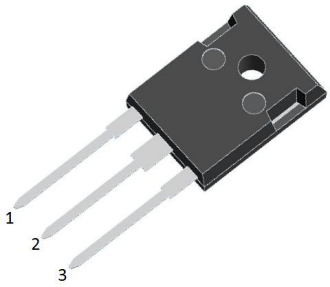
Technical Data
Data Sheet N2191, Rev. C

SDURS30Q60WT ULTRAFAST RECTIFIER

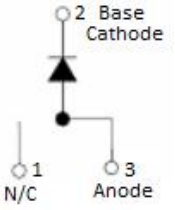


TO-247AD

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:

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 @Tc=105°C, rectangular wave form	30	A
Peak One Cycle Non-Repetitive Surge Current	I_{FSM}	8.3ms, Half Sine pulse	200	A

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Electrical Characteristics:

Characteristics	Symbol	Condition	Typ.	Max.	Units
Forward Voltage Drop*	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*	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	t_{rr}	I_F=500mA, I_R=1A, and I_{rm}=250mA, T_J =25°C	32	40	ns
Reverse Recovery Time	t_{rr}	I_F = 30A, diF/dt = -200A/μs V_R = 400V, T_J = 25°C	78	-	ns
Reverse Recovery Charge	Q_{rr}		94	-	nC
Reverse Recovery Current	I_{RRM}		2.4	-	A
Reverse Recovery Time	t_{rr}	I_F = 30A, diF/dt = -200A/μs V_R = 400V, T_J = 125°C	136	-	ns
Reverse Recovery Charge	Q_{rr}		435	-	nC
Reverse Recovery Current	I_{RRM}		6.4	-	A
Reverse Recovery Time	t_{rr}	I_F = 1A, diF/dt = -100A/μs V_R = 30V, T_J = 25°C	30	-	ns
Reverse Recovery Charge	Q_{rr}		26	-	nC
Reverse Recovery Current	I_{RRM}		2	-	A
Reverse Recovery Time	t_{rr}	I_F = 1A, diF/dt = -100A/μs V_R = 30V, T_J = 125°C	65	-	ns
Reverse Recovery Charge	Q_{rr}		121	-	nC
Reverse Recovery Current	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 +175	°C
Storage Temperature	T_{stg}	-	-55 to +175	°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-247AD			

