Technical Data
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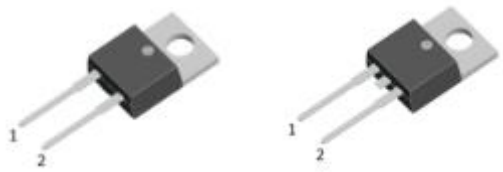
SDUR30H120 ULTRAFAST RECTIFIER



TO-220AC

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@T_A=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	-	1200	V
Average Rectified Forward Current	$I_{F\ (AV)}$	Tc=54°C, In DC	30	A
Peak One Cycle Non-Repetitive Surge Current	I_{FSM}	8.3ms, Half Sine pulse	200	A
Non-repetitive avalanche energy	E_{AS}	I_{AS}=3A, L= 40mH, T_J=25°C	180	mJ

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Electrical Characteristics:

Characteristics	Symbol	Condition	Typ.	Max.	Units
Forward Voltage Drop*	V_{F1}	@ 30A, Pulse, T_J = 25°C	2.70	3.50	V
	V_{F2}	@ 30A, Pulse, T_J = 125°C	2.10	3.00	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	0.01	4	mA
Reverse Recovery Time	t_{rr}	I_F=500mA,I_R=1A,and I_{rm}=250mA, T_J =25°C	46	50	ns
Reverse Recovery Time	t_{rr}	I_F = 1A, diF/dt = 50A/μs, V_R = 30V, T_J = 25°C	42	-	ns
Reverse Recovery Charge	Q_{rr}		38	-	nC
Reverse Recovery Current	I_{RRM}		1.5	-	A
Reverse Recovery Time	t_{rr}	I_F = 30A, diF/dt = 200A/μs, V_R = 600V, T_J = 25°C	70	-	ns
Reverse Recovery Charge	Q_{rr}		277	-	nC
Reverse Recovery Current	I_{RRM}		7	-	A
Reverse Recovery Time	t_{rr}	I_F = 30A, diF/dt = 200A/μs, V_R = 600V, T_J = 125°C	315	-	ns
Reverse Recovery Charge	Q_{rr}		1785	-	nC
Reverse Recovery Current	I_{RRM}		12	-	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	-	1.6	g
Case Style	TO-220AC			

