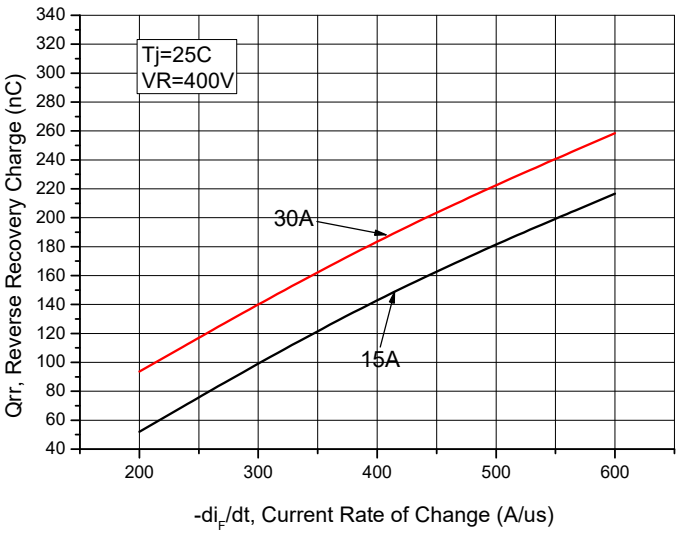

Figure 9. Reverse Recovery Charge vs. Current Rate of Change

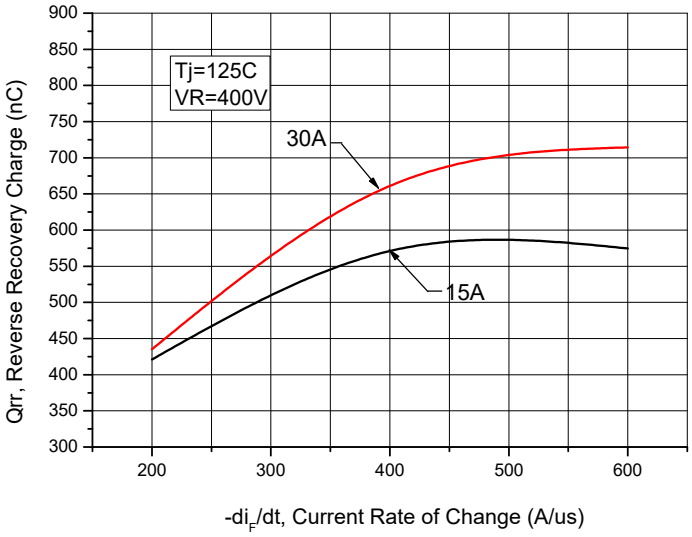

Figure 10. Reverse Recovery Charge vs. Current Rate of Change

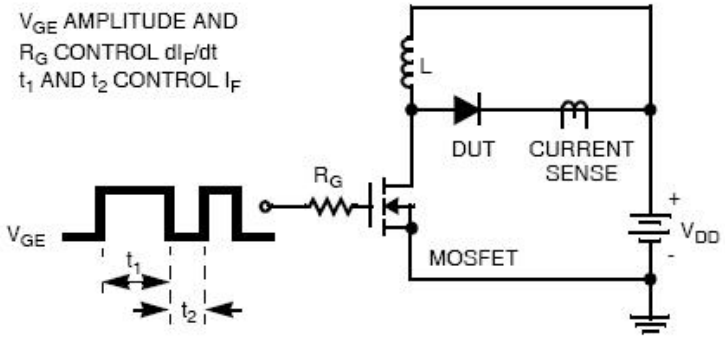

Figure 11. Diode Test Circuit

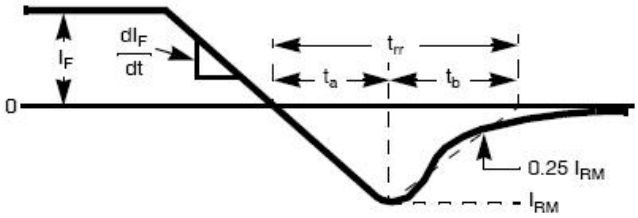

Figure 12. Diode Reverse Recovery Waveform

SDUR60Q60WT

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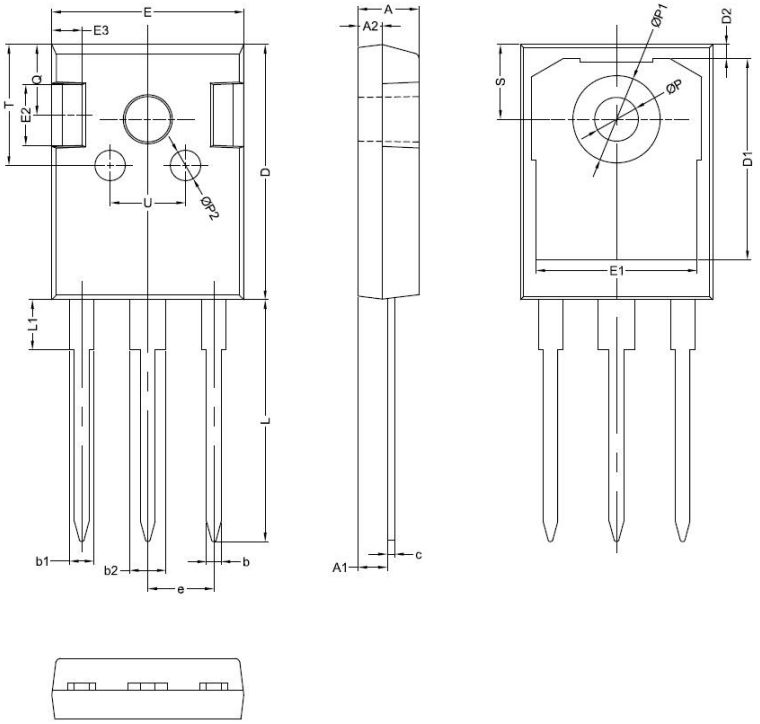
Mechanical Dimensions TO-247AD

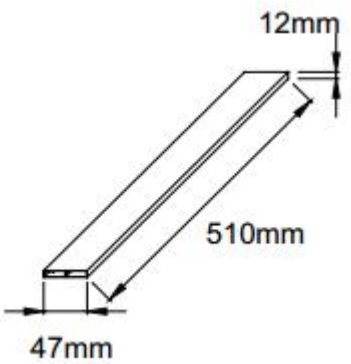


SYMBOL	Millimeters		
	MIN.	TYP.	MAX.
A	4.80	5.00	5.20
A1	2.20	2.41	2.61
A2	1.90	2.00	2.10
b	1.10	1.20	1.40
b1	1.80	2.00	2.20
b2	2.80	3.00	3.20
c	0.50	0.60	0.75
D	20.30	21.00	21.20
D1		16.55	
D2		1.20	
E	15.45	15.80	16.00
E1		13.30	
E2		5.00	
E3		2.50	
e		5.44	
L	19.42	19.92	20.70
L1		4.13	
P	3.50	3.60	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	

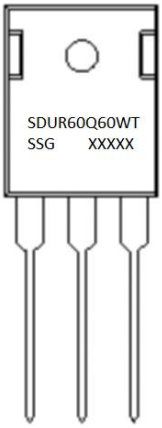
Ordering Information:

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

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