Ratings and Characteristics Curves

Figure1
Typical Forward Characteristics

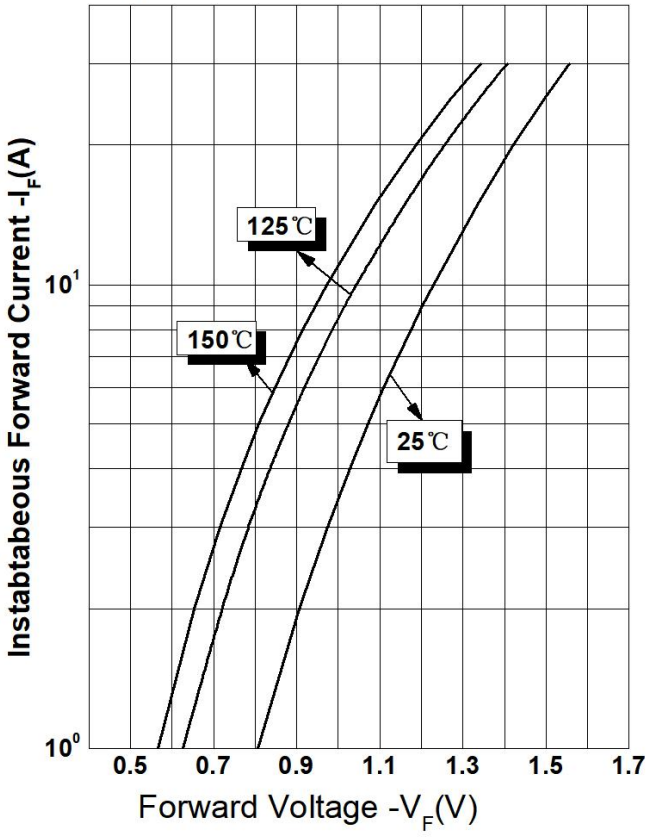


Figure 2
Typical Reverse Characteristics

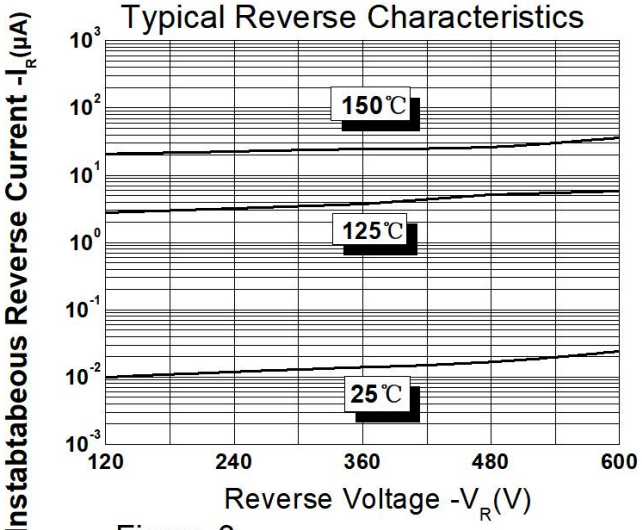
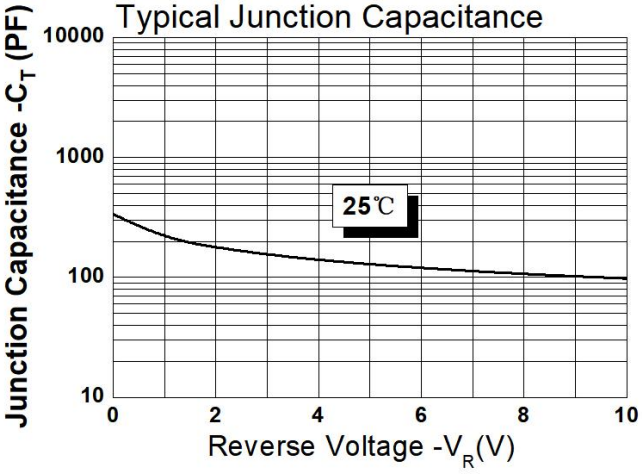