Ratings and Characteristics Curves

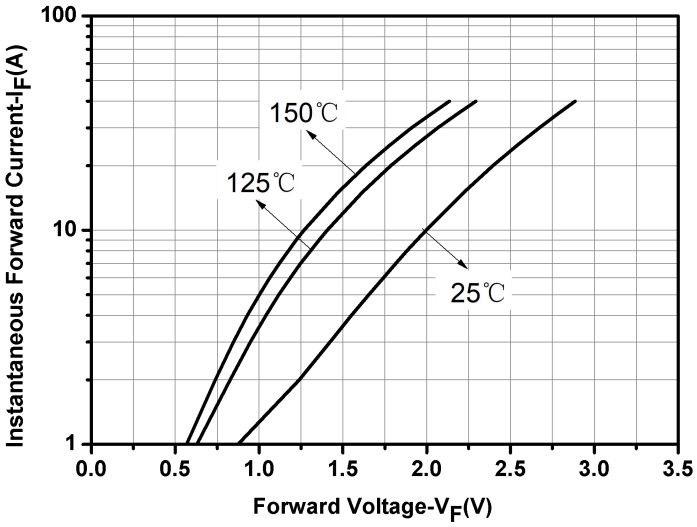


Fig.1-Typical Forward Voltage Characteristics

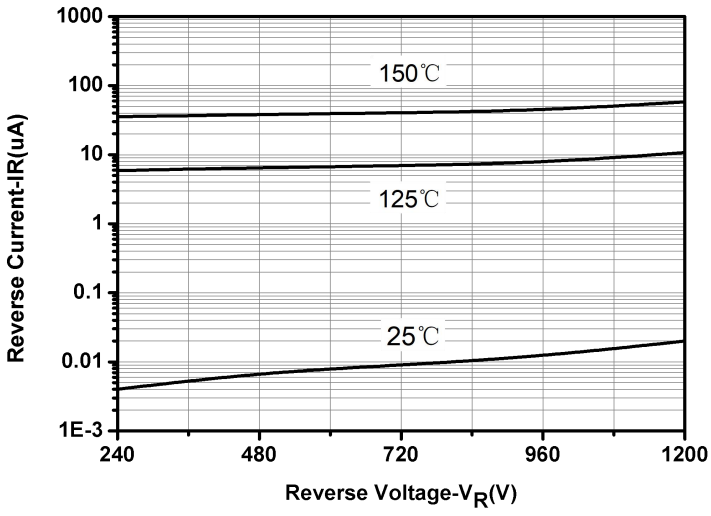


Fig.2-Typical Reverse Characteristics

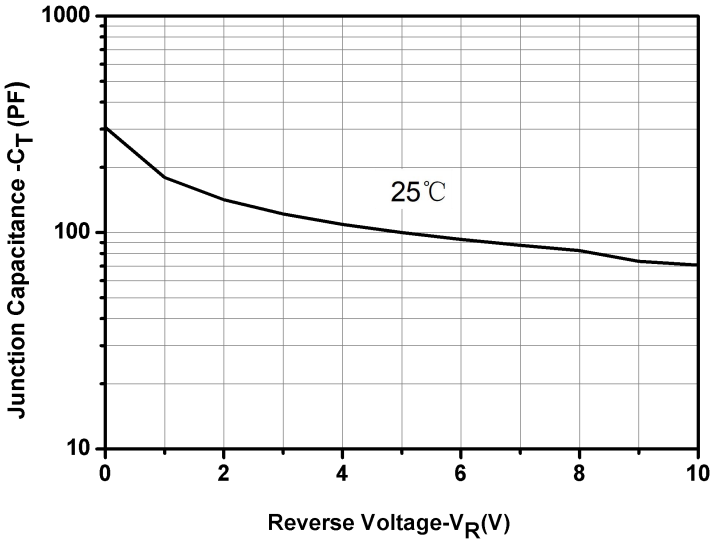


Fig.3-Capacitance vs. Reverse Voltage

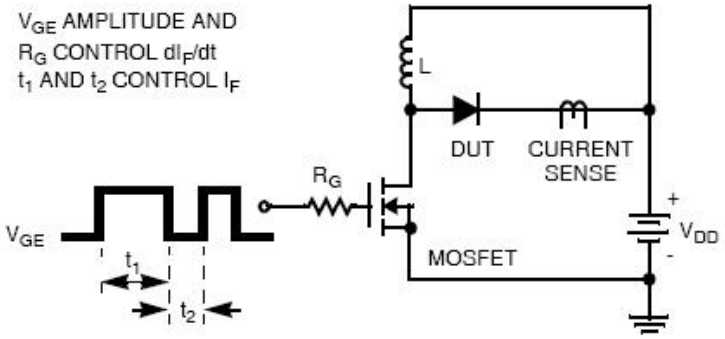
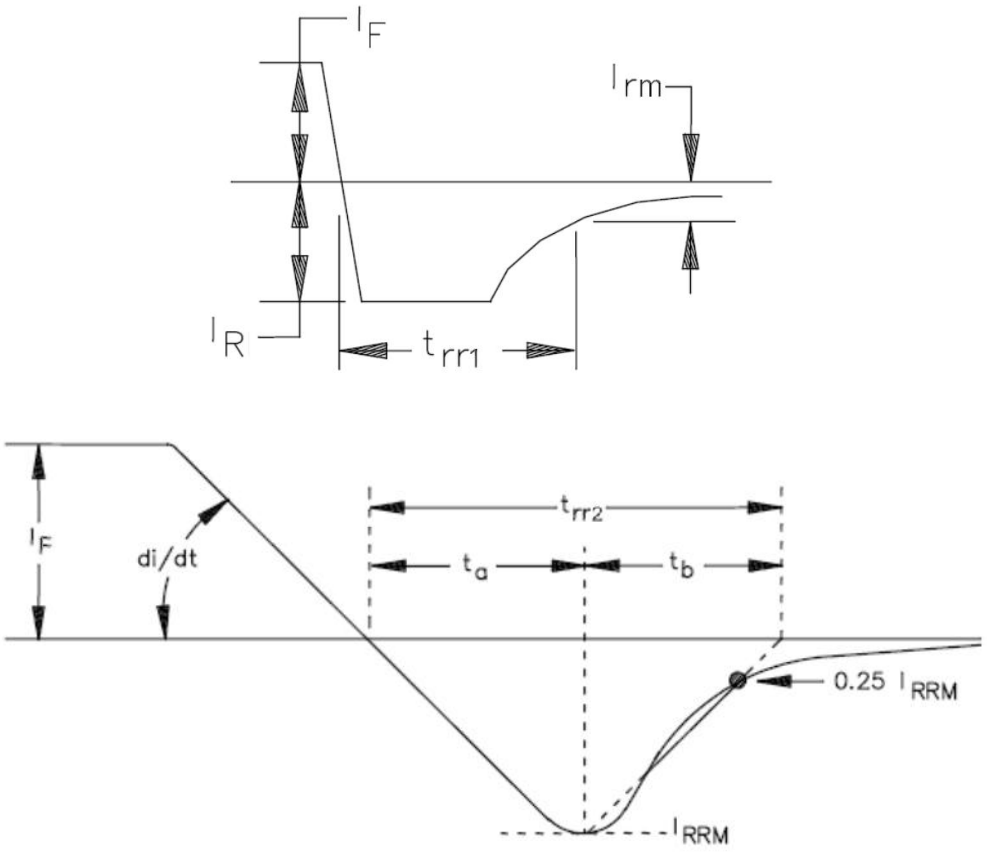


