SV20

RECTIFIER DIODE

APPLICATIONS

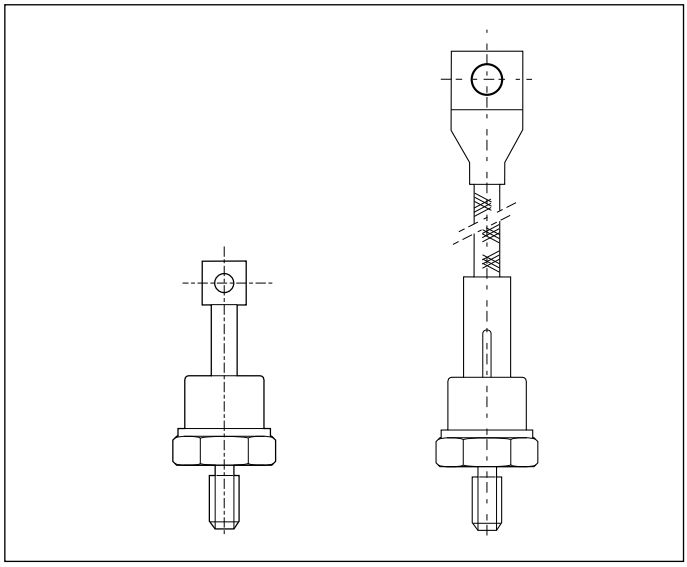
- Rectification.
- Freewheel Diode.
- DC Motor Control.
- Power Supplies.
- Welding.
- Battery Chargers.

KEY PARAMETERS

V_{RRM}	2000V
$I_{F(AV)}$	220A
I_{FSM}	4000A

FEATURES

- High Surge Capability.



Outline type codes: DO8C and DO8 Turn to page 6 for further information.

VOLTAGE RATINGS

Type Number	Repetitive Peak Reverse Voltage V_{RRM} V	Conditions
SV20 20 M or K(R) SV20 14 M or K(R) SV20 10 M or K(R) SV20 06 M or K(R)	2000 1400 1000 600	$V_{RSM} = V_{RRM} + 100V$

Lower voltage grades available.
M for M12 thread. K for 1/2" - 20UNF thread, R for reverse polarity.
Add C to type number for DO8C package.

CURRENT RATINGS

Symbol	Parameter	Conditions	Max.	Units
Single Side Cooled				
$I_{F(AV)}$	Mean forward current	Half wave resistive load, T_{case} = 100°C	220	A
$I_{F(RMS)}$	RMS value	T_{case} = 100°C	350	A
I_F	Continuous (direct) forward current	T_{case} = 100°C	297	A

SURGE RATINGS

Symbol	Parameter	Conditions	Max.	Units
I_{FSM}	Surge (non-repetitive) forward current	10ms half sine; T_{case} = 175°C	3.2	kA
I^2t	I^2t for fusing	V_R = 50% V_{RRM} - 1/4 sine	51.2 x 10^3	A^2s
I_{FSM}	Surge (non-repetitive) forward current	10ms half sine; T_{case} =175°C	4.0	kA
I^2t	I^2t for fusing	V_R = 0	80.0 x 10^3	A^2s

THERMAL AND MECHANICAL DATA

Symbol	Parameter	Conditions	Min.	Max.	Units
$R_{th(j-c)}$	Thermal resistance - junction to case	dc	-	0.23	°C/W
$R_{th(c-h)}$	Thermal resistance - case to heatsink	Mounting torque 15.0Nm with mounting compound	-	0.08	°C/W
T_{vj}	Virtual junction temperature	Forward (conducting)	-	175	°C
		Reverse (blocking)	-	175	°C
T_{stg}	Storage temperature range		-55	200	°C
-	Mounting Torque		12.0	15.0	Nm

CHARACTERISTICS

Symbol	Parameter	Conditions	Typ.	Max.	Units
V_{FM}	Forward voltage	At 600A peak, T_{case} = 25°C	-	1.4	V
I_{RRM}	Peak reverse current	At V_{RRM}, T_{case} = 175°C	-	20	mA
Q_S	Total stored charge	I_F = 100A, dI_{RR}/dt = 20A/µs, T_{case} = 25°C	200*	-	µC
I_{RM}	Peak recovery current		70*	-	A
t_{rr}	reverse recovery time		5.5*	-	µs
V_{TO}	Threshold voltage	At T_{vj} = 175°C	-	0.8	V
r_T	Slope resistance	At T_{vj} = 175°C	-	1.0	mΩ

