

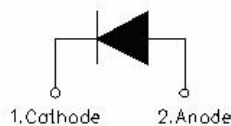
SDURK1060 ULTRAFAST RECTIFIER



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:

Characteristics	Symbol	Condition	Max.	Units
Peak Repetitive Reverse Voltage	V_{RRM}	-	600	V
Working Peak Reverse Voltage	V_{RWM}			
DC Blocking Voltage	V_R			
Average Rectified Forward Current in DC	$I_{F(AV)}$	$T_c=102^{\circ}C$	10	A
Peak One Cycle Non-Repetitive Surge Current	I_{FSM}	8.3ms, Half Sine pulse	100	A

Thermal-Mechanical Specifications:

Characteristics	Symbol	Condition	Specification	Units
Junction Temperature	T_J	-	-55 to +150	$^{\circ}C$
Storage Temperature	T_{stg}	-	-55 to +150	$^{\circ}C$
Typical Thermal Resistance Junction to Case	$R_{\theta JC}$	DC operation	3	$^{\circ}C/W$
Approximate Weight	wt	-	1.6	g
Case Style	ITO-220AC-2L			

- China - Germany - Korea - Singapore - United States •
- <http://www.smc-diodes.com> - sales@smc-diodes.com •

Electrical Characteristics:

Characteristics	Symbol	Condition	Typ.	Max.	Units
Forward Voltage Drop*	V_{F1}	@10A, Pulse, $T_J = 25^\circ\text{C}$	1.66	2.2	V
	V_{F2}	@10A, Pulse, $T_J = 125^\circ\text{C}$	1.58	2.0	V
Reverse Current*	I_{R1}	@ $V_R = \text{rated } V_R$, $T_J = 25^\circ\text{C}$	0.3	10	μA
	I_{R2}	@ $V_R = \text{rated } V_R$, $T_J = 125^\circ\text{C}$	150	500	μA
Reverse Recovery Time	t_{rr}	$I_F=500\text{mA}$, $I_R=1\text{A}$, and $I_{rm}=250\text{mA}$	26	32	ns
Reverse Recovery Time	t_{rr}	$I_F = 10\text{A}$, $di_F/dt = -200\text{A}/\mu\text{s}$ $V_R = 400\text{V}$, $T_J = 25^\circ\text{C}$	47	70	ns
Reverse Recovery Charge	Q_{rr}		99	-	nC
Reverse Recovery Current	I_{RRM}		4.2	-	A
Reverse Recovery Time	t_{rr}	$I_F = 10\text{A}$, $di_F/dt = -200\text{A}/\mu\text{s}$ $V_R = 400\text{V}$, $T_J = 125^\circ\text{C}$	68	100	ns
Reverse Recovery Charge	Q_{rr}		185	-	nC
Reverse Recovery Current	I_{RRM}		5.4	-	A
Reverse Recovery Time	t_{rr}	$I_F = 1\text{A}$, $di_F/dt = -100\text{A}/\mu\text{s}$ $V_R = 30\text{V}$, $T_J = 25^\circ\text{C}$	32	50	ns
Reverse Recovery Charge	Q_{rr}		26	-	nC
Reverse Recovery Current	I_{RRM}		1.6	-	A
Reverse Recovery Time	t_{rr}	$I_F = 1\text{A}$, $di_F/dt = -100\text{A}/\mu\text{s}$ $V_R = 30\text{V}$, $T_J = 125^\circ\text{C}$	47	-	ns
Reverse Recovery Charge	Q_{rr}		52	-	nC
Reverse Recovery Current	I_{RRM}		2.2	-	A
Reverse Recovery Time	t_{rr}	$I_F = 10\text{A}$, $di_F/dt = -100\text{A}/\mu\text{s}$ $V_R = 30\text{V}$, $T_J = 25^\circ\text{C}$	51	-	ns
Reverse Recovery Charge	Q_{rr}		64	-	nC
Reverse Recovery Current	I_{RRM}		2.5	-	A
Reverse Recovery Time	t_{rr}	$I_F = 10\text{A}$, $di_F/dt = -100\text{A}/\mu\text{s}$ $V_R = 30\text{V}$, $T_J = 125^\circ\text{C}$	70	-	ns
Reverse Recovery Charge	Q_{rr}		123	-	nC
Reverse Recovery Current	I_{RRM}		3.5	-	A