Fig.4-Diode Test Circuit



Note: 1. t_{rr1} MIL-STD-750 Test Method 4031, condition "B".
2. t_{rr2} MIL-STD-750 Test Method 4031, condition “D" .

Fig.5-Reverse Recovery Waveform

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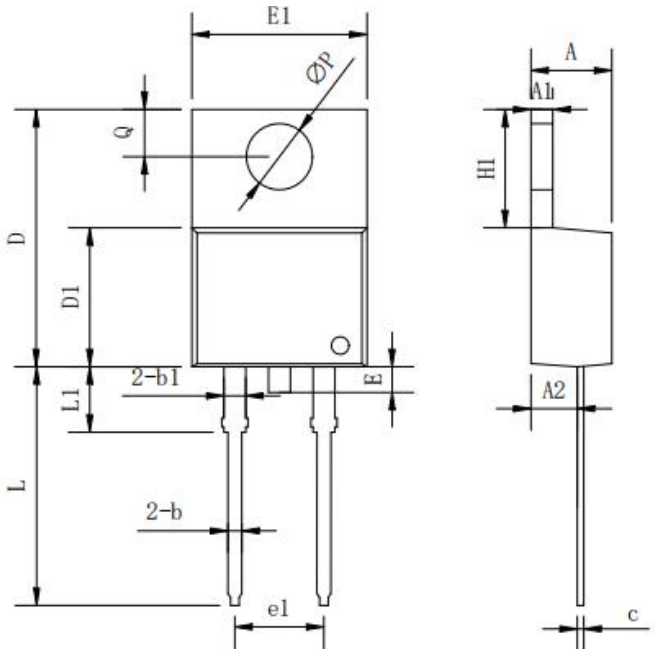
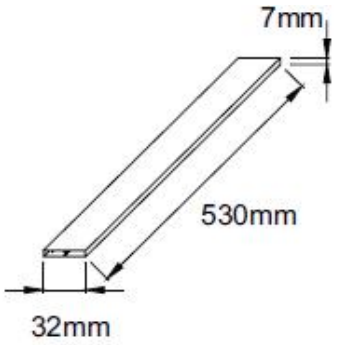
Mechanical Dimensions TO-220AC

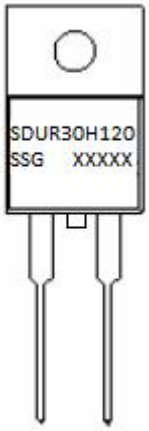


Symbol	Dimensions in millimeters		
	Min.	Typical	Max.
A	3.56	-	4.83
A1	0.51	-	1.4
A2	2.03	-	2.92
b	0.38	-	1.02
b1	1.14	-	1.78
c	0.31	-	0.61
D	14.22	-	16.51
D1	8.38	-	9.42
E	-	-	1.78
E1	9.65	10.16	10.67
e1	-	5.08	-
H1	5.84	-	6.86
L	12.7	-	14.73
L1	-	-	6.35
ΦP	-	3.56	-
Q	2.54	-	3.43

Tube Specification



Marking Diagram



Where XXXXX is YYWWL

SDUR = Device Type
30 = Forward Current (30A)
H = H
120 = Reverse Voltage (1200V)
SSG = SSG
YY = Year
WW = Week
L = Lot Number

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

Ordering Information:

Device	Package	Shipping
SDUR30H120	TO-220AC(Pb-Free)	50pcs / tube

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