**Typical values.*

CURVES

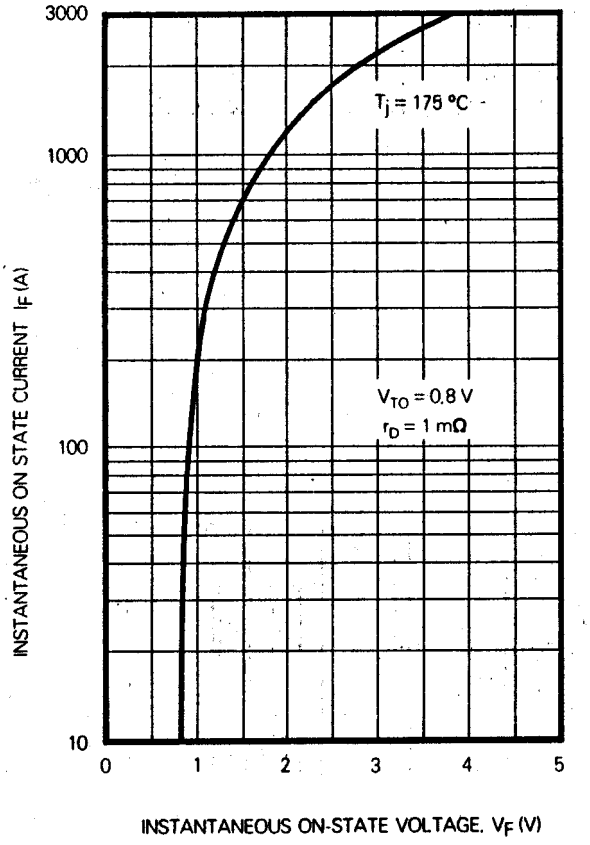


FIG. 1 MAXIMUM (LIMIT) FORWARD CONDUCTION CHARACTERISTIC

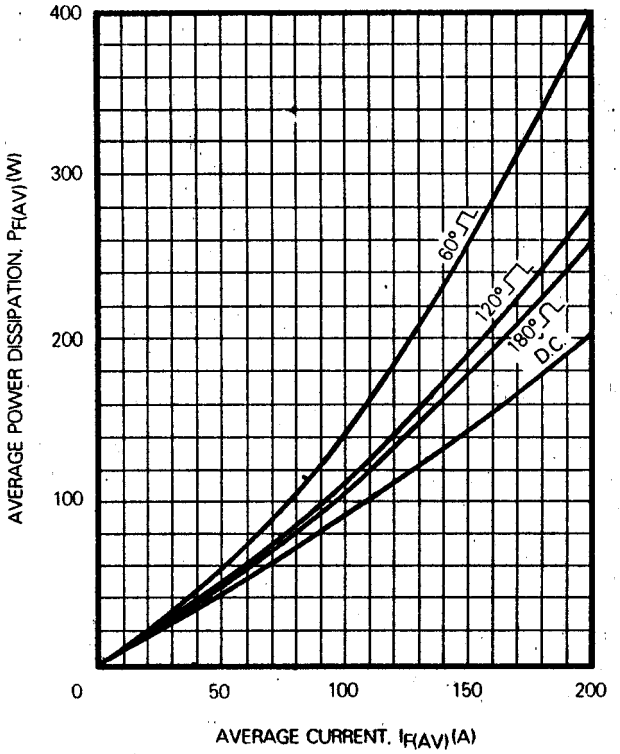


FIG. 2 MAXIMUM FORWARD POWER DISSIPATION

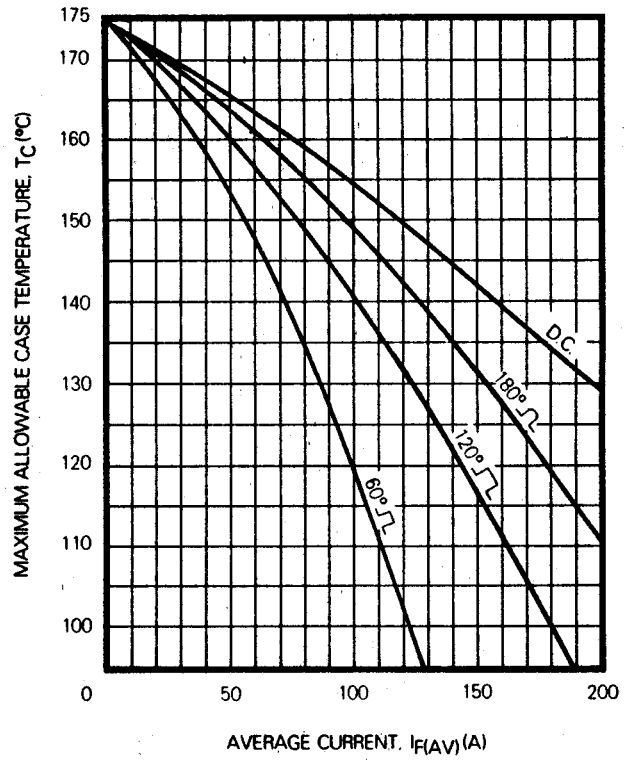