Figure 3
Typical Junction Capacitance



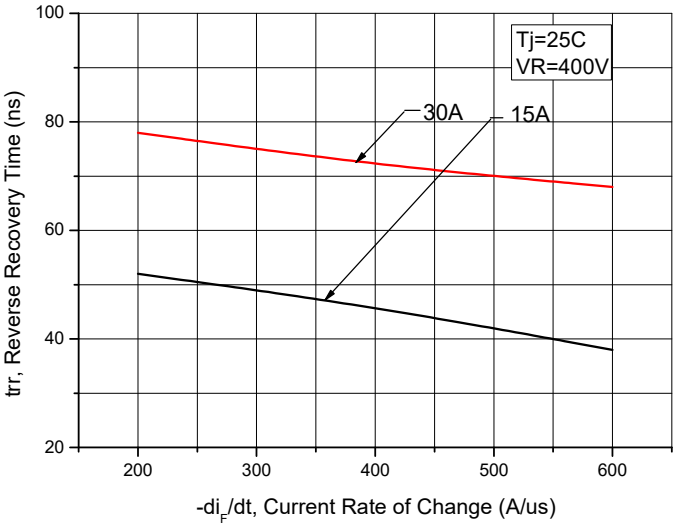


Figure 4. Reverse Recovery Time vs. Current Rate of Change

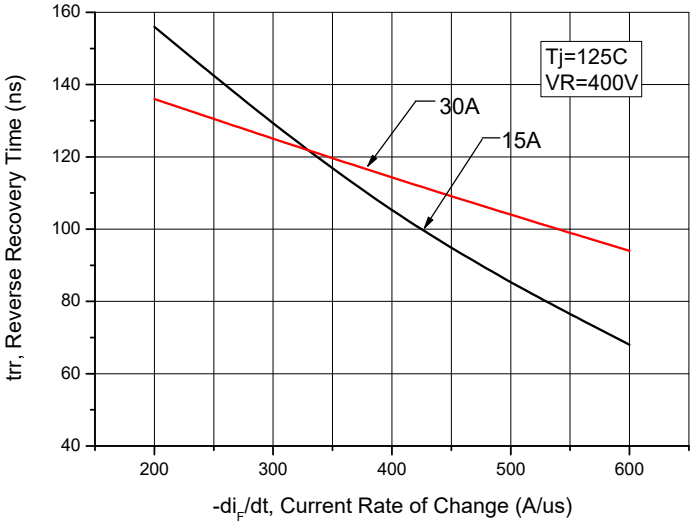


Figure 5. Reverse Recovery Time vs. Current Rate of Change

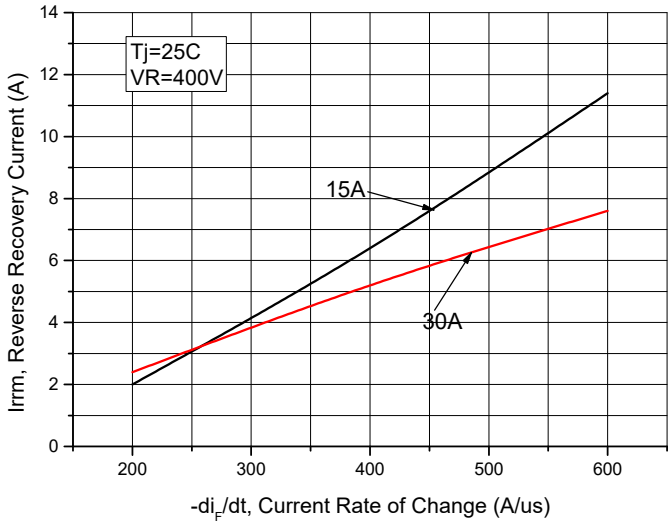


Figure 6. Reverse Recovery Current vs. Current Rate of Change

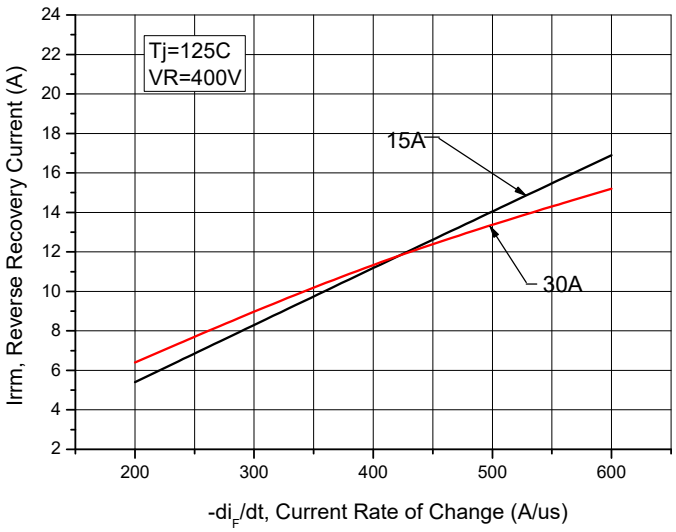


Figure 7. Reverse Recovery Current vs. Current Rate of Change

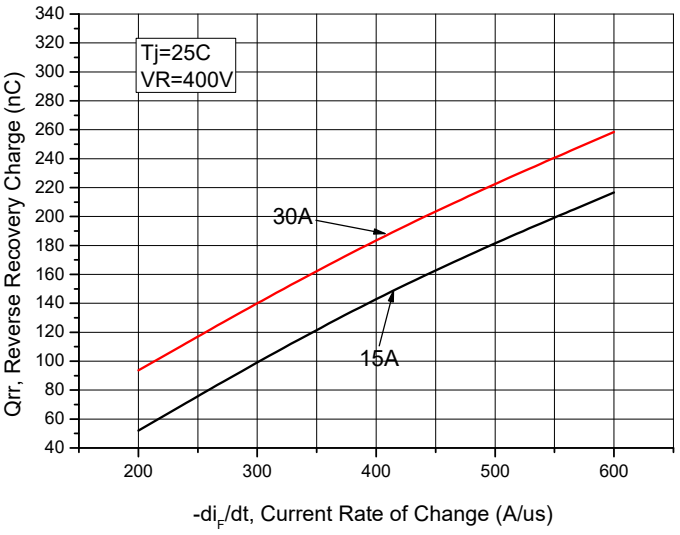


Figure 8. Reverse Recovery Charge vs. Current Rate of Change

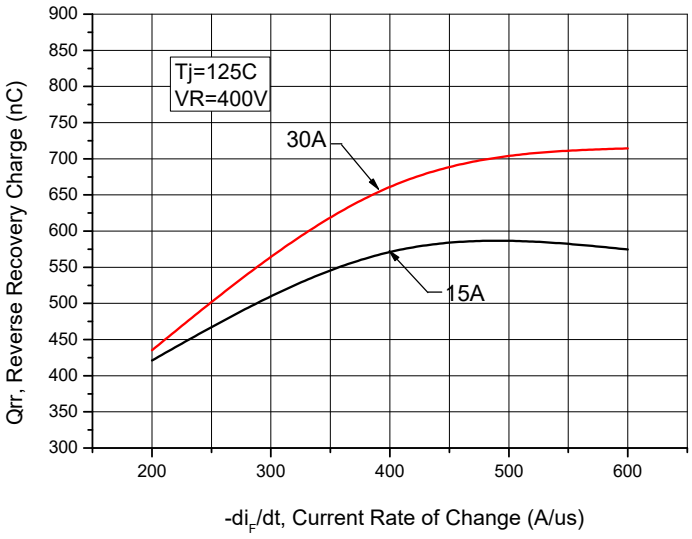


Figure 9. Reverse Recovery Charge vs. Current Rate of Change

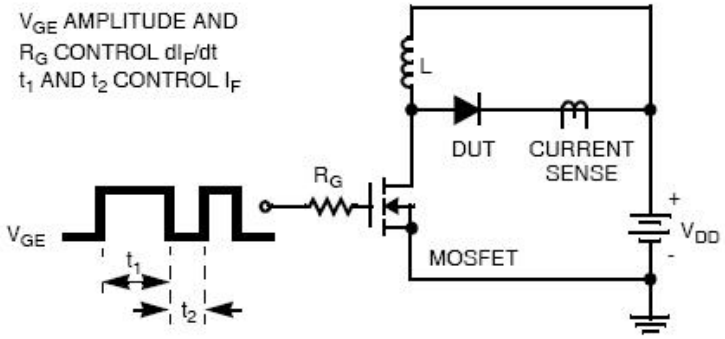


Figure 10. Diode Test Circuit

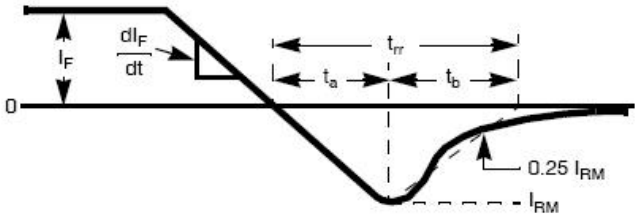


Figure 11. Diode Reverse Recovery Waveform

