

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

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

QUICK REFERENCE
DATA

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

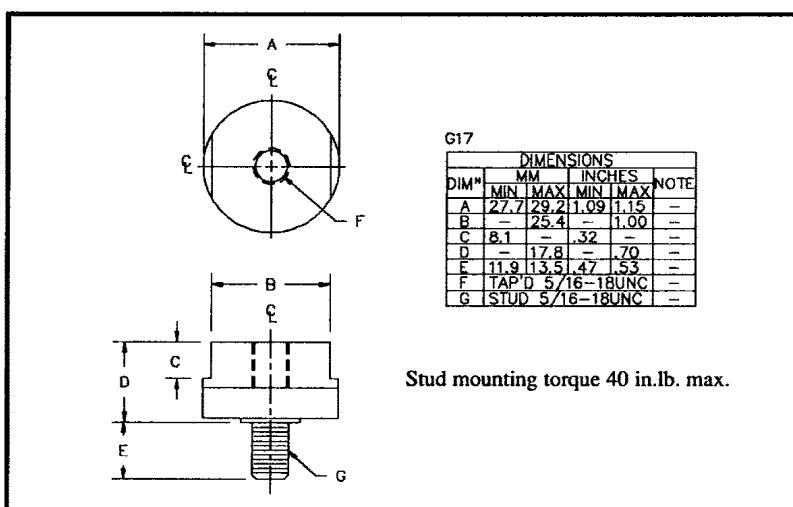
ABSOLUTE MAXIMUM RATINGS

Device Type *	Working Reverse Voltage (V_{RWM})	Average Rectified Current $I_F(AV)$					1 Cycle Surge Current I_{FSM} $t_p = 8.3\text{mS}$		Repetitive Surge Current I_{FRM}
		insert mounting		stud mounting	stud + insert mounting	@ 25 °C	@ 100 °C		
	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 $R_{\theta JC} < 0.67^\circ\text{C/W}$ Insert mounted $R_{\theta JC} < 0.5^\circ\text{C/W}$ Stud + insert mtd $R_{\theta JC} < 0.28^\circ\text{C/W}$

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ELECTRICAL CHARACTERISTICS

Device Type	Maximum Reverse Leakage Current I_R @ V_{RWM}		Forward Voltage V_F @ 100A.	Reverse Recovery Time (t_R) max @ 25 °C
	@ 25 °C	@ 100 °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

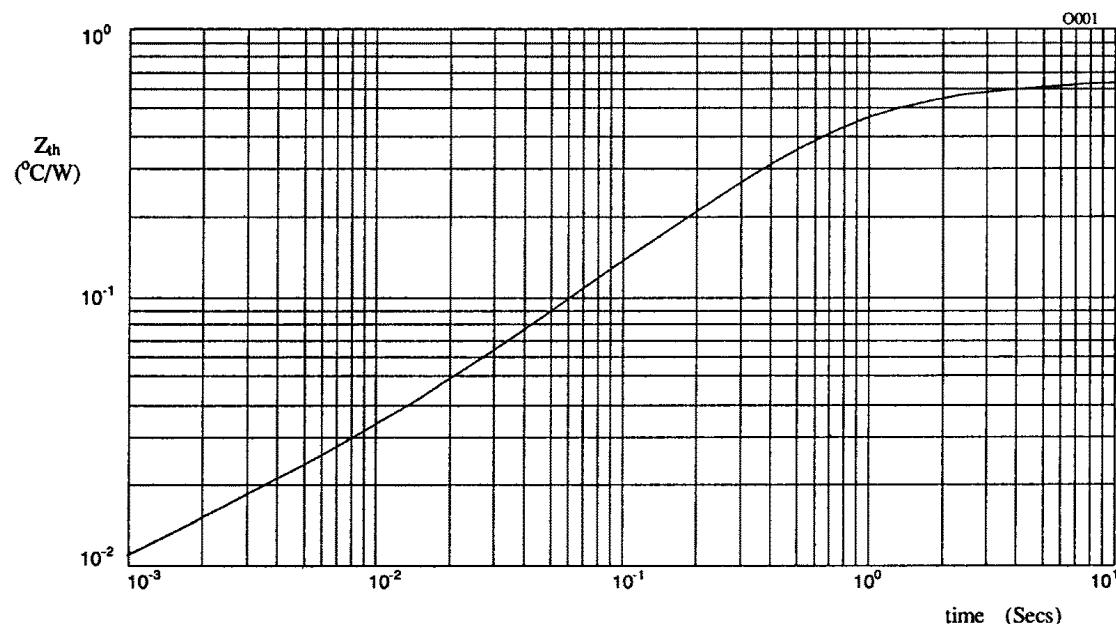


Figure 1. Transient thermal impedance characteristic when stud mounted.

