

January 29, 1998

TEL:805-498-2111 FAX:805-498-3804 WEB:<http://www.semtech.com>HIGH VOLTAGE, HIGH DENSITY, STANDARD
RECOVERY MODULAR RECTIFIER ASSEMBLY

- Up to 15kV reverse voltage
- Modular construction
- Low reverse leakage current
- High thermal shock resistance
- Provides design versatility

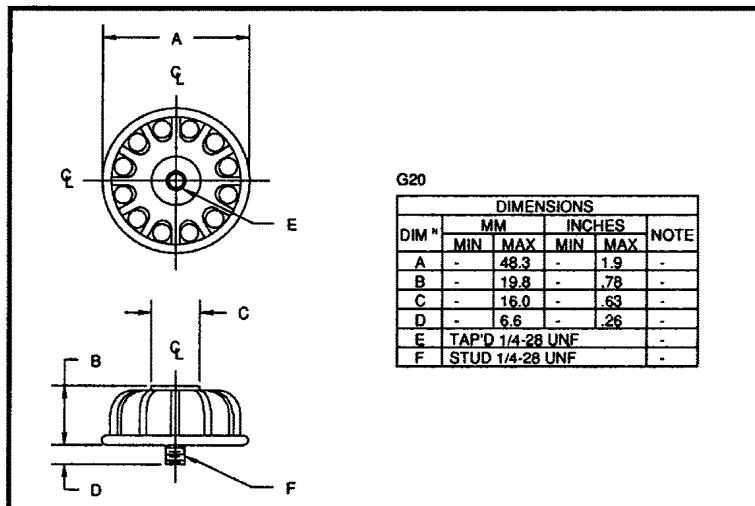
QUICK REFERENCE
DATA

- V_R = 2.5kV - 15kV
- I_F = 0.8 - 2.0A (in air)
- I_R = 1.0 μ A
- I_{FSM} = 50A

ABSOLUTE MAXIMUM RATINGS

| Device Type | Working Reverse Voltage V_{RWM} | Average Rectified Current $I_F(AV)$ | | | | 1 Cycle Surge Current I_{FSM} $t_p = 8.3\text{mS}$ | | Repetitive Surge Current I_{FRM} $@ 25^\circ\text{C}$ | I^2t $t_p = 8.3\text{mS}$ $@ 25^\circ\text{C}$ |
|----------------|--|-------------------------------------|------------------------------|---|-----------------------------------|--|-----------------------|---|--|
| | | Air $@ 25^\circ\text{C}$ | Air $@ 100^\circ\text{C}$ | Stud to Heatsink $@ 25^\circ\text{C}$ | Still oil $@ 55^\circ\text{C}$ | $@ 25^\circ\text{C}$ | $@ 100^\circ\text{C}$ | | |
| | | Volts | Amps | Amps | Amps | Amps | Amps | | |
| S2HVM2.5 | 2500 | 2.0 | 0.8 | 2.0 | | | | | |
| S2HVM5 | 5000 | 2.0 | 0.8 | 2.0 | | | | | |
| S2HVM7.5 | 7500 | 2.0 | 0.8 | 2.0 | 2.0 | 50 | 20 | 12.0 | 10.0 |
| S2HVM10 | 10000 | 1.2 | 0.5 | 2.0 | | | | | |
| S2HVM12.5 | 12500 | 1.0 | 0.4 | 2.0 | | | | | |
| S2HVM15 | 15000 | 0.8 | 0.3 | 1.5 | | | | | |

MECHANICAL



MAXIMUM THERMAL IMPEDANCES

Junction - Ambient $R_{JA} < 12^\circ\text{C/W}$
 Junction - Stud $R_{JS} < 6^\circ\text{C/W}$
 Junction - Oil $R_{JO} < 4.5^\circ\text{C/W}$

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ELECTRICAL CHARACTERISTICS

| Device Type | Maximum Reverse Leakage Current $I_R @ V_{RWM}$ | | Maximum Forward Voltage $V_F @ 2.0A$ $@ 25^\circ C$ | Maximum Reverse Recovery Time ¹ $t_{rr} @ 25^\circ C$ |
|----------------|---|-----------------|---|--|
| | $@ 25^\circ C$ | $@ 100^\circ C$ | | |
| | μA | μA | Volts | μS |
| S2HVM2.5 | 1.0 | 20 | 3.3 | 2.5 |
| S2HVM5 | | | 5.5 | |
| S2HVM7.5 | | | 8.8 | |
| S2HVM10 | | | 11.1 | |
| S2HVM12.5 | | | 14.4 | |
| S2HVM15 | | | 16.6 | |

1. Measured on discrete devices prior to assembly

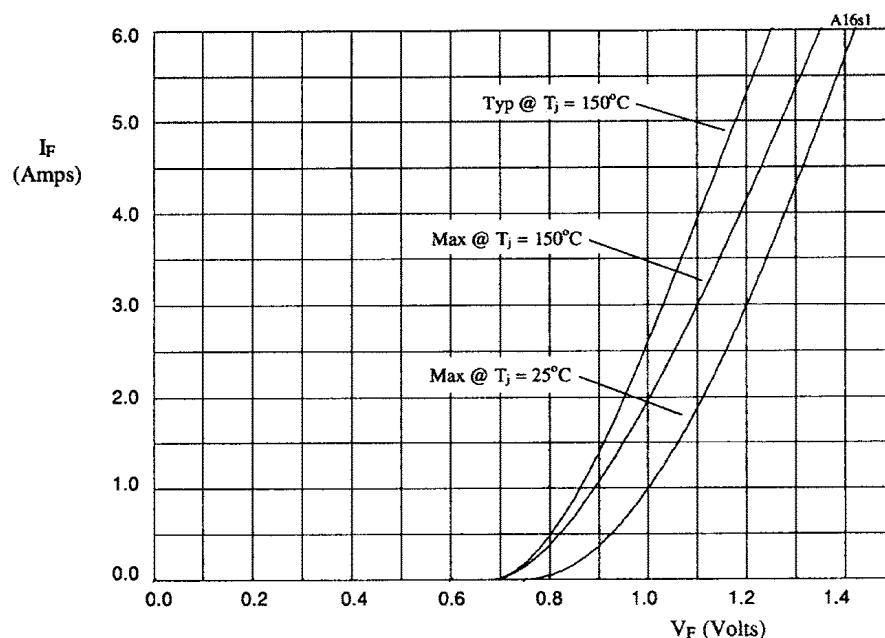
Operating temperature range $-55^\circ C$ to $+150^\circ C$
Storage temperature range $-55^\circ C$ to $+150^\circ C$ Figure 1. Forward voltage drop as a function
of forward current for use with table 1.

TABLE 1

| DEVICE | X-axis |
|-----------|--------|
| S2HVM2.5 | x3 |
| S2HVM5 | x5 |
| S2HVM7.5 | x8 |
| S2HVM10 | x10 |
| S2HVM12.5 | x13 |
| S2HVM15 | x15 |

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