

# SEMTECH

**SUPERFAST RECOVERY HIGH  
CURRENT RECTIFIER  
ASSEMBLY**

**SCSFF05  
SCSFF10  
SCSFF15**

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

- Very low reverse recovery time
- Low thermal impedance
- Low forward voltage drop
- High forward current applications
- High forward surge ratings

## QUICK REFERENCE DATA

- $V_R = 50V - 150V$
- $I_F = 150A$
- $t_{rr} = 30nS$
- $I_{FSM} = 1800A$

## ABSOLUTE MAXIMUM RATINGS & CHARACTERISTICS

Device Type *	Working Reverse Voltage ( $V_{RWM}$ )	Average Rectified Current $I_F(AV)$					1 Cycle Surge Current $t_p = 8.3mS$ $I_{FSM}$		Repetitive Surge Current $I_{FRM}$
		insert mounting			stud mounting	stud + insert mounting	@ 25°C	@ 100°C	
		@ 25°C	@ 55°C	@ 100°C	@ 55°C	@ 55°C			
Volts	Amps	Amps	Amps	Amps	Amps	Amps	Amps	Amps	
SCSFF05	50	↑	↑	↑	↑	↑	↑	↑	
SCSFF10	100	150	130	85	105	190	1800	930	
SCSFF15	150	↓	↓	↓	↓	↓	↓	↓	

Normal polarity is cathode to stud

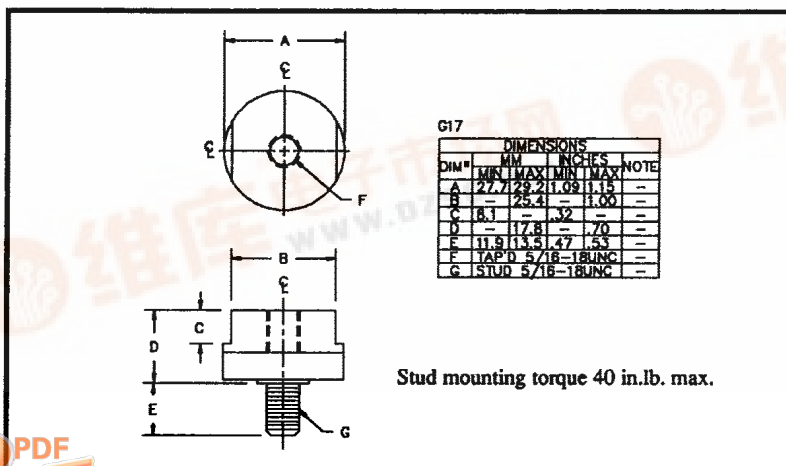
\* add suffix "R" to part number for reverse polarity

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

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

Device Type	Reverse Leakage Current $I_R @ V_{RWM}$		Forward Voltage $V_F @ 100A$	Reverse Recovery Time <sup>(1)</sup>
	@ 25°C	@ 100°C	@ 25°C	@ 25°C
	µA	mA	Volts	nS
SCSFF05	↑	↑	↑	↑
SCSFF10	120	6.0	1.1	30
SCSFF15	↓	↓	↓	↓

## MECHANICAL



1) Measured on discrete devices prior to assembly.

### 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  $R_{\theta JC} < 0.28^\circ C/W$



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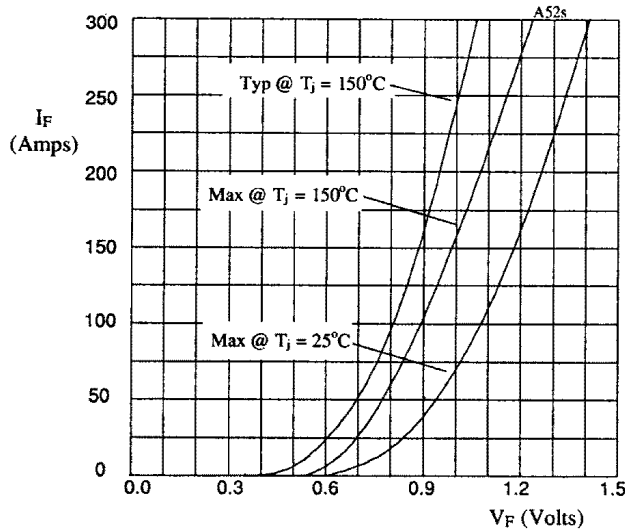


Fig 1. Forward voltage drop as a function of forward current.

