

# SDF30U20DN

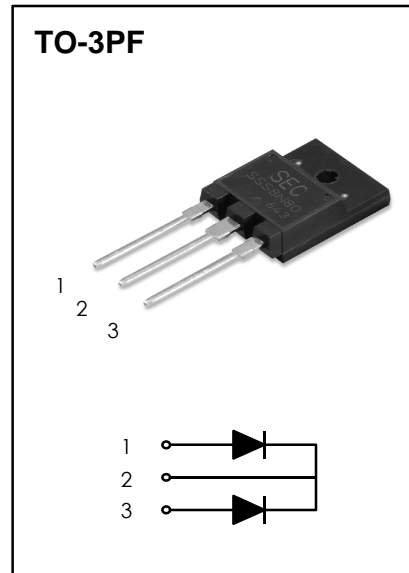
# POWER RECTIFIER

## FEATURES

- \* Ultrafast with Soft Recovery ( $T_{rr} < 40\text{ns}$ )
- \* Low Forward Voltage ( $V_F=0.98\text{V}$  at  $I_F=30\text{A}$ )

## APPLICATIONS

- \* Power Switching Circuits
- \* Output rectifiers
- \* Freewheeling Diodes
- \* Switching Mode Power Supply



## MAXIMUM RATINGS

Rating	Symbol	Value	Units
Peak Repetitive Reverse Voltage	$V_{RRM}$	200	V
Average Rectified Forward Current, $T_C=100\text{ }^\circ\text{C}$	$I_{F(AV)}$	30	A
Non-repetitive Peak Surge Current (Half-wave, Single Phase, 60Hz)	$I_{FSM}$	300	A
Operating Junction and Storage Temperature	$T_J, T_{STG}$	-65 ~ 150	$^\circ\text{C}$

## THERMAL CHARACTERISTICS

Thermal Resistance - Junction to Case	$R_{\theta JC}$	1.5	$^\circ\text{C/W}$
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**ELECTRICAL CHARACTERISTICS**

Characteristics	Symbol	Min	Typ	Max	Units
Maximum Instantaneous Forward Voltage (1) ( $I_F = 30A$ , $T_C = 100\text{ }^\circ\text{C}$ ) ( $I_F = 30A$ , $T_C = 25\text{ }^\circ\text{C}$ )	$V_F$	- -	- -	1.0 1.2	V
Maximum Instantaneous Reverse Current (1) (Rated DC Voltage, $T_C = 100\text{ }^\circ\text{C}$ ) (Rated DC Voltage, $T_C = 25\text{ }^\circ\text{C}$ )	$I_R$	- -	- -	300 30	$\mu\text{A}$
Maximum Reverse Recovery Time ( $I_F = 30A$ , $di/dt = -200A/\mu\text{s}$ )	$t_{rr}$ $I_{rr}$ $Q_{rr}$	- - -	- - -	40 4.0 80	ns A nC
Avalanche Energy	$W_{AVL}$	0.5	-	-	mJ

