

December 22, 1997

TEL:805-498-2111 FAX:805-498-3804 WEB:http://www.semtech.com

### HIGH CURRENT, HIGH DENSITY, STANDARD RECOVERY SILICON POWER RECTIFIER STUD

### QUICK REFERENCE DATA

- Low thermal impedance
- Low forward voltage drop
- High current applications
- Low reverse leakage current
- High surge ratings

- $V_R = 50V - 1000V$
- $I_F = 150A$
- $I_R = 12.0\mu A$
- $I_{FSM} = 1800A$

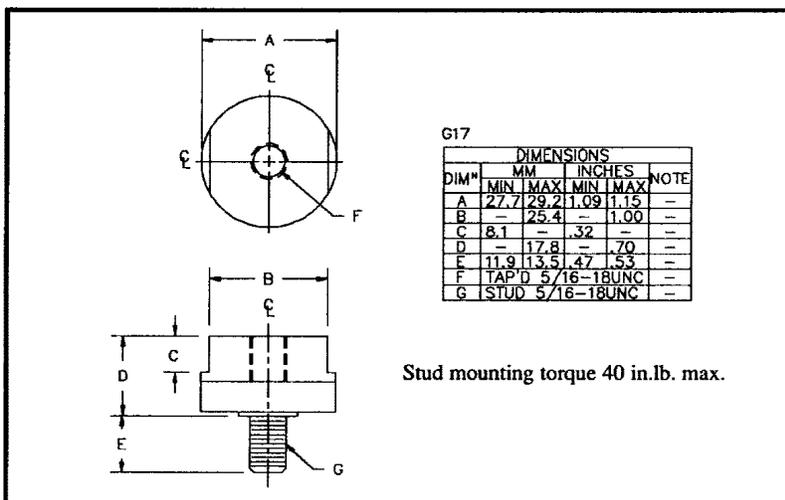
### ABSOLUTE MAXIMUM RATINGS

Device Type *	Working Reverse Voltage ( $V_{RWM}$ )	Average Rectified Current $I_{F(AV)}$					1 Cycle Surge Current $I_{FSM}$ $t_p = 8.3ms$		Repetitive Surge Current $I_{FRM}$
		insert mounting			stud mounting	stud + insert mounting	@ 25°C	@ 100°C	@ 25°C
		@ 25°C	@ 55°C	@ 100°C	@ 55°C	@ 55°C	Amps	Amps	Amps
Volts	Amps	Amps	Amps	Amps	Amps	Amps	Amps	Amps	
SCSM05	50	↑	↑	↑	↑	↑	↑	↑	↑
SCSM1	100	↑	↑	↑	↑	↑	↑	↑	↑
SCSM2	200	↑	↑	↑	↑	↑	↑	↑	↑
SCSM4	400	150	110	70	95	175	1800	840	250
SCSM6	600	↓	↓	↓	↓	↓	↓	↓	↓
SCSM8	800	↓	↓	↓	↓	↓	↓	↓	↓
SCSM0	1000	↓	↓	↓	↓	↓	↓	↓	↓

Normal polarity is cathode to stud

\* add suffix "R" to part number for reverse polarity

### MECHANICAL



### Maximum thermal impedances

Stud mounted  $R_{\theta JC} < 0.67^{\circ}C/W$

Insert mounted  $R_{\theta JC} < 0.5^{\circ}C/W$

Stud + insert mtd  $R_{\theta JC} < 0.28^{\circ}C/W$

December 22, 1997

## ELECTRICAL CHARACTERISTICS

Device Type	Maximum Reverse Leakage Current $I_R @ V_{RWM}$		Forward Voltage $V_F @ 100A.$	Reverse Recovery Time <sup>(1)</sup>
	@ 25 °C	@ 100 °C	Max @ 25°C	max @ 25 °C
	μA	μA	Volts	μS
SCSM05	↑	↑	↑	↑
SCSM1	↑	↑	↑	↑
SCSM2	↑	↑	↑	↑
SCSM4	12.0	400	1.15	2.0
SCSM6	↓	↓	↓	↓
SCSM8	↓	↓	↓	↓
SCSM0	↓	↓	↓	↓

1) Measured on discrete devices prior to assembly.

Operating temperature range    -55 °C to +150 °C  
Storage temperature range        -55 °C to +150 °C