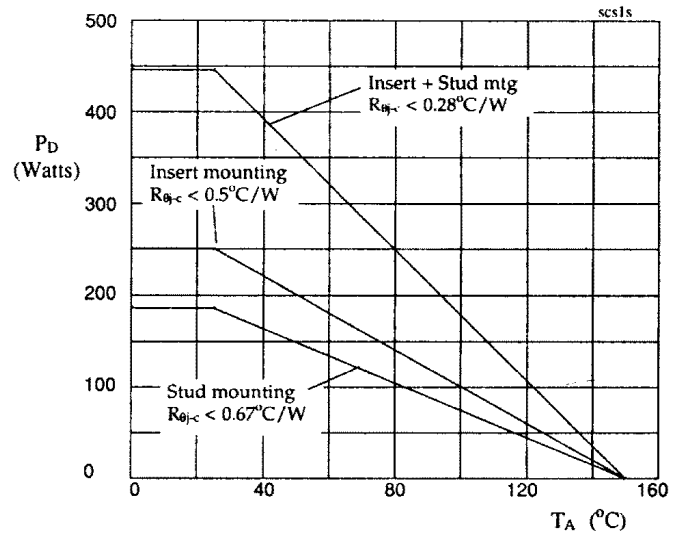


Fig 2. Power dissipation as a function of ambient temperature for different mountings.

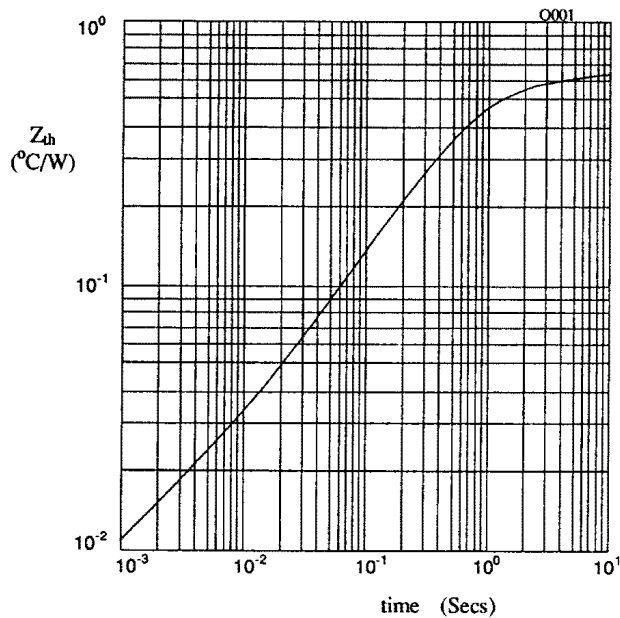


Fig 3. Transient thermal impedance characteristic when stud mounted.

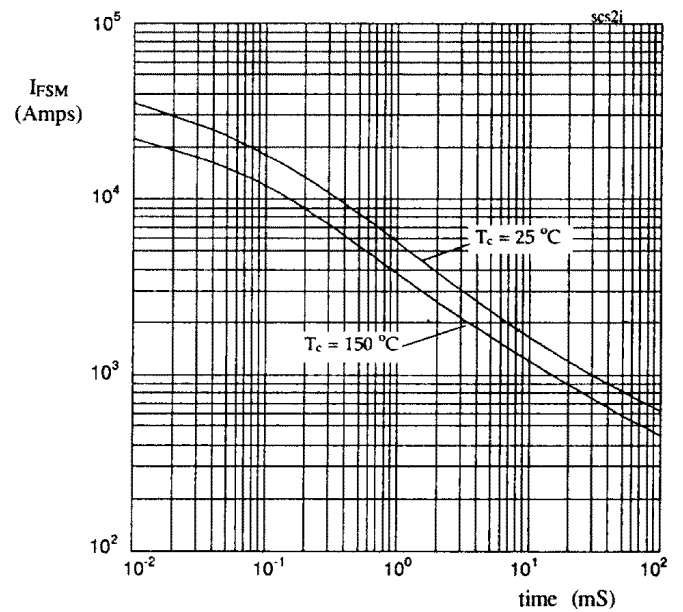


Fig 4. Maximum non-repetitive surge current against pulse width.