* Pulse width < 300 μs , duty cycle < 2%

Ratings and Characteristics Curves

Figure 1
Typical Forward Characteristics

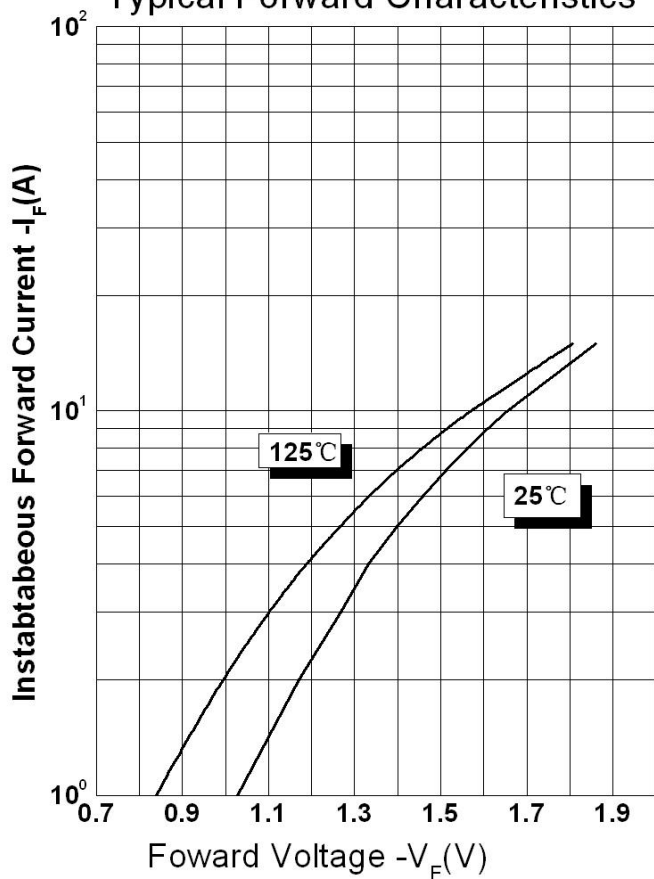


Figure 2
Typical Reverse Characteristics

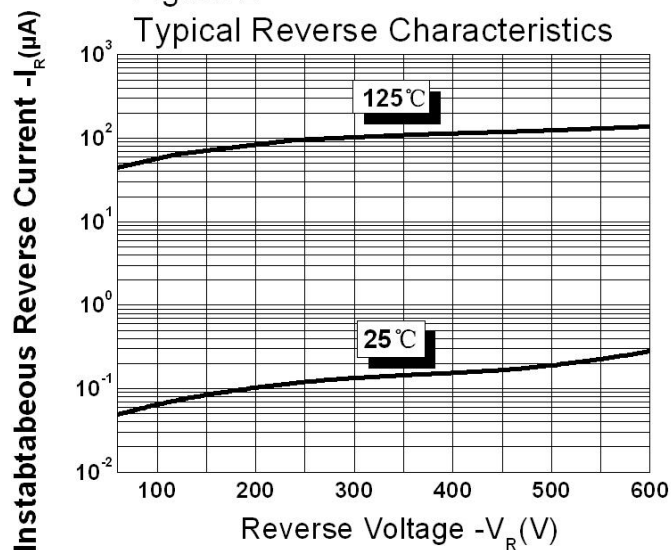
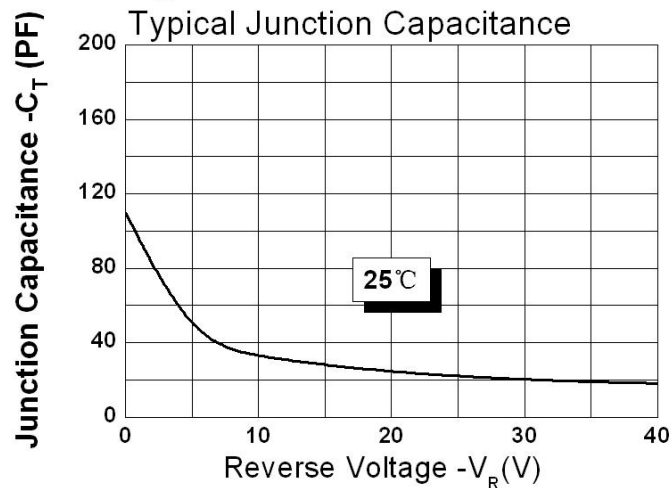