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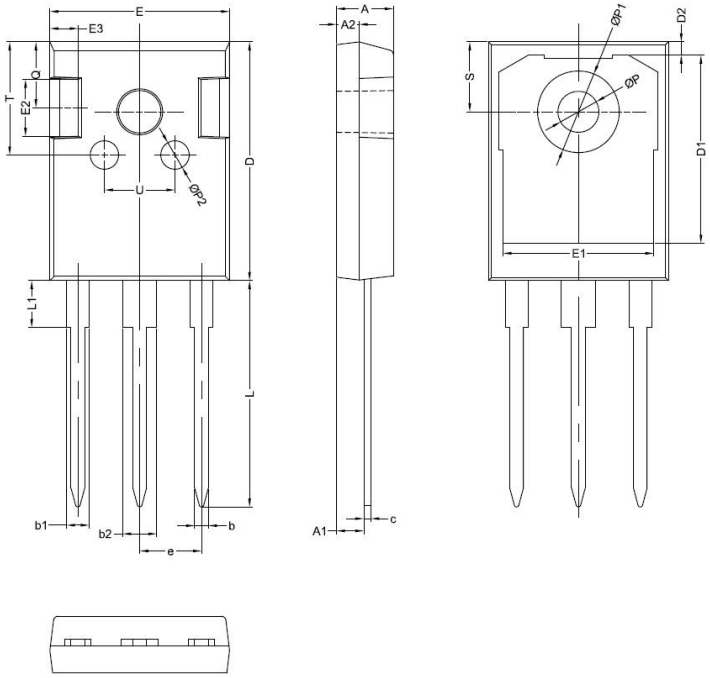
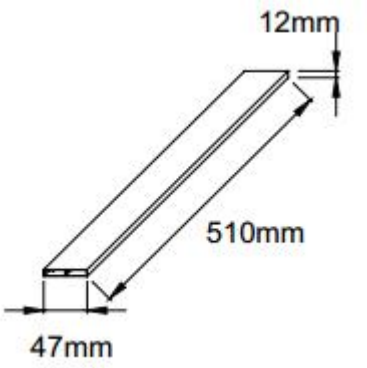
Mechanical Dimensions TO-247AD

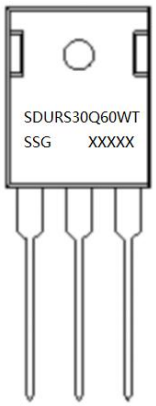


SYMBOL	Millimeters		
	MIN.	TYP.	MAX.
A	4.80	5.00	5.20
A1	2.20	2.41	2.61
A2	1.90	2.00	2.10
b	1.10	1.20	1.40
b1	1.80	2.00	2.20
b2	2.80	3.00	3.20
c	0.50	0.60	0.75
D	20.30	21.00	21.20
D1		16.55	
D2		1.20	
E	15.45	15.80	16.00
E1		13.30	
E2		5.00	
E3		2.50	
e		5.44	
L	19.42	19.92	20.70
L1		4.13	
P	3.50	3.60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

Tube Specification



Marking Diagram



Where XXXXX is YYWWL

SDURS	= Device Type
30	= Forward Current (30A)
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

Ordering Information:

Device	Package	Shipping
SDURS30Q60WT	TO-247AD(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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