

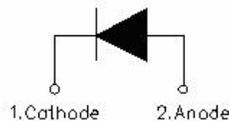
SDURK20Q60 ULTRAFast RECTIFIER



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

Maximum Ratings@ $T_A=25^{\circ}\text{C}$ 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	$I_{F(AV)}$	50% duty cycle @ $T_c=98^{\circ}\text{C}$, rectangular wave form	20	A
Peak One Cycle Non-Repetitive Surge Current	I_{FSM}	8.3ms, Half Sine pulse	190	A

Electrical Characteristics@T_A=25°C unless otherwise specified

Characteristics	Symbol	Condition	Typ.	Max.	Units
Forward Voltage Drop *	V _{F1}	@20A, Pulse, T _J = 25°C	1.65	2.00	V
	V _{F2}	@20A, Pulse, T _J = 125°C	1.50	1.80	V
	V _{F3}	@20A, Pulse, T _J = 150°C	1.43	-	V
Reverse Current *	I _{R1}	@V _R = rated V _R , T _J = 25°C	0.10	10	μA
	I _{R2}	@V _R = rated V _R , T _J = 125°C	11	200	μA
	I _{R3}	@V _R = rated V _R , T _J = 150°C	28	-	μA
Reverse Recovery Time	t _{rr}	I _F =500mA, I _R =1A, and I _{rm} =250mA	25	40	ns
Reverse Recovery Time	t _{rr}	I _F = 20A, diF/dt = 200A/μs V _R = 400V, T _J = 25°C	58	-	ns
Reverse Recovery Charge	Q _{rr}		186	-	nC
Reverse Recovery Current	I _{RRM}		6.4	-	A
Reverse Recovery Time	t _{rr}	I _F = 20A, diF/dt = 200A/μs V _R = 400V, T _J = 125°C	82	-	ns
Reverse Recovery Charge	Q _{rr}		303	-	nC
Reverse Recovery Current	I _{RRM}		7.4	-	A
Reverse Recovery Time	t _{rr}	I _F = 1A, diF/dt = 100A/μs V _R = 30V, T _J = 25°C	27	-	ns
Reverse Recovery Charge	Q _{rr}		19	-	nC
Reverse Recovery Current	I _{RRM}		1.4	-	A
Reverse Recovery Time	t _{rr}	I _F = 1A, diF/dt = 100A/μs V _R = 30V, T _J = 125°C	57	-	ns
Reverse Recovery Charge	Q _{rr}		79	-	nC
Reverse Recovery Current	I _{RRM}		2.8	-	A

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

Thermal-Mechanical Specifications@T_A=25°C unless otherwise specified

Characteristics	Symbol	Condition	Specification	Units
Junction Temperature	T _J	-	-55 to +150	°C
Storage Temperature	T _{stg}	-	-55 to +150	°C
Typical Thermal Resistance Junction to Case	R _{θJC}	DC operation	1.6	°C/W
Approximate Weight	wt	-	1.6	g
Case Style	ITO-220AC-2L			

Ordering Information

Device	Package	Shipping
SDURK20Q60	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.