Figure 3
Typical Junction Capacitance



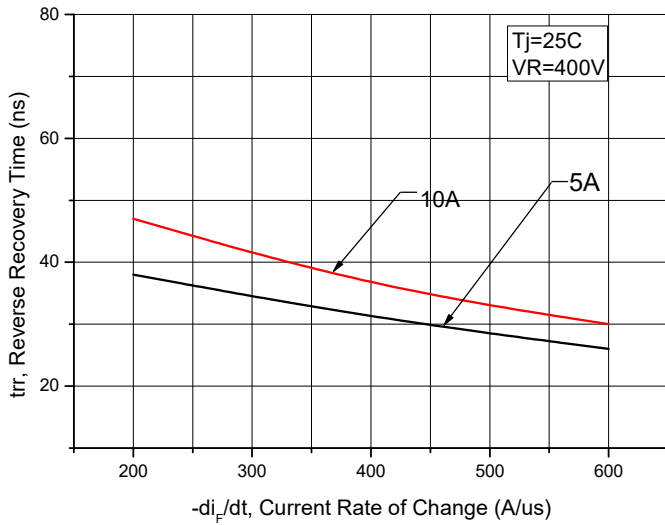


Figure 4. Reverse Recovery Time vs. Current Rate of Change

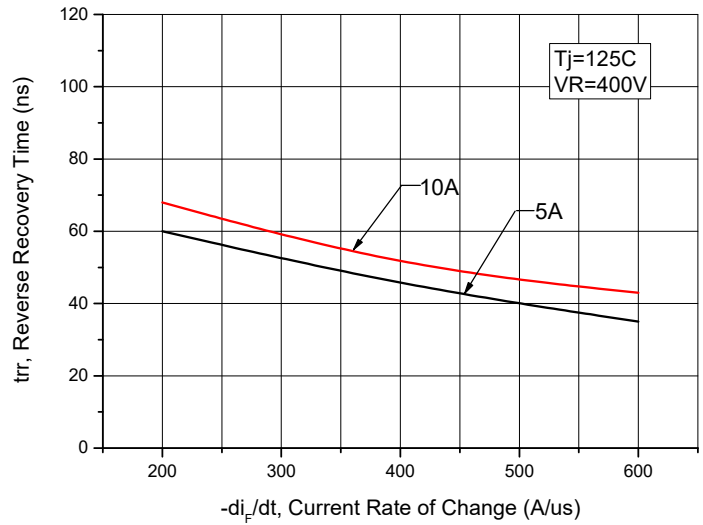


Figure 5. Reverse Recovery Time vs. Current Rate of Change

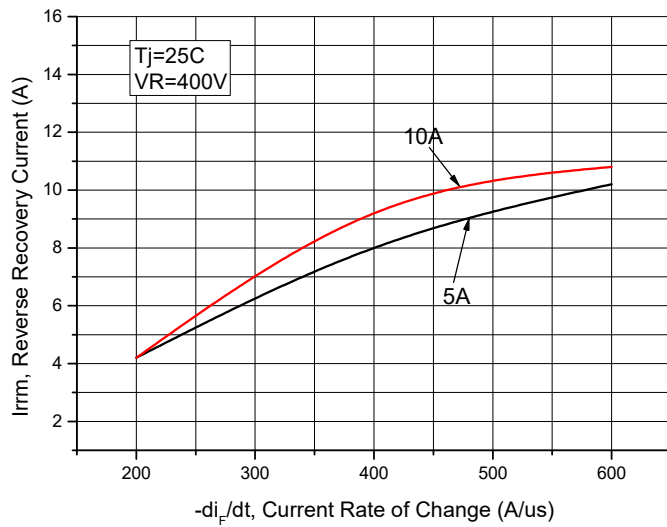


Figure 6. Reverse Recovery Current vs. Current Rate of Change

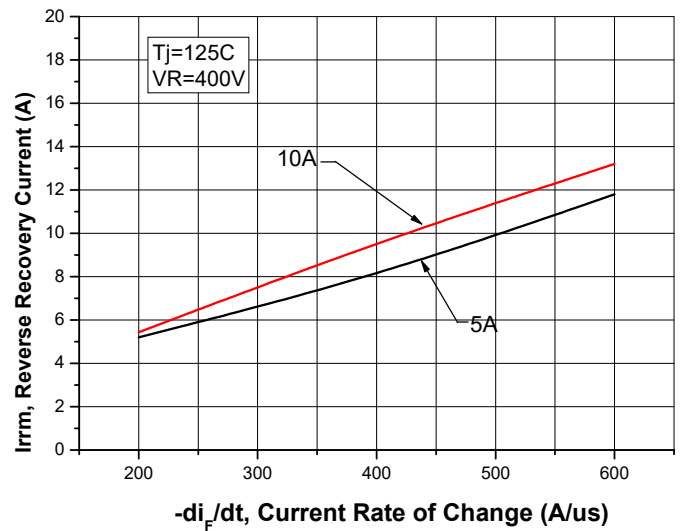


Figure 7. Reverse Recovery Current vs. Current Rate of Change

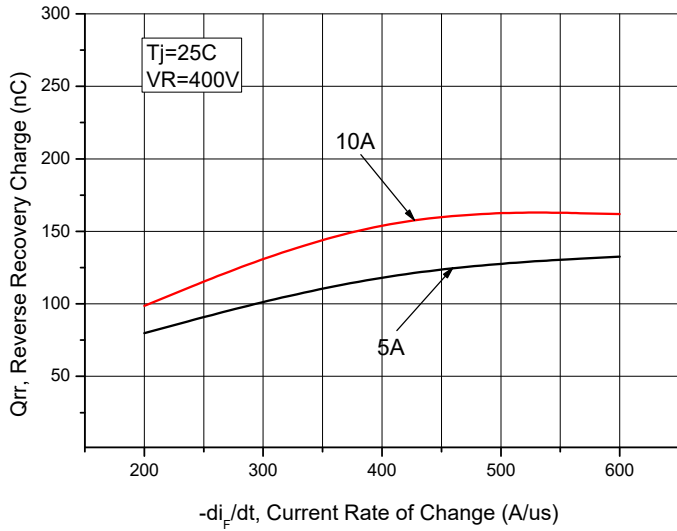


Figure 8. Reverse Recovery Charge vs. Current Rate of Change