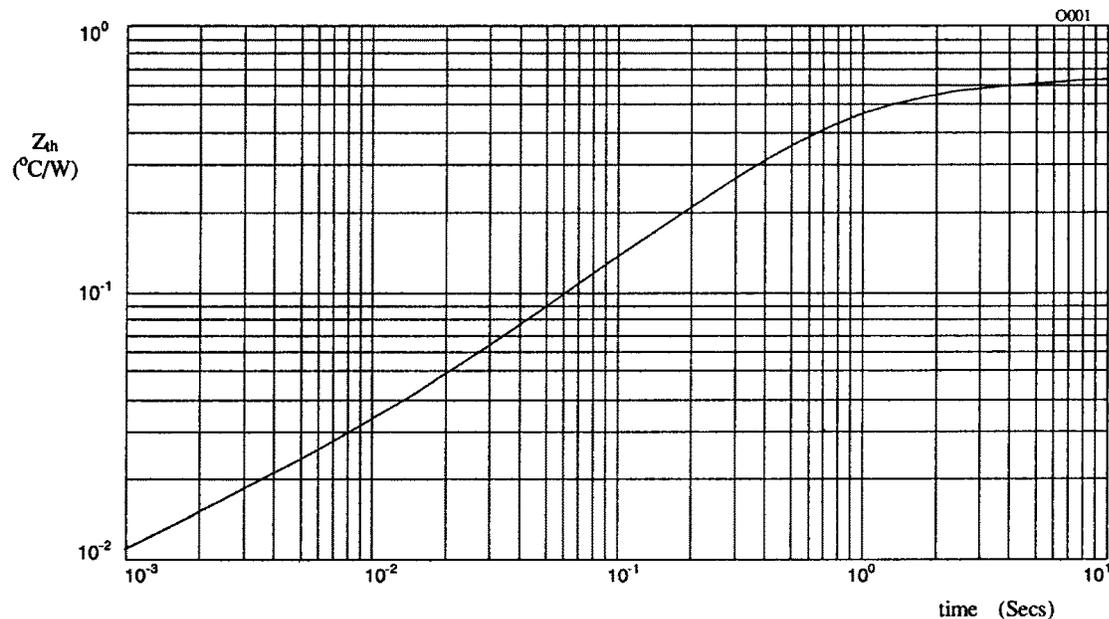


Figure 1. Transient thermal impedance characteristic when stud mounted.

December 22, 1997

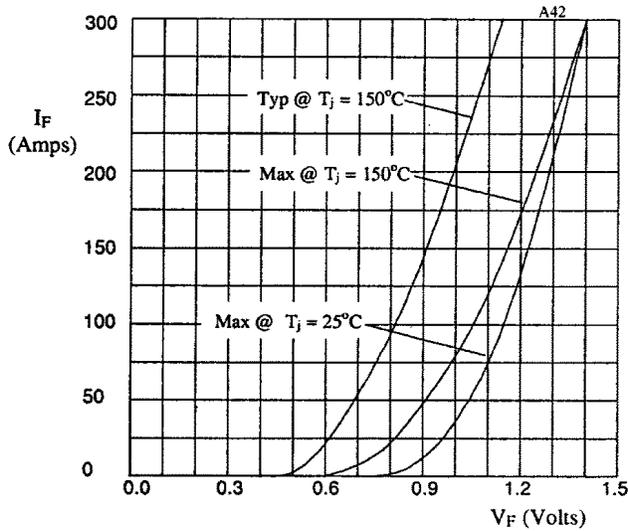


Fig 2. Forward voltage drop as a function of forward current.

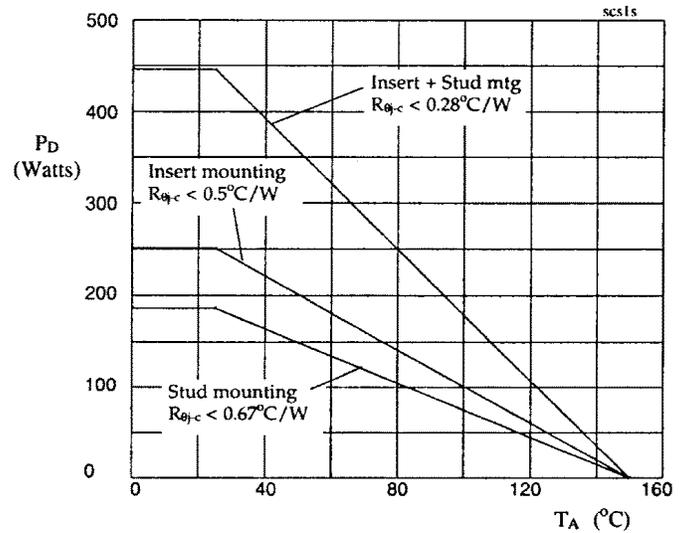


Fig 3. Power dissipation as a function of ambient temperature for different mountings.

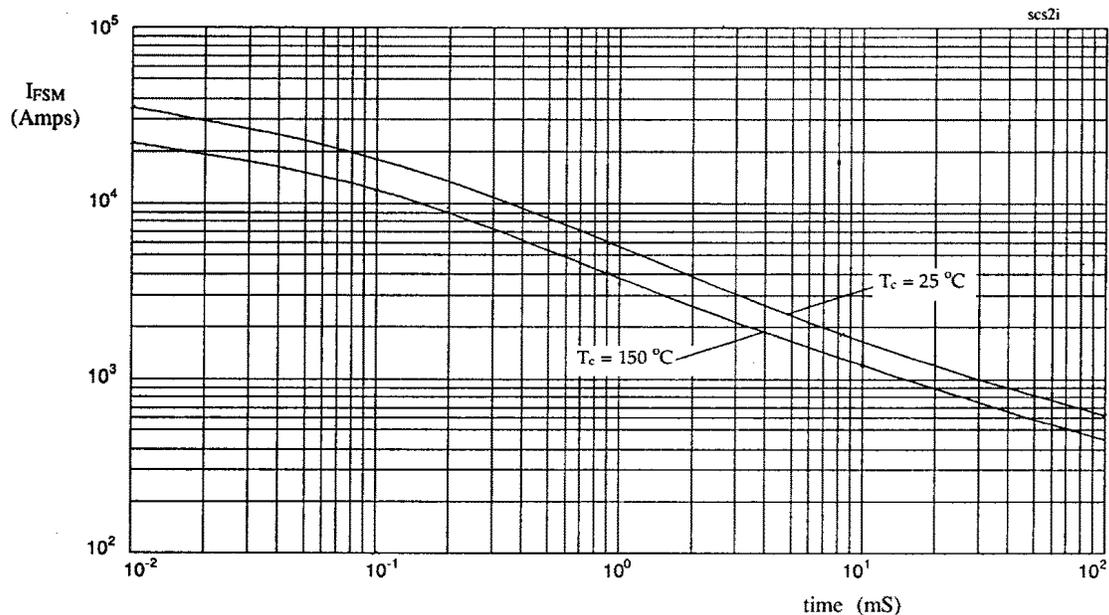


Figure 4. Maximum non-repetitive surge current against pulse width.