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

Ratings and Characteristics Curves

Figure 1
Typical Forward Characteristics

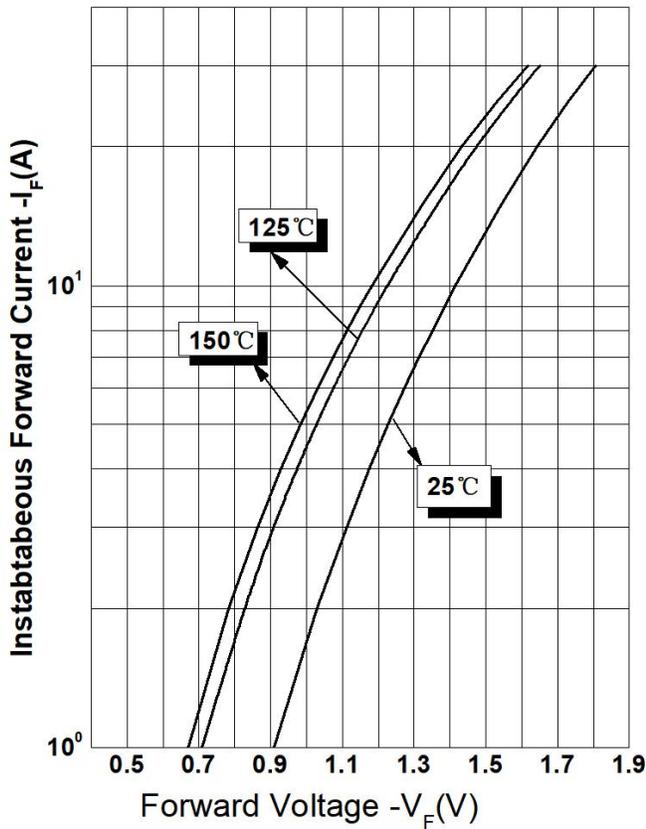


Figure 2
Typical Reverse Characteristics

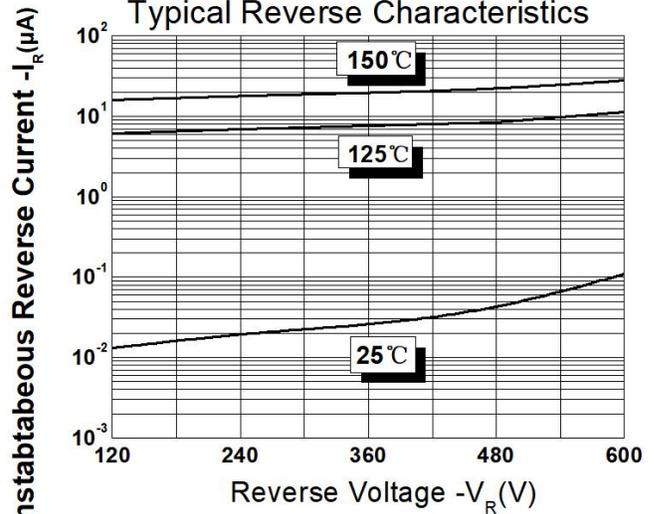
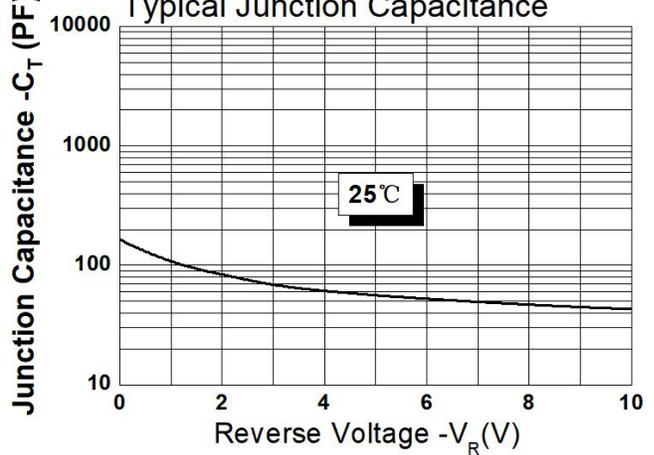