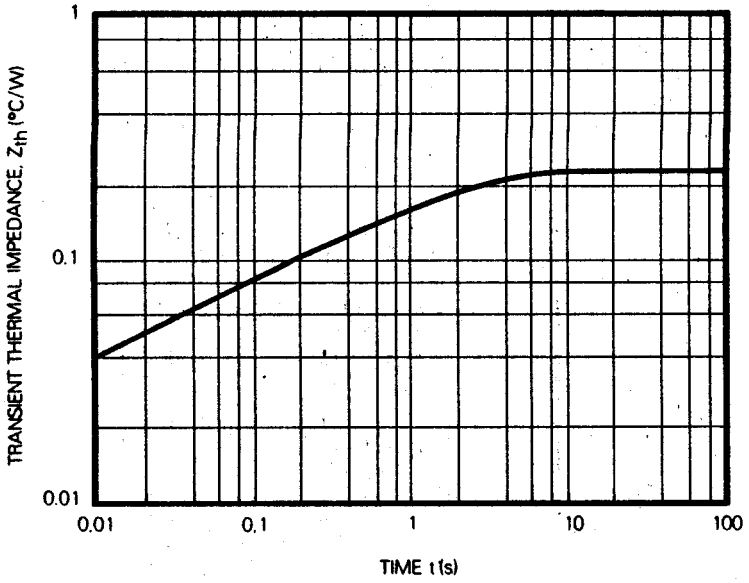


FIG. 3 MAXIMUM ALLOWABLE CASE TEMPERATURE



Conduction angle	Effective thermal Resistance (°C/W) Junction to case	
	Sinusoidal	Rectangular
180°	0.248	0.276
120°	0.258	0.311
60°	0.299	0.391