(1) Pulse Test : Pulse Width = 300 $\mu\text{s}$ , Duty Cycle  $\leq 2.0\%$

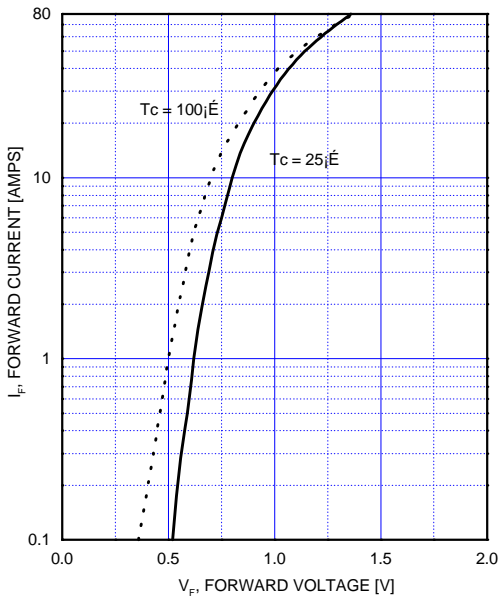


Fig.1 Typical Forward Voltage Drop vs. Forward Current

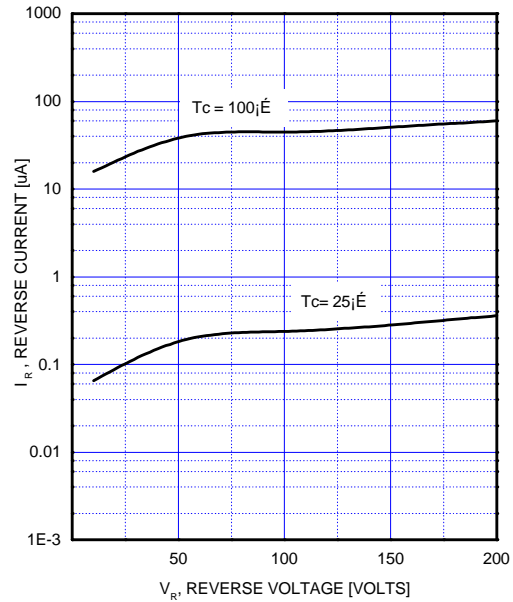


Fig.2 Reverse Voltage vs. Reverse Current

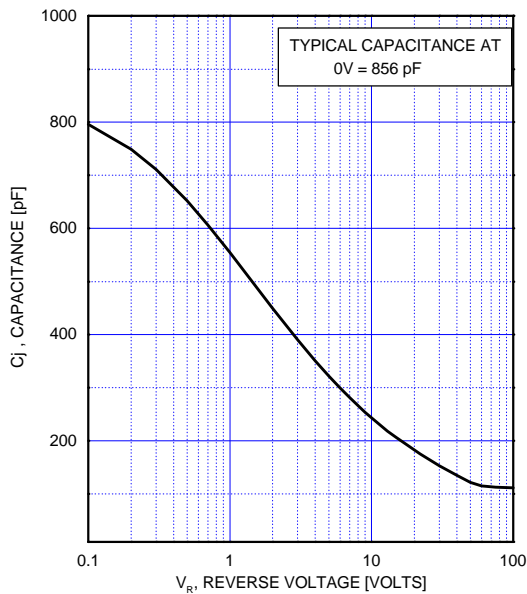


Fig.3 Typical Capacitance

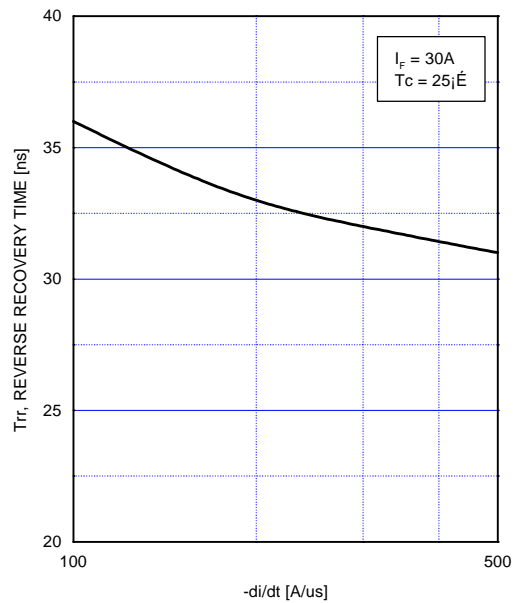


Fig.4 Typical Reverse Recovery Time vs.  $di/dt$

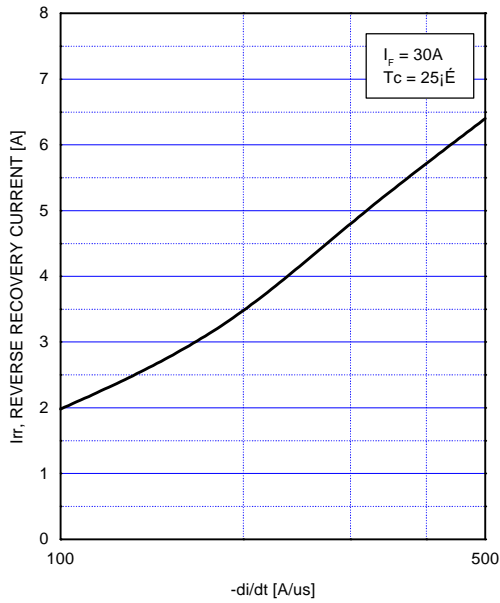


Fig.5 Typical Reverse Recovery Current vs.  $di/dt$

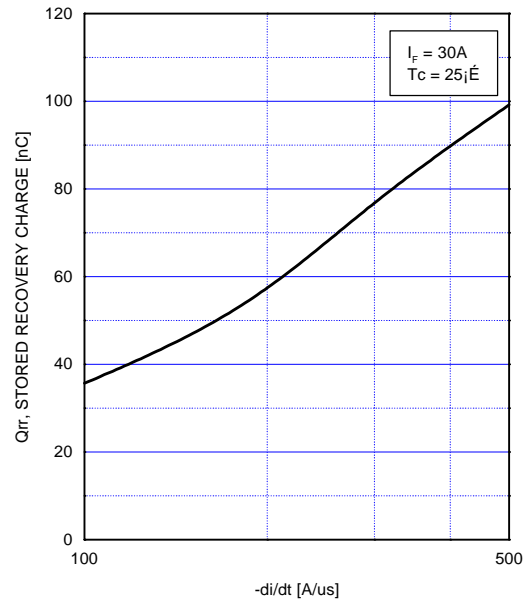


Fig.6 Typical Stored Charge vs.  $di/dt$

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