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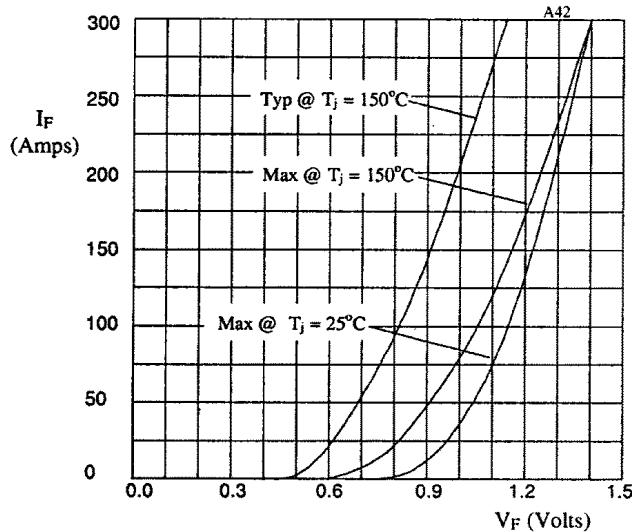


Fig 2. Forward voltage drop as a function of forward current.

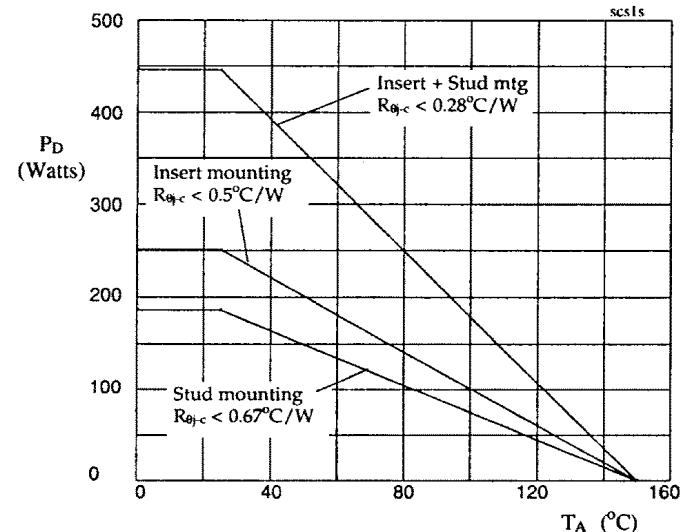


Fig 3. Power dissipation as a function of ambient temperature for different mountings.

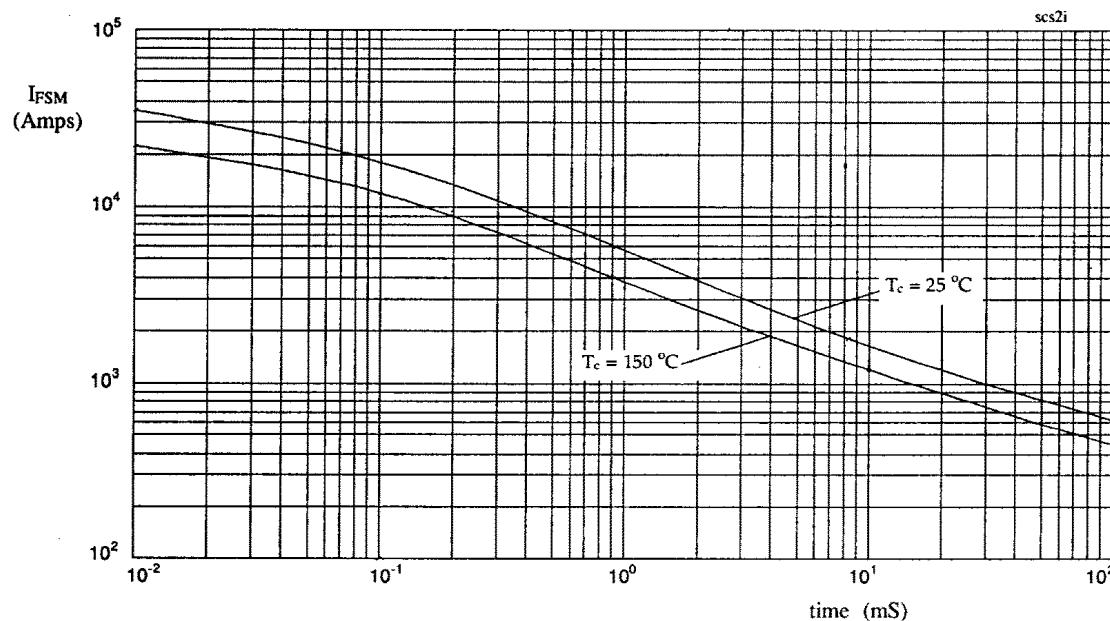


Figure 4. Maximum non-repetitive surge current against pulse width.

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