FIG. 4 TRANSIENT THERMAL IMPEDANCE - JUNCTION TO CASE

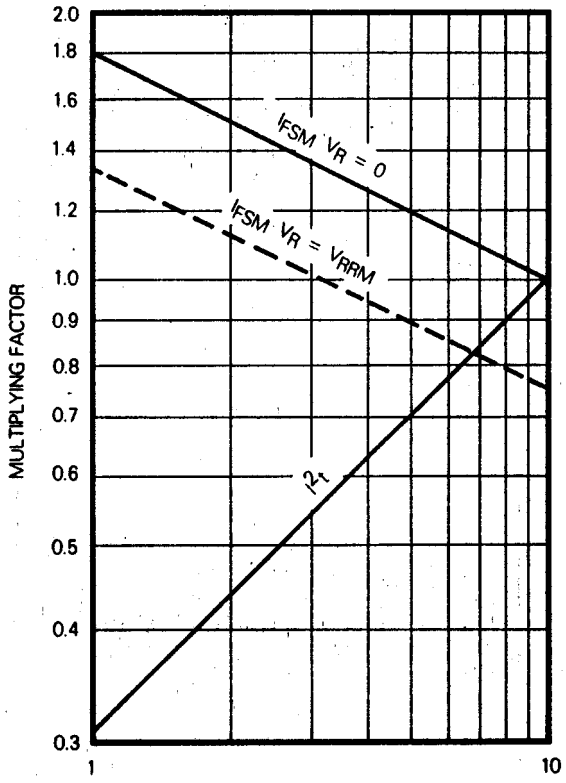


FIG. 5 MULTIPLYING FACTOR FOR NON-REPETITIVE SUB-CYCLE FORWARD CURRENT AND I2t RATING

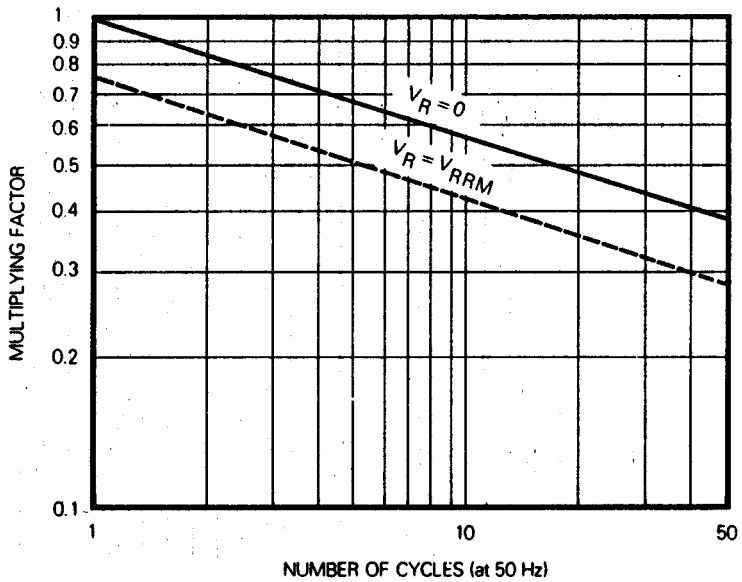
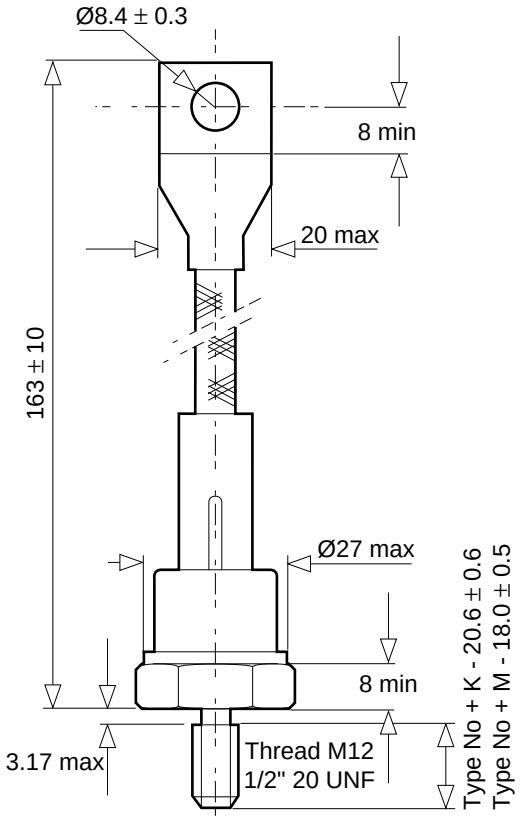


FIG. 6 MULTIPLYING FACTOR FOR NON-REPETITIVE FORWARD CURRENT

PACKAGE DETAILS - DO8

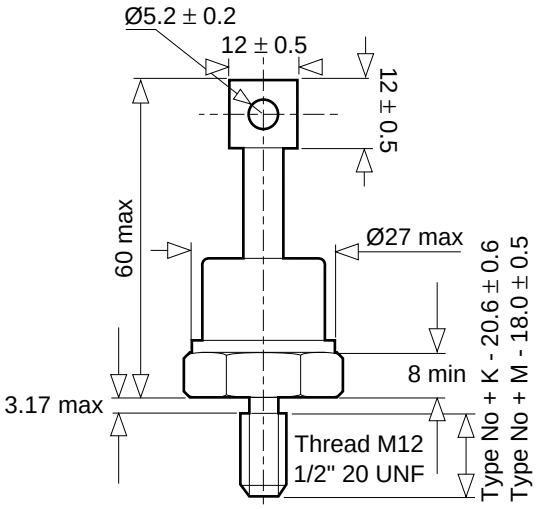
For further package information, please contact your local Customer Service Centre. All dimensions in mm, unless stated otherwise. DO NOT SCALE.

PACKAGE DETAILS - DO8



Weight: 160g

PACKAGE DETAILS - DO8C



Weight: 100g

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