

December 22, 1997

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

QUICK REFERENCE DATA

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

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

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	240
SCSFF15	150	↓	↓	↓	↓	↓	↓	↓	↓

Normal polarity is cathode to stud

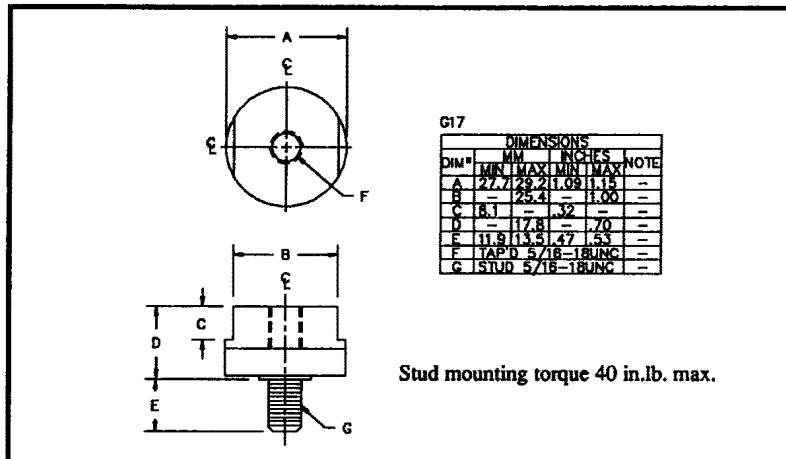
* add suffix "R" to part number for reverse polarity

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 ⁽¹⁾
	@ 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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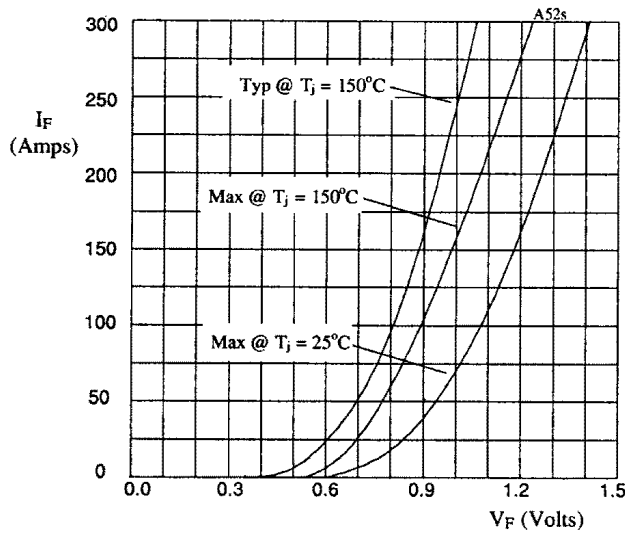


Fig 1. Forward voltage drop as a function of forward current.

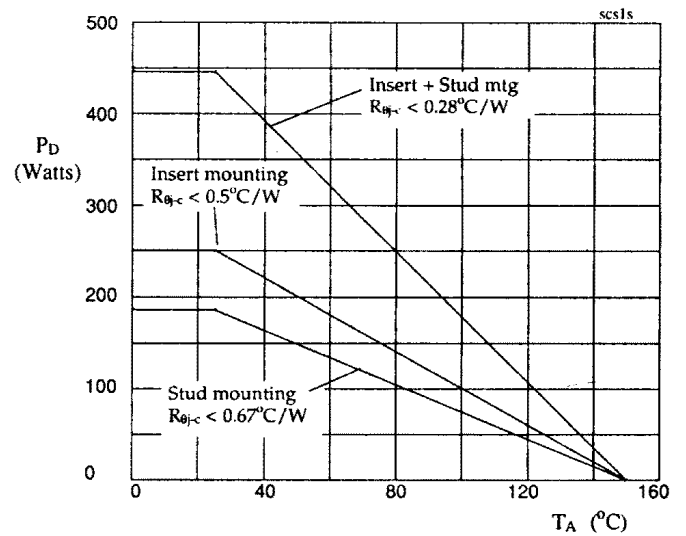


Fig 2. Power dissipation as a function of ambient temperature for different mountings.

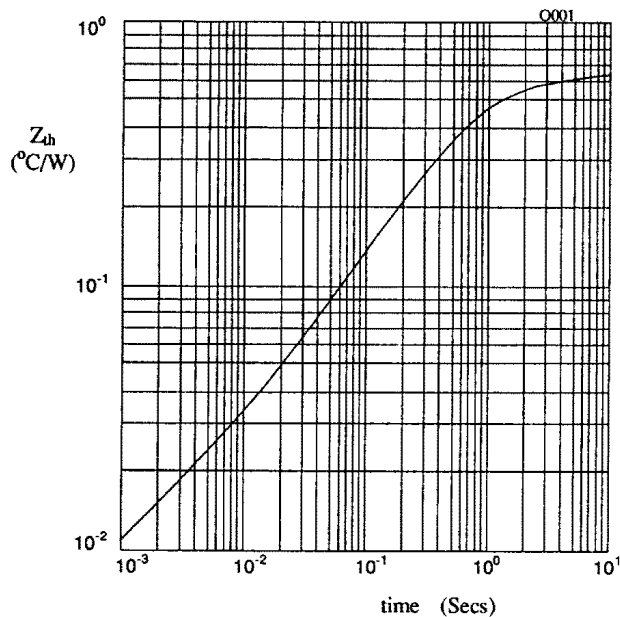


Fig 3. Transient thermal impedance characteristic when stud mounted.

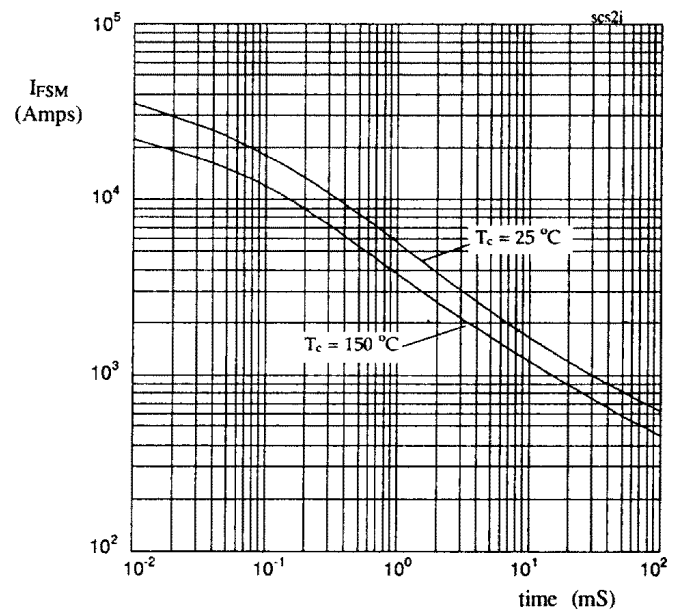


Fig 4. Maximum non-repetitive surge current against pulse width.