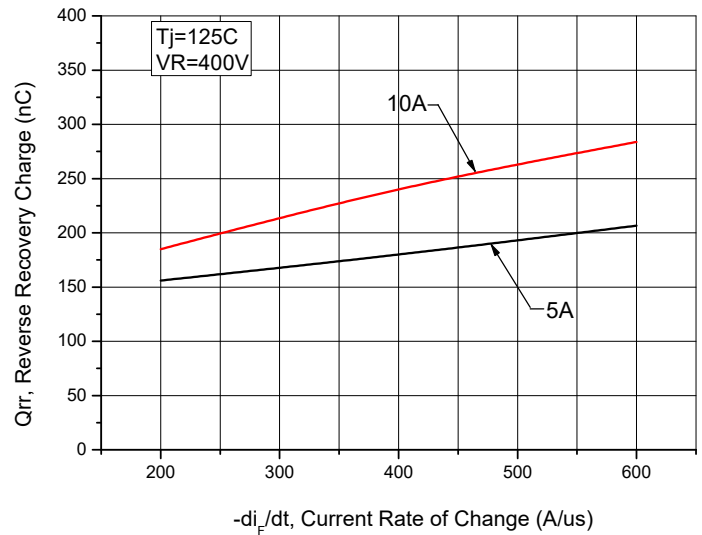


Figure 9. Reverse Recovery Charge vs. Current Rate of Change

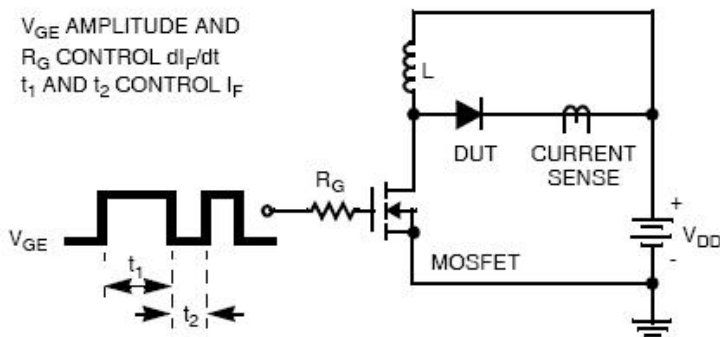


Figure 10. Diode Test Circuit

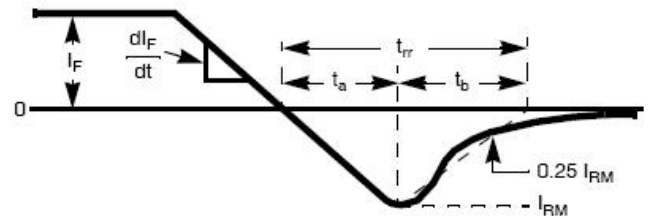
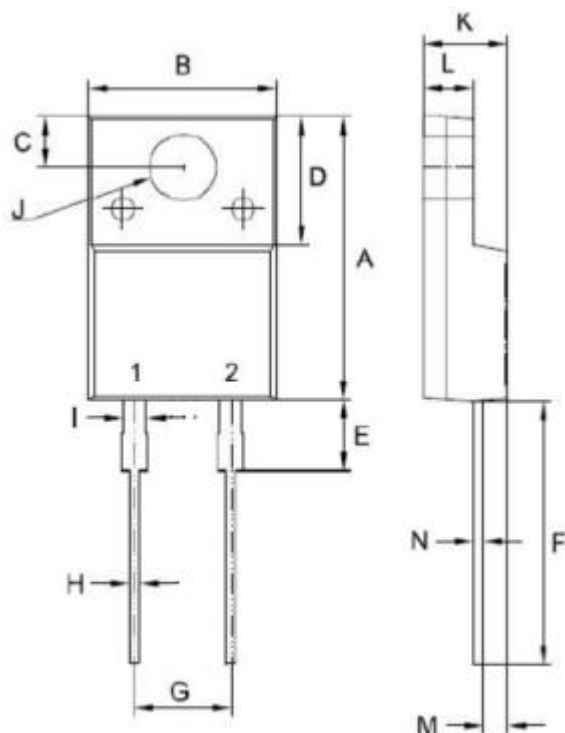
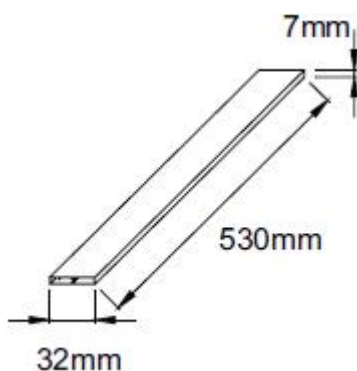
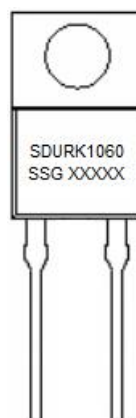


Figure 11. Diode Reverse Recovery Waveform

Mechanical Dimensions ITO-220AC-2L


SYMBOL	Millimeters		
	MIN.	TYP.	MAX.
A	14.50	15.30	16.00
B	9.50	10.00	10.50
C	2.50	3.00	3.5
D	6.30	6.80	7.30
E	3.10	3.70	4.30
F	13.00	13.5	14.00
G	4.90	5.10	5.30
H	0.30	0.60	0.90
I	0.90	1.2	1.50
J	3.20	3.50	3.80
K	4.24	4.54	4.84
L	2.30	2.61	2.92
M	1.09	1.29	1.49
N	0.42	0.53	0.63

Tube Specification

Marking Diagram


Where XXXXX is YYWWL

SDUR = Device Type
 K = Package type
 10 = Forward Current (10A)
 60 = Reverse Voltage (600V)
 SSG = SSG
 YY = Year
 WW = Week
 L = Lot Number

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

Ordering Information:

Device	Package	Shipping
SDURK1060	ITO-220AC-2L (Pb-Free)	50 pcs/ 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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