Figure 3
Typical Junction Capacitance



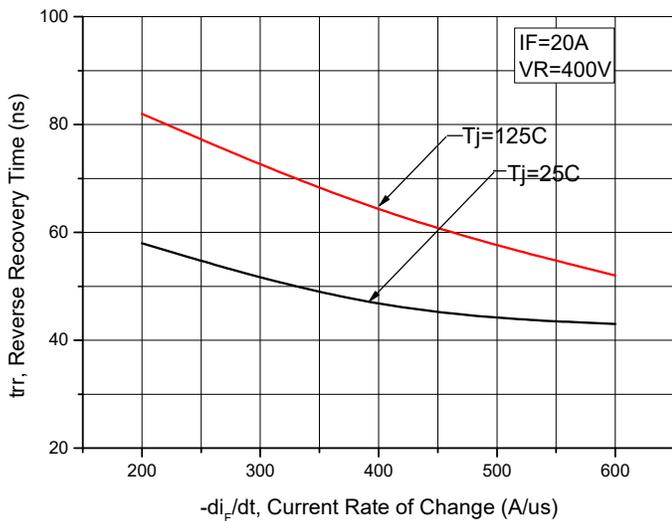


Figure 4. Reverse Recovery Time vs. Current Rate of Change

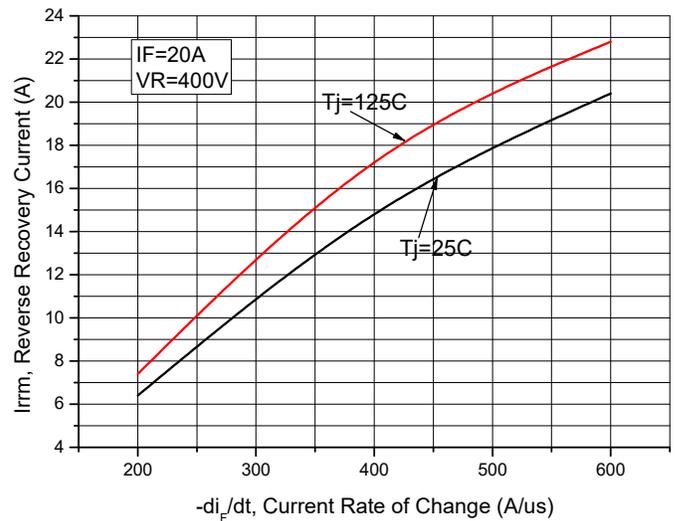


Figure 5. Reverse Recovery Current vs. Current Rate of Change

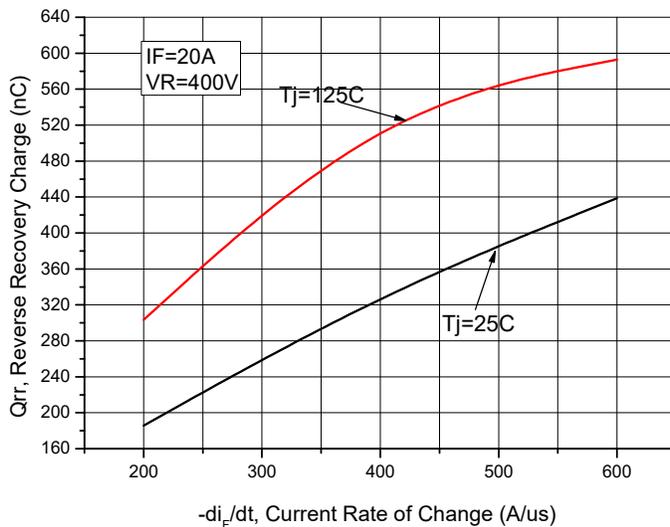


Figure 6. Reverse Recovery Charge vs. Current Rate of Change

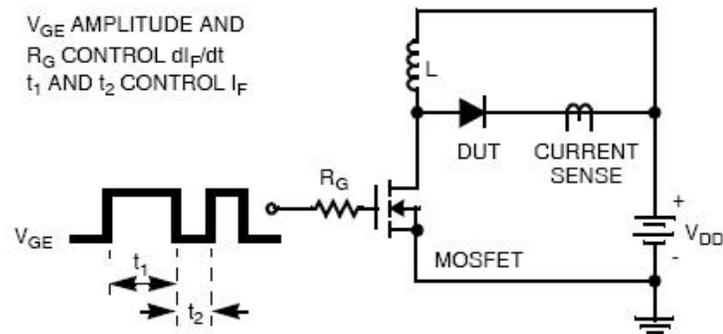


Figure 7. Diode Test Circuit

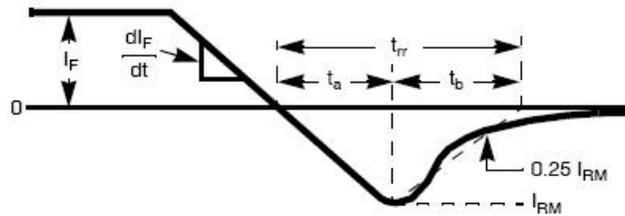
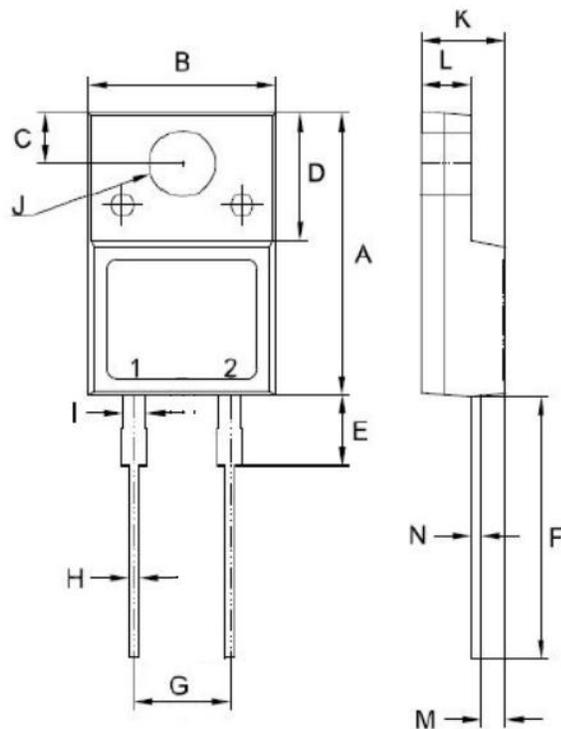


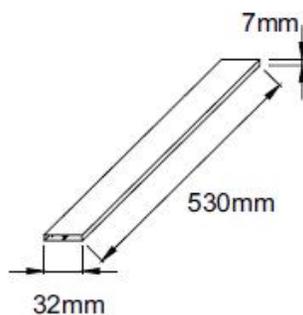
Figure 8 - Reverse Recovery Waveform

Mechanical Dimensions ITO-220AC-2L

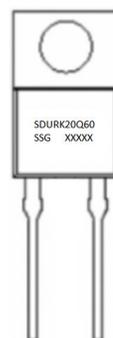


SYMBOL	Millimeters		
	MIN.	TYP.	MAX.
A	14.50	15.30	16.00
B	9.50	10.00	10.50
C	2.50	3.00	3.5
D	6.30	6.80	7.30
E	3.10	3.70	4.30
F	13.00	13.5	14.00
G	4.90	5.10	5.30
H	0.30	0.60	0.90
I	0.90	1.2	1.50
J	3.20	3.50	3.80
K	4.24	4.54	4.84
L	2.30	2.61	2.92
M	1.09	1.29	1.49
N	0.42	0.53	0.63

Tube Specification



Marking Diagram



Where XXXXX is YYWWL

- SDUR = Device Type
- K = Package type
- 20 = Forward Current (20A)
- Q = Q
- 60 = Reverse Voltage (600V)
- SSG = SSG
- YY = Year
- WW = Week
- L = Lot Number

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

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